The Budgetary Implications of Drug Prohibition

December, 2008

Jeffrey A. Miron
Department of Economics
Harvard University
miron@fas.harvard.edu
781-856-0086

The Criminal Justice Policy Foundation provided research funding for this report.

Executive Summary

- Government prohibition of drugs is the subject of ongoing debate.
- One issue in this debate is the effect of prohibition on government budgets. Prohibition entails direct enforcement costs and prevents taxation of drug production and sale.
- This report examines the budgetary implications of legalizing drugs.
- The report estimates that legalizing drugs would save roughly $44.1 billion per year in government expenditure on enforcement of prohibition. $30.3 billion of this savings would accrue to state and local governments, while $13.8 billion would accrue to the federal government. Approximately $12.9 billion of the savings would results from legalization of marijuana, $19.3 billion from legalization of cocaine and heroin, and $11.6 from legalization of other drugs.
- The report also estimates that drug legalization would yield tax revenue of $32.7 billion annually, assuming legal drugs are taxed at rates comparable to those on alcohol and tobacco. Approximately $6.7 of this revenue would result from legalization of marijuana, $22.5 billion from legalization of cocaine and heroin, and $3.5 from legalization of other drugs.
- Whether drug legalization is a desirable policy depends on many factors other than the budgetary impacts discussed here. Rational debate about drug policy should nevertheless consider these budgetary effects.
- The estimates provided here are not definitive estimates of the budgetary implications of a legalized regime for currently illegal drugs. The analysis employs assumptions that plausibly err on the conservative side, but substantial uncertainty remains about the magnitude of the budgetary impacts.

I. Introduction

Government prohibition of drugs is the subject of ongoing debate. Advocates believe prohibition reduces drug trafficking and use, thereby discouraging crime, improving productivity and increasing health. Critics believe prohibition has only modest effects on trafficking and use while causing many of the problems typically attributed to drugs themselves.

One issue in this debate is the effect of drug prohibition on government budgets. Prohibition entails direct enforcement costs, and prohibition prevents taxation of drug production and sale. If drugs were legal, enforcement costs would be negligible and governments could levy taxes on the production and sale of drugs. Thus, government expenditure would decline and tax revenue would increase.

This report estimates the savings in government expenditure and the gains in tax revenue that would result from replacing drug prohibition with a regime in which drugs are legal but taxed and regulated like alcohol and tobacco. The report is not an overall evaluation of drug prohibition; the magnitude of any budgetary impact does not by itself determine the wisdom of prohibition. The costs required to enforce prohibition, and the transfers that occur because income in a prohibited sector is not taxed, are nevertheless relevant to rational discussion of this policy.

The policy change considered in this report—legalization combined with taxation and regulation—is more substantial than decriminalization, which means repealing criminal penalties against possession but retaining them against trafficking. The budgetary implications of legalization exceed those of decriminalization for three reasons.[1] First, legalization eliminates arrests for trafficking in addition to eliminating arrests for possession. Second, legalization saves prosecutorial, judicial, and incarceration expenses; these savings are minimal in the case of decriminalization. Third, legalization allows taxation of drug production and sale.

This report concludes that drug legalization would reduce government expenditure by $44.1

[1] See, for example, the estimates in Miron (2002) versus those in Miron (2003c).

billion annually. Roughly $30.3 billion of this savings would accrue to state and local governments, while roughly $13.8 billion would accrue to the federal government. Approximately $12.9 billion of the savings would result from legalization of marijuana, $19.3 billion from legalization of cocaine and heroin, and $11.6 from legalization of all other drugs. Legalization would also generate tax revenue of roughly $32.7 billion annually if drugs were taxed at rates comparable to those on alcohol and tobacco. Approximately $6.7 billion of this revenue would result from legalization of marijuana, $22.5 billion from legalization of cocaine and heroin, and $3.5 billion from legalization of all other drugs.

The estimates provided here are not definitive estimates of the budgetary implications of a legalized regime for currently illegal drugs. The analysis employs assumptions that plausibly err on conservative side, but substantial uncertainty remains about the magnitude of the budgetary impacts. The estimates are therefore ballpark figures that indicate what order of magnitude policymakers should expect from legalization.

The remainder of the report proceeds as follows. Section II estimates state and local expenditure on drug prohibition. Section III estimates federal expenditure on drug prohibition. Section IV estimates the tax revenue that would accrue from legalized drugs.

II. State and Local Expenditure for Drug Prohibition Enforcement

The savings in state and local government expenditure that would result from drug legalization consists of three main components: the reduction in police resources from elimination of drug arrests; the reduction in prosecutorial and judicial resources from elimination of drug prosecutions; and the reduction in correctional resources from elimination of drug incarcerations.[2]

[2] This report addresses only the criminal justice costs of enforcing drug prohibition; it does not address any possible changes in prevention, education, or treatment expenses that might accompany legalization. The narrower approach is appropriate because the decision to prohibit drugs is separate from the decision to subsidize prevention, education and treatment. Drug legalization might nevertheless cause some reduction in government expenditure for demand-side policies. For example, legalization would likely mean reduced criminal justice referrals of drug

There might be other savings in government expenditure from legalization, but these are minor or difficult to estimate with existing data.[3] The omission of these items biases the estimated budgetary savings downward.

