THE WAR ON DRUGS:

A PUBLIC BAD*

By

Bruce L. Benson
Chair, Department of Economics
DeVoe Moore and Distinguished Research Professor
Courtesy Professor of Law
Florida State University
Tallahassee, FL 32306-2180
(850) 644-7094
bbenson@fsu.edu

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I. Introduction

The standard economic justification for a government intervention into private affairs requires that these private activities produce externalities: [1] from a neoclassical economics perspective, public policy should intervene only if private-sector actions generate costs or benefits that are imposed on or captured by someone other than the decision maker so they are not taken into account in the decision. [2] When negative externalities (external costs) are significant the market allegedly allocates too many resources to the activity,

1. This so-called "market failure" does not necessarily justify public intervention, however, because government may also fail. Indeed, intervention can make the situation even worse if its actions generate externalities (e.g., as a result of unintended consequences) or if the cost of the government policy exceeds the cost of the market failure it is intended to alleviate. These economic (or efficiency) issues are not the only factors that should or do influence policy decisions, of course.

2. There are economists who adopt a more paternalistic approach to policy. The field of "behavioral economics" questions the assumption of rational behavior that underlies all of traditional economics, for instance. "Rational behavior," as used by mainstream economists, means that individuals respond to incentives and constraints in predictable ways, but in the mathematical models of behavior used by many mainstream economists, this assumption involves an additional assumption of stable time and risk preferences. If these preferences are not stable, then individuals are likely to make decisions at one point in time that they regret later (Glaeser, et al. 1996; Akerlof, 1997; Starmer, 2000; Frederick, et al. 2002). Limited knowledge and imperfect cognitive ability generate similar implications of regret. This leads many behavioral economists to advocate policy that constrains certain individuals' (e.g., young people) ability to make decisions. That is, individuals must be saved from themselves. Interestingly, there is a much older challenge to the mainstream treatment of preferences and rational choice that also predicts regret but that generally reaches very different policy conclusions. This literature, referred to as the "Austrian" school, has evolved from the work of Carl Menger (1883[1963]), and it stresses the impacts of time and ignorance on decision making and behavior (for instance, see Hayek (1937, 1973), Mises (1949), and O'Driscoll and Rizzo (1985). The Austrian approach also stresses that there are significant limits on individuals' abilities to reason and to absorb knowledge (O'Driscoll and Rizzo, 1985, 119-122; Hayek 1937, 33-34). Indeed, citing the passage of time, pervasive ignorance, and inherent uncertainty, Austrians see preferences as continually changing as people undergo the experiences of life (Vaughn 1994, 80-81). Thus, a decision or action that may be rational at the time it is made, given the decision-maker's limited knowledge, can lead to regret as the individual accumulates additional experience and knowledge. This does not imply that individuals necessarily should be protected from making such mistakes, however, because people learn from mistakes. Austrians stress the dynamic nature of competition in a market, rather than the static efficiency conditions of neoclassical economics. Unimpeded human action (including competitive market processes) is desirable, not simply because wealth expands through voluntary trade (or because markets produce an "efficient" allocation of a given set of resources for a given technology if participants have full knowledge, secure private property, and the other assumptions underlying the perfectly competitive model). Voluntary human action is desirable because individuals have incentives to learn from (take advantage of) mistakes and in the process, discover information that will reduce uncertainty and expand individual well being. Furthermore, since utility is subjective, no third party can really know whether individuals who behave differently than they do (e.g., choose to consume drugs in their youth) will actually regret it in the future. Paternalistic policy assumes that the paternalistic policy maker knows what the individuals do not know. As Mises (1949: 692) explains arguments for state actions to solve problems allegedly arising through voluntary human action "ascribe to the state not only the best intentions but also omniscience." He then points out that neither assumption is valid: government is not benevolent since both those who are employed by the state and those who demand state actions have subjective self-interests (see Section IV below in this regard), and it is not all knowing since knowledge is widely dispersed and the cost of coordination is infinitely high, particularly without entrepreneurial incentives, along with market profits and prices as coordinating mechanisms.

while a positive externality (external benefit) implies that too few resources are allocated to the activity. A "public good" implies a situation in which the external benefits of producing the good are very large. As a consequence, the private sector presumably will not produce the good (or at least, significantly under produce the good) because the producer cannot exclude non-payers from consumption of the benefits, creating incentives for consumers to free ride.[3] The so-called "war on drugs" is often justified because drug prohibition and resulting enforcement allegedly generate large positive externalities.[4] The most important of these alleged external benefits is that drug prohibition reduces non-drug (primarily property and violent) crime. In other words, drug prohibition is claimed to be an effective crime-fighting weapon, because drug users allegedly commit property crimes in order to gain the economic means to support their habits, and/or because some psychopharmacological (or economic compulsive) effect of drug-- use leads to increased violence: drug-use causes non-drug crime so drug prohibition reduces such crime.

Section II below briefly addresses the drug-causes-crime claim, suggesting that there are significant reasons to question the assertion. More significantly, Section III offers substantial evidence that drug prohibition and resulting enforcement policies actually cause an increase in property and violent crime. Because criminal justice resources are scarce, for instance, as more of these resources are shifted into drug policy enforcement, fewer resources are available to control non-drug crime. Therefore, non-drug crimes are less effectively deterred, and more non-drug crimes are committed relative to what would have been

3. Technically, the economic definition of a pure public good requires both that non-payers cannot be excluded, and that consumption of the good is non-rivalrous so there are no crowding or congestion results as more and more people consume the good (that is, the benefits of consumption for each individual does not reduce the benefits of consumption for other individuals, no matter how many individuals consume the benefits).

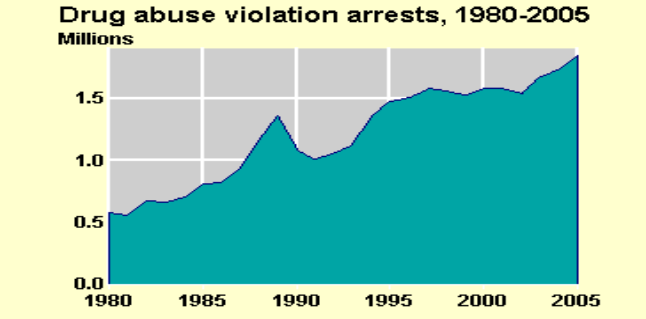
4 . Recall the "behavioral-economics" approach to policy discussed in note 2. In the context of drug policy, some and perhaps many individuals are likely to use drugs and later regret this decision. Therefore, the behavioral-economics perspective might be used to argue that drug policy should discourage consumption even if drug use does not generate any negative externalities. However, this approach provides little insight into how drug policy should be implemented. For instance, as emphasized in Section III below, implementing a drug policy requires the use of scarce resources, so even if criminalization does save some people from their own irrationality, it imposes costs on other people. Furthermore, the tradeoffs within the drug-using population are also large, as criminal drug enforcement may "save" some people by discouraging drug use, but at the same time, those who are not discouraged and then are arrested and prosecuted can be destroyed by this policy. Indeed, given the tremendous costs that the criminal justice system imposes on drug users who are arrested and convicted (and on society as a whole, as noted below), this paternalistic approach would appear to suggest advocating that drug abuse not be discouraged through criminalization. Perhaps treating drugs as a public health issue rather than a criminal issue might be consistent with the approach.

committed if the intensity of drug enforcement had been lower. In other words, when other determinants of crime are considered the correlation between drug enforcement and crime is reversed and it appears that drug enforcement actually causes non-drug crime; drug prohibition creates large negative externalities, implying that too much of the activity (enforcement) is being produced (unless public sector decision-makers take the externalities into account, but see Section IV in this regard)! Indeed, the evidence suggesting that drug enforcement is actually a public bad (or bad public good) is strong and growing. Nonetheless, the drug-war surge continues, so Section IV concludes by offering an alternative non-public-god explanation for prohibition in general, and for this surge.

II. Do Drugs Cause Crime?

The fact that many criminals convicted for property and violent offenses are also drug users is well documented, and this fact has contributed to the claim that drug use is a primary cause of non-drug crime.[5] In addition, a simple comparison of trends in drug arrests and non-drug crime rates certainly makes it appear that there is an inverse relationship between drug control and both property and violent crime rates.6 Figures 2 and 3 illustrates this using estimated total drug arrests in the United States as an indicator of drug enforcement intensity.

Figure I



Source: Bureau of Justice Statistics, Drugs and Crime Facts, http://www.ojp.usdoj.gov/bjs/dcf/enforce.htm

5. See for example, Gropper (1985), Johnson, et al. (1985), and Ball, et al. (1983), as well as Entorf and Winker (2008, 8) for additional citations.

6. Involvement in markets for some types of drugs has been illegal for over a century in the United, and marijuana was added to the federal government's illicit-drug category over seven decades ago. Police efforts to control drug production, sales and consumption have never been as intensive as they are now, however, as the last two plus decades have witnessed an unprecedented expansion in the level of criminal justice resources allocated to drug enforcement efforts. See Section IV for discussion.

Note that drug arrests in Figure 1fall in the early 1980s (and late 1970s),[7] rise in 1982, and fall slightly in 1983. These arrests rise continuously from 1984 to 1989, however, when they reach a level almost two and a half times the total eight years early. This 1989 peak is higher than any year in the history of drug criminalization, but arrests then decline for two years. The 1991 level is still almost twice what it is a decade earlier, however, and arrests begin rising rapidly again in 1992, surpassing the 1989 peak in 1995, and reaching another temporary peak in 1997. After that, drug arrests fluctuate some from year to year through 2002 (another temporary peak is reached in 2001), but rapid increases set in again in 2003 and this latest escalation continues through 2006 (the latest data available). Now compare Figure 1 to Figures 2 and 3 below.

Figure 2

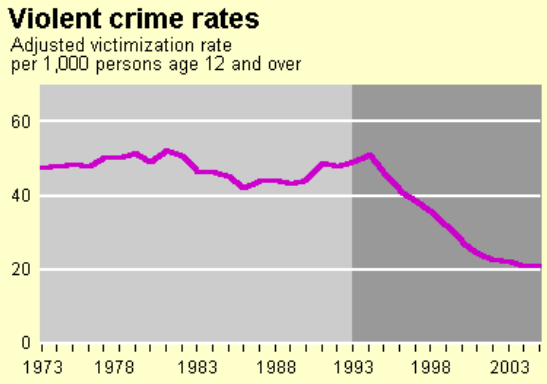
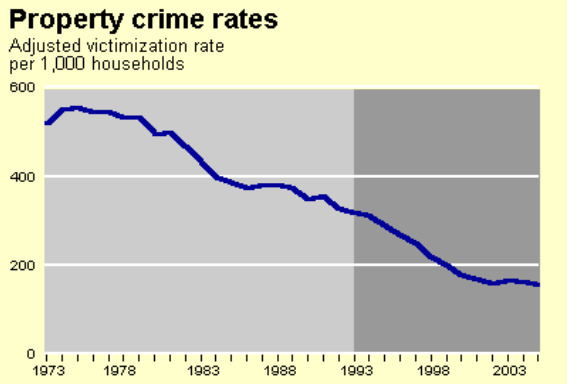


Figure 3



Source: U.S. Department of Justice, Bureau of Justice Statistics, "Key Crime & Justice Facts at a Glance," http://www.ojp.usdoj.gov/bjs/glance.htm

It appears that there is a strong negative correlation between drug enforcement and property crime: as drug enforcement has generally increased through the 1980s, 1990s, and early 2000s, property crime has fallen. There is even a modest increase in property crime rates around the 1991-93 period when drug enforcement decreases. The negative correlation between drug enforcement efforts and violent crime also appears to hold. There is a modest downward trend in violent crime rates during much of the 1980s, rising violence in the early 1990s when drug enforcement declines, and then a sharp reduction after drug enforcement begins rising again.

7. Table 2 below shows estimated drug arrests from 1960 to 2006. Overall, drug arrests displayed a modest upward trend through most of the 1970s, before modest declines at the end of the decade.

Correlation does not imply causation, of course. A correlation may be spurious, for instance, in that something else is causing both trends, or perhaps, the two trends are actually totally unrelated as each is caused by different factors that simply happen to be changing in ways that produce an apparent correlation. Alternatively, factors that are changing over time and actually do cause one trend may be spuriously correlated with the other trend. Therefore, before a hypothesis of a causal relationship can be supported, trends in other factors that might cause crime must be examined. Therefore, in the context of drug policy, the facts that drug use and crime may be positively correlated because a substantial portion of property and violent criminals consume drugs, and that there apparently is a negative correlation between the intensity of drug enforcement and crime rates, do not imply that drug use causes violent and property crime, or that drug enforcement reduces non-drug crime, as drug warriors contend.

A causal relationship also implies a particular temporal sequence. One measurement presumably changes, and this causes a subsequent change in the other measure. In this context, studies of the temporal sequencing of drug abuse and crime suggest that criminal activities often precede drug use. For example, a Bureau of Justice Statistics survey of prison inmates found that approximately half of the inmates who had ever used a major drug, and roughly three-fifths of those who used a major drug regularly, did not do so until after their first arrest for some non-drug crime; that is, "after their criminal career had begun" (Innes 1988, 1-2). Similarly, a large scale survey of jail inmates found that more than half who reported regular drug use said that their first arrest for a crime occurred an average of two years before their first use of drugs (Harlow 1991, 7). Once an individual has decided to turn to crime as a source of income, he or she may discover that drugs are more easily obtained within the criminal subculture and perhaps that the risks posed by the criminal justice system are not as great as initially anticipated. Thus, crime can lead to drug use. Indeed, Chen, et al. (1965, 64-65) conclude that delinquency is not caused by drug abuse, but rather, "the varieties of delinquency tend to change to those most functional for drug use; the total amount of delinquency is independent of drug use." Of course, if the individual later becomes addicted, his or her preferences may change, and at that point, the "drugs-cause-crime" relationship might come into play. In this context, however, Rasmussen and Benson (1994, 60-62) examine the arrest history of persons having at least one

misdemeanor or felony drug arrest in Florida during 1987, and find only a modest potential relationship between drugs and other crime.

Consider 1987 drug-possession arrestees first, and their history of violent crime. The 45,906 persons arrested at least once for drug possession have a history of 19,436 violent crime arrests, an average of 0.42 violent crimes per arrestee. The average is very misleading, however, as 76 % of those 45,906 arrestees have no prior arrest for a violent crime. Furthermore, a relatively small portion of the remaining 24 % actually had a very high share of the violent crime arrests: 2.3 % of those with possession arrests (the portion that was two standard deviations from the mean) account for 34.4 % of all of the violent-crime arrests. There are 1,066 individuals in this 2.3 % and they average 6.27 violent-crime arrests in their past.

