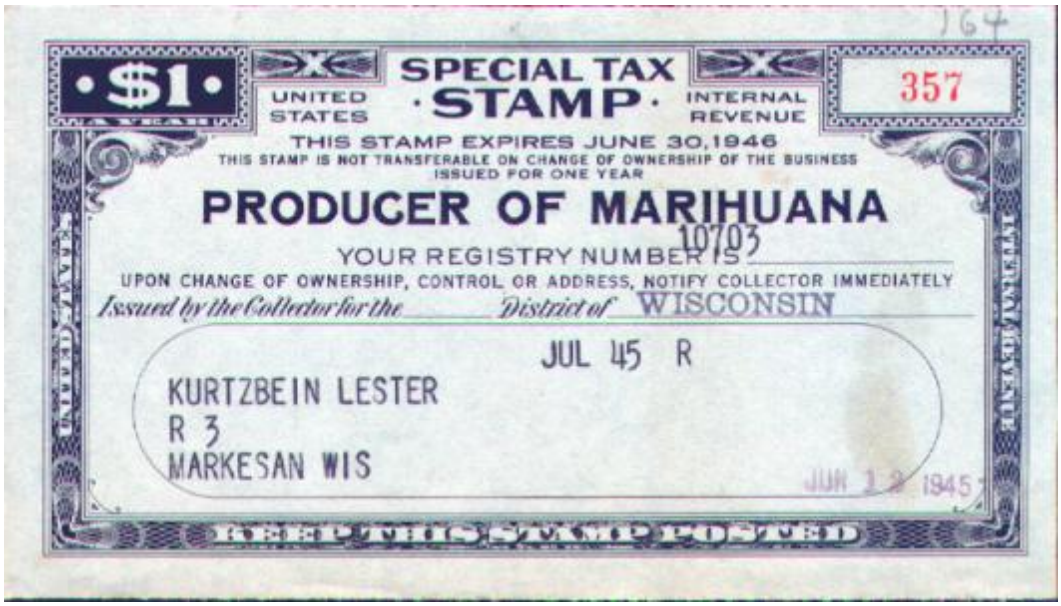
The Economic Implications

of

Marijuana Legalization in Alaska



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Pursuant to Alaska's November 2004 Ballot Measure 2

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The cover illustration, a genuine United States "marihuana" tax stamp issued in Wisconsin in 1945, is a small reminder that times change, that questions of public policy often admit more than one solution, and that tolerance for different ways of life is the foundation of our republic. In matters of drug policy, this fundamental principle seems to have been too often cast aside in favor of a "witch hunt" mentality. It is my sincere hope that the following report may help bring the light of rational inquiry once again to the issues it addresses.

S.W.B., 10/04
Fairbanks, Alaska

Executive Summary

This study focuses on the economic effects of marijuana prohibition and the consequences of eliminating prohibition in Alaska. A central concern in this analysis was estimating the cost savings associated with justice system expenditures for:

• Law Enforcement

• Court System

• Incarceration and Parole/Probation

Following the methodology of Miron (2003) we find that a total of approximately $16 million in direct expenditures is dedicated to marijuana prohibition annually by the State of Alaska (2004 dollars). Law enforcement is the least costly component of this expenditure, whereas adjudication by the courts is the most costly.

In addition to the above, consideration was given to indirect economic costs associated with prohibition, including:

• Lost economic output

• Impact on family and social service budgets

• Secondary justice system effects

The value of these three items is estimated at over $8 million. An upper boundary is difficult to estimate without detailed survey data on the effects of prohibition on family and social services budgets.

The concern of disproportionate minority arrest and incarceration is raised, and although not a monetary cost, it is a social cost nonetheless.

Marijuana prohibition brings to the State of Alaska federal grants, fines and asset forfeitures which equal less than a million dollars per year, doing very little to offset its costs. Net direct plus indirect costs are thus in excess of $24 million per year, plus additional criminal costs.

We found that marijuana prohibition causes additional crimes, although no estimate is provided of total prohibition-caused crimes and associated costs. Elimination of prohibition will, therefore, reduce crime. Even a 1% reduction in crime would produce budget savings in Alaska on the order of $3.6 million dollars annually, as well as eliminating costs to victims.

Total costs of marijuana prohibition for Alaska are easily in the range of $25 million to $30 million per year.

Do these costs provide a commensurate benefit? Of central import in a cost-benefit framework is the question of whether prohibition "works" in its primary objective of reducing consumption. A literature search of peer-reviewed professional literature leads to the conclusion that one cannot state that prohibition significantly reduces consumption.

To the extent that consumption is curbed, the literature suggests a corresponding substitution of other substances. As with Alcohol Prohibition in the early 20th century, this substitution is, at least in part, towards more dangerous substances. In Alaska, the problem of inhalant abuse in remote areas is quite serious and may reasonably be regarded as a direct result of marijuana prohibition.

In sum, marijuana prohibition costs the State of Alaska well over $24 million annually in direct and indirect costs of enforcement, not offset significantly by grants, fines or forfeitures. Prohibition does not succeed at its stated purpose, and in fact contributes to additional crime, and to use of other, more dangerous substances. Marijuana prohibition, using the most favorable figures in a cost-benefit analysis, is a costly failure.

Appendix I discusses the revenue potential of hemp in an atmosphere of state and federal legality. Were Alaska to tax sales of marijuana at a non-prohibitive rate, similarly to alcohol and tobacco products, it is estimated that $10-12 million dollars in state revenue could be generated annually. This estimate is based upon consumption by Alaska residents and does not include revenues from tourist "coffee shop" trade, discussed separately. While estimates from other locations may suggest potentially greater tax revenues, taxing marijuana too heavily in Alaska could encourage continued home production, undermining tax revenues.

Industrial hemp and the marijuana tourism trade could generate more in sales revenue than the combined total of all prohibition enforcement savings and potential tax revenues. Estimates from locations such as Vancouver and Amsterdam suggest that tens of millions in sales revenue is easily achievable. This would in turn generate millions in property, licensing, and sales tax revenues. The potential size of these industries is speculative, but Alaska may possess unique advantages for such enterprises.

If Alaska ends marijuana prohibition, then, it will first eliminate $25-$30 million of costs. Were it further to tax residents for marijuana consumption, $10-12 million in direct government tax receipts could be generated. Tens of millions in industrial hemp and marijuana coffee shop/ tourist trade dollars could be generated as well, if Ballot Measure 2 is fully implemented, primarily from nonresidents.

Introduction

According to the International Centre for Prison Studies at King's College in London, the United States leads the world in incarceration of its citizens. This leadership is not by a small margin, and it is both in absolute terms as well as by proportion.[1] The U.S. surpasses the second place contender, the Russian Federation, by 20%. It leads European industrialized countries by approximately 500%. The Alaska incarceration rate exceeds the U.S. average.[2] It is therefore reasonable to assert that Alaska is a world leader in incarcerating its citizens.

Many factors affect incarcerations, but the war on drugs, in America, is a leading factor. The increase in incarcerations for drug offenses began in earnest about 30 years ago. Aggressive policing, combined with mandatory sentencing and the application of drug testing to parolees and probationers, has caused a substantial change in the composition of the American prison population. Whereas previously the majority of prisoners were incarcerated for violent crimes, now the majority are imprisoned for nonviolent crimes.

According to the Center for Juvenile and Criminal Justice (1999):

> Contrary to the public perception that the incarceration of violent offenders has driven America's prison growth, the Institute found that 77% of the growth in intake to America's state and federal prisons between 1978 and 1996 was accounted for by nonviolent offenders. According to data collected by the United States Justice Department, from 1978 to 1996, the number of violent offenders entering our nation's prisons doubled (from 43,733 to 98,672 inmates); the number of nonviolent offenders tripled (from 83,721 to 261,796 inmates) and the number of drug offenders increased seven-fold (from 14,241 to 114,071 inmates). Justice Department surveys show that 52.7% of state prison inmates, 73.7% of jail inmates, and 87.6% of federal inmates were imprisoned for offenses which involved neither harm, nor the threat of harm, to a victim.

In this study we focused on one element of the war on drugs in Alaska — the prohibition of marijuana. In the approach taken, we did not evaluate whether marijuana is beneficial or harmful to the user, or to society. Rather, we focused on several measurable aspects of prohibition: What are the costs of prohibition? Does prohibition serve the ends it intends? Are there unintended consequences of prohibition, and what are they?

In Part I we address the direct costs of judicial system resources used in marijuana prohibition. Three areas of the justice system are affected by marijuana prohibition. The first and least costly is policing, or law enforcement. The second and most expensive is the court system. The third is incarceration and probation/parole. Following the methodology established by Miron (2003), we estimated the proportion of total resources in each area accounted for by marijuana prohibition. We then applied that proportion to the corresponding level of expenditures in order to estimate costs associated with marijuana prohibition.

Secondly, we investigated additional costs subsequent to enforcement and adjudication of marijuana prohibition. There is a lost economic output associated with incarcerating marijuana offenders. There is an impact on family and social services. Secondary offenses stemming from an initial marijuana

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[1] http://www.kcl.ac.uk/depsta/rel/icps/worldbrief/highest_to_lowest_rates.php

[2] The U.S. Average is 701 per hundred thousand population. The most recent data available for Alaska is in the 2002 offender profile report. At 4599 average incarcerations for the year and estimated 2002 population of 643,786, it puts Alaska's incarceration rate at 714 per hundred thousand. That is, Alaska is about 2% above the average.

prosecution, including probation violations, or parole violations such as failing urinalysis or being in the presence of marijuana, can result in costly imprisonment.

Our attention then turns to a cost-benefit approach to prohibition, reported in Part II. After identifying the costs of prohibition, we investigated the effects of prohibition on behavior. The most direct question is the effect of prohibition on substance use. That question involves the impact of marijuana prohibition upon marijuana consumption, as well as on consumption of other substances. The literature also addresses the relationship between prohibition and crime. It is important to distinguish between cause and effect: do drugs cause crime, or is crime caused by prohibition?

In the course of this study, we relied on peer-reviewed professional literature. Often, proponents or opponents of prohibition cite casual or spurious statistical associations to advance their case. There are difficult statistical issues in such studies, and often an apparent association can be superficial. A study that is well done but not comparable to others might be cited out of context. A case in point is a study produced in 1988 which is often cited as evidence of dramatic increases in marijuana use by youths after Alaska decriminalization in 1975. That study is reviewed here.

In Appendix I, an investigation of tax revenue and hemp/marijuana industry potential is reported. Tax revenue potential is conservatively estimated, because the potential for home production is considered significant for Alaska. Were the technique cited for a California study to be used here, revenue potential would be on the order of 75% greater.

Industrial hemp's tax revenue potential is modest. Revenue potential for the coffee shop/tourist trade is more significant, if Alaska experiences anything like what existing international models have seen. In one 2002 study cited, shops in Amsterdam were earning $1.2 million dollars in revenue per year, with the government receiving half of the money.

The Alaska laws and judicial decisions pertaining to marijuana are presented in Appendix 1I. Generally speaking, the current status is that the Alaska Court of Appeals has struck down a portion of a 1990 initiative that re-criminalized possession of less than four ounces. Alaska's Supreme Court has yet to rule on the question. But possession of more than four ounces and less than 1 pound can result in jail sentences of up to 1 year and a $5,000 fine. Possession of over 1 lb. can result in a sentence of up to 5 years and a $50,000 fine. Sale, or "manufacture", of less than 1 oz. can bring a sentence of up to 1 year and a $5,000 fine. Sale of more than 1 oz. can result in a sentence of up to 5 years and $50,000 fine. Sale to a minor can bring a sentence of 10 years and a $100,000 fine.