To estimate the state and local savings in criminal justice resources, this report uses the following procedure. It estimates the percentage of state and local arrests for drug violations and multiplies this percentage by the state and local budget for police. It estimates the percentage of state and local felony convictions for drug violations and multiplies this percentage by the state and local budget for prosecutors and judges. It estimates the percentage of state and local incarcerations for drug violations and multiplies this percentage by the state and local budget for prisons. It then sums these components to estimate the overall reduction in state and local government expenditure. Under plausible assumptions, this procedure yields a reasonable estimate of the cost savings from drug legalization.[4] [5]

State and Local Police Budget Due to Drug Prohibition

The first cost of drug prohibition is the portion of state and local police budgets devoted to drug arrests. This report calculates that expenditure in two steps. It first calculates the

---

offenders to treatment; this category accounted for 15-50% of drug treatment referrals in 2006, depending on the drug category (U.S. Department of Health and Human Services (2006, Table 4, p.14)). Thus, the approach adopted here implies a conservative estimate of the reduction in government expenditure from drug legalization.

[3] For example, under current rules regarding parole and probation, a positive urine test for drugs can send a parolee or probationer to prison, regardless of the original offense. These rules might change under legalization, implying additional reductions in government expenditure.

[4] The key assumption is that the technology is constant-returns to scale, so that average costs equal marginal costs. This equivalence is not necessarily accurate in the short-run or for very small communities but is likely a good approximation overall.

[5] The report includes estimates of this expenditure for all illegal drugs and for specific drug categories. Given available data, however, the estimates for specific drug categories are less accurate than those for illegal drugs overall.

percentage of drug arrests due to prohibition. It then multiplies this percentage by state and local expenditure on police.

Table 1 calculates the fraction of state and local arrests due to drug prohibition. Line 1 gives the total number of state and local arrests in 2007. Line 2 gives the number of such arrests for drug law violations. Line 3 gives the fraction of arrests due to drug law violations, defined as Line 2 divided by Line 1. Line 4 gives the percentage of drug arrests due to sale or manufacturing violations. Line 5 gives the percentage of overall arrests due to sale / manufacturing violations, defined as Line 3 times Line 4. Line 6 gives the percentage of drug law violations due to possession violations. Line 7 gives the percentage of overall arrests due to possession violations, defined as Line 3 times Line 6.

The information in Lines 5 and 7 is what is required in subsequent calculations, subject to one modification. Some arrests for drug violations, especially those for possession, occur because the arrestee is under suspicion for a non-drug crime but possesses drugs that are discovered by police during a routine search. This means an arrest for drug possession is recorded, along with, or instead of, an arrest on the other charge. If drug possession were not a criminal offense, the suspects in such cases would still be arrested on the charge that led to the search, and police resources would be used to approximately the same extent as when drug possession is a criminal violation.[6]

In determining which arrests represent a cost of drug prohibition, therefore, it is appropriate to count only those that are "stand-alone," meaning those in which a drug violation rather than some other charge is the reason for the arrest. This issue arises mainly for possession

[6] To the extent it takes additional resources to process an arrestee on multiple charges rather than on a single charge, there is still a net utilization of police resources in such cases due to prohibition. In addition, there is typically a lab test to determine the precise content of any drugs seized when there is an arrest on drug charges, implying utilization of additional resources due to prohibition. A different issue is that in some cases, police stops for non-drug charges that discover drugs and produce an arrest on drug charges might not have led to any arrest in the absence of the drug charge (e.g., because of insufficient evidence).

rather than for trafficking. There are few hard data on the fraction of "stand-alone" possession arrests, but the information in Miron (2002) and Reuter, Hirschfield and Davies (2001) suggests it is between 33% and 85%.[7] To err on the conservative side, this report assumes that 50% of possession arrests are due solely to drug possession rather than being incidental to some other crime. Thus the resources utilized in making these arrests would be available for other purposes if drug possession were legal. Line 8 of Table 1 therefore shows Line 7 divided by 2; this is the fraction of possession arrests attributable to drug prohibition.[8]

Table 2 uses the information in Table 1, Lines 5 and 8, to calculate the police budget due to drug prohibition. Line 1 gives total state and local expenditure on police in 2006 (fiscal year). Line 2 gives the percent of arrests due to drug sale/manufacturing violations, equal to Line 5 of Table 1. Line 3 gives police expenditure due to arrests for drug sale/manufacturing, defined as Line 2 times Line 1. Line 4 gives the percent of arrests due to drug possession violations, equal to Line 8 of Table 1. Line 5 gives police expenditure due to arrests for drug possession, defined as Line 5 times Line 1. Line 6 gives total police expenditure due to drug violations, defined as Line 3 plus Line 5.