The proportions of possession arrestees with no non-violent (e.g., property crimes, drug possession, drug sales) felony arrest history, beyond the felony drug arrest that put them in the sample, are also substantial. In this case it must be emphasized that many of the non-violent felony arrests are for drug offenses. The 45,906 persons arrested for possession, for example, have a history of 84,588 previous non-violent felony arrests, but roughly 75,500 of these arrests are misdemeanor or felony arrests for possession. The portion of possession arrestees with prior property crime arrests is about 29.1 %. This percentage is amazingly similar to other evidence of the arrested drug users who commit property crime. For instance, consider the 1989 Bureau of Justice Statistics survey of 395,554 jail inmates from 3,312 city and county jails (Harlow 1991, 6). 24.7 % of the prisoners who consumed drugs sometime in the last month, and 29.4 % of those who consumed drugs on a daily basis over the previous month report that at least part of their income comes from illegal activities. It also should be noted that a substantial portion of these individuals may earn income from illegal activities other than property crime (e.g., drug supply activities, prostitution).

Rasmussen and Benson (1994) also report that the percentage of drug-possession arrestees with a prior property crime arrest varies by crime type. For instance, approximately 19.6 % have at least one prior burglary arrest, about 10.1 % have at least one larceny arrest, about 7.7 % have been arrested for auto theft, and 1.8 % have a stolen property possession arrest. And again, a small portion of these possession arrestees

accounted for a very large portion of the property crime: 34.1 % of the prior property arrests are concentrated in 2.3 % of this population.

Successful property crime certainly generates income that can buy drugs, of course, just as it does for all other goods that the thief did not considered to be affordable before the criminal activity (Air-Jordons, flat screen TVs, MP3 players, cars, etc.). Therefore, it certainly makes sense to hypothesize that poverty leads to crime, as people turn to theft so they can obtain things they want, including drugs, but the assumption that drug-use itself is a major motivation for property crime does not appear to hold. Indeed, the implication is that a very substantial portion of the drug using population does not regularly engage in any sort of non-drug crime (unless huge numbers are never caught), and that among the small portion that do so, an even smaller portion actively (repeatedly) engages in non-drug crime.

Persons engaged in the supply side of drug markets apparently are more inclined to property crime than persons arrested for possession: only 61.9 % of the 1987 arrestees for drug supply activities have no previous arrest for a property crime. Furthermore, property-crime arrests are less concentrated for suppliers than they are for users (the 2.3 % concentration index for different categories of supply-side arrestees are: sale, 18 %; smuggling, 19.0 %, production, 23.7 %; trafficking, 22 5; delivery and distribution, 20.4 %; and possession of drug equipment, 18.8 %). This may be surprising, given popular and political perceptions that drug consumers commit a large number of property crimes to finance their drug use. Instead, a relatively large portion of the people willing to engage in drug-supply activities in order to obtain income apparently are also relatively likely to engage in property crime to obtain income. Clearly, drug-use does not appear to explain this relationship. Instead, economic motivations (e.g., poverty) appear to lead to both drug sales and property crime.

Among the six supply side categories, the portion of the arrestees with no history of arrest for violent crime varies from 65.5 % for sale to 86.5 % for production. The concentrations indices for violent crimes among drug suppliers are all substantially higher than they are for property crime, as 2.3 % of the arrestees account for between 26.2 % (sales) to 41.9 % (production) of the prior violent crime arrests.

Nonetheless, among the drug supplying population, a substantial majority apparently do not actively engage in non-drug crime, even though they are more crime-prone than drug consumers.

Figure 4

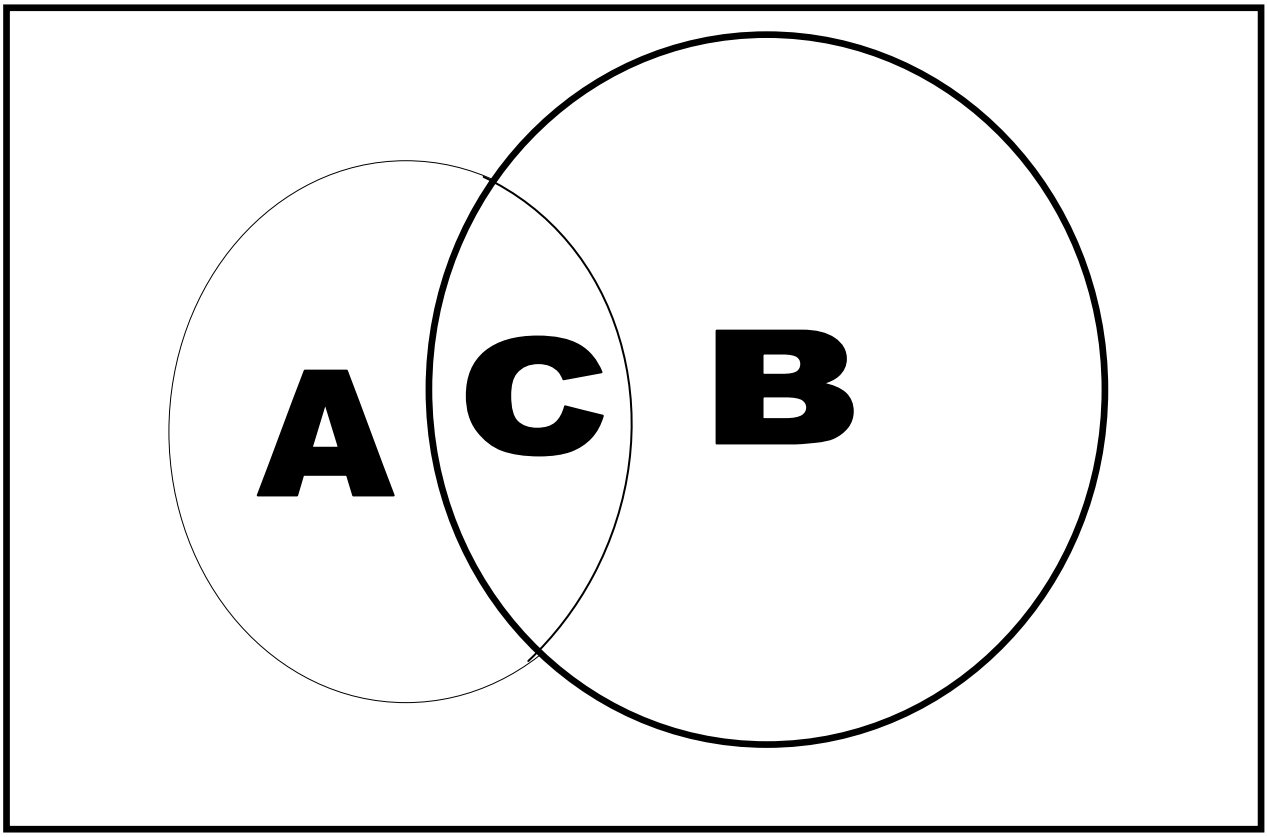


Figure 4 can be used to illustrate Rasmussen and Benson (1994, 62) conclusion. They suggest that the drug-crime relationship is best understood by considering two sets of people, one consisting of drug-market participants, and one consisting of non-drug criminals. The two sets overlap, but the relative size of the overlap suggests that no causality relationship between the two is evident. The three areas in the diagram represent criminals who do not engage in drug market activities (area A), drug-market participants who do not commit non-drug crimes (area B), and criminals who engage in both drug market activities and non-drug crimes (area C). Thus, areas A + C include all individuals who commit non-drug (e.g., property, violent) crimes and areas B + C include all individuals who engage in drug market activities. The actual or relative size of these various areas is not known, of course, although rough estimates of relative size can be made based upon available information, including some discussed above. The areas vary according to the

non-drug crime being considered (e.g., violent crimes, property crimes, or some subset of either type of crime such as burglary, larceny, auto theft, homicide, sexual offenses, assault, or robbery), and the nature of the drug market activity (e.g., hard drugs or marijuana, possession or consumption, the nature of the supply-side activity - sales, production, smuggling, and so on). For instance, the arrest data considered by Rasmussen and Benson and discussed above indicates that about 24 % of drug consumers also commit violent crimes. That is, area B is about three times the size of area C for violent crimes and drug consumers. Similarly, about 29.1 % of drug consumers commit property crime so area B is about 2.4 times area C in this case.

Rough comparison of the size of areas A and C requires estimates of the portion of non-drug criminals who are drug users. For instance, the 1989 Bureau of Justice Statistics survey of jail inmates mentioned above finds that 24.9 % of the violent offenders admitted to being under the influence of an illicit drug at the time of the offense, as do 31 of the property offenders (Harlow, 1991:10). These figures suggest that area A is about three times the size of area C for property crimes and about 2.2 times larger for violent crime. Of course, individuals who are not under the influence at the time of an offense may still be drug users, so these ratios are probably lower bound estimates of the relative size of areas A and C. Recall, for instance, that this survey also finds that 29.4 % of those who consumed drugs on a daily basis over the previous month (i.e., individuals who are relatively likely to have been under the influence at the time of their arrest) report that at least part of their income comes from illegal activities, while 24.7 % who consumed sometime in the last month but not daily (users who may be relatively less likely than daily users to have been under the influence at the time of the arrest) also report income from illegal activities. This implies a potential upper bound estimate of about 54.1 % (adding the two percentages) for income-generating crime, although much of this crime is not likely to be property crime, as activities like drug supply activities (production, sales, smuggling, etc.) and prostitution also generate income for drug users.

Clearly, the upper bound for property crime is likely to be substantially lower than 50 %, so A is virtually certain to be larger than C.[8]

A statistical study of recidivism by drug offenders (Kim, et al. 1993) reinforces the implications of the Rasmussen-Benson (1994) examination of arrest history data. Using data provided by the Florida Department of Corrections, they create a large sample of individuals incarcerated in Florida prisons between 1983 and April 2, 1990 for drug offenses. A subset of 4,398 observations from this sample released before May 29, 1989 is extracted from the larger sample. About 50.7 % of the sample returns to Department-of-Corrections control after an initial release, and many are released more than once (see Subsection III.3 for an explanation of the frequent releases during this period), so the actual number of releases in the sample is 7,161. Kim, et al. (1993) use this sample in a duration model, controlling for a number of other socio-economic and law enforcement factors that might influence the probability of recidivating. The data includes information about the crimes that leads to readmission to prison so analysis also considers the crime for which an initial drug offender is readmitted. They use three dummy variables to identify three types of drug offense convictions: possession, sale of drugs, and other drug offenses. Recidivism rates for these three types of convictions are statistically compared to the other category of convictions: the convicted offenders whose most recent primary offense was a non-drug crime. The results suggest that persons convicted for drug possession are less likely to recidivate than those convicted of drug sales, and both groups are significantly less likely to recidivate than are persons convicted of other drug crimes (trafficking, smuggling, production, delivery and distribution), and non-drug crimes in the sample: "These results suggest that drug offenders who have no record of non-drug criminal activity are different from the

8. The crude estimates suggested above may be surprising given the typical figures often reported to justify a drug war. For instance, during 1988, 72.2 % of male arrestees in twenty U.S. cities test positive in a urinalysis for the use of an illicit drug (National Institute of Justice, 1990). Similarly, a Bureau of Justice survey of 12,000 inmates indicates that over 75 % use drugs, 56 % use drugs in the month prior to their incarceration, and one-third admit to being under the influence of drugs at the time of their offense (Wexler, Galkin, and Lipton, 1989). The survey of jail inmates mentioned above also found that 77.7 percent of the inmates admit using some illicit drug (Harlow, 1991:4). However, the crime for which 23 % of this jail-inmate population is charged is a drug offense, and these offenders probably accounts for a large portion of those under the influence when charged. This same point applies to all the other data on drug use by populations of arrestees and inmates: inferences that drugs cause non-drug crime based on these reports of the portion of these populations that are drug users are misleading since a substantial portion are arrested or convicted for drug use, certainly a crime, but not the property and violent crimes that drug warriors imply are the justification for drug prohibition.

population of drug offenders who have also committed crimes against persons and property…. There are drug offenders who commit other crimes, but they can be statistically distinguished from the majority of drug offenders whose criminal activities appear to be restricted to participation in the drug market" (Kim, et al. 1993, 179-180), as suggested by Figure 4.

A good deal of additional evidence exists, suggesting that the drugs-cause-crime hypothesis should be rejected, or at best (from the drug war advocates' perspective), that some kind of weak relationship might exist for a relatively small portion of drug market participants (Rasmussen and Benson 1994). Chaiken and Chaiken (1990, 10) review a substantial portion of the relevant research, for instance, and conclude that "There appears to be no general relation between high rates of drug use and high rates of crime."

III. Tradeoffs in Law Enforcement: Increasing Drug Control Leads to More Non-Drug Crime

If the drugs-cause-crime hypothesis does not hold, then the drug-prohibition-reduces-crime hypothesis cannot hold. This does not mean that there is no relationship between drug prohibition and non-drug crime, however. For instance, prohibition forces drug transactions into black markets, and black markets are inherently violent, as explained below. In addition, criminal justice resources are scarce. When these resources are reallocated in order to focus more on drug-prohibition enforcement, deterrence of at least some other crimes may be reduced, leading to increases in those crimes.

Apparently, the first suggestion of this potential tradeoff between drug enforcement and the control of other crimes appeared in Benson and Rasmussen (1991). They present an empirical model of the probability of arrest for property crimes (proxied by the clearance rate) that includes controls for the relative drug enforcement effort along with other relevant determinants. The results suggest that as drug enforcement increases, the probability of arrest for property crime decreases. Therefore, if expected punishment (probability of arrest and punishment times expected sentence) serves as a deterrent, property crime should increase. Since this initial suggestion, the hypothesized tradeoff between drug control and non-drug crime has been examined in a substantial number of empirical studies using different data sets, different data periods, and different empirical techniques.

The drug-prohibition-causes-crime literature is discussed in three subsections, beginning with test of the tradeoff hypothesis as it applies to scarce police resources. After that, the issue of drug prohibition and systemic black-market violence is considered. Finally, the impact of allocating scarce prison resources to the punishment of drug criminals is explored.