Part I

Costs of Alaska Marijuana Prohibition

Justice System Costs

Costs of marijuana prohibition on the Alaska justice system must be estimated since there is no tracking of costs by offense category for the State of Alaska. The methodology used here follows closely that established by Miron (2003) in imputing police resources dedicated to marijuana prohibition. Law enforcement costs are based upon an estimate of "stand alone" arrests for marijuana. Court system costs are based upon an estimate of felony convictions. Costs of incarceration are based upon the estimate of marijuana offenders in the correctional system.

Law Enforcement Costs

We examined arrest data for marijuana offenses and compared that to total arrest data for all crimes. We utilized the resulting proportion, after adjusting for "stand-alone" vs. "incidental" arrests, to impute a budgetary figure for marijuana policing.

Arrest data by Census area for the State of Alaska are provided by the FBI Uniform Crime Statistics.[3] The most recent year of data availability is 2001. Arrests are tabulated for possession and for "sale or manufacturing". Data are available for both adult and juvenile offenses. For purposes of this study, five years of data are averaged for analysis (1997 to 2001) and reported in Table 1 by total, adult, and juvenile offenses.

The table shows that, over this period, arrests for marijuana offenses constituted 3.5% of total arrests in Alaska. They constituted 2.9% of adult arrests and 6% of juvenile arrests, as there are numerous classes of offenses generally not committed by juveniles. (Conversely, there are juvenile "status offenses", such as running away from home, which are not crimes if committed by adults. However, these are outweighed by adult offenses.) Total arrests for marijuana offenses averaged 1,233 annually, with most of them (1086) for possession and the remainder (147) for sale or manufacturing.

There is an additional consideration in imputing police resources devoted to marijuana prohibition. Often an individual is initially detained for some non-marijuana offense, and subsequently, during a search or questioning, the marijuana offense is recorded, so the marijuana offense is not a "stand alone" offense. Two "arrests" are recorded, and the marijuana "arrest" is incidental to the original reason for arrest. An incidental arrest is not as costly as a "stand alone" arrest, which may have required investigational and other resources.

The converse is also true: arrest for a marijuana offense can lead to other charges. Arrests for incidental charges are not "free", as they will incur evidentiary handling, laboratory testing, reporting and other costs. So it would not be appropriate to simply exclude everything except "stand alone" marijuana arrests. Doing so produces a conservative estimate of costs. "Incidental" marijuana arrests are also largely for possession rather than sale or manufacture, where the marijuana offense is often the focus of an investigation prior to arrest.

[3] http://fisher.lib.virginia.edu/collections/stats/crime/arrests94.html.

Table 1: Average Number of Alaska Arrests 1997-2001
(totals may not add due to rounding)

Total - All Offenders	Average
Possession	1086
Sale or Manufacturing	147
Total	1233
Percentage of Total Alaska Arrests	3.5%

Adult	Average
Possession	776
Sale or Manufacturing	98
Total	874
Percentage of total Adult arrests	2.9%

Juvenile	Average
Possession	311
Sale or Manufacturing	49
Total	360
Percentage of Total Juvenile Arrests	6%

Source: FBI Uniform Crime Statistics as reported in:
http://fisher.lib.virginia.edu/collections/stats/crime/.

Miron (2003) indicated that the proportion of "stand-alone" arrests for marijuana possession may vary between 33% and 85%. No data are available on this question for Alaska. The average is assumed here (59%). If we concern ourselves strictly with "stand-alone" arrests for possession, the annual total is about 641. We would add to that figure the 147 for sale/manufacture, to arrive at an average of 818 "stand alone" arrests, constituting 2.2% of total arrests. For the reasons stated, this is a very conservative minimum for estimating costs.

The U.S. Bureau of Justice Statistics (USBJS) provides data on total justice system expenditures by state annually.[4] This is accomplished through a comprehensive survey of state and local governments. The most recent year of data availability is 2001. According to the data, Alaska spent $64 million on policing

[4] www.ojp.usdoj.gov/bjs Justice Expenditure and Employment Abstracts file CJee0109.wk1

expenditures in fiscal year 2001. To convert 2001 dollars into 2004 dollars, the consumer price index is used.[5] Total police expenditures for Alaska are estimated at $68.1 million in 2004 dollars.

If we use the 3.5% figure for proportion of total arrests, then we arrive at a figure of $2.4 million in 2004 dollars for police expenditures pertaining to marijuana prohibition. If we consider the adjustment for estimating "stand-alone" arrests, then the corresponding proportion would be 2.2%, or $1.5 million. This is the least costly component of marijuana prohibition.

Drug Offenses vs. Marijuana Offenses in Alaska

Because the State of Alaska does not track "marijuana offenses" as a specific category through the remainder of the judicial system, it is necessary to discuss marijuana arrest data in relation to total drug offenses. Drug offenses as a group are tracked. Determining the relationship between marijuana arrests and total drug arrests assisted us in estimating prosecutorial and corrections burdens imposed by marijuana prohibition. We separated possession from sale or manufacture, because the first class of offense is primarily misdemeanors while the second class is primarily felonies.

Most marijuana felonies fall into the "misconduct with a controlled substance IV" category. Marijuana offenses are not found in the misconduct II or misconduct I categories at all. The misdemeanor categories of misconduct with a controlled substance apply to possession of small amounts of marijuana, but in reproducing studies pertaining to judicial costs we confined ourselves largely to the felony categories, as is discussed below.

Table 2 provides data on marijuana arrests as a proportion of total drug arrests, as well as arrests by category for the period 1997-2001 in Alaska. This is compared with the U.S. average for the same years. There are some important distinctions to note. First, the rate of total arrests for drug-related offenses of any kind is about twice as high nationally as in Alaska: 11% of total arrests nationally are for drug-related offenses as compared with 5.2% for Alaska. On the other hand, of the drug arrests made in Alaska, a significantly higher proportion is associated with marijuana offenses.

Less than half of all drug-related arrests nationally (45%) are for marijuana, as compared with 66% in Alaska. When we break this into categories of possession vs. sale or manufacture, the discrepancy holds true. Whereas 27.5% of arrests for sale or manufacture of a drug nationally are for marijuana, Alaska has a much higher rate at 38.5%. About half of all drug possession arrests nationally are for marijuana, whereas 73.4% of the drug possession arrests in Alaska are for marijuana.

Because the proportion of total drug-related arrests nationally is nearly twice that in Alaska, there is still a larger proportion of total national arrests (5%) associated with marijuana offenses. In Alaska, with half the national rate of drug arrests, but a much higher concentration of those in marijuana offenses, 3.5% of total arrests are marijuana related.

[5] 2001 January index = 175.1; Feb. 2004 Index = 186.2. from: http://www.economagic.com/em-cgi/data.exe/blscu/CUUR0000SA0

Table 2:
Proportion of Total Drug Offense Arrests Due to Marijuana

	Proportion of Drug Offenses Accounted for by Marijuana[6]	
	Alaska	USA
Total Drug Arrests: Proportion Marijuana	66.1%	45.2%
Drug arrests for Sale/Manufacture Proportion Marijuana	38.5%	27.5%
Drug Arrests for Possession Proportion Marijuana	73.4%	49.6%
Marijuana Offenses- % of All Arrests	3.5%	5.0%

Source: Data for Alaska compiled from FBI Uniform Crime Statistics as Reported in: http://fisher.lib.virginia.edu/collections/stats/crime/arrests94.html. U.S. Data compiled from USDOJ "Crime in the United States ", 1997-2001.

Disproportionate Arrest Rates Across Alaska

In reviewing the arrest data by census area, it is apparent that there is a disproportionate arrest rate between locations in Alaska[7]. In particular, according to the Uniform Crime Reports in 2001, about 1.5% of total arrests in the Anchorage census area were for marijuana. In the Prince of Wales/Outer Ketchikan area, the rate was five times higher at 6.7%. Generally speaking, it appears that the rural arrest rate for marijuana is far higher than that for the Anchorage census area. That in turn indicates a disproportionately higher arrest rate for Alaska Natives.

The Fairbanks-North Star census area arrest rate was also 6.1%, so there is not a uniformly rural/urban distinction. Nevertheless, there are substantial differences across locations, bringing to mind the question of disproportionate minority representation in the Alaska justice system. This issue is currently a concern of both the federal and state governments, in both the juvenile and adult systems.

[6] Data for Alaska compiled from: http://fisher.lib.virginia.edu/collections/stats/crime/arrests94.html. From the USDOJ: Crime in the United States. 1997-2001.

[7] Jon Gettman, PhD. and Senior Fellow at George Mason University School of Public Policy is acknowledged for pointing out these differentials.

Court System Costs

A similar cost estimation procedure was used to determine court costs of prohibition. We first estimated the burden on the legal and judicial system in terms of marijuana convictions as a proportion of the total. We then applied that proportion to the total expenditures in this area to arrive at a cost estimate for marijuana prosecutions. The previous work provided some guidance, as it established marijuana offenses as a proportion of total drug offenses.

Individual state data on marijuana prosecutions and convictions is not available through the U.S. Justice system. There is, however, aggregate data we may use to establish some key relations. In particular, we looked at the number of prosecutions or convictions in relation to the number of arrests. The relationship between arrests and convictions nationally will provide some direction in estimating that for Alaska. Only felony data is available nationally.

The State of Alaska uses a management information system known as the Offender Tracking Information System (OTIS). Although it does not specifically track marijuana offenses, it does break out categories that are somewhat specific to marijuana convictions. The Juvenile Offender Management Information System (JOMIS) is a similar system for juveniles in Alaska. Cases are not disaggregated sufficiently to extract marijuana offenses specifically.

Following the methodology established previously in Miron (2003), we estimated the proportion of *felony* convictions associated with marijuana offenses, as opposed to total offenses including misdemeanors. It is the proportion of felony convictions that is used as a proxy for the relative burden of prohibition on the judicial system.[8]

U.S. State Court Convictions

According to the USBJS, for the most recent year available (2000), state court felony sentences included 2.7% for known marijuana trafficking and 3.7% for known marijuana possession[9]. These data are for "felons convicted" as opposed to the total number of felonies and refers to the most severe charge. Unfortunately, the largest single category among all of the drug felony sentences was "unspecified", at 13.4% of total felony sentences. There is little question that marijuana convictions are significantly more than this combined 6.4% total.

A total of 34.6% of state felony convictions were for drug offenses, with 13.4% of these unassigned to marijuana or any other specific drug. We assumed that marijuana cases constitute the same proportion of these unspecified cases as they do of specified ones. That would give a total of 10.4% of state felony convictions attributable to marijuana offenses nationwide.[10]

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[8] Felony prosecutions are much more expensive than misdemeanors and take up a disproportionate amount of state resources. For example, Iowa estimated that the cost for prosecuting a simple misdemeanor ranged from $14-$300, whereas a serious misdemeanor cost from $100-$5000, and the lowest felony charge, from $2,000-$8000. See Iowa Fiscal Services Division, Legislative Services Agency: Fiscal Note Dennis C Prouty March 3, 2004.

[9] Bureau of Justice Statistics Bulletin: Felony Sentences in State Courts, 2000 http://www.ojp.usdoj.gov/bjs/pub/pdf/fssc00.pdf p 2.

[10] 34.6% of total convictions are for drugs. 13.4% of convictions are for drugs but unknown type. That means 21.2% of drug convictions are known. Of these, 2.7% + 3.7% = 6.4% are known marijuana offenses. Therefore (6.4/21.2) = 30.2% of known drug convictions are marijuana. Assuming the same proportion for the unknown drug convictions results in (.302)*(.134) = 4% of convictions not classified are for marijuana. Adding all felony convictions for marijuana together results in 2.7% + 3.7% + 4% = 10.4%.