State and Local Judicial and Legal Budget Due to Drug Prohibition

The second main cost of drug prohibition is the portion of the prosecutorial and judicial budget devoted to drug prosecutions. A reasonable indicator of this percentage is the fraction of felony convictions in state courts for drug offenses.

The second portion of Table 2 calculates the judicial and legal budget due to drug prohibition. Line 7 gives the state and local judicial and legal budget. Line 8 gives the percent

[7] Lewis (2004) reports that the fraction of stand-alone arrests on all drug charges in the city of Syracuse, NY was 90.5% in 2002.

[8] Gettman and Fuller (2003) obtain a similar estimate to that reported here for Virginia in 2001.

of felony convictions in state courts due to drug law violations.[9] Line 9 gives the state and local judicial and legal budget due to drug prosecutions, equal to the product of Line 7 and Line 8.

The Corrections Budget Due to Drug Prohibition

The third main cost of drug prohibition is the portion of the corrections budget devoted to incarcerating drug prisoners. A reasonable indicator of this portion is the fraction of prisoners incarcerated for drug offenses.

The third portion of Table 2 calculates the corrections budget due to drug prohibition.[10] Line 10 gives the overall corrections budget. Line 11 gives the percent of state prisoners incarcerated for drug law violations.[11] Line 12 give the corrections budget devoted to drug prisoners, equal to the product of Line 10 and Line 11.

Overall State and Local Expenditure for Enforcement of Drug Prohibition

Line 13 of Table 2 adds Lines 6, 9, and 12 to estimate total state and local government expenditure for enforcement of drug prohibition. The figures in lines 13 are overstatements of the savings in government expenditure that would result from legalization, for two reasons. First, under prohibition the police sometimes seize assets from those arrested for drug violations (e.g., financial accounts, cars, boats, land, and houses), with the proceeds used to fund police and prosecutors.[12] Second, some drug offenders pay fines, which partially offsets the expenditure required to arrest, convict and incarcerate these offenders. The Appendix show that this

[9] This figure is not available by drug. The calculations assume that the fraction of felony convictions by drug equals the fraction of sale/manufacturing arrests by drug.

[10] This report excludes the capital outlays portion of the corrections budget since the available data do not indicate the average rate of such expenditures. This biases the estimates downward.

[11] This figure is not available by drug. The calculations assume that the fraction of prisoners by drug equals the fraction of sale/manufacturing arrests by drug.

[12] Most seized assets are ultimately forfeited.

offsetting revenue has been at most $0.5 billion per year in recent years at the state and local level.

Line 14 therefore shows the net state and local expenditure on drug prohibition for 2006 after subtracting out revenue from seizures and fines.[13] For all drugs, the estimate is $30.3 billion; for marijuana, $10.0 billion; for cocaine and heroin, $12.8 billion; and for other drugs, $7.2 billion.[14] [15]

III. Federal Expenditure for Drug Prohibition Enforcement

This section estimates federal expenditure on drug prohibition enforcement. Miron (2003b) estimates this expenditure as $13.6 billion in 2002.[16] [17] [18] Adjusting this number for inflation between 2002 and 2006 gives an estimate of $15.2 billion for 2006.

---

[13] Since these data are not available by drug, the estimates assume that seizure and fine revenue are roughly proportional to gross expenditure.

[14] Inflation rate data used throughout the paper are for the CPI - All Urban Consumers (Bureau of Labor Statistics, U.S. Department of Labor, http://www.bls.gov/cpi/home.htm#data).

[15] As a check, it is useful to compare the estimate provided here to that derived from an alternative methodology. ONDCP (1993) reports survey evidence on drug prohibition enforcement by state and local authorities for the years 1990/1991. Adjusting these data for inflation and the percent attributable to drug prohibition yields an estimate similar to that reported above.

[16] This consists of expenditure in the following categories: DC Court Services and Offender Supervision ($86.4 million); Department of Defense ($1,008.5 million); Intelligence Community Management Account ($42.8 million); The Judiciary ($819.7 million); Department of Justice ($8,140.1 million); ONDCP ($533.3 million); Department of State ($832.6 million); Department of Transportation ($591.4 million); and Department of Treasury ($1,546.8 million). See ONDCP (2002), pp.29-31.

[17] Murphy, Davis, Liston, Thaler and Webb (2000) examine the methods used by ONDCP to estimate this expenditure. They conclude that methodological problems render parts of the estimates biased, in some cases by substantial amounts. These issues do not imply major qualifications to the data considered here, however. Murphy et al. find that the anti-drug budgets of the Coast Guard and the Bureau of Prisons are accurate reflections of the resources expended while the reported expenditure of the Department of Defense probably underestimates its anti-drug budget. The overestimates that they identify occur for demand-side activities.

As with state and local revenue, this figure should be adjusted downward by the revenue from seizures and fines. The Appendix indicates that this amount has been at most $1.4 billion in recent years, implying a net savings of about $13.8 billion.