III.1. Reallocating Police Resources to Drug Enforcement Increases Crime. The first study of the determinants of property crime that directly tests the tradeoff hypothesis is Benson, et al. (1992). This study employs 1986 and 1987 data from Florida's 67 Counties. The property crime rate in a county is hypothesized to be a function of the expected punishment for property crime (probability of arrest and conviction), the expected income from property crime, the opportunity costs of alternative legal activities, the size of the local drug market, and other socio-economic factors characterizing the county. In addition, the probability of arrest for property crime in the county is hypothesized to be a function of the number of police, crime rates, drug enforcement efforts by police, and other community characteristics in the county. Finally, the number of police officers (i.e., the county demand for police services) is expected to be a function of county crime rates for both property and non-property offenses, drug market size, county wealth, and other relevant community characteristics. Simultaneous estimation procedures are used to test this three-equation model. If the tradeoff hypothesis holds, property crime should be negatively related to the probability of arrest for property crime, and this probability of arrest should be negatively related to drug enforcement effort, controlling for other relevant factors. These two negative relationships in turn imply that as drug enforcement increases, the probability of arrest for property crime falls, so the level of property crime rises. On-the-other-hand, if the drugs-cause-crime hypothesis holds, property crime should be positively related to the size of the drug market (however, as noted below, another hypothesis also can explain such a relationship, so it cannot be concluded with any degree of certainty that one of the two hypotheses dominates). Both hypotheses may hold, of course.

Naturally, various proxies are employed for several of the variables. The two of most interest here are the proxies for drug enforcement efforts by police, and the size of the local drug market. Since the total number of police is a control variable, drug arrests divided by total arrests is used to control for drug

enforcement effort by those police. The proxy for the size of the drug market is determined using recidivism data in a "catch-and-release" model similar to the methods used to estimate wildlife populations.[9] Coefficient estimates in Benson, et al. (1992, 687) imply that a 1 % increase in drug enforcement's share of total enforcement results in a .199 % reduction in the probability of arrest for property crime, and a 1 % reduction in the probability of property crime arrest in turn causes a .826 % increase in property crime. Together, these coefficient estimates suggest that a 1 % increase in drug enforcement relative to total enforcement increases property crime by .164 %.[10]

Drug market size has two impacts on the level of property crimes in Benson, et al. (1992). First, the direct effect implies that a 1 % increase drug market size results in a .183 percent increase in property crime. In addition to the direct effect, an increase in drug market size apparently leads to an increase in the number of police officers in the jurisdiction, and an increase in the size of the police force increases the probability of arrest for property crimes. These estimates, combined with the estimated impact of the probability of arrest for property crime, imply that a 1 % increase in the size of the drug market reduces the level of property crime by .049. Therefore the estimated total impact is that a 1 % increase in drug market size increases property crime by .134 %. These estimates appear to support the drug-cause-crime hypothesis, but as noted above, there also is an alternative hypothesis that can explain the relationship. Benson, et al. (1992, 689) note that this result is consistent with the Florida data cited above which implies that somewhere

9. The wildlife management literature estimates wildlife populations by tagging and releasing a sample of the population in one time period and then capturing a second sample in the next time period (Scheaffer, et al 1979). The portion of the second sample which was tagged in the previous period is assumed to provide an estimate of the probability of capture for any individual, so an estimate of the total population is obtained by dividing the number captured in the second period by the fraction that was previously tagged. Benson, et al. (1992, 685) analogously estimated the population of drug market participants by observing the number of drug offense convictions from a jurisdiction in a period and the portion of those convictions that are recidivists from a previous period. While this is a very crude estimate it is assumed to provide a reasonable method of estimating at least the size of that segment of the drug population that local citizens are aware of and the criminal justice system tends to focus on.

10. The tradeoff hypothesis is further supported by findings of a significant negative relationship between non-property crime offenses and the probability of arrest for property crime, suggesting that as more resources are allocated to control of non-property crimes this also causes property crime to increase. A 1 % increase in the crime rate for non-property offenses reduces the probability of arrest for property crime by .693 percent so combining that with the relationship between the probability of arrest and property crime suggests that a 1 % increase in non-drug crime leads to an increase in property crime by .138 %. Levitt (1998) also finds that an increase in the portion of arrests for one type of Index I crime (property and violent crimes reported to police: murder and manslaughter, rape and other sexual crimes, assault, robbery, burglary, larceny/theft, automobile theft, and arson) is associated with an increase in other index I crime rates.

between 15 and 25 % of the persons arrested for drug offenses in 1987 had a history of property arrests: "That is, this parameter estimate supports the hypothesis that there are two distinct groups of drug users: those who commit other crimes and those who do not." The estimates cannot distinguish between these two hypotheses (indeed, both may be relevant).

Sollars, et al. (1994) replicate Benson, et al. (1992) with a cross-section study using 1987 data from 296 local policing jurisdictions in Florida. They do not employ a measure of drug market size, as the recidivism data used in Kim, et al. (1993) provides the county from which convicted criminals are in when convicted, but not the local jurisdiction within the county. The coefficient estimates in Sollars, et al. (1994, 37) imply that a 1 % increase in drug enforcement's share of total enforcement within a jurisdiction results in a .137 % reduction in the probability of arrest for property crime, and a 1 % reduction in the probability of property crime arrest in turn causes a .759 % increase in property crime. Together, these coefficient estimates suggest that a 1 % increase in drug enforcement relative to total enforcement increases property crime by .104 percent.[11] Note that the estimated impacts of drug enforcement on property crime are very similar in the Benson, et al (1992) and the Sollars, et al (1994) studies, even though Sollars, et al. do not have a measure for drug market size. Since both studies use Florida data for similar time periods, simply aggregated for different political entities (counties in Benson et al. and policing jurisdictions in Sollars, et al.), comparison of the coefficients in the two studies may be appropriate. Doing so implies that the lack of control for drug market size biases the tradeoff implication downward: a 1 % increase in drug enforcement relative to total enforcement is estimated to increase property crime by .164 % in Benson, et al. (1992), but by .104 percent in Sollars, et al. (1994). If this implication is valid, it has implications for several other studies discussed below, as most of them do not have independent controls for drug market size.

11.The tradeoff hypothesis is, once again (see note 10) supported by a findings of a significant negative relationship between non-property crime offenses and the probability of arrest for property crime, suggesting that as more resources are allocated to control of non-property crimes also causes property crime to increase. A 1 % increase in the crime rate for non-property offenses reduces the probability of arrest for property crime by .140 percent so combining that with the relationship between the probability of arrest and property crime suggests that a 1 % increase in non-drug crime leads to a reallocation of police resources and a 1.6 % increase in property crime.

Mendes (2000) expands upon and replicates Sollars, et al. (1994) using 1996 data from 274 municipalities in Portugal. Her estimates imply that a 1 % increase in drug enforcement reduces the probability of arrest for property crime by .107 % and a 1% increase in the lagged probability of arrest reduces property crime rate by an estimated .144 %, so once again, the combined effect implies that increased drug enforcement causes an increase in the property crime rate, and the predicted effect is comparable to (in between) those in Benson, et al. (1992) and Sollars, et al. (1994). This is a particularly valuable contribution to the literature as it employs data that is not from the U.S..

Another important development in this literature involved the recognition that the cross section studies reported in Benson, et al. (1992), Sollars, et al. (1994) and Mendes (2000) probably suffer from missing variable bias. One way to alleviate such bias is to use a cross-section time-series pool of data and control for fixed effects by either using a change-form model (explaining the change in crime rates with changes in the relevant variables) or by using jurisdiction and time dummies to control for fixed effects. Benson, et al. (1998) report the results of such a panel study using change-form models. They consider the impact of changes in drug control enforcement on changes in the total Index I crime rate in Florida Counties (note that property crimes dominate the Index I crime rate, so the results do not necessarily demonstrate an impact of drug enforcement on all reported crimes) over the five year period from 1983 through 1987, controlling for other socio-economic and criminal justice factors that should influence crime. The results once again support the tradeoff hypothesis. The coefficient estimates suggest that the resources needed to make one more drug arrests a year result in about 0.7 more Index I crimes per year (Benson, et al. 1998, 96).

Caulkins, et al. (2000) criticize the tradeoff hypothesis regarding drug control and property crime, noting that police perform many functions so they do not necessarily have to sacrifice control of property crimes or other Index I crimes to increase drug enforcement. This is clearly true.[12] The exact nature of the tradeoff arising from the allocation of scarce police resources to drug control requires empirical analysis,

12. Actually, Benson and Rasmussen (1992) make this point when they observe that as police in Illinois increase drug enforcement during the 1984-89 period, there is a dramatic reduction in traffic control in the state and a sharp increase in traffic fatalities. They do not perform statistical analysis of the tradeoff hypothesis, either for property crime or traffic enforcement, however, so this observation is only suggestive.

and the empirical studies cited above support the hypothesis that police in Florida and Portugal sacrifice control of property crime. Caulkins, et al. (2000) also note that state or local legislatures could choose to raise taxes or sacrifice other unrelated programs in order to increase police funding and maintain efforts against property crime. Rasmussen and Benson (1994) address this point, however, noting that in theory, the increase in drug enforcement that has occurred could be achieved by either increasing police resources or reallocating existing police resources, but that political reality (i.e., politicians also face tradeoffs and must make choices) suggests that both some increase in police resources and some reallocation has occurred. In this regard, Table 1 provides data on state and local police employment.

Table 1
State and Local Sworn Police Full-Time Equivalent Employment, 1980-2003

Payroll Period	Total One-Month State & Local Sworn Police Employees	State	Local		
			Total	County	Municipal
1980	461,810	50,672	411,138	94,533	316,605
1981	464,141	51,177	412,964	96,326	316,638
1982	470,909	49,865	421,044	97,829	323,215
1983	472,459	50,965	421,494	98,695	322,799
1984	475,124	51,155	423,969	99,045	324,924
1985	481,146	51,761	429,385	100,916	328,469
1986	491,276	52,754	438,522	104,643	333,879
1987	501,440	53,542	447,898	107,811	340,087
1988	509,619	54,978	454,641	111,306	343,335
1989	513,242	56,084	457,158	113,479	343,679
1990	525,075	56,729	468,346	116,836	351,510
1991	531,706	56,294	475,412	119,383	356,029
1992	538,510	55,104	483,406	123,851	359,555
1993	546,047	54,283	491,764	127,234	364,530
1994	560,509	56,981	507,783	138,817	373,221
1995	584,925	54,704	530,221	139,078	391,143
1997	602,718	56,023	546,695	142,330	404,365
1998	616,377	55,224	561,153	145,472	415,681
1999	638,066	58,917	578,909	153,075	425,834
2000	651,618	61,282	590,336	154,951	435,385
2002	661,137	63,391	597,746	157,812	439,934
2003	665,826	62,934	602,892	160,374	442,518

Source: Sourcebook of Criminal Justice Statistics Online, Table 1.25.2003, http://www.albany.edu/sourcebook/pdf/t1252003.pdf

There clearly is an increase in state and local police employment over the period examined by the studies cited above (and those discussed below). However, total state and local police employment

increases by about 44.2 % between 1980 and 2003. Compare this to the increase in total drug arrests in Table 2.

Table 2
Estimated drug arrests in the United States, 1980-2006

Year	Estimated Total Drug Arrests	Estimated Drug Arrests as a % of Estimated Total Arrests
1980	580,900	5.56%
1981	559,900	5.17%
1982	676,000	5.47%
1983	661,400	5.67%
1984	708,400	6.13%
1985	811,400	6.79%
1986	824,100	6.60%
1987	937,400	7.37%
1988	1,155,200	8.36%
1989	1,361,700	9.56%
1990	1,089,500	7.60%
1991	1,010,000	7.11%
1992	1,066,400	7.57%
1993	1,126,300	8.02%
1994	1,351,400	9.23%
1995	1,476,100	9.76%
1996	1,506,200	9.93%
1997	1,583,600	10.36%
1998	1,559,100	10.73%
1999	1,532,200	10.67%
2000	1,579,600	11.30%
2001	1,586,900	11.56 %
2002	1,538,800	11.20%
2003	1,678,200	12.30%
2004	1,745,712	12.52%
2100	1,846,400	13.10%
2006	1,889,810	13.14%

Source: FBI, Uniform Crime Reports, Crime in the United States, annual

Drug arrests increase over four times as fast, by approximately 189 %, over the same period. While this does not prove that police resources are not increased by enough to retain the same level of property crime enforcement while simultaneously increasing drug arrests (i.e., perhaps an increase of 44.2% in police

employment is sufficient to increase drug arrests by 189% without any reallocation of other resources[13]), it certainly suggests that it this may be the case. This suggestion is reinforced by the fact that drug arrests relative to total arrests also increase, in this case by 136 %, indicating that the relative policing effort shifts in the direction of greater drug control by a larger percentage than police resources increase. And this suggestion is supported by the empirical studies discussed above and below.

Caulkins, et al. (2000) also suggest that the research using Florida data from the 1980s may not generalize, and they present aggregate national data on crime rates, as in Figures 2 and 3, and drug enforcement, as in Figure 1 and Table 2, which does not reveal a tradeoff, as noted above. As Explained above, however, causation cannot be inferred from correlation. Furthermore, this criticism clearly is addressed by Mendes (2000), as she employs data from Portugal. Benson, et al. (2001) also consider the Caulkins, et al. (2000) point about generalization, in part because both crime rates and drug enforcement rise in Florida during the 1984-89 period, unlike the nation as a whole, while drug enforcement falls and then rises again in the 1990s, and crime rates fall during much of the 1990s. Therefore, they revisit the empirical relationship between drug enforcement and Index I crimes using data from the 1994-97 period from 67 Florida Counties in a fixed effects model. By controlling for fixed effects and other determinants of property crime, the statistical model once again reveals a tradeoff. A 1% increase in drug arrests relative to total arrests is associated with a .18 % increase in Index 1 crimes. In other words, even though crime rates fall during this period, they would have fallen more if drug enforcement efforts had been lower.