We then noted the relationship between arrest data and felony conviction data. Nationwide, there are about 5% of total arrests associated with marijuana (misdemeanor plus felony), whereas 10.4% of total felony convictions are for marijuana offenses. There is nearly twice the rate of felony marijuana convictions as there are marijuana-related arrests, primarily because these offenses comprise a greater proportion of felony cases than misdemeanor cases.

It is also useful to note that about 20% of the U.S. state prison and jail population is incarcerated for drug offenses.[11] So, while 34% of felony convictions are for drug offenses, a considerably smaller portion of state incarcerations are for drug offenses. This may be accounted for by suspended and probated sentences. This ratio will also help serve as a guide for Alaska

Alaska State Court Convictions

We knew that using the 10.4% U.S. marijuana felony conviction rate as an estimate for Alaska would over-estimate Alaska prosecutions, given the pattern of arrest data there vs. the U.S. Having established that 3.5% of total arrests in Alaska are for marijuana vs. 5% nationwide we reduced the 10.4% figure commensurately, or, $(3.5/5)\times 10.4 = 7.28\%$, as a guide for further discussion.

The State of Alaska provided an analysis of post-2002 conviction data upon request.[12] This data was based on the total Alaska corrections population, both those housed in-state and those housed by contract with other states. For that subset of total offenders, case convictions were extracted in order to examine the proportion incarcerated for all felonies, the proportion for felony drug offenses, and the proportion for the two categories consistent with marijuana felony convictions.

This subset omitted felony convictions that resulted in suspended imposition of sentence (SIS), probation, or release with time served, consistent with the national data used. Because marijuana convictions are often considered a lesser offense, and therefore more likely to fall in this category, we thus underestimated marijuana felony convictions.

We also saw that there are year-to-year variations in convictions data correlating to variations in arrests. Some years have a higher proportion of marijuana and drug offense arrests than others. The year 2002 was selected as it is both recent and may be compared with available arrest data. The average time required to process state drug cases is 158 days (USBJS 2003:34). According to the USBJS (1992:172), it is nine months for federal cases. So we compared 2001 arrest data with 2002 convictions data.

Marijuana arrest rates for 2001 were nearly 20% beneath the five-year average. We can be confident that, if anything, we again were conservative in our estimation. There would have been fewer marijuana cases in the judicial system in 2002 as compared with the average year. This should be recalled later when final estimates are made.

[11] See USBJS http://www.ojp.usdoj.gov/bjs/prisons.htm for 2001 State prison data (20%). See USJBS http://www.ojp.usdoj.gov/bjs/pub/pdf/pji96.pdf for State jail data (most recent year available 1996).

[12] Data extraction provided courtesy of Mary Collins, Alaska Department of Corrections, through Jerry Burnett, Commissioner 4/5/04.

Table 3: Alaska Felony Convictions since 2002 for Drug Related Offenses

	Proportion of Convictions for Corrections Population
Total Drug related	9.6%
Total Misconduct III, IV	8.6%

Source: Alaska Offender Tracking and Information System

Table 3 is the result of the data extraction from the State of Alaska OTIS system. Again, because multiple charges are often entered simultaneously against a single defendant, it is more appropriate to utilize felon data as opposed to the total number of charges. In addition, the conviction is associated with the most serious offense. These data are constructed in the same manner as the federal data in the preceding section.

We noted first that there are about half as many corrections inmates who have been convicted for drug offenses in Alaska as compared with the U.S. average (9.6% vs. 20%). This is almost precisely the same relationship as for arrests. Alaska has a little under half of the national average in terms of drug arrests, and it also has a little under half the national average for drug-related incarcerations.

It will be recalled, though, that Alaska has a much greater relative percentage of marijuana cases among drug offenses. Marijuana felony cases are found mostly in the misconduct IV category, although some could be misconduct III. There are no marijuana cases in the misconduct II or misconduct I categories. Note from Table 3 that the vast majority of the drug convictions are in the misconduct III and IV categories. In fact, the majority of these are misconduct IV.

Thus, the relationship between national arrest data and Alaska arrest data is basically upheld all the way through to convictions and incarcerations. While there are fewer total drug offense arrests in Alaska, they are more heavily concentrated in the marijuana category. There are few heroin, crack cocaine, and other hard drug arrests in Alaska relative to the rest of the nation.

By using the relationship between national felony convictions and national incarcerations to estimate the same for Alaska, we arrived at the figure of 16.6% of total felony convictions in Alaska being for drugs of any kind.[13] We further estimate that 7.31% of felony convictions in Alaska are for marijuana as opposed to other drug offenses.[14]

So we have a couple of different estimates for the proportion of felony convictions for marijuana out of all Alaska felonies. By utilizing the national ratio of felony convictions to arrests and applying that to Alaska arrest data, we arrived at the figure of 7.28%. By working backwards from Alaska incarcerations data to felony convictions, utilizing the same relationship as found in national data, we found a rate of

[13] Nationally (34.6/20) = (X/9.6) for Alaska, where X = 16.6.

[14] Nationally, the proportion of marijuana felony convictions out of total felony drug convictions = (10.4/34.6). Alaska has a higher relative concentration of marijuana arrests (66.1/45.1), so the national ratio is adjusted (multiplied) by this ratio. Then solve for (10.9/34.6)*(66.1/45.1) = X/16.6.

7.31%. We used the average of the two figures, 7.3%, to estimate the expenditures in the legal and judicial arena due to marijuana prohibition. According to the Department of Justice, total justice system expenditures in Alaska for the year 2001 were $121.7 million[15] , including prosecution, courts, and public defense. Utilizing the same price index data, we estimated this in 2004 dollars at $129.4 million. Applying the 7.3% figure to that total, we arrived at an estimate of $9.45 million for the judicial costs of Alaska marijuana prohibition in 2004 dollars.

Corrections Costs

We used the same approach to estimate the proportion of Alaska's correctional population attributable to marijuana prohibition. There is one further consideration here, because the U.S. Justice Department survey correctional expenditure data is not broken down by type of institution. (It does include any agency concerned with corrections, including probation offices). Since correctional populations may be housed in different types of institutions, sometimes depending on type of offense or offender, there may be cost differentials associated with corrections for different types of offenses.

Correctional centers are more costly than community residence centers. If the majority of drug and marijuana offenders are housed in community residence centers, then we would be concerned about overestimating costs based on the simple average from the U.S. Justice Department data. On the other hand, if the majority is found in correctional institutions, then we have a conservative cost estimate for marijuana corrections.

According to the Alaska Department of Corrections, in 2002 there were 216 drug-related offenders out of a total 3,508 institutionalized (correctional center) offenders, or 4.3%.[16] There were 90 drug-related offenders out of 902 housed in community residence centers, or 10%.[17] The average across all institutions was 6.9%. This data is calculated based upon the most serious charge. Thus, although a greater fraction of the community residence center population is accounted for by drug offenders, there are more than twice as many drug offenders housed in correctional centers. Consequently, and also because we have demonstrated that marijuana offenses make up the bulk of drug offense convictions, there is little likelihood of over-estimating the cost of incarcerating marijuana offenders by using the Department of Justice Data.

In comparison to other states, Alaska has a lower proportion of incarcerated drug offenders. This is no surprise given the arrest and convictions data. Nationwide, an average of 20.4% of state correctional populations are drug offenders.[18] In the previous section we noted that Alaska has about half that, but with a much higher proportion of marijuana offenses as compared to other drugs. Unfortunately, the corrections data is not broken down into type of drug, so we are unable to say exactly what proportion of these are marijuana offenders.

Because more severe offenses typically receive longer sentences, the population of offenders will be more heavily weighted toward those who have been convicted of more serious crimes. That is, the proportion of marijuana offenders in the correctional population will be lower than the rate of convictions determined previously, 7.3%.

Among the post-2002 institutionalized offender population, 50% of the total drug-related offenses are misconduct with a controlled substance IV, the category for most marijuana offenders. There were only

[15] Justice Expenditure and Employment Abstracts file CJee0109.wk1, id.
[16] State of Alaska Department of Corrections, 2002 Offender Profile p 13-16.
[17] Ibid. p 26-28
[18] http://www.ojp.usdoj.gov/bjs/pub/pdf/p02.pdf, table 15.

two misdemeanor (Misconduct V and VI) offenders housed in correctional institutions. There are also a sundry few in the "attempted drugs" categories.

In community residence centers we found that 46% of residents with drug related charges had a conviction for misconduct with a controlled substance IV. There were two misdemeanor offenders in community residence centers, and several more in the "attempted drugs" and conspiracy categories.

A total of 124 offenders were housed in institutions or community residence centers without any charge entered into the OTIS system. It is unclear how to assign these in our analysis, but it is doubtful that they diverge so dramatically from the general offender profile as to significantly distort any estimates.

We set as a benchmark the proportion of post-2002 incarcerated offenders in the misconduct IV category, the most particular for marijuana offenses, 3.4% of total incarcerations. Again, the misconduct IV category does not include misdemeanor marijuana offenders, or more serious marijuana felony charges. It would not include anyone in the attempted drugs or conspiracy categories. On the other hand, there are misconduct IV drug offenders who are not incarcerated for marijuana.

Although we have demonstrated that marijuana offenses make up the majority of drug arrests and prosecutions, it is the least serious drug offense and therefore receives lighter sentencing. We did not want to assign 66% of the corrections population serving drug offense sentences to marijuana, as that would be an overestimate. We instead rounded our benchmark misconduct IV figure down to 3%, on the assumption that the proportion of non-marijuana misconduct IV offenders significantly outweighs marijuana offenders charged with other (greater or lesser) offenses.

Having arrived at an estimate of the corrections population serving marijuana sentences, we applied that figure to corrections expenditures. According to the U.S. Department of Justice survey, the State of Alaska spent a total of $172.6 million on corrections in 2001. In 2004 dollars, the figure would be $183.5 million. Three percent of that figure indicates a cost of $5.05 million for marijuana incarcerations.

Summary of Justice System Costs

A summary of total judicial system expenditures for prohibition is presented in Table 4, indicating a total of $16 million.

Table 4
Total Judicial System Budget for Marijuana Prohibition in Alaska

Item	$ Millions
Policing	1.50
Legal and Judicial	9.45
Corrections	5.05
Total	$16.00

Additional Economic Considerations

There are several other areas of concern besides the direct costs calculated above. The most important of these is the lost economic output associated with incarcerating offenders. There are also costs to the family and social service budgets of the state, particularly when offenders have minor children. There are some secondary offenses to consider, such as probation violations that would not exist in the absence of prohibition. Finally, there are mitigations of costs from intergovernmental revenues. Fines and forfeitures are also discussed.

Lost Economic Output

DeSimone (2002:968) produced the most recent study of the effect of marijuana use on employment. According to his estimates, marijuana users are 15% less likely to be employed. We utilized these results to get an estimate of lost output from incarcerating marijuana offenders.

According to the Alaska Department of Labor, the employment rate statewide was 92% in 2003. Adjusted down to 85% to account for the differential probability of employment cited above resulted in a figure of 78.2%. That is, it is estimated that about three-quarters of the marijuana users and, by extrapolation, marijuana offenders, were employed.

Previously, we estimated that there were 132 persons in Alaskan correctional institutions of one kind or another for marijuana offenses. According to the U.S. Department of Labor, the average wage income for Alaska in 2002 was $40,280.[19] Assuming the employment percentage above gives a total lost wage income of $4.2 million. Also according to the U.S. Department of Labor, the wage component of total compensation is approximately 71.4% of the total.[20] Adding in benefits results in total lost labor compensation of $5.8 million. In 2004 dollars, the amount is $6.08 million. Because labor produces more value than it is compensated for, we know that lost economic output is even higher.