Table 3 allocates this $13.8 billion to different drug categories using the percentage of DEA drug arrests by drug. The third line of Table 3 shows that approximately $2.9 billion of the federal expenditure on drug prohibition is due to marijuana prohibition, $6.5 billion to cocaine and heroin, and $4.4 billion to other drugs.

III. The Tax Revenue from Legalized Drugs

In addition to reducing government expenditure, drug legalization would produce tax revenue from the legal production and sale of drugs. To estimate the revenue, this report employs the following procedure. First, it estimates current consumer (retail) expenditure on drugs under prohibition. Second, it estimates the expenditure likely to occur under legalization. Third, it estimates the tax revenue that would result from this expenditure based on assumptions about the kinds of taxes that would apply to legalized drugs.

Expenditure on Drugs Under Current Prohibition

The first step in determining the tax revenue under legalization is to estimate expenditure on drugs under current prohibition. ONDCP (2001a, Table 1, p.3) provides estimates of this expenditure for 2000. These estimates rely on a range of assumptions about the drug market, and modification of these assumptions might produce a higher or lower estimate. There is no obvious reason, however, why alternative assumptions would imply dramatically different

[18] The 2003 *National Drug Control Strategy* adopts a new methodology for estimating the federal drug control budget. This new methodology implies a substantial reduction in supply side expenditure (ONDCP 2002, pp.33-34). For the purposes of this report, however, the old methodology is more appropriate. For example, the new approach excludes expenditures on incarceration of persons imprisoned for drug crimes.

estimates of current expenditure on drugs. This report therefore uses the ONDCP figures as the starting point for the revenue estimates presented below.

Table 4, line 1, gives the ONDCP estimates for 2000. Line 2 gives these estimates adjusted for inflation between 2000 and 2006. This assumes no changes in use rates between 2000 and 2006.

Expenditure on Drugs under Legalization

The second step in estimating the tax revenue that would occur under legalization is to determine how expenditure on drugs would change as the result of legalization. A simple framework in which to consider various assumptions is the supply and demand model. To use this model to assess legalization's impact on drug expenditure, it is necessary to state what effect legalization would have on the demand and supply curves for drugs.

This report assumes there would be no shift in the demand for drugs.[19] This assumption likely errs in the direction of understating the tax revenue from legalized drugs, since the penalties for possession potentially deter some persons from consuming. Any increase in demand as a result of legalization, however, would plausibly come from casual users rather than heavy users, since heavy users are the ones with strong desire to consume drugs and are therefore already consuming despite prohibition. Any increase in use might also come from decreased consumption of alcohol, tobacco or other goods, so increased tax revenue from legal drugs would be partially offset by decreased tax revenue from other goods. Forbidden fruit effects from prohibition might also tend to offset the demand decreasing effects of penalties for possession.

[19] To be explicit, the assumption is that there is no shift in the demand curve. If the supply curve shifts, there will be a change in the quantity demanded.

Thus, the assumption of no change in demand is plausible, and it likely biases the estimated tax revenue downward.[20]

Under the assumption that demand does not shift due to legalization, any change in the quantity and price would result from changes in supply conditions. Two main effects would operate (Miron 2003a). On the one hand, drug suppliers in a legal market would not incur the costs imposed by prohibition, such as the threat of arrest, incarceration, fines, asset seizure, and the like. This means that, other things equal, costs and therefore prices would be lower under legalization. On the other hand, drug suppliers in a legal market would bear the costs of tax and regulatory policies that apply to legal goods but that black market suppliers normally avoid.[21] This implies an offset to the cost reductions resulting from legalization. Further, changes in competition and advertising under legalization can potentially yield higher prices than under prohibition.

The magnitude of legalization's impact on price is therefore likely to differ across drugs given differences in supply conditions and in the degree to which prohibition is enforced. For marijuana, the best available evidence comes from comparisons of prices between the U.S. and the Netherlands. Although marijuana is still technically illegal in the Netherlands, the degree of enforcement is substantially below that in the U.S., and the sale of marijuana in coffee shops is officially tolerated. The regime thus approximates *de facto* legalization. Existing data suggest that retail prices in the Netherlands are roughly 50-100 percent of U.S. prices.[22] [23] This report

[20] Regulation aimed at drug use and sale (e.g., age limits on purchase or licensing and zoning restrictions on sale) might also reduce demand relative to prohibition because legal sellers face a stronger incentive to obey such regulation than underground sellers, who are already hiding their actions from authorities.

[21] The underlying assumption is that the marginal costs of evading tax and regulatory costs is zero for black market suppliers who are already conducting their activities in secret.

[22] MacCoun and Reuter (1997) report gram prices of $2.50-$12.50 in the Netherlands and $1.50 - $15.00 in the U.S. They speculate that the surprisingly high prices in the Netherlands might reflect enforcement aimed at large-scale trafficking. Harrison, Backenheimer, and Inciardi (1995) note that ONDCP data on marijuana prices in the U.S. are similar to prices charged in

assumes that legalized prices for marijuana would be 50% of current prices. For cocaine, available evidence suggests that prices might fall to 20% of the current level; for heroin, the evidence suggests it might fall to 5% of the current level (Miron 2003a).[24] For other drugs, this report assumes that prices fall to 5% of the current level.[25] Table 4, lines 3, shows these assumptions.