In addition, the tradeoff hypothesis is supported by several recent studies using non-Florida data. For instance, while Corman and Mocan (2000) do not set out to test the tradeoff hypothesis, their findings suggest that it holds. They use a 30-year time-series of monthly data from New York City to develop five high-frequency time-series models of different types of crime (murder, assault, robbery, burglary, and motor vehicle theft), and include what they consider to be drug-use proxies in the models. They consider three

13. A small portion of drug arrests are also made by federal police, of course, and there has been increasing police employment at the federal level. However, adding this employment to the state and local numbers reallydoes not change the implications very much. For instance, there were 1,941 DEA agents in 1980 and this number increased by 149.4 % to 4841 in 2003 (Sourcebook of Criminal Justice Statistics Online, 2007, Table 1.76.2007), but this is still a very small number relative to state and local police.

proxies for drug market activity: (1) the number of deaths in New York City due to drug poisoning, (2) the number of releases from New York City hospitals where the reason for admission was drug dependency or drug poisoning, and (3) felony drug arrests. Each is assumed to be positively correlated with the size of the drug market, and the three measures "appear to move together" (Corman and Mocan 2000, 387). All three variables perform similarly in separate model estimations. Murder and assault apparently are not significantly related to the variables, to the authors' surprise, but their measures are positively associated with robberies and burglaries. While the authors assume that the three measures are highly correlated with the size of the drug market they do recognize that drug arrests may be problematic because it is "a potential policy variable, where police decide on the level of drug arrests... In addition, one may expect that increased drug arrests cause a decrease in non-drug arrests, holding police constant" (Corman and Mocan 2000, 387). In other words, they recognize that the drug arrest variable may actually be picking up a tradeoff effect rather than or in addition to a drug market effect. The fact that all three proxy variables appear to move together might imply that the arrest data is picking up the drug market effect rather than the tradeoff effect, of course, but this assumes that the other two measures are good proxies for the size of the drug market. This assumption appears to be problematic, however. As drug enforcement increases, for instance, particularly over long time periods as in this study, the potency of drugs increases (Thornton 1991, 105-108; Rasmussen and Benson 1994, 83-88). This can lead to more overdoses even if the size of the market declines, in turn increasing both deaths from drug poisoning and hospital admissions. Similarly, as enforcement efforts increase, markets are disrupted (Rasmussen et al. 1993), and as a result, users may have difficulty maintaining relationships with regular suppliers that they trust. If they are compelled to frequently turn to unknown suppliers, there is an increasing chance of obtaining and consuming drugs of unknown potency, and drugs cut with toxic adulterants (Moore 1973), again suggesting increased deaths and hospital admissions even if the drug market is smaller. Therefore, none of the three variables are likely to be good proxies of drug market size, particularly in a long time series of data, but instead, they are likely to reflect enforcement intensity.

Entorf and Winker's (2008) study is similar to Corman and Mocan (2000) in that they do not set out to test the tradeoff hypothesis, but their test of the drug-crime relationship supports it. They employ a 1976-1995 panel of annual data from ten German Laender (the German "states"). Therefore, the study adds international evidence, as Mendez (2000) does. It also has an advantage over Corman and Mocan's (2000) time-series analysis in that the use of panel data allows them to control for many more potential determinants of crime (they develop an economics of crime model), and to control for fixed effects. Entorf and Winker also criticize the use of the number of drug related deaths as a measure of drug market size for reasons other than those suggested above, so they contend that (2008, 10):

> Given the limits of these proxies for drug abuse, the numbers on direct drug offences reported by the German Federal Criminal Police Office (Bundeskriminalamt) appear to be a more sensible proxy for the overall development of drug abuse. These numbers include reported cases of illegal drug trafficking, possession and consumption of drugs, but do not include procuring crimes like theft from pharmacies. While this measure shares the drawback to depend on the effort of the police spent on persecuting these crimes, it appears to be the most suitable proxy for monitoring the impact of drug abuse on overall crime rates.

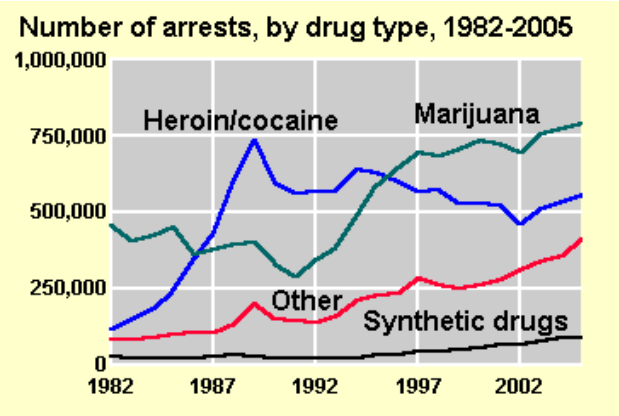
Therefore, they also implicitly suggest that their measure of drug market size may reflects the intensity of drug enforcement policy. Nonetheless, as with Corman and Mocan (2000), they assume that it correlates with market size. Benson, et al. (1992) remains the only study that attempts to include an independent measure of drug market size in an effort to disentangle this measurement problem in a model of property crime (as noted below, Resignato (2000) does so in a model of violent crime). The contention here is that the measure used by Entorf and Winker reflects, to a substantial degree, police resource allocation decisions (note that the measure is drug crimes reported "by" police, not to police, so it appears to be dominated by drug arrests), a contention supported by the fact that omitting the variable results in a substantially larger coefficient on the variable used to control for police resources: total expenditures on policing (Entorf and Winker 2008, 18). Their estimates suggest that a 1 % increase in their drug measure (drug enforcement) leads to a .07 to .08 % increase in theft. They also consider several violent crimes and find similar relationships, as a 1 % increase in the drug measure appears to significantly increase robbery, assault, and rape by .08 %, .08 %, and .16 % respectively (the coefficient for murder is not significantly different from zero).

Shepard and Blackley (2005) use 1996-2000 data from 62 counties in New York in order to estimate fixed-effect models as tests of the tradeoff hypothesis. They measure drug enforcement with drug arrests per capita and examine its effect on rates of assault, robbery, burglary, and larceny. More specifically, they consider four different drug arrest variables: total drug arrests per capita, as well as per capita arrests for hard drug sales, hard-drug possession, and marijuana sales. Total drug arrests are positively related with all of the crime rates except assault. They find that a 10 % increase in the mean of total drug arrests per 1000 people (2.14 to 2.35) results in 248 additional robberies, 910 additional burglaries, and 4,333 additional larcenies in the state as a whole. Arrests for hard-drug sales also are positively related to all of the crime rates. In this case, an increase of 10 percent in these arrests per 1000 population (from 0.66 to 0.73) is associated with 442 more assaults, 114 additional robberies, 346 more burglaries, and 1,275 additional larcenies for New York state. Arrests for hard drug possession are similarly related to all crime rates except assault: a 10 % increase in the mean of these arrests is associated with increases in state-wide robberies, burglaries and larcenies of 212, 576 and 2,965 respectively. Arrests for marijuana sales only has a significant impact on larceny, with a 10 percent increase in the mean arrests per 1000 (0.28 to 0.31) estimated to add 880 more larcenies for the state. Shepard and Blackley (2005, 324) conclude that the "consistency of results is striking – there is no model in which drug arrests are found to have a significant negative relationship with crime…. The empirical findings raise serious questions about the effectiveness of drug enforcement as a crime control measure and suggest that significant social costs may arise from existing approaches to drug control."

In another study, Shepard and Blackley (2007) deal with a criticism Caulkins, et al. (2000) make, as they develop a model to test the tradeoff hypothesis with a national cross-section time-series pool of data from over 1300 counties in the U.S. during the 1994-2001 time period. They focus on marijuana enforcement in this study, rather than drug enforcement in general. This is an important contribution to the literature. While the surge in drug enforcement during the 1980s focused on cocaine and opiates, police have increasingly turned their attention to marijuana markets since 1991 in order to keep accelerating

enforcement. See Figure 4 below in this regard.[14] Shepard and Blackley (2007) again employ a fixed-effect model to examine the impact of marijuana arrests per capita, both for sales and for possession, on four crime rates: burglary, larceny, motor vehicle theft and homicide.

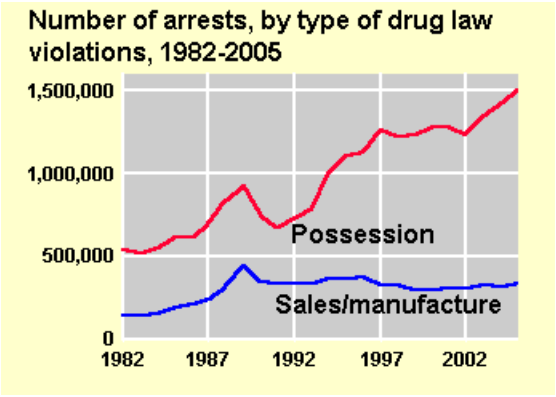
Figure 4



Source: Bureau of Justice Statistics, Drugs and Crime Facts, http://www.ojp.usdoj.gov/bjs/dcf/enforce.htm

An increase in arrests for marijuana possession is significantly related to larceny and motor vehicle theft rates in Shepard and Blackley (2007), while an increase in arrests for marijuana sales is significantly related to burglary and homicide rates. A one-standard deviation increase (from 2.43 to 6.01) in the rate of marijuana possession arrests per 1,000 population is associated with 52 additional larcenies and 5 additional motor vehicle thefts in a county with a population of 100,000. The tradeoff hypothesis is, once again,

14. Most of the upsurge also has been directed at drug possession rather than drug trafficking, as illustrated by the following Figure. Of course, the distinction between possession and trafficking is problematic because it is based on the weight of the drugs that a person possesses. Actual trafficking (sale or efforts to sell) does not have to be proven if a person possesses a sufficient quantity of drugs. The person is per se guilty of trafficking.



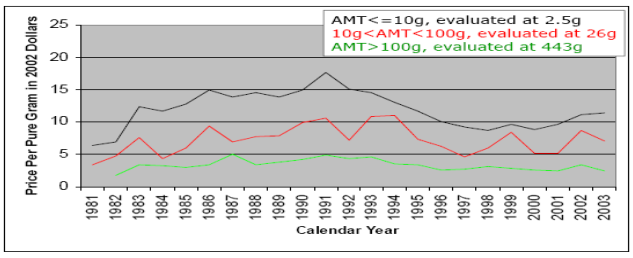
Source: Bureau of Justice Statistics, Drugs and Crime Facts, http://www.ojp.usdoj.gov/bjs/dcf/enforce.htm

supported.[15] Similarly, a one-standard deviation increase (from 0.36 to 0.94) in the rate marijuana-sales arrests per 1,000 population is associated with 7 more burglaries and 0.35 more homicides in a county with 100,000 residents. Shepard and Blackley (2007, 403) conclude, "these results raise significant questions about the merits of policies that focus on criminal justice approaches to marijuana control." [16]

II.2. Drug Prohibition and Increased Violent Crime. Shepard and Blackley (2005, 2007) consider one violent crime rate (assault or homicide) in each of their studies and find positive relationships between these crime rates and at least one measure of drug enforcement. In contrast, Corman and Mocan (2000) are surprised to find no relationship between violent crime rates and drug arrests. They are appropriately surprised, since there are several potential reasons to expect a positive relationship, as well as

15. Shepard and Blackley (2007) note that there are alternative explanations for this relationship. One is that marijuana may harm the employment opportunities or educational status of arrestees, leading to an increased likelihood of property crime. However, it seems that this impact would be lagged rather than simultaneous, and Shepard and Blackley include both current year marijuana arrests and a one year lag in these arrests. The lagged variables are not significantly different from zero. Another explanation they mention is that increases in possession arrests could lead to price increases in the marijuana market, inducing marijuana users to engage in more theft to pay these prices. Again, however, such an impact is not likely to be immediate. Furthermore, evidence suggests that marijuana prices were actually falling during the study period (1994-2001), as indicated by the following figure from the Office of National Drug Control Policy, The Price of Illicit Drugs: 1981 Through the Second Quarter of 2003, November 2004, page 53:

Figure 34. Price of One Bulk Gram of Marijuana



53

16. Shepard and Blackley (2007) also consider the impact of marijuana arrests on arrests for hard-drug possession. They find that a one year lag of marijuana-sales intensity is positively associated with arrests for hard-drug possession. Their explanation is that when enforcement efforts against marijuana markets increases relative to enforcement of hard drug markets, buyers and/or sellers of marijuana tend to substitute hard drugs for marijuana. This certainly is plausible. The implication should be troubling to those who argue that marijuana is a "gateway" drug in that consumption of marijuana leads to consumption of harder drugs. It appears that it may actually be marijuana enforcement that leads to consumption of harder drugs. Also see note 30 in this regard.

substantial empirical support for the expectation.[17] In this context, it is appropriate to begin with Goldstein's (1987, 1989) widely cited work.

Goldstein conducted several studies in an effort to track and separate the causes of so-called "drug-related" homicides into three categories using data from New York City. He notes that there are three hypothesized relationships between drugs and violence. One is a psychopharmacologic affect of drug use. It may be that drug use leads to violent behavior. Another involves economic compulsion wherein violence occurs when "drug users engage in economically oriented violent crime, e.g. robbery, in order to support costly drug use" (Goldstein 1987, 15). His third category involves "systemic factors," which arise because of the fact that drug prohibition means that drugs are bought and sold in so-called "black markets" (also see Miron 1999 and Resignato 2000).

Violence tends to be prevalent in black markets for a number of reasons. As Rasmussen and Benson (1994) explain, drug dealers must attempt to enforce contracts and secure property rights to the residuals produced by their business, just as firms do in legal markets. In legal markets, however, governments may help enforce contracts and protect property rights, disputes can be settled by public courts or professional arbitrators, and these adjudication decisions can be enforced by governmental authorities. Governments do not protect property rights and enforce contracts in an illegal market, so the participants themselves must perform these functions (or hire enforcers), often through the use and/or threat of violence. In order to do so, they invest in tools that enhance their ability to use violence, including guns. Not surprisingly, in this light, Goldstein's (1987, 19) suggests reasons for violence in drug markets include disputes between rival drug dealers (e.g., turf wars), assaults and homicides committed within dealing hierarchies as a means of enforcing normative codes, robberies of drug dealers/buyers and violent retaliation for robberies (e.g., by dealers or their bosses), elimination of informers, disputes over drugs and/or drug paraphernalia, punishments for selling adulterated or phony drugs, and punishment for failing to pay debts. Rasmussen and Benson (1994) note that Goldstein's (1987) point about robbery may be particularly important because

17. Recall that Entorf and Winker (2008) also find significant relationships between their drug variable and four of the five violent crime rates they consider.

drug users and dealers are relatively attractive targets. After all, they are likely to be carrying drugs and/or cash, and they are not likely to report the crimes committed against them. All these factors lead to an environment characterized by violence and/or the continuing threats of violence. While victims of this violence often are drug users or dealers, spillovers can claim non-participating victims such as law enforcement officers and bystanders (Goldstein, 1987).

Goldstein (1987) uses New York City police reports to categories drug-related homicides, and finds that the psychopharmacological effects of illegal drugs are relatively unimportant. He concludes, in one study, that out of the 414 drug related homicides examined, 31 (7.5%) may be psychopharmacological. However, out of these 31, 21 are actually attributed to the use of alcohol rather than illicit drugs. This leaves only 10 (2.5%) of the drug-related homicides potentially attributable to psychopharmacological effects of illegal drugs. Economic compulsive violence also does not appear widespread, as Goldstein (1989) only identifies its potential relevance in 8 (3.6%) out of 218 drug-related homicides he examines in a subsequent study. However, Goldstein (1989) finds that out of these 218 drug-related homicides, 161 (74%) appear to be due to systemic factors. Thus, it appears that most of the violence associated with illicit drug markets arises because drug market participation is illegal, not because of drug use itself.