There are some long run costs to consider as well. Young people, in particular, who have a conviction face losses in student loans, loss of employment advancement, and other forms of discrimination in the marketplace. The cumulative loss will, over time, significantly exceed their short run loss.

Family and Social Services

Because some portion of marijuana offenders have children, there are additional expenditures by various state agencies concerned with family and social services. With loss of employment from incarceration, there are impacts on agency budgets.

Parke and Clarke-Stewart (2001) indicated that in the year 2000, 56% of all incarcerated persons had minor children. This figure was stable relative to the previous decade. Needless to say, the effects on minor children of parental incarceration are negative. This can vary according to arrangements for alternative care, visitation, economic circumstance, whether the mother or the father is incarcerated, etc. In one estimate cited, 70% of young children with incarcerated mothers had emotional or psychological problems (Parke and Clarke-Stewart 2001:7).

Johnson and Waldfogel (2002:472) noted an increased burden on the foster care system from incarcerated parents, over 7% of the population in their sample. In this study, as with others, over 80% of the children

[19] http://stats.bls.gov/oes/2002/oes_ak.htm#b00-0000
[20] http://data.bls.gov/cgi-bin/dsrv Data taken from the 4th quarter 2003, all workers.

of incarcerated fathers live with the mother, whereas when the mother is incarcerated only about 20% live with the father. Regardless of whether the mother stays at home with minor children or works and receives daycare assistance, there is an impact on state social services budgets. Although 90% of incarcerated parents are fathers, the war on drugs has a higher fraction of incarcerated mothers as compared with other offenses (Johnson and Waldfogel 2002:473).

There is little doubt, then, that marijuana prohibition has significantly increased the burden on the social welfare system. Without a detailed survey of inmates and family circumstances it would be difficult to render a precise figure. But a couple of different approaches give us an idea of the order of magnitude. One approach is to ask how much per inmate in various monthly social service costs would be required to equal $1 million dollars per year. The answer is about $631 per inmate.

The monthly AFDC (now called Temporary Assistance) maximum benefit is $821 and the food stamp benefit is $391 for one adult and one dependent (rural I figure). With half of all inmates having a minor child and with loss of employment during incarceration, those two services alone would cost over one million dollars per year. Then one must consider Medicaid, energy assistance, and so forth. Given the behavioral problems of children of incarcerated parents, significantly more than $1 million per year in social service costs is doubtless incurred due to marijuana prohibition.

The FY 2004 State of Alaska Children's Services approved budget was $127.5 million. The Public Assistance budget was $244.1 million. Each 1% rise in these combined budgets results in $3.7 million in additional operating expenditures for the state. The FY 2004 approved Health Care Services budget was $671.6 million. It would appear again here that marijuana prohibition easily adds well over $1 million dollars to the family and social services budgets of the state.

Secondary Offenses Stemming from an Initial Marijuana Charge

Some proportion of marijuana offenders re-appear in the judicial system due to probation or parole violations. In addition, testing positive for marijuana can be a parole violation for unrelated offenses. We note that 216 of 3,508 correctional center residents were in custody for either parole or probation violations. In addition, 113 of the 902 in residential centers were in custody for probation or parole violations. That is, 6.2% of the correctional population and 12.5% of the residential population (7.5% of the total) were incarcerated because of such secondary violations.

If parole, probation, and other violations subsequent to a marijuana offense (i.e., failure to appear, failure to comply, failure to adhere to conditions of release, fugitive from justice, etc.) were eliminated, there would be additional cost savings. It would appear that if such secondary offenses were equiproportional across all categories, the savings would be on the order of another 10% in incarcerations, or about $500,000. An estimate of additional judicial cost savings is not attempted here.

Cost-Mitigating Factors

A portion of Alaska's marijuana policing expenditures is financed by grants from the federal government. In addition, there are some property seizures and fines associated with marijuana arrests. Federal grant funds mitigate against costs of enforcement, as they come from outside the state. While it is true that, ultimately, these grants come from federal taxes, even if marijuana policing is done away with for Alaska, it will not change policy in other states. Those states would continue to receive grants whereas Alaska would lose them, and federal taxes would not be reduced for Alaskans.

Property seizures and fines are another matter. They are discussed here, but from the perspective of the state as a whole they do not provide resources. They take resources from a tiny portion of residents to pay for a program as opposed to its being paid for by the state's residents in general. If marijuana is legalized, the "loss" of revenue from property seizures will exactly equal the "gain" to persons who will no longer have their property taken from them. Fines are a similar situation.

According to the Alaska Bureau of Alcohol and Drug Enforcement (ABADE), there are three sources of grant funds that may be used for marijuana policing. Two of these grants are awarded by the U.S. Dept. of Justice, the Byrne Grant and the Alaska Illegal Drug and Alcohol Grant. Additional funds are also received through the U.S. Drug Enforcement Administration (DEA) for marijuana eradication.

The DEA grant, exclusively for marijuana policing, amounted to $86,000 in FY 2004 (I. McKienzie, Coordinator, DEA Eradication, Anchorage, AK, personal communication, May 28, 2004). The other two were not exclusively for marijuana. Of these, the total Byrne grant request for 2004 was approximately $1 million while the Illegal Drug and Alcohol grant was a multi-year program with an annual average of $664,500. A request was made for an apportionment of these funds between marijuana, alcohol and other drug enforcement. An estimate of 10% for marijuana was provided, with the understanding it was no more than a guess (Capt. E. Harrington, ABADE, personal communication, June 17, 2004).

An alternative method for allocating these funds across enforcement categories is to look at arrest data, on the assumption that the allocation of funds is proportional to arrest data for alcohol and drugs. According to the Uniform Crime Report arrest data for Alaska, there were an average of 5,667 arrests for either drug or alcohol offenses for the years 1997-2001. Of these, 21.67% were for marijuana offenses.

We have one estimate from a cognizant official of 10%, and another of 21.67% based on arrest data. A conservative estimate of 15% was used, resulting in a $249,675 figure for the two grants in question. We would add to this amount the $86,000 DEA grant for marijuana eradication. The total amount of federal grant funding strictly for marijuana enforcement is therefore estimated at $335,675.

The Alaska court system also received federal grant money in FY 2003, in the amount of approximately $300,000, for "felony drug court" funding in Anchorage.[21] The number of marijuana cases assigned to this specific court is unknown. As this funding is strictly concerned with felony charges, it would be appropriate to apply the 38.5% proportion of drug offenses for sale/manufacture of marijuana, obtaining an estimate of $115,500, or, in 2004 dollars, $117,500.

During calendar year 2003, there was approximately $1.05 million in property seized by state alcohol and drug enforcement agencies (Capt. E. Harrington, ABADE, personal communication, June 17, 2004). About one-third of this amount was in cash. The remainder consisted of weapons, vehicles, real property, aircraft, vessels, and miscellaneous items. Values of such property are estimated by investigators.

One may allocate a portion of these seizures strictly to marijuana enforcement as opposed to alcohol and other drug offenses. It is appropriate to estimate property seizures using arrest data for sale and manufacture of marijuana, as opposed to simple possession, because seizure laws do not apply to most cases of simple possession. For the same reason, we excluded alcohol arrests, in which seizure actions would not apply.

Restricting our attention to drug offenses for sale and manufacture, we found that marijuana constituted 38.5% of these cases. So, although marijuana accounts for 66% of total drug related arrests, there is a

[21] Office of National Drug Control Policy. Profile of Drug Indicators Anchorage, Alaska April 2004, p 3.

much lower fraction to which seizure actions would apply. (Unfortunately, we do not have any type of proxy for alcohol cases in which seizure of property would apply.)

A reasonable approach would be to use the same proportion used earlier to estimate grant funds for marijuana enforcement, in consideration of the lower proportion of marijuana arrests subject to seizure actions. Assuming 15% of total seized property allocated to marijuana offenses results in a figure of $157,500. In 2004 dollars the amount would be $160,236.

Amounts of judicial fines for marijuana convictions are unknown. Alaska does not track fines by types of convictions. According to the State of Alaska Revenue Sources Handbook, in FY 2003 fines and forfeitures together totaled $7 million for every form of civil and criminal fine and forfeiture action. This included traffic court and civil penalty fines for infractions such as lack of permits, as well as all criminal fines together. Marijuana convictions are a small fraction of criminal cases, and must be quite insignificant in comparison to all civil and criminal actions together. Most likely fines total, at most, something in the same ballpark as forfeitures.

Adding all of the grants and property seizure amounts together results in a figure of $613,411 to mitigate costs of marijuana enforcement and adjudication. It is recognized that from year to year there are variations in grant funding. We argue that property seizures and fines are not, in fact, a net savings of resources for the state. Even including both of these sources of enforcement income gives cost mitigations well under $1 million.

Many millions in indirect costs are associated with marijuana prohibition. The value of lost labor productivity is the most significant, at over $6 million. Additions to family and social services budgets, and expenses associated with secondary offenses, appear to far outweigh any mitigating factors such as intergovernmental grants. Well over $7 million in net additional costs has been identified here, and a figure of $8 million is used in our summary, still quite conservative, as it seriously understates the extent of prohibition's impact on family and social services budgets.

Part II

A Cost-Benefit Approach to Prohibition

Effects of Prohibition

A host of reasons are employed to justify marijuana prohibition. The first of these is that prohibition "works." Does it? This question is less superficial than establishing a link between prohibition and consumption of the prohibited substance. It requires addressing whether the benefits are sufficient to outweigh the costs. An analysis of whether prohibition "works" requires addressing these points:

1) In order for prohibition to pass the first elementary test of cost/benefit analysis, it must be shown that prohibition significantly reduces consumption of the substance. It is not merely enough that consumption decreases, but that the decrease is significant enough to warrant the expenditure.

2) In a less superficial test of cost vs. benefit, it must also be demonstrated that the secondary effects of prohibition are positive rather than negative. Do other crimes increase or decrease under prohibition? Does consumption of other substances increase or decrease with prohibition? Are these substances more dangerous or less dangerous than the prohibited substance?

3) If prohibition passes these first two tests, then it also must compete with other alternatives for decreasing substance abuse. If there are superior alternatives to reducing substance abuse, then society's resources are better directed towards the alternatives. Such an analysis is not undertaken as a part of this study. We point out here that, when passing upon such prohibitory legislation, this question is generally not addressed.

4) Prohibition has an opportunity cost in terms of justice system resources that can be directed elsewhere. Every dollar directed towards marijuana investigations, prosecutions, and incarcerations could have been spent on homicide, rape, assault, and other more serious crimes. The current allocation of resources implies that increased investigation and prosecution of homicide, rape, assault, and other serious crimes are less valuable to Alaska than investigations and prosecutions of marijuana offenders. Is this the actual preference of Alaskans, or would re-directing resources towards more serious crimes be more beneficial?

Does Prohibition Decrease Use?

There are two avenues by which prohibition may decrease consumption. The first is that prohibition can act to increase price and therefore reduce demand. The second is that prohibition imparts a penalty for use, and the threat of punishment, therefore, reduces demand. There are alternative assertions that prohibition itself makes the substance more attractive as "forbidden fruit." Regardless of theory, it is empirical work that demonstrates whether prohibition decreases use significantly, or, alternatively, if legalization increases use significantly.

There have been few studies relating marijuana use to price, and among those it is rare to find one using actual price data as opposed to asking hypothetical questions of users. Nisbet and Vakil (1972) surveyed UCLA students regarding hypothetical price changes. This study is often cited, but frankly, we are not interested in hypothetical responses but in quantifying observed behavior.