The effect of any price decline that occurs due to legalization depends on the elasticity of demand for drugs.[26] Evidence on this elasticity is limited because appropriate data on drug price and consumption are not readily available. Existing estimates, however, suggest an elasticity of at least -0.5 and plausibly more than -1.0.[27] [28] Estimates for other drugs, as well as for alcohol

---

Dutch coffeeshops. ONDCP (2001b) reports a price per gram for small-scale purchases of roughly $9 per gram in the second quarter of 2000, while EMCDDA (2002) suggests a price of 2-8 Euros per gram, which is roughly $6 on average. Various web sites that discuss the coffee shops in Amsterdam suggest prices of $5 - $11 per gram in recent years. These comparisons do not adjust for potency or other dimensions of quality.

[23] Clements and Daryal (2001) report marijuana prices for Australia that are similar to or higher than those in the United States. Since Australian drug policy is noticeably less strict than U.S. policy, this observation is consistent with the view that legalization would not produce a dramatic fall in price.

[24] The results in Miron (2003a) on legalized drug prices come from two kinds of evidence. The first is analysis of the relation between farmgate prices and retail prices for "similar" goods such as coffee or chocolate. The second is examination of prices for legal versions of currently illegal drugs, such as those for medical versions of cocaine and opiates like morphine.

[25] The report assumes a 5% value for other drugs because direct evidence is not available, and this assumption errs on the conservative side.

[26] The elasticity of demand is the percentage change in the quantity demanded that results from a one percentage point change in the price. For example, an elasticity of -0.5 means that if price falls by 10%, the quantity demanded will increase by 5%. An "elastic" demand curve is one for which the elasticity is large (in absolute value).

[27] See Nisbet and Vakil (1972). Their estimates that use survey data imply price elasticities of -0.365 or -0.51 in the log and linear specifications, respectively, while the purchase data imply price elasticities of -1.013 and -1.51. The estimates based on purchase data are plausibly more reliable. Moreover, as they note, these estimates are likely biased downward by standard simultaneous equations bias. Clemens and Daryal (1999) estimate a price elasticity of -0.5 for drug using Australian data. Estimates of the demand for "similar" goods (e.g., alcohol, cocaine, heroin, or tobacco) suggest similar elasticities.

and tobacco, generally suggest an elasticity in the range of -0.5 to -1.0. If the demand elasticity equals -1.0, then expenditure will remain constant or increase. If demand is less elastic, then expenditure will decline.[29] This report assumes an elasticity of -0.5, as shown in Table 4, line 4.

Table 4, line 5, shows the implications of these assumptions about the decline and price combined with an elasticity of -0.5 for the amount of expenditure that would occur for legalized drugs, assuming the economic activity in legalized drugs markets is subject to standard income, sales, and other taxation. The estimates in line 5 do not assume the presence of a sin tax on legalized drugs.

Tax Revenue from Legalized Drugs

To estimate the tax revenue that would result from drug legalization, it is necessary to assume a particular tax structure. This report assumes that legalized drugs would be taxed at rates comparable to alcohol and tobacco. This means that the legalized drug market would be subject to sin taxation as well as standard income and sales taxation.[30] Imposing a high sin tax can force a market underground, thereby reducing rather than increasing tax revenue. Existing

---

[28] Pacula, Grossman, Chaloupka, O'Malley, Johnston and Farrelly (2000) summarize the literature on the relation between drug use and factors that can affect use, such as legal penalties. They conclude the evidence is mixed but overall indicates a moderate response of drug consumption to "price." The papers summarized do not provide measures of the price elasticity. The results reported by Pacula et al. suggest an elasticity of drug participation between 0.0 and -0.5; this understates the total elasticity, which includes any change in consumption conditional on participation. The literature since Nisbet and Vakil is thus consistent with the elasticity estimate assumed above.

[29] The phrase "if demand is less elastic" can be read as "if demand is less responsive (to price)."

[30] Schwer, Riddel and Henderson (2002) estimate the tax revenue from marijuana legalization in Nevada assuming "sin taxation." Their estimates are not readily comparable to those presented here because they consider the situation in which one state legalizes marijuana while other states and the federal government prohibit marijuana. The same comment applies to Bates (2004), who estimates the tax revenue from marijuana legalization in Alaska. Easton (2004) estimates the tax revenue from marijuana legalization in Canada under the assumption of sin taxation. His estimates are comparable but modestly higher than those presented here, adjusted for the different size of the U.S. and Canadian economies. Caputo and Ostrom (1994) provide estimates for the overall economy that are similar to those obtained here.

evidence, however, suggests that relatively high rates of sin taxation are possible without generating a black market. For example, cigarette taxes in many European countries account for 70–80 percent of the price (US Department of Health and Human Services 2000).