Recent literature suggests that, not only are prohibition-caused systemic factors the primary cause of violence in drug markets, but that increases in drug enforcement further increases the violence. As Miron (2001, 619) notes, "prohibitions are unlikely to create violence unless there is substantial enforcement, and the amount of violence caused will increase with the degree of enforcement." This statement applies for systemic violence, but Miron (2001, 621) also explains that since law enforcement resources are scarce, if more resources are focused towards drug crime there are fewer resources focused on controlling other types of crime, including violent crime. Therefore, there are two reasons for expecting that increasing drug enforcement will lead to more violence – the systemic violence that always arises in black markets, and the tradeoff as scarce criminal justice resources are reallocated.

Systemic factors can become more prevalent with increases in enforcement, in part at least, because drug markets are disrupted. This can have at least two impacts that involve increases in violence. First, it

can induce sellers to move to other locations where enforcement is less active, resulting in turf wars as they attempt to establish themselves in these new locations. In addition, buyers may lose their regular, trusted sources of drugs, so they have to search for new suppliers in other locations (the intensity of enforcement also may generate a local deterrence effect for buyers, inducing them to search elsewhere for drugs). They are likely to be even more vulnerable to attack by robbers in these less familiar circumstances. Rasmussen, et al. (1993) offer an empirical test of this geographic-spillover hypothesis. They develop a model of violent crime using a cross section sample of 279 police jurisdictions in Florida. After controlling for other determinants of violent crime, they find that the violent crime rate in one jurisdiction is positively and significantly related to the drug arrest rate in adjacent jurisdictions. Furthermore, the elasticity of violent crime with respect to these enforcement differentials is much larger than the spillover effects commonly reported in studies of inter-jurisdictional effects on property crime. They also find evidence of a direct systemic and/or tradeoff effects, as violent crime in a community is positively related to the drug arrest rate in that community.

Brumm and Cloninger (1995) cite Benson, et al. (1992) to motivate the tradeoff hypothesis and then test the hypothesis for homicide rates using 1985 data from 59 cities in 32 states. They use 2-stage and 3-stage least square models to estimate the impact of drug arrests divided by total arrests (controlling for other factors) on the homicide arrest rate, and in turn, the homicide arrest rate (controlling for other factors) on the homicide offense rate. The tradeoff hypothesis is supported, as the drug-arrest variable is negative and significant in the homicide-arrest-rate-equation and the homicide arrest rate is significantly negative in the homicide-rate equation. The coefficients imply that a 1 % increase in drug arrests over total arrests produces a 0.105% (in the 3-stage model) to 0.17 % (in the 2-stage model) increase in the homicide rate.

Similar findings arise in studies using international cross-country data (Fajnzylber, et al. 1998; Miron 2001). Fajnzylber, et al. (1998) develop models of various measures of homicide using 1970-94 country-level data. They control for a number of potential determinants of violence, including two drug market variables: a drug possession arrest rate, and a dummy variable indicating whether the country produces drugs or not. They find, over a broad ranges of specifications, that high drug possession arrest

rates and being a drug producing country are both positively associated with homicide rates. The relationship appears to be robust across different specification, as they also use panel regressions of five-year average homicide rates, once again find a positive relationship between both drug-related variables and homicides.

Miron (2001) also uses cross-county data for the 1993-96 period to test a model of homicide rates. The degree of drug enforcement is proxied by data on nine categories of seizures of illegal drugs. Separate models are run for each of the nine categories along with a common set of control variables. Six of the nine regressions produce positive and significant coefficients on the drug-seizure measure (seizures of Cannabis herb, Cocaine base, Cannabis, Coca, Pills, and Opium plants), while two of the others (Seizures of Heroin and Opiates) did not produce significant relationships, probably because only very small quantities of seizures occurred (the other category that did not produce a significant relationship, Cannabis plants, involves large seizures, however). He concludes that "Although the results are subject to several caveats, they are consistent with other evidence that suggests an important role for drug prohibition in increasing the level of violence" (Miron 2001, 629).

Resignato (2000) provides what may be the most important study of the drugs-and-violence hypotheses. He employees data from the 24 drug use forecasting (DUF) SMSAs over the 1987-1995 period to build models of violent crime (he tests two models, one using the total violent crime rate as a dependent variable and one using the murder rate).[18] This allows him to control for and disentangle the impacts of drug use and drug enforcement effort (e.g., as only Benson, et al. (1992) do up to this point). Therefore, he tests the joint systemic-factors/tradeoff hypotheses since both are associated with drug enforcement efforts. In addition, he jointly tests the psychopharmacological/economic-compulsive hypotheses because they both imply a relationship between the level of drug use and violence. Both OLS and fixed-effect models are

18. Annual jurisdiction level data on drug use by arrestees is provided for a limited sample of 24 cities by the National Institute of Justice's Drug Use Forecasting (DUF) program. Urine samples are collected from individuals who are arrested to determine drug use among this population. While the measure does not provide a measure of the entire drug market in a city, it does indicate the level of drug use among that part of the population that police deal with, and therefore, presumably the population that is likely to influence police decision-makers's perception of the magnitude of the "drug problem".

estimated, controlling for several other determinants of violent crime. The drug enforcement proxy variable, the ratio of drug arrests to total arrests, is positive and significant in all four regressions (both OLS and Fixed-effects models for both murder and total violent crime rates). Thus, when the allocation of police resources to drug enforcement is relatively high there is a higher murder rate and violent crime rate, supporting the expectation that violence is caused by systemic factors and/or tradeoff effects. The drug use variable is positive in three regressions, but it is only statistically significant in one regression: the fixed-effect model for murder. This may support the theory that there is some psychopharmacological and/or economic compulsive effect of drug use on murder, but not on violent crime in general.[19]

III.3. Tradeoffs due to the Reallocation of Prison Resources. Police are not the only scarce resource employed in law enforcement. Prison space is also significantly limited, and as a result of the rapid increase in drug arrests after about 1984 (see Section IV for discussion of the beginning of the drug war surge), many states were facing significant increases in prison crowding by the late 1980s. For instance, Florida was building prisons during the 1980s, but criminals being sentenced to imprisonment were increasing much faster than prison capacity was expanding. The explosion in the numbers of drug convictions accounted for a substantial portion of the escalating inflow. During fiscal year (FY) 1983-84 there were only 1,620 admissions to Florida's prisons for drug offenses, accounting for 12.9 % of the 12,516 total admissions. Drug admissions increased by 875 % over the next six years, reaching 15,802 in FY 1989-90, when drug admissions were 36.4 percent of the 43,387 total (non-drug admissions increased too, but by a comparatively small 153 %, from 10,896 to 27,585). At the same time, the legislature passed an array of longer minimum mandatory sentences for drug criminals. Getting tough on drug offenders by sentencing many more of them to longer prison terms resulted in leniency for others, as the expected punishment for committing crimes in Florida fell dramatically.

19, Further doubt on potential psychopharmacological and/or economic compulsive effect of drug use on crime is supplied by Martin, et al. (2004). They also use the DUF data to examine the impact of alcohol and cocaine use on violent and property crime. In a multivariate statistical analysis, cocaine use is not closely associated with either property or violent crime, although alcohol use is related to both. They do not consider the tradeoff issue, however, or control for law enforcement.

Florida had to implement an "administrative gain time program" in February of 1987. The consequences were dramatic. Prior to 1987, prisoners in Florida typically served 50 percent of their sentences or more; by the end of 1989 the average prisoner served only 33 percent of his or her sentence. Some prisoners could not be released early due to mandatory sentence laws, habitual offender laws, and other factors, however, so many prisoners not subject to these kinds of laws served even less than 33 percent of their sentences; in fact, about 37 percent of the prisoners released in December 1989 served less than 25 percent of their sentences, and some served less than 15 percent. Some prisoners with short sentences actually began processing for early release the day after they arrived. As a result, there were numerous examples of individuals accused of crimes who plea bargained to be convicted for relatively more severe crimes in order to get a prison sentence, rather than a less serious crime that would warrant a sentence to serve time in a local jail. They recognized that they would actually serve less time with a longer prison sentence than with a shorter jail sentence.

This early-release program meant that Florida citizens were exposed to more and more convicted criminals who were being released earlier and earlier. Similar problems were occurring in many other states. Indeed, some states, like North Carolina and Oklahoma, were releasing criminals who, on average, had served even smaller portions of their sentences than those in Florida. A series of highly publicized crimes by violent criminals who were released early across the country helped produce a political backlash against the practice. Again consider Florida as an example. One of the most notorious instances occurred in November, 1988. Charles Street, who had a long history of criminal activity, was released from Florida's Marion Correctional Institute on November 18, after serving about seven years of a 15-year sentence for attempted murder. As Stephenson (1994, 9) explains, "Florida's beleaguered Department of Corrections had no choice: somebody had to go. In the Byzantine way such things are done, Charlie Street's number finally rolled up. Metro-Dade officers Richard Allan Boles, 41 and father of two, along with his 34-year old partner, David H. Strzalkowski, with a wife two-months pregnant, had less than 10 days to live." On November 28, Street killed both officers. Stephenson (1994, 11) goes on to explain that "The nation's prisons are stuffed to the rafters with drug offenders – mostly addicts, casual users, small time dealers,

couriers and bag men. The druggie glut forces the release of violent criminals well before their time's up. And a system of criminal justice that once served the public passably well has become the bloodless, shellshocked victim of yet another well-intended government program apparently gone haywire."

Similarly, Frank Potts was released from the Florida prison system in 1988, after serving six years of a 15-year sentence for molesting an 11-year old girl, despite the report of a parole examiner who noted that Potts had a very high probability of repeating his crime if released. In the early 1990s Potts was again arrested on charges of molesting another 11-year old girl, but in addition, an intense investigation was underway regarding allegations that he killed as many as 13 people in several states. A Florida Department of Corrections spokesperson justified the early release by noting that "the agency is bound by mandates from the courts and the legislature. In the mid-1980s, the prison system was inundated with inmates carrying minimum-mandatory sentences during the country's initial skirmishes in the war on drugs."[20] Criticisms of early release programs mounted as others like Charlie Street and Frank Potts were released from prison early due to prison crowding in many states.[21] An important source of such criticism was law enforcement interests. They jointed with others to demand expansion of the prison system in order to accommodate criminals for much larger portions of their sentences.

On top of the growing backlash, the Florida legislature was forced to hold a special session in 1993 in order to deal with the "gridlock" in the prison system that was anticipated later that year when no criminals eligible for early release would remain in the system. The legislature reconsidered some of its mandatory sentences during the session and allocated additional funding to prison construction. Law enforcement interests pushed for prison construction rather than reduced mandatory sentences, and the 1994 legislature responded by allocating funds to expand the state's prison system by an additional 27 percent.

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20. Associated Press, "Probe: Potts Granted Early Release," Tallahassee Democrat (May 10, 1994): 5B.

21 Criticisms of drug policy also begin to appear in the press. For example, a number of stories appear in the Tallahassee Democrat drawn from other newspapers and news services with themes such as those in the following sampling: (1) from Knight-Rider's Washington Bureau: Epstein, Aaron, "Tide of Opinion Turns Against Harsh Sentencing for Drug Offenders" (May 7, 1993): p. 4A; (2) from the Associated Press: White, Michael, "Cases Indicate the War on Drugs May be Overdoing It" (November 2, 1992): p. 3A; (3) from the Chicago Tribune: Margolis, Jon, "Punishment Should Fit Drug Crime" (July 5, 1991): p. 15A; and (4) from the Miami Herald: Greene, Ronnie, "Skip Town, Judge Tells Drug Suspect" (October 8, 1992): p. 4C. Law enforcement interests lobby against changes in drug policy, however, while joining other groups in demanding for more prisons (see discussion in Section IV).

Again, Florida's experience is not unique. Many states choose to allocate more funds for prison construction. Indeed, several states apparently started accelerating the rate of increase in expenditures on prisons and prison construction in the mid-1980s, as suggested in Table 3. [22]

Table 3
Direct Expenditures for State Government Correctional Activities, 1980 - 2004

Fiscal Year	Total Corrections Direct Expenditures	Institutions			
		Total	Direct Current	Capital Outlays: Construction	Capital Outlays: Other
1980	4,257,509	3,410,933	2,869,492	482,652	58,789
1981	4,843,857	3,886,234	3,276,441	533,419	76,374
1982	5,559,792	4,480,490	3,848,893	544,300	87,297
1983	6,323,240	5,135,550	4,488,027	557,237	90,286
1984	7,178,011	5,913,323	5,114,702	695,198	103,423
1985	8,336,040	6,927,619	5,932,686	858,856	136,077
1986	9,877,577	8,246,279	6,708,440	1,342,807	195,032
1987	10,732,880	8,843,089	7,587,706	1,077,207	178,176
1988	12,403,648	10,364,051	8,648,292	1,486,461	229,298
1989	13,854,499	11,617,138	9,661,969	1,724.021	231,148
1990	15,842,063	13,321,228	11,145,405	1,921,846	253,977
1991	17,789,540	14,995,912	12,497,915	2,235,632	262,365
1992	18,750,826	15,657,098	13,599,703	1,813,405	243,990
1993	19,091,342	15,965,881	14,239,710	1,479,871	246,300
1994	21,266,053	17,741,937	15,776,174	1,695,718	270,045
1995	24,091,069	20,095,376	17,674,884	2,080,678	339,814
1996	25,294,111	20,893,235	19,035,102	1,524,590	333,543
1997	27,116,873	22,289,014	20,614,214	1,336,567	338,233
1998	28,678,929	23,603,913	21,533,991	1,513,967	555,955
1999	30,769,786	25,243,574	23,014,267	1,755,025	474,282
2000	33,039,925	26,758,605	24,642,499	1,761,633	354,473
2001	35,810,946	29,197,575	27,299,513	1,574,245	323,817
2002	36,471,670	29,485,744	27,840,203	1,367,175	278,366
2003	36,937,901	30,150,005	28,764,117	1,113,775	272,113

Source: Sourcebook of Criminal Justice Statistics Online, http//www.albany.edu/sourcebook/pdf/t1924.pdf

22. A political backlash does not necessarily have to affect policing practices, of course, but as illustrated in Table 2 and Figure 1, drug arrests clearly decline by a substantial amount in the early 1990s. Part of the reason may be illustrated in Section IV below by the Volusia County Sheriff's strategy of simply focusing on civil seizures of assets without making arrests. Police executives increase their discretionary budgets through seizures, giving them incentives to allocate more resources to drug enforcement. Rank-and-file police officers actually make most arrests, of course, and they do not necessarily capture the benefits of assets they seizure. One possible reason for this downturn is that rank-and-file police officers were also witnessing the consequences of prison crowding and early release. They saw violent criminals (as well property criminals and drug-law violators) that they had recently arrested and gathered evidence to help convict, back in their neighborhoods after serving only a small portion of their sentences. Personal interviews with several police officers in Florida uncovered a significant level of frustration on the part of the rank-and-file. They were asking themselves, "why spend the time to make arrests and do the paperwork, and why put ourselves in dangerous situations, if the criminals are back on the streets within a few months?" While the police apparently reduced drug-enforcement efforts during the early 1990s, they also added their voice (political pressures) to the growing demand to avoid early release, but the solution to the problem was not, from the police perspective, a long-term reduction in drug enforcement. Instead, it was a demand for more prisons to accommodate the increasing flow of convicted criminals for longer periods.