In Pacula et al. (2001:100), marijuana use was found to be extremely unresponsive to price. The elasticity of demand with respect to price was –0.06. That is, a 1% increase in price results in only a 0.06 percent decline in demand. Another way of saying this is that a 16.67% increase in price is required to reduce demand by just 1%.

The most recent study available was also the only other study using actual price and consumption data. DeSimone and Farrelly (2003:109) found that "adult marijuana demand was not related to its own price" and that for juveniles, price was also irrelevant. However, for both juveniles and adults, use decreased with increases in arrest probability. The question is, by how much?

Over the sample period (1992-1997), the arrest rate per user doubled for marijuana. According to the model estimates, if nothing else changed but the arrest rate, demand should have decreased by 3%. But according to the data, use increased, and use by juveniles increased by 13.5%. This led the authors to conclude, "Clearly, factors other than prices or arrests are important in determining changes in drug use across cohorts." (DeSimone and Farrelly 2003:112).

In an earlier study, DeSimone (2002: 966-967) estimated the increase in probability of marijuana use in states that decriminalized use. Two different years were studied. While one year revealed an increase in probability of use of 2-3%, the other showed no statistically significant impact.

Saffer and Chaloupka (1999) found that, "Marijuana decriminalization was found to increase the probability of marijuana participation by about 8%". In reviewing the literature, they report that, "The few prior studies of the effect of decriminalization on marijuana use generally find that marijuana decriminalization has no effect on participation. Pacula (1994), Thies and Register (1993), Dinardo and Lemieux (1992), and Johnston, O'Malley, and Bachman (1981) all used samples of young people and found no effect of marijuana decriminalization." However, "Model (1993) found that decriminalization increases marijuana use."

The National Academy of Sciences (1999) undertook an exhaustive study of many aspects of the marijuana question, including the effects of legalization. After analyzing numerous studies, in their section "Marijuana Decriminalization", they concluded that, "there is little evidence that decriminalization of marijuana use necessarily leads to a substantial increase in marijuana use."

Alaska and Decriminalization in 1975

Much has been written about Alaska's post-1975 decriminalization of marijuana and about a study of it performed in 1988. The Drug Enforcement Administration, for example, said:[22]

> The consequences of legalization became evident when the Alaska Supreme Court ruled in 1975 that the state could not interfere with an adult's possession of marijuana for personal consumption in the home. The court's ruling became a green light for marijuana use. Although the ruling was limited to persons 19 and over, teens were among those increasingly using marijuana. According to a 1988 University of Alaska study, the state's 12 to 17-year-olds used marijuana at more than twice the national average for their age group.

The only possible study such "citations" can reference is Segal (1988). The study makes no such finding, and the statement above is deceptive on a number of levels. Segal's study was undertaken, in part, because Alaska was not included in the 1988 National Household Survey on Drug Abuse (NHS, now called the National Household Survey on Drug Use and Health). The Alaska and national studies are not comparable for several reasons.

[22] http://www.usdoj.gov/dea/demand/speakout/06so.htm

The critical issue, however, in any analysis of Alaska substance use from the mid-1970's onward must be the Alaska pipeline boom, not marijuana decriminalization. Segal (1988:7) comments, "That the construction of the transalaska pipeline (1974 to 1978) had an effect on drug use in the state is undisputable. The effect is well illustrated in a report by the Alaska State Troopers in 1976 which described the problem of drug use as 'growing to such a magnitude that illicit drugs were coming into Alaska by every conceivable means imaginable, and the drugs were being distributed to virtually every city and village in Alaska' (P.2)."

Segal cited a previous study by Lanner (1983) demonstrating increased marijuana use among the young as a consequence of the pipeline, and pointed to an increase in available money as one of the reasons. (Segal 1988: 8). It is difficult to overstate the consequences of 25,000 pipeline workers "hitting town" with the highest wages in the nation, in a boomtown atmosphere, on the last frontier.

So "baseline" drug use in Alaska was not comparable to the rest of the nation to begin with; however, there was a possibly even more important difference in survey methodology. The Alaska survey was anonymous. The NHS was not only conducted by interview, but also in the home. The rates reported of "lifetime prevalence" (i.e., have you ever used in your lifetime) were 51.6% for Alaska and 23.7% for the national survey. As Segal (1988:81) notes, "It is possible that direct interviews, particularly when conducted in the interviewees' home, elicited more false negatives than responding anonymously in school."

Segal then compared results for his Alaska study with two other studies. The first was the 1987 National High School Senior Survey. In that survey, Alaska's 68.2% "lifetime prevalence" compared with 50.2% for the U.S. (Segal 1988:83). Alaska 8th graders had a user rate of 37.6% as compared with Oregon 8th graders' rate of 27.7%. What Segal concluded, after looking at surveys taken in California, Oregon, and Alaska, was that, "These findings suggest strongly that the national data may be underestimating drug taking behavior." Segal (1988:87).

Another problem besides the difference in survey methodology was the lack of comparable questions that actually reflect use. In the annual NHS, questions are asked about whether the individual has used a drug within the last month, and whether there is chronic dependency. It is unquestionably inappropriate to pretend that a "lifetime prevalence" question is reflective of who is "using" a substance.

Because there was no baseline to the pre-pipeline years, and no comparable data whatsoever until 1983, we cannot actually quantify anything until after that time. Segal (1988:96) compared "lifetime prevalence" with 1983 data for age 12-17 year olds, and found that it had increased from 49.4 to 53.0%. It is true that, over that time period, national use appears to have declined; again, the problem is that making statements about "use" requires questions about recent use, not whether one tried something once, several years earlier.

Lastly, it should be noted that alcohol abuse is high in Alaska, and that there are unique aspects of Alaska life not mirrored in the lower 48 states. Winters without sunshine, seasonal affective disorder, and seasonally different work schedules, are among many factors that would have to be modeled in a study seriously investigating social effects of decriminalization.

In fact, the Segal (1988) study drew no conclusions about the relationship between marijuana decriminalization and use. Segal (1988:135) states, "Any attempt to assess the impact of decriminalization is fraught with difficulty;" and, "Depending on one's views, several contrasting conclusions can be made about decriminalization." He did not find that decriminalization had caused an increase in use, yet that is the clear purpose to which proponents of prohibition have put his study.

For Alaska, we simply do not have comparable baseline and current-year numbers for either the effects of 1975 decriminalization or subsequent recriminalization in 1990. In recent years, Alaska has been included in the NHS exercises. We can compare current use numbers with the rest of the U.S. for survey questions that are the same and for methodologies which are consistently applied. Even then, year-to-year changes in survey methodology may cause significant differences in estimates of drug use.

Wright (2002) reported the distribution of use across age categories presented in Table 5, based upon the survey methodology used in the NHS for calendar year 2000. The question asked in this survey regarded use in the past month. Alaska numbers exceed those for the nation at large by a very small amount, for use by persons under 26 years of age. Since that time, the methodology of the survey has changed, and this table is presented strictly for comparing Alaska vs. national use.

In 2002, the NHS has used an improved estimation technique[23]. As a consequence, the estimate of current (within the last month) drug use increased by 22.6% nationally.[24] That is, drug use was significantly underestimated in the past, and the numbers in Table 5 are underestimates for Alaska. Revised estimates by state have not been published yet, but by using the same proportion for Alaska as for the rest of the nation, results are as illustrated in Table 6.

Table 5

Reported Use of Marijuana By Age Group in Alaska
(Old Survey Methodology - Year 2000)

	Age Category		
	12-17	18-25	26 +
Reported use in last month (Alaska)	8.65%	17.35%	3.76%
Number reporting use in last month	5,000	12,000	13,000
Reported use in last month (USA)	8.2%	17.3%	4.0%

Source: Wright (2002)

Given the population growth since 2002, there are roughly 42,000 "current" users of marijuana over the age of 12 in Alaska. Again, by "current" use is meant use within the last month. This is the best estimate available at the present time. There are nearly twice that number of Alaskans who have used marijuana in the last year, according to the improved survey methodology — roughly 75,000. But it would be more accurate to cite the 42,000 figure when referring to "users".

[23] See National Household Survey on Drug Use and Health: National Findings, p 7. Jon Gettman, PhD. and Senior Fellow at George Mason University School of Public Policy, pointed out the change in survey methodology to us.
[24] In the 2001 survey, an estimated 15.9 million Americans had used drugs within the last month. In the 2002 survey, the figure was 19.5 million. In 2001, 76% had used marijuana. In 2002, 75% had used marijuana.

Table 6
Estimated Current Users in Alaska by Age Group - 2002

		Age Category		
	Over 12	12-17	18-25	Over26
Past Month Marijuana Use - Percent	8.7%	12.1%	23.4%	5.0%
Past Month Marijuana use - Thousands	41,000	7,000	17,000	17,000

Sources: 2001 National Household Survey on Drug Abuse and 2002 National Household Survey on Drug Use and Health

The Office of National Drug Control Policy (2004:7) reported a different statistic, but the source was not referenced carefully enough to evaluate the data.[25] In that citation, marijuana use was reported by 47% of Alaska high school students, and 24% reported current use. One must ask how these numbers could be so much higher than in the annual household survey. But if the 47% figure is for "lifetime prevalence," that would demonstrate the drastic difference between "use" and experimentation.

The most comprehensive international study available is the European School Survey Project on Alcohol and Drugs (ESPAD). This survey compared use across 30 countries by surveying 95,000 10th grade students. Data are comparable to the United States, because the survey followed the *Monitoring the Future* (MTF) study that has been conducted at the University of Michigan for the past 26 years.

The U.S. had a higher experimentation rate for marijuana than any other country, at 41%.[26] Denmark, with the most lax policy of legality, compared favorably at 28%, and was also lower than other western European countries with more punitive legal regimes such as France, the UK, and Ireland. The U.S. experimentation rate was higher than that in most eastern European countries. Romania, for example, was the lowest, registering a mere 1%.

After reviewing the empirical work regarding marijuana prohibition, we must conclude that it is an ineffective means of reducing marijuana use. We cannot even state positively that prohibition decreases consumption *at all*. There are mixed results, but even those studies reporting an effect of prohibition find one so small as to leave room for debate. *Prohibition does not achieve its principal objective in any meaningful way.*

[25] Curiously, it did state that Anchorage was excluded. As Anchorage contains nearly half of Alaska's population, that is a rather strange omission.
[26] http://www.monitoringthefuture.org/pubs/espad_pr.pdf

What are the Secondary Effects of Prohibition?

The economics of prohibition are the same whether one is considering alcohol, marijuana, or other "vices". They differ in degree, but not in kind. The lessons learned during national alcohol prohibition provide important parallels for marijuana that should be considered. One of the most important is that prohibition creates crime of a more serious nature, particularly violent crime.

Under the well-known modeling of rational substance use, people perceive that they benefit from and manage their use of substances (Becker and Murphy: 1988). When one substance becomes more expensive or difficult to obtain, they substitute another in its place. We therefore also sought information on the substitutability of marijuana and other substances.

Prohibition and Crime

There have been many studies on the effects of prohibition on crime. Probably the most telling data is the impact of Alcohol Prohibition on the murder rate:

> The homicide rate in large cities increased from 5.6 per 100,000 population during the first decade of the century to 8.4 during the second decade when the Harrison Narcotics Act, a wave of state alcohol prohibitions, and World War I alcohol restrictions were enacted. The homicide rate increased to 10 per 100,000 population during the 1920s, a 78 percent increase over the pre-Prohibition period.[27]

Other serious crimes rose in the same period, including robbery, burglary, assault, etc. All fell with the repeal of Prohibition. One of the more important consequences of Prohibition was the rise of *organized* crime. All of these increases in crime came with minor effects on consumption (see, e.g., Miron and Zwiebel 1991, Friedman 1991 and Thornton 1991). Some have argued that consumption actually rose (Tillitt, 1932: 36).[28] It is apparent from all sources that consumption initially fell sharply , but then rose significantly as the underground "speakeasy" and black market economy developed.