To estimate the revenue from sin taxation, this report assumes that state and local plus federal governments impose excise taxes on legalized drugs at a rate equal to 50% of the retail price. An excise tax of 50% that is imposed on top of the legalized, retail price implies that excise taxation accounts for 33% of the final price to consumers.[31] This implies an amount of sin taxation as a percent of expenditure that is similar to what currently occurs in the U.S. for alcohol and tobacco. In 2004, federal excise tax receipts from alcohol and tobacco were $8.1 billion and $7.9 billion, respectively, and state and local excise tax receipts from alcohol and tobacco were $5.0 billion and $12.6 billion, respectively. This implies total excise taxation on alcohol and tobacco of $13.1 billion and $20.5 billion, respectively. In this same year, consumer expenditure on alcohol and tobacco were $53.4 billion and $33.5 billion, respectively.[32] These figures imply that excise taxation accounts for roughly 24.5% (alcohol) and 61% (tobacco) of expenditure. Line 6 of Table 4 shows total expenditure on legalized drugs under these assumptions, while Line 7 shows the revenue from sin taxation.[33]

---

[31] Note that in many European countries, tobacco taxation accounts for 70-80% of the retail price.

[32] See *Statistical Abstract of the United States 2008 on-line*, http://www.census.gov/compendia/statab/, Tables 461, 422, and 662. The $53.4 billion figure for alcoholic beverages equals $459 expenditure per consumer unit times 116,282 thousand consumer units. The $33.5 billion figure for tobacco products equals $288 expenditure per consumer units times 116,282 thousand consumer units. The figure for alcohol understates alcohol expenditure per consumer unit because it excludes alcohol purchased in restaurants.

[33] These amounts are not necessarily attainable given the characteristics of drug production. Small scale, efficient production is possible, so the imposition of a substantial tax might encourage a portion of the market to remain underground. Whether such production is illicit depends on the details of a legalization law. Plausibly, growing small amounts for personal use would not be subject to taxation or regulation, just as growing small amounts of vegetables or herbs is not subject to taxation or regulation. The evidence suggests that the magnitude of such production would be minimal. In particular, alcohol production switched mostly from the black market to the licit market after repeal of Alcohol Prohibition in 1933.

Legalized drugs would also generate tax revenue because the income earned would be subject to standard income and sales taxation. The amount of income earned is roughly equal to the amount of expenditure. For most legal goods, tax revenue as a fraction of expenditure is approximately 30%.[34] This figure includes the sales taxation of roughly 5% imposed by most state governments as well as income taxation imposed by state and federal governments. This 30% tax share is consistent with the estimates derived above on the relation between prices under prohibition and prices in a legalized market, since those prices were based on comparisons that incorporated any costs of legal goods due to standard taxation.

This 30% should be applied to an amount equal to 75% of the legalized, pre-sin-tax expenditure. This is because, while the sin tax raises expenditure given that demand is inelastic, the 50% higher price combined with an elasticity of -0.5 leads to a 25% reduction in the quantity demanded. Assuming constant costs therefore means that expenditure should be 75% of pre-sin-tax expenditure. Table 4, lines 9 and 10, provide these calculations.

Table 4, line 11, adds the revenue from sin taxation and standard income/sale taxation to provide estimates of the total tax revenue that would accrue from a regime in which drugs are legal but taxed and regulated similarly to alcohol and tobacco. For all drugs, the estimate is $32.7 billion; for marijuana, $6.7 billion; for cocaine and heroin, $22.5 billion; and for other drugs, $3.5 billion.

IV. Summary

The assumption of a constant demand elasticity in response to a price change of this magnitude is also debatable; more plausibly, the elasticity would increase as the price rose, implying a larger decline in consumption and thus less revenue from excise taxation.

.

[34] In 2001, total government receipts divided by GDP equaled 29.7%. See the *2003 Economic Report of the President* on-line, http://w3.access.gpo.gov/usbudget/fy2004/pdf/2003_erp.pdf, Tables B-1 and B-92, pp. 276 and 373.

This report has estimated the budgetary implications of legalizing drugs and taxing and regulating them like other goods. The estimates provided here are not provided as definitive estimates of the budgetary implications of a legalized taxation and regulation regime for currently illegal drugs. The analysis has attempted to employ reasonable assumptions that err overall on conservative side, but substantial uncertainty remains about many details. The estimates are therefore intended as "ballpark" figures that indicate what order of magnitude policymakers should expect.

References

Baicker, Katherine and Mireille Jacobson (2004), "Finders Keepers: Forfeiture Laws, Policing Incentives, and Local Budgets," manuscript, Department of Economics, Dartmouth College.

Bates, Scott W. (2004), "The Economic Implications of Marijuana Legalization in Alaska," Report for *Alaskans For Rights & Revenues,* Fairbanks, Alaska.

Caputo, Michael R. and Brian J. Ostrom (1994), "Potential Tax Revenue from a Regulated Drug Market: A Meaningful Revenue Source," *American Journal of Economics and Sociology*, **53**, 475-490.