New prison construction was sufficient to reduce early releases some, as the portion of sentences served began to increase. See Table 4 in this regard. Note that the portion of sentences served increased for all crimes between 1990 and 1999, although the average portion served was still less than 50 % in 1999. This is because, while the portion of sentences served for all violent crimes was over 50 % (note that none were in 1990), virtually all property and drug criminals were still serving less than half their sentences, on average.

Table 4
Portion of Sentences Served in State Prisons, 1990 and 1999

Sentenced Offence	Mean Sentence in Months		Mean Months Actually Served		Percent of Sentenced Served	
	1990	1999	1990	1999	1990	1999
All offenses	69	65	28	34	38.0	48.7
Violent Off.	99	87	46	51	43.8	55.0
Murder	209	192	92	106	43.1	53.1
Manslaughter	88	102	37	56	41.0	52.5
Rape	128	124	62	79	45.5	58.3
Other sexual	77	76	36	47	43.8	57.0
Robbery	104	97	48	55	42.8	51.6
Assault	64	62	30	39	43.9	58.7
Property Off.	65	58	24	29	34.4	45.6
Burglary	79	73	29	36	33.9	44.3
Larceny/theft	52	45	20	24	35.5	46.9
Vehicle theft	56	44	20	25	33.1	52.5
Fraud	56	49	20	23	33.2	41.7
Drug Off.	57	59	20	27	32.9	42.8
Possession	61	56	18	25	29.0	42.4
Trafficking	60	64	22	29	34.8	42.0

Source: Sourcebook of Criminal Justice Statistics, 2003, Table 6.4
Note: The sentences for murder exclude sentences of life, life without parole, life plus additional years, and death.

There actually are two reasons for the increase in the portion of sentences served. One is an increase in average time spent in prison for all crimes, including drug crimes, but the other has been a reduction in the length of sentences in every crime category except drug trafficking and manslaughter. Some states reconsidered some of their "get-tough" laws (e.g., minimum mandatory sentences) in order to reduce sentences. Another factor may be that when judges hand down sentences they know that criminals are not likely to serve a substantial part of the sentence. Therefore, they adjust the sentence to reflect the portion that is likely be served in an effort to produce what they think is an appropriate period of

incarceration for the crime. Thus, as more prisons are built, increasing the portion of sentence served, some judges may reduce sentences. During a period of rapid prison construction and increasing arrest rates for at least some crimes, making such predictions will be difficult, of course, and judges also face pressures to be tough on crime, so the importance of this judicial behavior is not clear.

The discussion of Florida's experience with prison crowding and early release suggests that tradeoffs apply for prison resources. Kuziemko and Levitt (2004) provide what appears to be the only statistical test of a tradeoff in the allocation of prison resources. They suggest that there are three possible relationships between imprisonment for drug offenses and non-drug crime rates. Two depend on the degree to which the populations of drug market participants and non-drug criminals overlap, perhaps because of psychopharmacological and/or economic-compulsive effects of drug use, or perhaps because the personal characteristics of some individuals, such as risk preferences, can stimulate both drug use and non-drug crime.[23] First, if a sufficient portion of drug criminals who are sent to prison are also non-drug criminals, then the incapacitation effect of prison will prevent those individuals from committing more crimes for the time of their incarceration. Second, they suggest that punishing drug offenders could change their incentives to engage in non-drug crimes (a deterrence or reduced recidivism impact[24]). The third relationship they discuss is the tradeoff hypothesis. If prisons are not built fast enough to accommodate the inflow of drug convictions, some violent and property criminals may be "crowded out" of the prison, leading to higher crime rates (presumably due to reductions in both deterrence and incapacitation effects).

Kuziemko and Levitt's (2004, 2059) first models estimate the impact of incapacitating drug offenders, violent offenders, property offenders, and other offenders on crime rates without controlling for

23. Recall that the Florida arrest data from Rasmussen and Benson (1994) and discussed above and the empirical results in Benson, et al. (1992) and Kim, et al. (1993) suggest an overlap between these two sets in the 18 to 29% range for property crime by drug users. Perhaps 38 % of drug suppliers apparently are involve in property crime. Similar percentages for violent crime are around 24 % for users and between 14% and 35 % for suppliers, depending on the supply side activity that the arrestees engage in.

24. Kim, et al. (1993) do find that the likelihood of drug offenders recidivating is lower when they are sentenced to prison rather than probation. They also find that drug users are less likely to recidivate than drug sellers, and that both groups are significantly less likely to recidivate than people convicted of other drug crimes (trafficking, smuggling, production, delivery, and distribution), as well as individuals with convictions for non-drug crimes (note that the sample includes only people with drug convictions, so those with non-drug convictions also have a drug conviction, and are in the overlapping set).

crowding. The estimates are very imprecise due to correlation between the four types of crime convictions, but the authors still conclude that in the absence of crowding out of other prisoners, the 375,000 drug offenders imprisoned between 1980 and 2000 "would be associated with an (imprecisely estimated) reduction in crime of 2–5%" (Kuziemko and Levitt 2004, 2059). Tests suggest that the coefficients on the drug variable are not statistically different from the coefficients on the violent and property variables, however, so this implies that the impact on violent (property) crime of incapacitating drug offenders is essentially equivalent to the impact of incapacitating a property or a violent offender on violent (property) crime. These results appear to be highly suspect unless they are simply picking us a general deterrence effect of the size of the prison population, no matter what kind of prisoner are incapacitated. In fact, Levitt (1996) uses total prison population as a general deterrent/incapacitation variable in crime models. In that paper he also contends that "Simultaneity between prison populations and crime rates makes it difficult to isolate the causal effects of prison population on crime." Therefore he employs an instrumental variable to break the simultaneity. The estimates in Kuziemko and Levitt (2004) presumably suffer from the same simultaneity bias along with multicollinearity problems between the measures of the portion of the prison population in the different crime types,[25] so their estimates must be treated with considerable caution.

The next step in Kuziemko and Levitt (2004) is an examination of the crowding effect of drug crime imprisonment by estimating the impact of the drug crime share of the prison population on the median percent of time served for various types of crime. They find that the degree of crowding varies by crime type. No impact on time served is detected for murder and forcible rape (although using a different dependant variable, the actual median time served rather than the percentage of the maximum sentence served, does suggest a crowding effect arises for murder). The point estimates for assault, robbery and fraud are about -.35 (a -1 implies a one-for-one crowding out), however, and the point estimates for property crimes and drug crimes vary from -0.53 to -0.93. The implication is that, "on average, for every two new

25 The coefficients in Levitt (1996) rose substantially after treating for simultaneity, so that clearly could happen in this case as well, although it might be that the violent and property crime coefficients would rise while the drug crime variable would not, assuming that instruments for all categories of criminals could be developed and the multicolinearity issue could be dealt with.

drug prisoners sent to prison, one existing prisoner is released early" (Kuziemko and Levitt 2004, 2055). Therefore, they conclude that the crowding effect of drug admissions roughly halves the incapacitation impact that they estimated in the first step of their analysis, so the net effect of incapacitation of drug offenders and crowding is a reduction in property and violent crime by 1 to 3 %. These findings are very tentative, however, as they depend on the questionable estimates of the incapacitation impact of the portion of prison population convicted of drug offenses. Furthermore, as the authors note, "If an increase in new commitments for drugs causes fewer new commitments for other crimes (for instance, due to congestion in courts or policing), then these estimates understate the total degree of crowding" (Kuziemko and Levitt 2004, 2066). As noted above, a large number of studies have found evidence of a significant crowding effect arising from the increased focus of policing resources on drug control, so the "if – then" in the quote should be changed to "because". Finally, even if the estimates in Kuziemko and Levitt are accurate, they conclude that "it is unlikely that the dramatic increase in drug imprisonment was cost-effective" (2004, 2043).

IV. Conclusions: Why is There a Drug War, and Why does the Enforcement Surge Persist?

This presentation has focuses on a relatively narrow issue that lends itself to economic analysis, in order to demonstrate that drug prohibition and escalating enforcement does not produce the positive externalities that advocates of prohibition claim should arise. Indeed, drug prohibition and increasing enforcement produce significant negative externalities. There also are many other reasons to question the intensity of enforcement efforts against illicit drugs, and even the criminalization of drugs in the first place. Issues of civil and economic liberties are undeniably important in this debate, for instance.[26] The war on drugs is a public bad. So why is it being waged?

IV.1. Special Interests dominate drug policy decisions, not the public interest. A number of political motivations for drug prohibition can be identified that have nothing to do with public goods or market failure. Some studies (e.g., Musto 1987, 13-14, 21-22; Thornton 1991, 56-57, 59-60; Klein 1983, 31-55) note the incentives of professional organizations such as the American Pharmaceutical Association to

26 There is a large literature addressing this issue, of course. For instance, see Husak (1992).

create legal limits on the distribution of drugs (there was significant competition between pharmacists and physicians for the legal right to dispense drugs, for example), while others focuse on the strong racial impacts of illicit drug laws and the desire by some groups to control racial minorities through the creation and enforcement of such laws (Bonnie and Whitebread 1974; Helmer 1975; Musto 1973, 1987). More importantly from the perspective stressed here, others emphasize that law enforcement bureaucracies were a major source of demand for the initial criminalization of illicit drugs (Himmelstein 1983; Becker 1963; Bonnie and Whitebread 1974; King 1957; Dickson 1968; Oteri and Silvergate 1967; Lindesmith 1965; Hill 1971; Reinarman 1983). Indeed, Lindesmith (1965, 3) contends that the nation's program for handling the "drug problem" is one "which, to all intents and purposes, was established by the decisions of administrative officials of the Treasury Department."

Why would the Treasury Department care about drug criminalization? Because the Harrison Act established federal taxes on narcotics and created the Federal Bureau of Narcotics within the Treasury Department for enforcement. For several years after its passage in 1914, the Harrison Act remained a rather unimportant source of taxes and regulatory measures (Reinarman 1983, 21), but once a bureaucracy is created incentives arise to insure its existence (make bureaucrat's jobs secure) by expanding its size and scope (Benson 1995). Criminalization of opiate use actually followed from the Federal Bureau of Narcotics' instigation of raids on morphine treatment clinics in 1919 (King 1957; Lindesmith, 1965; Klein 1983, 32). King (1957, 122) explains that "the Narcotics Division launched a reign of terror. Doctors were bullied and threatened, and those who were adamant [about treating addicts] went to prison." Efforts by the Narcotics Bureau led to a series of court decisions which reinterpreted the Harrison Act and became the pretext for criminalization of drug use (Reinarman 1983, 21). Furthermore, because of pressure from the same bureau, the Marijuana Tax Act was passed in 1937 (Becker 1963; Dickson 1968; Lindesmith 1965; Oteri and Silvergate 1967; Hill 1971; Bonnie and Whitebread 1974). Thus, Lindesmith's (1965, 3) contention clearly has substantial support.

Some writers stress moral entrepreneurship by Narcotics Bureau officials (e.g., Becker 1963), but others focus on bureaucratic fiscal self-promotion (e.g., Dickson, 1968). The Bureau was in need of a new

raison d'etre for continued funding in 1937, for instance, and it faced stiff competition from the FBI for the attention of the public and of congress (King 1978), so bureaucratic survival was certainly a probable motivation.[27] The likelihood of self-interest motivations are also supported by the fact that the campaign leading to this legislation "included remarkable distortions of the evidence of harm caused by marijuana, ignoring the findings of empirical inquiries" (Richards 1982, 164; for details see Kaplan 1970, 88-136 and Lindesmith 1965, 25-34). Furthermore, the bill was represented as one which was largely symbolic in that it would require no additional enforcement expenditures (Galliher and Walker 1977).

In fact, as Thornton (1991, 62-66) and Morgan (1983, 3) stress, all of the various interests mentioned above (bureaucrats, professional from the American Medical Association and American Pharmaceutical Association, groups attempting to suppress certain races or classes) interacted with still more groups (temperance groups, religious groups, etc.) to produce policies against drug use. Interest groups continue to dominate modern drug policy as well. These groups include "civil rights, welfare rights, bureaucratic and professional interests, health, law and order, etc." (Morgan 1983, 3).[28] Interest group competition is particularly fierce over "ownership of the problem" (i.e, shares of federal, state, and local budgets) between police interests and drug treatment professionals (Gusfield 1980).

Bureaucratic law enforcement interests at the federal, state, and local levels have been increasingly important players in the politics of drug control (evidence in this regard is presented in the following discussion of federal confiscations legislation). But even if this were not the case, a primary source of the "information" (much of which is inaccurate and/or unsubstantiated (Michaels 1987, 311-324)[29]) used to justify the "War on Drugs" that is being waged today, has been the police bureaucracies. Indeed, it is

27. Bureaucrats often act as interest groups (rent seekers) who try to influence the demand side of the political process (Berk, et al. 1977; Congleton 1980; Benson 1983, 1990, 1995; Mbaku 1991). They have incentives to "educate" the sponsor regarding interest group demands which complement their own and to "propagate" their own agenda. Furthermore, they may have a relative advantage in the lobbying process because they have ready access to the sponsor as they are naturally called upon, due to their expertise. This is clearly the case with law enforcement bureaucracies (Glaser, 1978, p. 22). In addition, they can use part of their discretionary budget to cover lobbying costs (Benson, 1990).
28. For instance, the pharmaceutical industry had a significant impact on the Comprehensive Drug Abuse Prevention and Control Act of 1970 (Reinarman 1983, 19): "In this case as in most others, the state's policy makers were buffeted by law enforcement interests and professional interests..."
29. As Mueller (1989, 248) explains, if there is no uncertainty then a bureaucrat can have no discretion. The bureaucrat may be able to influence opinion about what the output should be, as noted in note 27, and uncertainty in this regard means that they may misinform.

primarily as a result of information promulgated by police (Barnett 1984, 53), that it is now widely believed that drug crime is the root cause of much of what is wrong with society (e.g., see the Office of National Drug Control Strategy, 1990, 2). In particular, drug use is claimed to be a primary cause of non-drug crime, a claim that is suggested above, does not stand up to careful statistical analysis. This claim has been raised to justify political demands for the criminal justice system to do something about the drug/crime problem, demands which largely emanate from the police lobbies (e.g., see Berk, et al. 1977; Barnett 1984).