It is common to cite a spurious association between "drugs and crime" exactly as the association between alcohol and crime was made during Alcohol Prohibition. Initially, the benefit of Prohibition was asserted to be decreases in crime consequent to "demon rum". But the result was the opposite. Ultimately it was the dramatic increases in crime and other negative effects of Prohibition that led to its repeal.

The parallel of Alcohol Prohibition causing more serious crime and prohibition of drugs causing more serious crime is an obvious case of history repeating itself. Miron (2001:1) and others have pointed out that "many of the harms typically attributed to drug use are instead due to drug prohibition." Moreover, "these outcomes would be reduced or eliminated under legalization." (see also Friedman 1991, Benson and Rasmussen 1991, Benson 1992 Duke and Gross 1993, and Miron 1999). The USBJS (1992:5-8) also gives ample evidence of the relationship between violent crime and drug prohibition, and again, specifically, homicides and drug trafficking. One wonders: since street drugs have nearly exact counterparts in legal prescription drugs, if drugs themselves cause crime, why there is no such link between prescription drug use, prescription drug trafficking, and violent crime.

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[27] Quoted from Thornton (1991). This is one of the most widely cited documenting the ill effects from prohibition.
[28] In any such study, illegality necessarily causes an under-reporting problem. This is also true in issues such as alcohol-related deaths and health problems. For example, Tillitt (1932:114-115) reported that medical examiners and family physicians avoided citing alcohol on certificates during Prohibition.

Violent crimes in Alaska increased dramatically after marijuana was recriminalized in 1990, as shown in figure 1. Data are available from 1985 onward only for Anchorage and Fairbanks reporting districts, so this is what was used. By 1995, violent crimes had increased *by just over 100%*. It appears that, after the concealed carry handgun bill was passed, violent crimes decreased, as they did in other states with concealed carry laws. But there are also other factors to consider, such as the economy.

While we do not pretend this is a definitive study of marijuana prohibition and crime in Alaska, it is impossible to argue that marijuana prohibition has reduced violent crimes. The evidence is the opposite, and rather dramatically so.

If prohibition *worked*, one might argue that these costs were tolerable. But because prohibition *fails*, these costs are in *addition to* any social costs that actually stem directly from marijuana use. Following Miron (2001), we may outline the effects of prohibition as follows:

1) Marijuana prohibition creates a black market in marijuana rather than eliminating it.

2) Prohibition increases violent crime by preventing black market participants from resolving their differences through standard nonviolent mechanisms.

3) By raising the price of marijuana, prohibition encourages income-generating crime such as theft, since additional income is needed to purchase marijuana.

4) In black markets, participants must either evade law enforcement authorities or pay them to look the other way, so the scope for corruption is substantial.

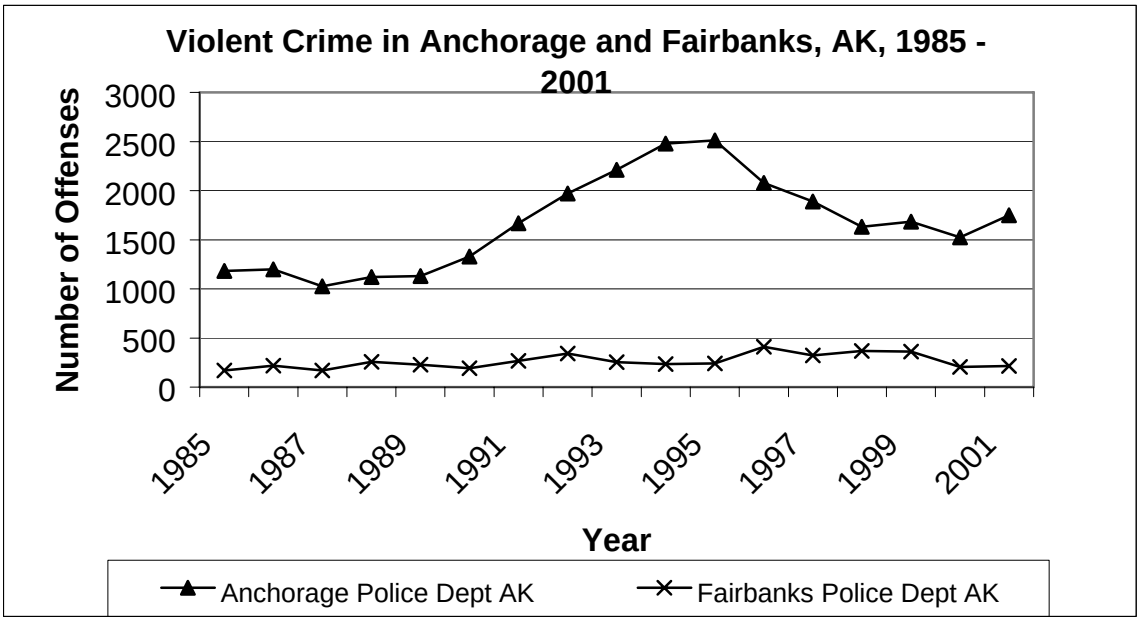
5) Making products illegal can make them less safe. United States experience with Alcohol Prohibition provides a classic example of this effect: deaths from adulterated alcohol soared (Miron and Zwiebel, 1991; Morgan, 1982).

6) Revenue is diverted from government and law-abiding citizens to criminals.

7) Prohibition breeds disrespect for the law.

8) It complicates or compromises other policy areas, for example, civil liberties and rights to privacy, and international relations.

Figure 1: Violent crimes in Anchorage and Fairbanks Reporting Districts



Source: Bureau of Justice Statistics
http://bjsdata.ojp.usdoj.gov/dataonline/Search/Crime/Local/TrendsInOneVar.cfm

Prohibition and Use of Other Substances

Conlin et al. (2002), DiNardo Lemieux (1992; 2001), and others have studied the substitutability of alcohol and marijuana. In the latter study, "We find that increases in the legal minimum drinking age did slightly reduce the prevalence of alcohol consumption. We also find, however, that increased legal minimum drinking ages had the unintended consequence of slightly increasing the prevalence of marijuana consumption" (DiNardo Lemieux 2001:991).

Conlin, et al. (2002:13) found that, "allowing local alcohol access decreases crimes associated with illicit drugs." They also found that, "Prohibiting the sale of beer to persons under 19 and under 21 increases the fraction of drug related arrests attributed to juveniles more in wet counties than in dry counties."

Chaloupka and Laixuthai (1994), in particular, examined the effect of this substitutability on accidents due to teenage intoxicated drivers. They concluded that, "results imply that the reduction in accidents resulting from substitution away from alcoholic beverages and other intoxicating substances to marijuana as its full price is lower more than offsets the increase in accidents related to marijuana use."

This matches studies of adults where marijuana appears to impair driving ability substantially less than alcohol (U.S. Department of Transportation, 1993; Crancer, et al. 1969). Model (1993) demonstrated that rates of other illicit drug use were significantly higher for emergency room patients in states where marijuana prohibition was in effect.

There is suggested by some to be a complementarity of marijuana and other substances. Generally, this is suggested by the casual statistical observation that those who have used marijuana are also more likely to have used other substances.

At first glance, it might appear that the "substitutability vs. complementarity" stances are fundamentally in disagreement. One appears to say that marijuana is used in place of other substances, while the other appears to say that marijuana is used alongside other substances.

Imagine that the issue involves "use" of coffee and soda. It is quite true that one can demonstrate that people who drink coffee as a stimulant also tend to drink soda as a stimulant. The question is, what will happen to soda consumption if coffee is made illegal?

A related issue is the concept of a "gateway" effect of marijuana. Use of marijuana may precede use of other more dangerous substances. In a sense, it is argued that marijuana and other substances "go together" as complements in this additional way. The question, again, is, what happens when marijuana is made illegal?

The "gateway" assertion generally involves a sequence between cigarettes, alcohol, marijuana, and then other, "harder", drugs, as in Kandel and Yamaguchi (1993). There does indeed appear to be a pattern, which can be summarized quite simply: More immediately available and less expensive substances are used prior to those which are more difficult and more expensive to obtain.

The problem with such studies is that they no more demonstrate that marijuana causes harder drug use than that candy causes marijuana use. Virtually every marijuana user ate candy before they used marijuana. Therefore, candy is the gateway to marijuana. This sounds ridiculous when taken out of the context of the "stepping stone" preconception about drugs. We could make a similar assertion about bicycles causing motorcycle ownership.

A study of the gateway effect could be constructed in several ways. One would be to *remove* an element of the "stepping stones" for one set of subjects and not for the other. If it could be demonstrated that removing one of the stepping stones prevented the next step, then one could conclude a "gateway" effect had been observed. However, all of the substances above (cigarettes, alcohol, and illegal drugs) are already under prohibition for minors; thus, such a study cannot be legally or ethically undertaken.

The approach taken by Morral, et al (2002) is the "bad seed" or "common factor" approach. Given a propensity to use drugs in the first place, does use of marijuana increase the probability of progressing to other drugs? The answer was no: "We demonstrate that the primary evidence supporting the marijuana gateway effect can be explained completely by the order in which youths first have the opportunity to use marijuana and other drugs."

That is why the NHS data demonstrates that, for the majority of those who have tried marijuana, it is a "terminal" substance, with no harder drugs tried at all, and use generally ending after the late 20's. It may indeed be true that, for the population that has tried marijuana, there is a higher likelihood of trying other drugs. That does not demonstrate that marijuana is the *cause* of other drug use or that marijuana smokers will become heroin addicts.

Another possibility of assessing the gateway hypothesis is to re-arrange the order of the "stepping stones", to see if there are effects on final disposition. One such study has been completed. In Sen, et al. (2002) an empirical study of 6,748 adolescents between the ages of 12 and 16 was undertaken for the purpose of identifying a "gateway" effect between cigarettes, alcohol, and marijuana. Ironically, it was discovered that initiation of marijuana use *decreased* the likelihood of subsequently using the other two. This was statistically significant at the 99% level of confidence.

The reverse was found to be true for cigarettes and alcohol: use of either one resulted in a *greater* likelihood of subsequent marijuana use. The conclusion regarding marijuana apparently prompted an attempt at alternative modeling in order to reach a different conclusion. The study recognized a "bad seed" effect; that is, that someone predisposed to risky behavior will try anything when it is available, as opposed to one thing leading to a specific other.

One speculative conclusion of that study was that, by curbing use of one of the three substances, use of the others might decrease as well. In order to reach such a conclusion, however, *one must study a situation in which it actually occurs*; that is, where use of one or the other has been successfully curbed. In the Sen, et al. (2002) study, all three substances were prohibited to minors, yet more than 50% of youths had experimented with at least one of them.

There are also other substances to consider. In rural Alaska, it would be wise to investigate the substitutability between marijuana and inhalation of volatile vapors. This practice is especially prevalent among Alaska Native youth and is discussed, for example, in Segal, et al (1999:35-36). Sniffing gasoline, glue, and other industrial solvents is widespread in remote villages. It causes permanent brain damage, and death by liver, kidney, or bone marrow damage. Inhaling such vapors can also cause sudden sniffing death. The problem is so severe that Alaska has the only Inhalant Abuse Treatment Center in the nation.[29]

In evaluating the secondary effects of marijuana prohibition, we see an unambiguously negative set of results. We must remind ourselves first that prohibition is ineffective in curbing use. It is effective in raising price and creating black market activity that generates other crime. To the extent that use is decreased, the evidence indicates that there is a substitution of other substances, primarily alcohol.