Clements, Kenneth W. and Mert Daryal (2001), "Marijuana Prices in Australia in 1990s," manuscript, Economic Research Centre, Department of Economics, The University of Western Australia.

Durose, Matthew and Patrick A. Langan (2003), *Felony Sentences in State Courts, 2000*, Bureau of Justice Statistics, Office of Justices Programs, U.S. Department of Justice, NCJ 198821.

Easton, Stephen T. (2004), "Marijuana Growth in British Columbia," *Public Policy Sources*, Fraser Institute Occasional Paper #74.

European Monitoring Centre for Drugs and Drug Addiction (2002), *Annual Report 2002*, available at (http://annualreport.emcdda.eu.int/pdfs/2002_0458_EN.pdf).

Gettman, Jon B. and Stephen S. Fuller (2003), "Estimation of the Budgetary Costs of Marijuana Possession Arrests in the Commonwealth of Virginia," Center for Regional Analysis, George Mason University.

Harrison, Lana D., Michael Backenheimer, and James A. Inciardi (1995), "Cannabis use in the United States: Implications for Policy," in Peter Cohen and Arjan Sas, eds., *Cannabisbeleid in Duitsland, Frankrijk en do Verenigde Staten*, Amerstdamn: Centrum voor Drugsonderzoek, Universiteit van Amsterdamn, 231-236.

Lewis, Minchin (2004), *Report on the Syracuse Police Department Activity for the Year Ended June 30, 2002,* Department of Audit, City of Syracuse.

MacCoun, Robert and Peter Reuter (1997), "Interpreting Dutch Cannabis Policy: Reasoning by Analogy in the Legalization Debate," *Science*, **278**, 47-52.

Miron, Jeffrey A. (2002), "The Effect of Marijuana Decriminalization on the Budgets of Massachusetts Governments, With a Discussion of Decriminalization's Effect on Drug Use," *Report to the Drug Policy Forum of Massachusetts*, October.

Miron, Jeffrey A. (2003a), "Do Prohibitions Raise Prices? Evidence from the Markets for Cocaine and Heroin," *Review of Economics and Statistics*, **85**(3), 522-530.

Miron, Jeffrey A. (2003b), "A Critique of Estimates of the Economic Costs of Drug Abuse," *Report to the Drug Policy Alliance*, July.

Miron, Jeffrey A. (2003c), "The Budgetary Implications of Marijuana Legalization in Massachusetts," *Report to Change the Climate*, August.

Murphy, Patrick, Lynn E. Davis, Timothy Liston, David Thaler, and Kathi Webb (2000), *Improving Anti-Drug Budgeting*: Santa Monica, CA: Rand.

Nisbet, Charles T. and Firouz Vakil (1972), "Some Estimates of Price and Expenditure Elasticities of the Demand for Marijuana Among U.C.L.A. Students," *Review of Economics and Statistics*, 54, 473-475.

Office of National Drug Control Policy (1993), *State and Local Spending on Drug Control Activities*, Washington, D.C.: ONDCP

Office of National Drug Control Policy (2001a), *What America's Users Spend on Illegal Drugs*, Cambridge, MA: Abt Associates.

Office of National Drug Control Policy (2001b), *The Price of Illicit Drugs: 1981 through Second Quarter of 2000*, Washington, D.C: Abt Associates.

Office of National Drug Control Policy (2002), *National Drug Control Strategy*, Washington, D.C.: ONDCP.

Pacula, Rosalie Liccardo, Michael Grossman, Frank J. Chaloupka, Patrick M. O'Malley, Lloyd D. Johnston, and Matthew C. Farrelly (2000), "Drug and Youth," NBER WP #7703.

Reuter, Peter, Paul Hirschfield, and Curt Davies (2001), "Assessing the Crack-Down on Drug in Maryland," manuscript, University of Maryland.

Schwer, R. Keith, Mary Riddel, and Jason Henderson (2002), "Fiscal Impact of Question 9: Potential State-Revenue Implications," Center for Business and Economic Research, University of Nevada, Las Vegas.

US Department of Health and Humans Services (2000), *Reducing Tobacco Use: A Report of the Surgeon General, Tobacco Taxation Fact Sheet.* Accessed at http://www.cdc.gov/tobacco/data_statistics/sgr/sgr_2000/00_pdfs/CDC-60100788-Tax.PDF

U.S. Department of Health and Human Services (2008), *Treatment Episode Data Set (TEDS) Highlights – 2006*, Washington, D.C.: Substance Abuse and Mental Health Services Administration, Office of Applied Statistics.

Wright, D. (2002), *State Estimates of Substance Use from the 2000 National Household Survey on Drug Abuse: Volume I, Findings* (DHHS Publication No. SMA 02-3731, NHSDA Series H-15), Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Statistics.