IV.2. The Drug War Surge. While drug prohibition has been in place for close to a century, a significant reallocation of criminal justice system resources has been underway for almost two and a half decades. Why did the relative allocation of policing resources toward drug enforcement begin, and why does it continue?

President Reagan sounded a new battle cry in the war on drugs in October 1982 (Wisotsky, 1991). The Federal criminal justice apparatus quickly responded to this call, but the bulk of such an offensive has to be waged by state and local "troops," and the fact is that U.S. state and local law enforcement agencies generally did not significantly increase their efforts against drugs until late 1984 or early 95. There are a number of alleged explanations for this state and local surge in drug enforcement. Many law enforcement personnel point to the introduction of crack cocaine and its consequences as the factor that motivated their increased efforts against drugs, for instance. However, statistics suggest that drug enforcement efforts started to increase sometime in late 1984 and according to Johnson (1987, 36), crack cocaine was not introduced into the U.S. until October or November of 1985, and then only in Miami, New York and Los Angeles.[30] Instead, perhaps local elected officials, representing median voter preferences across the nation, coincidentally demanded that their police departments escalate the War on Drugs? There are strong

30. In fact, crack may actually have been introduced when it was because of early successes in the escalating drug war. As federal interdiction efforts increased, they were initially quite successful against marijuana, which is bulky and hard to hide. Some estimates suggest that as much as a third of the marijuana shipped to the U.S. was being seized in 1984 (Kleiman 1985). Interdiction efforts were much less successful against heroin and cocaine. Therefore, smugglers had incentives to shift into these drugs. Furthermore, there were incentives to look for a substitute for marijuana at the low priced end of the drug trade and the crack technology was already available (crack was being used in the Bahamas), so smugglers turned to cocaine and dealers introduced crack to replace the marijuana that was being interdicted. See note 23 for additional discussion.

indications that this explanation does not hold, however (Rasmussen and Benson 1994, 122-127). For example, in 1985, "public opinion" surveys suggested that drug use was not considered to be an especially significant problem. Another explanation is that powerful interest groups demanded the war. It would, in fact, be surprising if this were not the case, since as Chambliss and Seidman (1971, 73) explain, "every detailed study of the emergence of legal norms has consistently shown the immense importance of interest-group activity, not the public interest, as the critical variable." Similarly, Rhodes (1977, 13) points out that "as far as crime policy and legislation are concerned, public opinion and attitudes are generally irrelevant. The same is not true, however, of specifically interested criminal justice publics." Additional research implies similar conclusions in the area of drug crime control, but also makes it clear that one of the most important "specifically interested criminal justice publics" continues to be law enforcement bureaucracies and their employees (e.g., Rasmussen and Benson 1994, 119-173). So what did interest groups demand that created incentives for the significant reallocation of policing resources suggested by the third column in Table 2? The answer: The Comprehensive Crime Act of 1984 requires the Justice Department to share drug-related property seizures with state and local agencies participating in the investigations, creating incentives for these agencies to shift resources toward drug enforcement (Benson, et al. 1995).

Government seizure of property used in criminal activity is actually a long-standing practice. It was one stimulus for the King's involvement in law enforcement as early as the ninth century (Benson, 1990), for instance, and was first used in the United States to combat smugglers avoiding import duties in the early 19th century. More recently, federal policing agencies have been using property seizures as a tool for combating drug market activity. They confiscated over $100 million in 1983, for instance. Perhaps as a result of the cooperation arising after the seizure-sharing requirement was passed, federal forfeitures reached $285 million in 1989. These seizures fluctuated between $281 million and $597 million from 1990 to 2005, before jumping to over $703 million in 2006.[31]

31. There is an outlier at $199 million in 2001 due to the Civil Asset Forfeiture Act in 2000 which added a number of procedural requirements that delayed recording of seizures in the following year. See Table 4.45.2006 from the Sourcebook of Criminal Justice Statistic Online, http://www.albany.edu/sourcebook/pdf/t4452006.pdf, which also is the source of the data reported above.

The 1984 federal asset forfeiture law was a bureaucratically-demanded legislative action propagated as a means to expand inter-bureau cooperation. For instance, in hearings on the Comprehensive Drug Penalty Act before the Subcommittee on Crime of the Committee on the Judiciary of the U.S. House of Representatives, held June 23 and October 14, 1983, much of the testimony focused exclusively on the confiscations and forfeitures issue (Subcommittee on Crime, 1985). Among the organizations and bureaucracies presenting testimony in support of the forfeitures-sharing arrangement were the U.S. Customs Service, various police departments and sheriffs, the U.S. Attorney's Office from the Southern District of Florida, and the U.S. Drug Enforcement Administration. There was no representation of local government oversight authorities (mayors, city councils, county commissions) either supporting or opposing such legislation. Furthermore, when the innovation was first introduced it appears that most non-law enforcement bureaucrats did not anticipate its implications, probably due to the poor "quality" of information selectively released by law enforcement bureaucracies and their congressional supporters. The only group suggesting problems with the legislation was the Criminal Justice Section of the American Bar Association. Two groups involved in drug therapy (The Therapy Committees of America, and the Alcohol and Drug Problems Association) also supported forfeitures sharing, but proposed that a share also go to therapy programs. Law enforcement lobbies prevailed as the statute mandated that shared assets go directly to law enforcement agencies rather into general funds, education funds, or other depositories that where mandated by many state forfeiture laws.

Forfeiture has an obvious potential deterrent value in that it raises the costs associated with drug offenses. Seizures are also justified as a source of revenue that can help pay for crime control, of course. Indeed, drugs allegedly cause crime, so dedication of forfeiture to law enforcement was said to be justified as a means of recouping the costs of enforcing drug-induced crime. This practical aspect of asset seizures -- treating the proceeds as something akin to a crime-fighting "user fee" -- was emphasized in a manual designed to help jurisdictions develop a forfeiture capability (National Criminal Justice Association 1988, 40). While suggesting that less tangible law enforcement effects (such as deterrence) should be counted as benefits, the manual emphasized that the determining factor for pursuit of forfeitures is "the ***jurisdiction's***

best interest" (emphasis added). This interest is viewed from the perspective of law enforcement agencies, a view that puts somewhat more weight on benefits for bureaucrats and somewhat less weight on community wide (and uncertain) deterrence effects. After all, as Stumpf (1988, 316; also see Blumberg 1979; Benson 1990; Rasmussen and Benson 1994) note, we must "look past the external political and social determinants of criminal justice procedures and policies to understand the system in operation. The process is staffed by professionals and quasi-professionals who have their own agenda ... [and] largely internal imperatives may be of even greater importance in explaining their outcomes." Indeed, if forfeitures are in the "public interest" because of their deterrent impacts, and if police are exclusively motivated to serve the public interest, then they should willingly cooperate in forfeiture efforts no matter what government agency's budget is enhanced by these seizures. The fact is that the revenues from drug-related seizures create the potential for bureaucratic managers' to expand their discretionary budgets, however, thereby enhancing their own well being directly and indirectly by rewarding supporters in the managers' networks with various "perks" (Breton and Wintrobe 1982, 137).[32]

Importantly, while not mandated by the federal legislation, the Department of Justice (DOJ) decided to treat seizures by state or local agencies “as if” they involved a cooperating Federal agency by “adopting” such seizures and then passing them back to the state or local agency, minus a 20 % handling charge, thereby allowing the agency to circumvent state laws requiring that seizures go to some specific use (e.g., education) or into general revenues. For example, North Carolina law required that all proceeds from the sale of confiscated assets go to the County School Fund. Law enforcement agencies in North Carolina began routinely using the 1984 federal legislation and DOJ adoption program to circumvent the state law so the seized assets could be repatriated to law enforcement agencies rather than going to schools. The same

32 Niskanen (1968, 1971) assumes that a bureau manager can be characterized as a budget maximizer. Mique and Belanger (1974) explain that budget maximization unduly limits the range of utility maximizing efforts, however, so they propose that the bureaucrat seeks discretion reflected by a budget with excess revenues over actual costs. This "discretionary budget," "discretionary profit," "fiscal residuum," or "organizational slack" has been the focus of much of the subsequent literature (Benson 1995). Indeed, Kress's (1990) empirical results suggest that bureau size may be sacrificed to increase discretionary budget. Bureau discretion is likely to be constrained, of course, as monitoring by the legislature and various interest groups is likely to occur. It is also likely that such constraints and monitoring will be limited and imperfect, however (Niskanen 1975; Williams 1984; Benson, 1990, 1995).

occurred in many other states. Adoptions occurred for other reasons too. For instance, Florida law at the time did not allow seizures of real property but federal law did. The adoption program could be used to make such seizures.

As education bureaucrats and others affected by the diversion of revenues to law enforcement recognized what was going on, they began to advocate a change in the federal law. They were successful, at least initially: the Anti-Drug Abuse Act of 1988 (passed on November 18, 1988) changed the asset forfeitures provisions that had been established in 1984. Section 6077 of the 1988 Statute stated that the attorney general must assure that any seized asset transferred to a state or local law enforcement agency "is not so transferred to circumvent any requirement of state law that prohibits forfeiture or limits the use or disposition of property forfeited to state or local agencies." This provision was designated to go into effect on October 1, 1989, and the Department of Justice interpreted it to mandate an end to all adoptive forfeitures (Subcommittee on Crime 1990, 166). State and local law enforcement officials immediately began advocating repeal of Section 6077, however. For example, the Subcommittee on Crime heard testimony on April 24, 1989 advocating repeal of Section 6077 from such groups as the International Association of Chiefs of Police, the Florida Department of Law Enforcement, the North Carolina Department of Crime Control and Public Safety, and the U.S. Attorney General's Office. Perhaps the most impassioned plea was made by Joseph W. Dean of the North Carolina Department of Crime Control and Public Safety (Subcommittee on Crime 1990, 20-28), who both admitted that law enforcement bureaucracies were using the federal law to circumvent the state's constitution and that without the benefits of confiscations going to those bureaus, substantially less effort would be made to control drugs:

> Currently the United States Attorney General, by policy, requires that all shared property be used by the transfer for law enforcement purposes. The conflict between state and federal law [given Section 6077 of the 1988 Act] would prevent the federal government from adopting seizures by state and local agencies....
>
> This provision would have a devastating impact on joint efforts by federal, state and local law enforcement agencies not only in North Carolina but also in other affected states....
>
> Education is any state's biggest business. The education lobby is the most powerful in the state and has taken a position against law enforcement being able to share in seized assets. The irony is that if local and state law enforcement agencies cannot share, the assets will in all likelihood not be seized and forfeited. Thus no one wins but the drug trafficker....
>
> If this financial sharing stops, we will kill the goose that laid the golden egg.

This statement clearly suggests that law enforcement agencies were focusing more resources on enforcement of drug laws because of the financial gains for the agencies arising from forfeitures. In fact, a statement by the U.S. Attorney for the Eastern District of North Carolina, in support of repealing Section 6077, actually implies that law enforcement agencies focus on confiscations as opposed to criminal convictions (Subcommittee on Crime 1990, 26): "Drug agents would have much less incentive to follow through on the asset potentially held by drug traffickers, since there would be no reward for such efforts and would concentrate their time and resources on the criminal prosecution." The police lobbies won the battle over federal legislation, as Section 6077 of the Anti-Drug Abuse Act of 1988 never went into effect. Its repeal was hidden in the 1990 Defense Appropriations bill, and it applied retroactively to October 1, 1989.

Many law enforcement agencies have been actively pursuing asset seizure. Over 90 percent of the police departments with jurisdictions containing populations of 50,000 or more and over 90 percent of the sheriffs' departments serving populations of 250,000 or more received money or goods from drug asset forfeiture programs in 1990, for instance (Reaves 1992, 1). Indeed, civil forfeitures can be successful from the police's perspective even if arrest and prosecution is not. Forfeiture laws are supposedly designed to protect lien holders and owners whose property is used without their knowledge or consent, but owners' rights are tenuous since most states prohibit suits claiming that the property was wrongfully taken. This prohibition, coupled with the fact that property owners must bring their claims in civil forfeiture hearings, diminishes their capacity to defend themselves. Generally, owners whose property is alleged to have been used in a drug offense or purchased with the proceeds from drug trafficking have the burden of establishing that they merit relief from the forfeiture proceeding (National Criminal Justice Association 1988, 41). Not only must the owners prove that they are innocent of the alleged crime, but that they lacked both knowledge of and control over any unlawful use of the property.[33]

33. Proceeds from asset forfeiture do not necessarily represent a net gain to the local police even when the monies are given directly to the law enforcement agencies, because pressure from other local bureaucrats who are competitors for scarce budgetary resources may cause administrators and politicians with whom bureaucrats bargain to view the flow of money from asset seizures as a substitute for regular appropriations. After all, one alleged purpose of asset forfeitures is to make drug enforcement efforts to a degree self-financing. Furthermore, Becker and

The asset forfeiture provisions of the 1984 federal statute represented an exogenous change in state and local law enforcement agencies' bureaucratic benefit-cost calculus, and this change is hypothesized to have induced them to join in the federally declared war on drugs. The observed changes in drug enforcement since 1984 are consistent with this hypothesis,[34] but unfortunately, this hypothesis cannot be supported by direct statistical tests since the 1984 crime bill was a one-time change in incentives, and other factors may have also changed at around the same time. Therefore, an indirect means of testing this hypothesis is developed by Mast, et al. (2000). This test relies on the fact is that the increased effort against drugs is far from the same everywhere, as demonstrated in Table 5. 1989 drug arrest rates range from 1,060/100,000 population in California to 88/100,000 population in West Virginia.