Conclusion

In conclusion, we find that marijuana prohibition costs the State of Alaska well over $24 million annually in direct and indirect costs of enforcement. These costs are not offset significantly by federal grant monies, fines or forfeitures. In addition, prohibition does not succeed at its stated purpose, and in fact contributes to additional crimes being committed, and to use of other, more dangerous substances. Marijuana prohibition, using the most favorable figures in cost-benefit analysis, is a costly failure.

[29] The Tundra Swan Inhalant Program. Yukon Kuskokwim Health Corporation - Bethel, Alaska

Appendix I: Tax Revenue Potential and Hemp Industry Analysis for Alaska

Tax Revenue Potential

We developed estimates for tax revenues derived from marijuana legalization in Alaska and from potential industrial hemp trade. Tax revenue potential from marijuana appears to be on the order of $10-12 million. An industrial hemp trade and a tourist market trade would certainly generate sales values at a multiple of that. Given the quasi-legal status in countries where such tourist trade exists, it is difficult to assess exact figures. But even a 2% increase in travel and tourism in Alaska would be worth on the order of $35 million.

Our estimate of tax revenue potential from legalization of marijuana in Alaska is offered for exploratory purposes, as legalization in Alaska will not cause legalization at the federal level. It is nonetheless a legitimate public policy question that has a place in the debate. It is not unrealistic to contemplate legalization with taxation in the future, and it is a question invariably addressed in other studies. In fact, the original 1937 federal "Marihuana Tax Act" did not make marijuana illegal, but provided for its production by purchase of a tax stamp.[30]

In Alaska, a comparison might be made between potential marijuana taxes and tobacco taxes; however, there are some very important differences. There are many more cigarette consumers, roughly 25% to 30% of the adult population.[31] At 30% of the adult population, there are in excess of 130,000 cigarette consumers alone as compared with 42,000 "regular" marijuana users[32]. That means there are at least 90,000 more cigarette consumers than marijuana smokers. This does not include juvenile tobacco use, nor does it count smokeless tobacco.

Cigarette consumers also smoke much more, on average, than do marijuana smokers. In 2001, Alaskans consumed an estimated 817 million cigarettes.[33] Although the retail cigarette price is lower than that of marijuana, that is primarily because there is no "risk premium" from prohibition for tobacco. That distinction would disappear with legalization.

The Alaska statewide presumptive cigarette price, produced by the Alaska Department of Revenue, is $41.69 per carton.[34] This includes total federal plus state excise taxes of $13.90, about 33% of the retail price. The tax on other tobacco products is 75% of the wholesale price.

State tax revenues from tobacco taxes were about $46.9 million in FY 2003.[35] Including federal and local revenues, tobacco sales generated close to $70 million in total tax revenue. Governor Murkowski has proposed doubling the state tax. Although Alaska's is already the third highest such tax in the nation, about a dozen other states are also considering increases. Assuming Alaska and the other states all pass

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[30] Act of August 2, 1937 Public 238, 75th Congress. See cover illustration for an example.
[31] Estimates seem to differ. According to the Center for Disease Control (2004) it was 29.4% of Alaska adults. See: http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5253a1.htm. But according to the Alaska Department of Health and Social Services, it is 25%. http://health.hss.state.ak.us/dph/targets/PDFs/tobacco_hand-out.pdf
[32] Reported in table 6. "Regular" means within the last month.
[33] http://health.hss.state.ak.us/dph/targets/PDFs/tobacco_hand-out.pdf That works out very roughly to seventeen cigarettes per day per consumer.
[34] http://www.tax.state.ak.us/programs/tobacco/reports/Cigarette%20Presumptive%20Min%20Price%20-%20Web%20Post.xls
[35] Alaska State Revenue Sources Book Spring 2004: http://www.tax.state.ak.us/sourcesbook/2004/spr2004/non-oil.pdf

these increases, Alaska would remain in third place. The proposed measure would boost total taxes to over 50% of retail, and bring in over $100 million in total (state plus federal) taxes. Interestingly, the city of Anchorage has just imposed a tax increase of $1^oo per pack, and plans to raise it again by the same amount over the next two years. Enforcement issues have already surfaced.

The price elasticity of demand for cigarettes is in the -.4 to -.6 range (Hersch, 2000). As we have noted previously, demand for marijuana is even more inelastic (i.e., less responsive to price). That means a marijuana tax can constitute an even higher proportion of the retail price. But, because the number of consumers and the amount used per consumer is so much lower, the total revenue potential is much less.

To get an idea of revenue potential from marijuana taxation, we first take from Miron (2003:8) the $10.5 billion estimate of total marijuana expenditures in the U.S. and determine a proportionate share for Alaska. Although use is slightly higher in Alaska, according to the data provided earlier, we will use the relative population proportion for a conservative estimate. Adjusting for a year of inflation using the consumer price index, and using a proportion of national population of .0022, there will be about $24 million spent for marijuana by Alaska consumers in 2004.

Let us ask if this is reasonable, given the total number of marijuana smokers estimated for Alaska. With an estimate of 42,000 that "used" marijuana within the last month of the most recent survey (Table 6), that comes to $571 per year per marijuana consumer. At $90 per quarter ounce, that would be roughly one and one-half ounces per year per marijuana consumer[36], a figure which suggests use of less than one gram per week. Certainly, this is not a lot of use, only about one "joint" per week.[37]

We depart from the Miron (2003) model in two respects. First, we rely exclusively on empirical estimates of price responsiveness based on real data, as opposed to hypothetical questions asked of marijuana users. Second, the potential for tax evasion is considered to be more serious for Alaska as compared to the Massachusetts situation considered by Miron (2003). These work in opposing directions, but are believed to provide a more realistic estimate.

Empirical observations demonstrate that marijuana use is extremely unresponsive to price. This makes it a good candidate for taxation. If taxes significantly suppress use, it is not a good tax instrument, because there is little revenue potential. On the other hand, Alaska affords an easier environment for tax evasion because of its rural nature, and the difficulty of enforcement in comparison to the urban setting considered by Miron (2003).

The final element we considered was the effect of legalization on market price in the absence of a tax. Consider that industrial hemp production is on the order of 3-12 tons per acre and sells at under $100 per ton (Ehrensing 1998). Industrial hemp is quite different from marijuana grown for its psychoactive compound content, but it is instructive to compare the two, as they are actually the same plant, *Cannabis sativa*. Because marijuana is no more difficult to grow than industrial hemp, marijuana's high price under prohibition is, obviously, mostly a risk premium.

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[36] An average price for small (quarter ounce) purchases over the last 20 years of $89.21 was retrieved from the Office of National Drug Control Policy. *The Price of Illicit Drugs: 1981 through the Second Quarter of 2000*. Washington, DC. October, 2001, pg 46. While this figure is accurate for municipalities in Alaska according to knowledgeable sources, it is an understatement of rural Alaska prices. Thanks to Jon Gettman for citing the ONDCP source data.

[37] Dr. Alexander Sumach, in Cannabis Calculations per day.

Cervantes (1999) provided "cost" estimates for different home operations that are also useful here, although they were not constructed in accordance with business accounting principles. (They did not include the value of the home cultivator 's labor, nor were costs of floor space included.) All examples reported variable costs per ounce of under ten dollars. Capital costs were not calculated on a useful life of equipment basis, but simply attributed to the first "crop", with zero for subsequent crops. Even allocating the entire capital cost to the first crop resulted in a "cost" generally under $100 per ounce, a fraction of current market prices.

The U.S. Drug Enforcement Agency (2000) estimated that British Columbian "bud" sold for $1500 per lb. in Vancouver, as compared with $3000 in California. Although this trade is illegal, and any intercepted B.C. exports or sizeable operations are prosecuted, a much more tolerant policy exists in British Columbia. Small scale operations are generally not prosecuted, and there is a coffee shop trade in cities such as Vancouver similar to the Amsterdam approach. The price premium is reflective of relative risk.

There is little doubt that the price of marijuana will fall drastically with legalization, because the risk premium would be completely eliminated, and even "closet" operations produce at a small cost per unit relative to market price. Were marijuana to be grown commercially, with industrial methods utilizing scale economies, these small operations would be almost completely supplanted. This in turn would facilitate tax collection, so long as the tax is not so exorbitant as to keep production in the black market.

A balancing act is needed to set a tax high enough to create substantial revenue, but low enough to prevent widespread tax evasion. Even a tax constituting 50% of the retail price would result in market price below present levels, but bring production to larger scale commercial enterprises utilizing much more efficient technology, and make collection of taxes simple. No taxation of individual home production is envisioned, and none was considered here.

With an estimated $24 million in present illegal marijuana expenditures, and the knowledge that a large fraction of this amount — much more than 50% — is reflective of a risk premium, it is likely that revenue potential from a tax is at least on the order of $10 million after legalization. Fifty percent of $24 million is $12 million. The government could probably appropriate nearly the entire risk premium in tax revenues, perhaps somewhere between $10-12 million. Significantly more than this, though, would begin to encourage tax evasion and substantial "cottage industry" production in the Alaskan environment.

The nation's tobacco taxes have not brought about significant evasion through home production[38] because of the complications involved in growing, drying, curing, and processing tobacco products. More than a year is required for curing, and this alone discourages home production. Such complications are not present in marijuana processing and consequently the potential for home production and black market sale is significant. Despite empirical estimates suggesting that heavier taxation of marijuana is possible, it is probably not wise to suggest much more than $10 million dollars in initial Alaska tax revenues.

If we compare this $10 million dollar estimate to figures from a recent California study, we find that it is considerably lower.[39] In that study, a $1 per "joint" tax was presumed, and estimates of use were based on the National Household Survey, as well as a British individual consumer survey. Estimated annual tax revenues for California were $1 billion. Using the relative proportions of Alaska and California users, a comparable amount for Alaska would be about $17.7 million.

[38] Tobacco tax evasion is primarily a different form, involving transportation between states with differing tax rates.
[39] http://www.canorml.org/background/CA_legalization.html

In Miron (2003), only the prevailing sales and income taxes, 5% and 4.3%, respectively, were applied to marijuana expenditures, as opposed to the approaches taken both here and in the California study. We have considered a much heavier level of taxation, quite obviously a "sin tax."

Industrial Hemp and Cannabis Tourism

Industrial hemp would develop in Alaska mostly as an ancillary feature of marijuana legalization, as opposed to a stand-alone export trade. The coffee shop tourist trade has become significant in places such as Vancouver and Amsterdam, and consideration should be given to such development in Alaska for its strong revenue potential.

General U.S. Industrial Hemp Market Conditions

The U.S. industrial hemp market has grown from nothing to an estimated $200 million since the 1980's[40] The USDA (2002) issued a report with incomplete data; however, it is instructive. Raw hemp fiber imports to the U.S. increased from zero to 1.6 million pounds between 1989 and 1999[41]. Total imports of fibers, yarn, and waste (excludes seed, oils, and finished products) rose from 0.2 million to nearly 1.9 million pounds in that time.

The USDA report focused on the existing "narrow" market for hemp products, and based estimates of U.S. markets on the last year of data. The problem with this approach is that decades of illegality, and continuing uncertainty over hempseed oil food products in particular, have hampered the market. One should view the market's growth as quite significant in light of the legal cloud and anticipate substantial growth following the 2004 Court of Appeals ruling in favor of the industry.[42] Prior to this decision, legal uncertainty had stifled the industry. Hemp food products will represent an important market segment in the future.