Table 1: Percentage of Arrests Due to Drug Prohibition, 2007

	All Drugs	Her/Coc	MJ	Synth	Oth
1. Total Arrests	14,209,365				
2. Arrests for Drug Violations	1,841,182				
3. % of Arrests, Drug Violations	12.96				
4. % of Drug Arrests, Sale/Man	17.5	7.9	5.3	1.5	2.8
5. % of Total Arrests, Sale/Man	2.27	1.02	0.69	0.19	0.36
6. % of Drug Arrests , Poss	82.5	21.5	42.1	3.3	15.6
7. % of Arrests, Poss	10.69	2.79	5.46	0.43	2.02
8. .5 * % of Arrests, Poss	5.35	1.40	2.73	0.22	1.01

Sources:

http://www.fbi.gov/ucr/cius2007/data/table_29.html

http://www.fbi.gov/ucr/cius2007/arrests/index.html

Table 2: Expenditures Attributable to Drug Prohibition, Billions of 2006 dollars

	All Drugs	Her/Coc	Marijuana	Synthetics	Other
1. Police Budget	79.1				
2. % of arrests, S/M violations	2.27	1.02	0.69	0.19	0.36
3. Police Budget, S/M violations	1.80	0.81	0.55	0.15	0.28
4. % of arrests, Poss violations	5.35	1.40	2.73	0.22	1.01
5. Police Budget, Poss violations	4.23	1.11	2.16	0.17	0.80
6. Police Budget, Drug Violations	**6.0**	**1.9**	**2.7**	**0.3**	**1.1**
7. Judicial Budget	36.8				
8. % Felony Conv, Drug Violations	34.0	15.3	10.3	2.8	5.4
9. Judicial Budget, Drug Violations	**12.5**	**5.6**	**3.8**	**1.0**	**2.0**
10. Corrections Operating Budget	62.7				
11. % of Prisoners, Drug Charges	19.6	8.81	5.96	1.64	3.11
12. Correct. Budget, Drug Violations	**12.3**	**5.5**	**3.7**	**1.0**	**1.9**
13. Gross S/L Expend, Drug Prohibition	30.8	13.0	10.2	2.3	5.0
14. Net S/L Expend, Drug Prohibition	**30.3**	**12.8**	**10.0**	**2.3**	**4.9**

Sources:

1. The data on felony convictions are from Durose and Langan (2007, p.2).

2. The data on prisoners are from http://www.albany.edu/sourcebook/pdf/t600012004.pdf.

3. The data on budgets are from http://www.census.gov/govs/estimate/0600ussl_1.html.

Table 3: Federal Drug Prohibition Expenditure, Billions of 2006 Dollars

	All	MJ	Coc	Her	Oth
Federal Expenditure	13.8				
% of DEA arrests, by Drug	100	20.9	38.7	8.6	31.9
Federal Expenditure, by Drug	13.8	2.9	5.3	1.2	4.4

Source:

1. The data on the fraction of DEA arrests by drug are from http://www.albany.edu/sourcebook/pdf/t440.pdf.

Table 4: Tax Revenues from Legalized Drugs, Billions of 2006 Dollars

	All	MJ	Coc	Her	Oth
1. Expenditure by Drug, 2000	64.0	10.5	35.3	10.0	7.8
2. Expenditure by Drug, 2006	74.9	12.3	41.3	11.7	9.1
3. Assumed % Decline in Price		50	80	95	95
4. Assumed Elasticity		-0.5	-0.5	-0.5	-0.5
5. % Decline in Expenditure, Legalization		25	40	47.5	47.5
5. Expenditure, Legalization		9.2	24.8	6.1	4.8
6. Expenditure, Sin Taxation		13.8	37.2	9.2	7.2
7. Revenue from Sin Taxation		**4.6**	**12.4**	**3.1**	**2.4**
8. Expend Subject to Standard Taxation		6.9	18.6	4.6	3.6
9. Revenue, Standard Taxation		**2.1**	**5.6**	**1.4**	**1.1**
10. Total Tax Revenue	**32.7**	**6.7**	**18.0**	**4.5**	**3.5**

Appendix: Revenue Under Prohibition from Seizures and Fines

Seizures:

In 2007, U.S. attorneys received $1.3 billion of forfeiture. This overstates revenue related to drugs because the figure includes seizures for all reasons, such as violation of gun laws, intellectual property laws, and the like. There may also be double-counting between the DEA seizures and the U.S. Customs seizures.

State and local data on forfeiture revenue are not readily available Baicker and Jacobson (2004), however, estimate using a sample of states that state forfeiture revenue per capita was roughly $1.14 during the 1994-2001 period. This implies aggregate state forfeiture revenue of $342 million. Adjusting for inflation implies a number around $400 million.

Fines: In 2007, the total quantity of fines and restitutions ordered for drug offense cases in U.S. District Courts was just under $38.1 million.[35] Assuming the ratio of state/local to federal fine/restitution revenue is similar to ratio of state/local to federal seizure revenue implies that state and local fine/resitution revenue from drug cases is about $10 million.

[35] See http://www.albany.edu/sourcebook/1995/pdf/t531.pdf.