Lindsay (1994) have demonstrated that government can "free ride" by reducing budget allocations when an agency obtains funding from some other source. The extent to which police agencies can increase their budgets through forfeiture activity is explored in Benson, et al. (1995) and Baicker and Jacobson (2007). Using data from Florida's local policing jurisdictions, Benson, et al. (1995) find that confiscations have a positive and significant impact on police agencies' budgets after accounting for demand and local government budget constraint factors. The estimated elasticity of non-capital expenditures with respect to confiscations is .04 for all jurisdictions and .07 for large jurisdictions. This seemingly modest elasticity belies the potentially large impact of asset forfeitures on decision making, since only a small fraction of non-capital expenditures are likely to be discretionary (see note 31). The elasticity of discretionary spending with respect to confiscations can be approximated as the estimated elasticity divided by the proportion of all non-capital expenditures that are discretionary. Baicker and Jacobson (2007) obtain county level data from parts of Florida, California, Pennsylvania, Arizona and New York to test the same hypothesis, and include a number of additional control variables that were unavailable for Benson, et al. (1995). They conclude that counties reduce police budgets by an average of 82 cents for each dollar seized during the previous year, so police retain about 18 cents per dollar of seizures. These studies make it clear that local governments do react to successful seizures, but they do not reduce budgets by the full value of the seizures. Therefore, local police increase their discretionary budgets by pursuing seizures. Given the lag in budget reductions found by Baicker and Jacobson (2007), police could actually have incentives to pursue seizures even if local governments were to reduce budgets by the full amount of the seizures. If police agencies seize assets one year and do not fully anticipating the reduced budget that will follow, they may pursue more seizures the next year in order to make up for the budget shortfall. As this cycle of seizures and budget reductions repeat, the local government decision makers may begin to assume that seizures will continue and permanently reallocate a portion of what was police budgets to other uses. As a result, the police become dependent on seizures just to maintain their expenditure levels. This is consistent with Worrall's (2001) findings. His survey of a large number of city and county law enforcement executives indicates that many, including almost 40 % of the large agencies, claim dependence on forfeitures as budgetary supplements. Pursuit of forfeitures becomes an imperative in such cases, and Worrall (2001, 171) concludes that "the primary implication tied to these findings is that a conflict of interest between effective crime control and creative fiscal management will persist so long as law enforcement agencies remain dependent on civil asset forfeitures."

34. There is a reversal in the enforcement trend in the early 1990s, but the discussion of political backlash against prison crowding and early-release programs discussed above appears to explain this. Once sufficient numbers of prisons were built to increase the portion of sentences served back up to something around their pre-drug-war-surge level, the upward trend in enforcement reappeared and has continued, with continuing legislative support in the form of expansion of prison systems.

Table 5
Drug Arrests per 100,000 Population, by State, 1984 and 1989

State	Rank	1989	1984	%Change	State	Rank	1989	1984	%Change
Alabama	21	392	190	106.3	Montana	27	332	130	155.4
Alaska	44	162	120	35.0	Nebraska	32	283	150	88.7
Arizona	11	519	380	36.6	Nevada	42	170	110	54.5
Arkansas	30	311	230	35.2	New Hampshire	35	265	138	92.0
California	1	1,060	590	79.7	New Jersey	2	895	460	94.6
Colorado	33	279	230	21.3	New Mexico	13	454	300	51.3
Connecticut	8	647	270	139.6	New York	3	799	510	56.7
Delaware	28	329	230	43.0	North Carolina	20	411	261	57.5
Florida	6	675	360	87.5	North Dakota	49	107	160	- 33.1
Georgia	7	661	344	92.1	Ohio	17	426	190	124.2
Hawaii	25	355	420	- 15.5	Oklahoma	29	327	270	21.1
Idaho	39	221	140	57.9	Oregon	15	438	240	82.5
Illinois	14	446	120	271.7	Pennsylvania	34	274	130	110.8
Indiana	41	189	130	45.4	Rhode Island	19	422	380	11.1
Iowa	46	119	90	32.2	South Carolina	12	470	300	56.7
Kansas	37	233	140	66.4	South Dakota	47	118	190	- 37.9
Kentucky	9	528	300	76.0	Tennessee	36	263	160	64.4
Louisiana	10	526	270	94.8	Texas	16	433	360	20.3
Maine	38	229	130	76.1	Utah	31	291	320	- 9.1
Maryland	4	776	420	84.8	Vermont	48	109	n.a.	n.a.
Mass.	5	689	310	122.3	Virginia	26	341	200	70.5
Michigan	23	374	170	120.0	Washington	24	369	170	117.1
Minnesota	45	161	130	23.8	West Virginia	50	88	100	- 12.0
Mississippi	22	375	190	97.4	Wisconsin	40	207	200	3.5
Missouri	18	422	240	75.8	Wyoming	43	169	180	- 6.1
					United States		538	312	72.4

Source: U.S. Department of Justice, Bureau of Justice Statistics (1984/1989).

In this context, note that state seizure laws vary considerably, and in fact, they have been changing over time as state law-enforcement groups and their drug-warrior allies have recognized the financial benefits arising because of the federal law (Baicker and Jacobson 2007, 3). In several states, law enforcement agencies row get to keep assets they seize under state law so they do not have call upon the DOJ to adopt their seizures. Given the DOJ's charged 20 % handling fee for adoptions, at the margin at least, police in a state with a law that allocates seizures to the law enforcement should have even stronger incentives to pursue drug enforcement.[35] In addition, the DOJ is only willing to adopt relatively large

35. Many state laws now allow seizures of property arising from investigations of non-drug crimes (federal law does too). However, drug enforcement is virtually always the most lucrative source of seizures because of the huge amount of cash involved in the market, along with many assets that are attractive targets for property seizures (e.g., cars, boats, airplanes, land used to grow marijuana). Most other crimes do not generate opportunities for large seizures, at least without relatively large investigation costs. Proceeds from property crimes that are recovered can be claimed by the victims, for instance, and most violent crimes do not involve valuable assets or cash. Some non-drug criminal activity does provide opportunities for large seizures, of course (e.g., organized crime, money

seizures. For instance, real property must be worth $20,000 and a vehicle must be worth $5,000 before the DOJ will adopt the seizure. This means that the state laws rule for small seizures, and importantly, the vast majority of seizures are small. In California, for instance, local prosecutors conducted over 6,000 forfeiture cases in 1992, and over 94 % involved seizures of $5,000 or less.

Some states allowed police to retain seizure proceeds in 1984, while others mandated that they go into the general fund or be used for specific purposes, such as education. Many states allowed police agencies to keep only a portion of the proceeds, and several states did not permit police to keep any of the proceeds from assets seized (many state laws have changed since 1984, as noted above). Thus, in some states, local police investigations only produce police revenues from seizures through the DOJ adoption process, with the processing charges and size limitations noted above, while police in other states could retain seizures without relying on the DOJ. Not surprisingly, drug arrests per 100,000 population in states with significant limits on police retention of seizure proceeds averaged 363 during 1989, while states where police kept seizure proceeds averaged 606 drug arrests per 100,000. This appears to support the hypothesis that police increase drug enforcement when they can keep seizures, and therefore, at least indirectly, it appears to support the proposition that the 1984 federal law stimulated an increase in drug enforcement by many state and local police agencies. Of course, other factors, such as the level of drug use and/or property crime could explain these interstate differences. Therefore, strong support for the hypothesis requires an empirical analysis that controls for other factors affecting the level of drug enforcement.

Mast, et al. (2000) model local drug enforcement efforts and provide an empirical test of the hypothesis that enforcement is higher when police can keep assets seized. Two different samples of cities are employed to test the model. The use of two samples is motivated by the fact that one determinant of drug enforcement may be the level of drug market activity so fully specifying the model is not possible for a large sample because there are no reliable estimates of the prevalence of drug market activity within most political jurisdictions. As noted above, however, annual jurisdiction level data on drug use for a limited

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laundering, financial market crimes), but many local police departments do not have the expertise needed to pursue these crimes, and they are also more difficult and time consuming. Drug markets are virtually ubiquitous, and seizures through drug enforcement efforts are relatively easy to make.

sample of 24 cities is provided by the National Institute of Justice's Drug Use Forecasting (DUF) program. Use of this sample carries a high price in terms of degrees of freedom, but the ability to control for drug use makes it very attractive, particularly when supplemented by an analysis of a larger sample of cities that does not have such a direct measure of drug use.

Mast, et al. (2000) also control for the level of police resources available in a community and for alternative demands on those police resources by controlling for property and violent crime rates, as well as for various socio-economic characteristics of the community that might influence community demands for drug enforcement. Their results with regard to the impact of asset seizure laws are robust across model specification and the alternative samples of cities: police focus relatively more effort on drug control when they can enhance their budgets by retaining seized assets. State Legislation permitting police to keep a portion of seized assets raises drug arrests as a portion of total arrests by about 20 percent and drug arrest per capita by about 18 percent. This provides evidence that local police respond to incentives created by state laws, and indirect support for the contention that the surge in drug enforcement that started in 1984 is a result of the Federal law.[36]

Drug war advocates are likely to respond to the evidence that drug enforcement increases because police can keep the assets they seize is precisely the outcome they intended, and that it is a good thing for at least three reasons.[37] First, they are likely to contend that drugs cause crime, but as explained above, this claim is not supported by evidence on the temporal sequencing of drug use and non-drug crime, or by evidence on arrest and conviction histories of drug offenders, or statistical analysis of recidivism (or by most

36. Baicker and Jacobson (2007) reach similar conclusions, finding that a 1 % increase in the "sharing rate" (a variable that combines information on the sharing percentages going to police as established by state law and a measure of the extent to which counties reduce budgets following seizures) results in a 0.1 percent increase in total drug arrests. They find a larger impact on possession arrests than on sales arrests, and on opiate and cocaine arrests than marijuana arrests (in fact, their marijuana arrest coefficient is not significant). However, some of these estimates may be problematic because of use of this sharing rate. This variable implies an assumption that police fully anticipate the reductions in budget, but perhaps more importantly, it rules out the dependency implications of seizures suggested by Worrall's (2001) findings. The fact that budgets are reduced with a lag may actually imply that the entire amount of the seizure is important for police, either as a net gain or to cover reductions in budget allocations.

37. They also might note the dip in enforcement intensity in the early 1990s (see figure 1), and argue that if seizures the driving force, no dip should occur. Obviously, other factors influence drug enforcement, of course, and for a relatively short period in the early 1990s, some other factor apparently dominated. See note 23 and accompany text for a possible explanation.

other carefully analyzed data (Chaiken and Chaiken 1990, Rasmussen and Benson 1994)). In addition, research has demonstrated that much (most) of the so-called drug-related violence actually results from the systemic factors arising because of prohibition. This presentation has gone beyond this counter-argument, however, to point out that there is growing (and now, perhaps substantial) evidence that drug enforcement also causes property crime as scarce criminal justice resources are diverted into drug-crime control. Furthermore, violent crime due to prohibition also appears to increase with enforcement due to the same reallocation effects. In other words, drug prohibition and enforcement causes negative externalities. These external costs are born by the victims of the additional property and violent crimes arising because of drug enforcement, and they are not being taken into account by drug policy decision makers.[38] These significant externalities from drug enforcement imply that America's war on crime has been inappropriately diverted into a war on drugs.

An alternative argument might be offered by drug warriors to justify allocating asset seizures to police: criminals are paying for law enforcement. This is not necessarily true either! For instance, the Volusia County, Florida, Sheriff's Department had a drug squad which seized over $8 million (an average of $5,000 per day) from motorists on Interstate 95 during a forty-one-month period between 1989 and 1992.[39] These seizures were "justified" as part of the war on drugs. Actually, however, most Volusia County seizures involved southbound rather than northbound travelers, suggesting that the drug squad was more interested in seizing money than in stopping the flow of drugs. Furthermore, no criminal charges were filed in over 75 percent of the county's seizure cases. More significantly, a substantial amount of money was apparently seized from innocent victims. Money was not returned, however, even when the seizure was

38. There are many other external costs as well. Impacts on civil liberties and property rights are mentioned above, for instance. Corruption of domestic and foreign police, and indeed, of substantial segments of several foreign governments also can be cited (Rasmussen and Benson 1994) along with a growing death toll in producing countries, in part because the artificially high profits that are used to finance terrorism and revolution. Reduced budgets for education and other state and local government services also result as more funds are directed into prison construction. And so on.

39 See the Pulitzer Prize winning series of Orlando Sentinal articles during June, 1992 by Jeff Brazil and Steve Berry, which describe, in vivid detail, the asset seizure program in Volusia County, Florida, that netted over $8 million in four years. For a few other examples of apparent misuse of seizure laws, see Dennis Cauchon and Gary Fields' series of articles on "Abusing Forfeiture Laws" in USA Today, May 1992; Jim Henderson, "Big Numbers Don't Add up to Success in Texas War on Drugs," Houston Chronicle, December 24, 2000, State 1; and "Turning Drug Busts into a Profit Center," Washington Post Weekly Edition (April 19, 1991,

challenged, no proof of wrongdoing or criminal record could be found, and the victim presented proof that the money was legitimately earned. Three-fourths (199) of Volusia County's seizures were contested. The sheriff's forfeiture attorney handles settlement negotiations. Victims of seizures hire attorneys to represent them in the negotiations. Note that the fact that 25 % of the seizures were not challenged does not mean that they were "legitimate". The cost of making a challenge may have been too high for it to be worthwhile. Police in one Louisiana county sheriff recognized this, for instance, and focused seizure actions on out-of-state cars, recognizing that these drivers were less likely to challenge that state residents. Only four people got all of their money back, and the rest settled for 50 to 90 percent of their money after promising not to sue the sheriff's department.[40]

Since drug prohibition and its enforcement cause negative externalities and the 1984 Congressional mandate that police retain proceeds from asset seizures from drug market investigations resulted in increased drug enforcement, this law also has generates large negative externalities. These include the relatively high property and violent crime that arises , as well as the costs imposed on but also for innocent victims of aggressive civil seizure actions. The same is clearly true for the DOJ decision to broaden this law by "adopting" seizures when a state's law does not allow police to keep seizures, and for the state-legislature mandates that law enforcement agencies get a share of such seizures.

The implications of this analysis are straightforward. From an economic perspective, law enforcement agencies should not be allowed to retain the assets they seize, and the enforcement of drug prohibitions should be dramatically reduced if not eliminated entirely. These government activities are public bads.

40. A twenty-one-year-old naval reservist had $3,989 seized in 1990, for instance, and even though he produced Navy pay stubs to show the source of the money, he ultimately settled for the return of $2,989, with 25% of that going to his lawyer. In similar cases the sheriff's department kept $4,750 out of $19,000 (the lawyer got another $1,000); $3,750 out of $31,000 (the attorney got about 33% of the $27,250 returned); $4,000 of $19,000 ($1,000 to the attorney); $6,000 out of $36,990 (the attorney's fee was 25% of the rest); and $10,000 out of $38,923 (the attorney got one-third of the recovery).

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