Other potential hemp uses cited in the USDA (2002) report include fiberboard composites, paper products, molded automobile parts, fuel, and a substitute for fiberglass. Hemp hurds, the by-products of extracting the useful fiber from hemp, are an excellent bedding material for livestock, and are also used as cat litter. Hempseed oils appear to have the most immediate promise in food and body-care products. There are many uses of this versatile plant, some of which are being "rediscovered" now, lost since the prohibition era was initiated in 1937.

Marijuana is currently prescribed for the treatment of anorexia and resultant weight loss due to AIDS, and for refractory nausea and vomiting associated with cancer chemotherapy (Joy et al, 1999).[43] As medicinal properties of the plant are increasingly researched and accepted, the market for various medicinal hemp preparations will expand. New marijuana medicines for spasticity and chronic pain are already under investigation.

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[40] Personal communication C Penn, Director, Hemp Industry Association, May 2004.

[41] USDA (2002), table 1.

[42] L.A. Times Feb 7, 2004. *U.S. Ban of Hemp Foods is Rejected*. The U.S. DEA attempted to ban fledgling hemp foods in the U.S. beginning in 2001. The food products have no psychoactive properties. But for three years the judicial issue was battled in the courts by the industry and the DEA. The U.S. 9th District Court of Appeals struck down the ban in February of 2004.

[43] An Institute of Medicine (IOM) Report, by Joy, et al. in 1999, titled *Marijuana and Medicine: Assessing the Science Base*, was commissioned by the White House Office of National Drug Control Policy. The entire text of the IOM Report is available at: http://books.nap.edu/html/marimed

Hemp has been used for thousands of years in fabrics, rope, paper, medicines, and a multitude of other products. Synthetic fibers and other competitors to former hemp industry products, developed concomitantly with prohibition, have served with it to destroy hemp product industries in the U.S. Eliminating prohibition can remove the legal obstacles, but hemp must still compete in the marketplace with other products.

Alaska Industry Potential

Industrial hemp agriculture in Alaska would probably be a specialty or "boutique" market, since large-scale production would put Alaska in direct competition with several countries that produce hemp currently. In particular, the European Union (EU) provides a subsidy with which Alaska would have difficulty competing. At present the EU subsidy is 350 Euros per hectare (personal communication, M Kraus: International Hemp Association, May 11, 2004). At current exchange rates, that amounts to $165.20 per acre. In addition, there is a subsidy of 90 Euros per ton of short fiber, or about $42.48. These subsidies are expected to continue. Land prices in Alaska are high due to government policies, and this also places Alaska at a competitive disadvantage in industrial hemp production.

Alaska would have to market hemp products in the same way it markets its berries, teas, honey, and other natural products. The uniqueness of Alaska itself can provide a novelty premium. It does not make sense for Alaska to try to compete by producing exactly the same product as larger scale, lower cost industries elsewhere in the U.S. or internationally.

A clever marketing approach would combine an Alaska mystique with the product. For example, lotions from hemp oil could be combined with natural Alaska products or fragrances. Alaska hemp fabrics could be designed with distinctive logos, or Alaska Native artwork or patterns. A small-scale production facility in the right location could generate tourist viewing dollars to augment production income.

An "Alaska Energy Bar" or "Alaska Nature Bar" may have appeal for the backpacker, fishing enthusiast, hiker, mountain biker, or kayaker market segment. It is well known that hempseed oil is a nutritious foodstuff. The Nutiva Corporation has been marketing hemp bars, shelled hempseed, and hemp protein powder for several years.[44] Again, niche markets with distinctive Alaska themes are the best avenue for Alaska hemp products.

A coffee-shop approach similar to that employed in Amsterdam (see below) would without question generate tourist activity in Alaska independent of the existing tourist trade. Marketing hemp products via such coffee shops would be a natural extension of the industry. Whether Alaska could produce hemp products itself or not, marketing hemp products in Alaska would be a natural outgrowth of a marijuana tourism industry.

Canada has a developing industrial hemp products market, and the Manitoba Agriculture and Rural Food Initiatives Department suggests oilseed as the most promising of these.[45] Professional studies have been undertaken both for the Pacific Northwest of the United States (Ehrensing 1998) and for Canadian conditions. These studies included "production budgets" with break-even analyses. The USDA (2002) also reviewed studies conducted in other areas of the U.S., much less similar in climate to Alaska.

[44] The U.S. DEA attempted to ban hemp foods in the U,S. beginning in 2001. The U.S. 9th District Court of Appeals struck down the ban in February of 2004.

[45] http://www.gov.mb.ca/agriculture/crops/hemp/bko01s01.html#harvest

One issue of some import in comparing these studies was the vastly higher per-acre costs found in the Ehrensing (1998) study. One reason for this is the dramatically higher land rent per acre in the U.S. Pacific Northwest as compared with Canada; in addition, the production costs followed a model based on corn as opposed to experimental results with hemp itself. The Canadian results followed several years of trial experiments with hemp and are also more recent. They suggest a much lower cost per acre.

It also makes a difference whether one is gearing operations primarily to produce fiber or grain (seed). One can market both, but one must primarily target one or the other to grow. Experimental work would have to be done under Alaska conditions to make a definitive statement about yields, but some work has already been done in other countries with similar conditions.

Siberian hemp strains have been studied in Finland, for example (Callaway and Laakkonen 1996). These varieties would be more appropriate for the northern latitudes of Alaska. Numerous sources indicate that some of the earliest hemp varieties were developed in southern Siberia. There is little doubt that the right varieties will grow in Alaska's climate. What remains to be determined is productivity per acre, and the relative advantages of seed vs. fiber production. Previous studies point to seed as the more valuable target market.

Tourism and Marijuana

Because there is an existing marijuana tourist industry in places such as Amsterdam and British Columbia, some recognition should be made of the tourist potential in Alaska. The more appropriate comparison would be with British Columbia, and Vancouver in particular. Although no formal studies have been done, the economic impact there is significant.[46] The mayor of Vancouver was quoted recently stating that, without the "pot" industry, British Columbia would be in a recession.[47]

Formal studies of the economic impact of marijuana tourism in Canada are complicated by the fact that, under the law, marijuana is still technically illegal. But enforcement is curtailed so as to allow a "pot block" in cities such as Vancouver, with cafes similar to those in Amsterdam, and tourists may "legally" smoke and purchase marijuana in these areas. Although it is significant economically, the "illegal but tolerated" status is not conducive to academic study. Thus, the full economic impact of "pot tourism" for cities such as Vancouver remains unknown.

In 2002, one article cited more than one million Euros (about $1.2 million dollars at present exchange rates) in sales of "joints" per Amsterdam shop per year, with the government taking as much as 52% of revenues.[48] There are hundreds of coffee shops there. The same article cited a contribution of $1.36 billion to the Dutch economy in 1995, the last time a study was conducted. That translates to about $1.7 billion in 2004 dollars.

Alaska travel and tourism industry sales were estimated at $2.4 billion in 2002 with employment at about 26,000[49]. Every percentage increase in this industry represents about another $24 million in sales. It is difficult to project a percentage figure for marijuana related tourism, but even a low percentage increase suggests between $50 and $100 million annually.

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[46] See for example: "Vancouver tourism Gone to pot" Peak. *8(114) -- June 23, 2003*. Accessed at: http://www.friendlystranger.com/info/recreational_03/tourism.htm

[47] "Vancouver Mayor Touts Pot Legalization CTV.ca Sunday, May 9, 2004. http://www.ctv.ca/servlet/ArticleNews/story/CTVNews/1084109538512_57/?hub=Canada

[48] "Cannabis Trade Gets Dutch Economy High" *Taipei Times* Wednesday, Nov 13, 2002, p 12

[49] See http://www.dced.state.ak.us/oed/pub/TSA_Exec_Summary.pdf

In "hemp town" tourist blocks, ancillary businesses have emerged in a fashion somewhat analogous to a "Chinatown" setting. Such businesses may market hemp products, growing equipment, smoking accessories, books, and art, as well as souvenirs of the "zone": T-shirts, mugs, and all of the oddments dear to the touring collector. "Hip" performing arts venues may thrive. Perhaps it is wise to segment markets in this way, giving tourists who might be offended by this kind of industry the option to stay away. (It may be noted that Amsterdam employs a similar strategy to shield the unwary from its legal sex trade.)

Although detailed studies are lacking, it is safe to say that the potential for a tourism and "coffee shop" industry is an order of magnitude greater than the revenue potential from taxing resident marijuana use. It represents a significant opportunity for generating income and employment in the State of Alaska.

Appendix II: Summary of Alaska Marijuana Statutes and Case Law

Alaska Statutory Classifications and Penalties[50]

Possession	Classification	Incarceration	Fine
Less than 8 oz.	Misdemeanor (Misconduct VI)	90 Days	$1,000
Between 8 oz- 1lb.	Misdemeanor (Misconduct V)	1 Year	$5,000
Over 1 lb. Or 25 plants	Felony (Misconduct IV)	5 Years	$50,000
Any amount with "reckless disregard" within 500 ft. of school or youth recreation area.	Felony (Misconduct IV)	5 years	$50,000
Sale or Manufacture			
Less than 1 oz.	Misdemeanor (Misconduct V)	1 Year	$5,000
1 oz. or more	Felony (Misconduct IV)	5 years	$50,000
Sale to under age 19	Felony (Misconduct III)	10 years	$100,000
Miscellaneous			
Maintaining structure for keeping/delivering	Felony (Misconduct IV)	5 Years	$50,000

[50] Source: Alaska Statutes

Judicial Notes

In *Ravin v. Alaska,* [51]the Supreme Court of Alaska held that the constitutional right to privacy protects citizens in the possession of plants for personal use in the home:

> The state has a legitimate concern with avoiding the spread of marijuana use to adolescents who may not be equipped with the maturity to handle the experience prudently, as well as a legitimate concern with the problem of driving under the influence of marijuana. Yet these interests are insufficient to justify intrusions into the rights of adults in the privacy of their own homes. Further, neither the federal or Alaska constitution affords protection for the buying or selling of marijuana, nor absolute protection for its use or possession in public. Possession at home of amounts of marijuana indicative of intent to sell rather than possession for personal use is likewise unprotected.

This decision left it to statute to determine quantities consistent with personal use vs. that for sale. Prior to 1990, the state legislature determined that amount to be four ounces.

As for the voter initiative of 1990 presumed to recriminalize marijuana possession for personal use, several cases have been heard by the Alaska courts. The Court of Appeals, in *Noy v State of Alaska,*[52] held in August of 2003 that the voter initiative recriminalizing personal possession was unconstitutional, and that the law reverted to its previous constitutional (pre-1990) status of allowing up to four ounces. Since possession of 25 plants is defined as a felony under current Alaska law, and since that amount implies more than personal use, this standard remains unchanged by the *Noy* decision, as do other statutory provisions on weights over 4 ounces, cited above. The Alaska Supreme Court has refused to review the *Noy* decision. In *State of Alaska v. Crocker*, the Court of Appeals found that a presumption of innocent, lawful possession of marijuana in the home must exist in order not to subject Alaskans to intrusive government searches,, and that probable cause must be established that marijuana in someone's home falls outside the scope of *Ravin* before any search warrant is issued; furthermore, that probable cause is not established by a householder's electrical usage, nor by the odor of marijuana.

Medical Marijuana is permissible under Alaska Statute 11.71.090 and 17.37. Individuals must register under AS 17.37 as either patient or caregiver. The process of registration is tedious, costly, and invasive, especially given that it does not entitle patients or caregivers to a legal source of either seeds or plant cuttings. Oddly, this statute allows possession of only three oz. of marijuana, less than that allowed any adult according to pre-1990 law and today.

[51] Ravin v. State of Alaska 537 P2d 494.
[52] 2003 WL 22026345 (Alaska App.)

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