

Update to:

Budgetary Implications of Marijuana Decriminalization and Legalization for Hawai‘i

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David C. Nixon, Associate Professor
Public Policy Center
University of Hawai‘i

* Research for this report was underwritten by the Drug Policy Action Group. The report adopts many of the methodological approaches of Lawrence Boyd’s (2005) earlier report for the Drug Policy Action Group, “The Budgetary Implications of Marijuana Decriminalization and Legalization for Hawai‘i.”

Introduction

As in many other areas of public policy, the various U.S. states have a patchwork of laws and regulation governing marijuana. The 2012 election in which Colorado and Washington passed voter initiatives legalizing marijuana have thrown those differences into sharp relief.¹

Decriminalization or legalization of marijuana has the potential to reduce or eliminate the social and economic costs of law enforcement, and could provide a unique new revenue stream for government. *Decriminalization* is an approach that treats marijuana possession in small amounts as a civil infraction (incurring a fine, much like most parking or minor traffic violations), rather than a crime with the possibility of incarceration. As used in this report, *Legalization* is a system that allows the use and sale of marijuana to adults under a system of taxation, regulation, and sometimes licensing, in much the same way as alcohol.

The most recent effort to measure the cost savings and revenue potential of legalization in Hawai'i (Boyd, 2005, "The Budgetary Implications of Marijuana Decriminalization and Legalization for Hawai'i") estimated that decriminalization of marijuana possession would save state and county governments about \$5 million annually. The same study found that legalizing, taxing, and regulating marijuana would save state and county governments an additional \$5 million and would create tax revenues of \$4 million to \$23 million, annually.

An update to the most recent available research, based on data through 2011, demonstrates that Hawai'i conducts relatively lax enforcement of marijuana possession laws, but that its enforcement effort has jumped significantly over the past half-decade. Due to this uptick, decriminalization of marijuana possession would now reduce state and local enforcement costs by \$9 million annually. Legalization of manufacture and distribution of marijuana would reduce state and local enforcement costs by an additional estimated \$3 million, bringing the total annual savings to \$12 million. Legalization would also allow the state to regulate and tax marijuana distribution, and would provide state and/or local government with at least \$11.3 million in additional tax revenues.

¹ Colorado's Amendment 64 makes the personal use, possession, and limited home growing of marijuana legal for adults 21 years of age and older. It establishes a system in which marijuana is regulated and taxed similarly to alcohol. The amendment will set up a system of marijuana distribution comprised of cultivators, product manufacturers (such as for marijuana-infused baked goods), and retail establishments. It also allows for the cultivation, processing, and sale of industrial hemp.

Washington's Initiative 502 legalizes the possession of marijuana for adults age 21 and older. The only marijuana that will be legal to sell in the state will be grown by specially licensed Washington farmers and sold in stand-alone marijuana-only retail establishments licensed and regulated by the state. While I-502 would legalize possession of marijuana, it would establish new rules to prohibit driving under the influence of THC (tetrahydrocannabinol, the main active chemical in marijuana).

The analysis² for this report, which updates and improves on the Boyd study, proceeds in four parts:

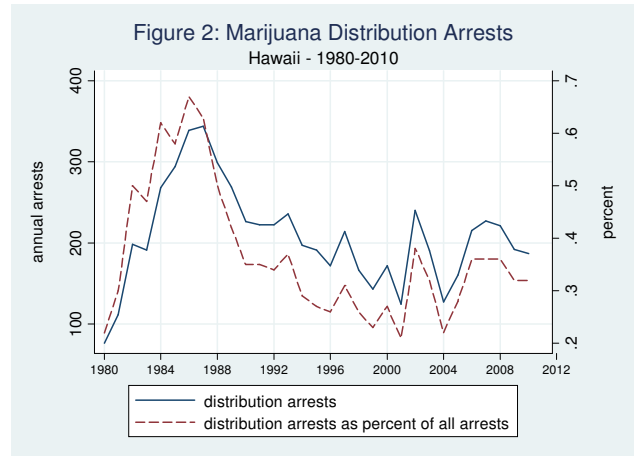
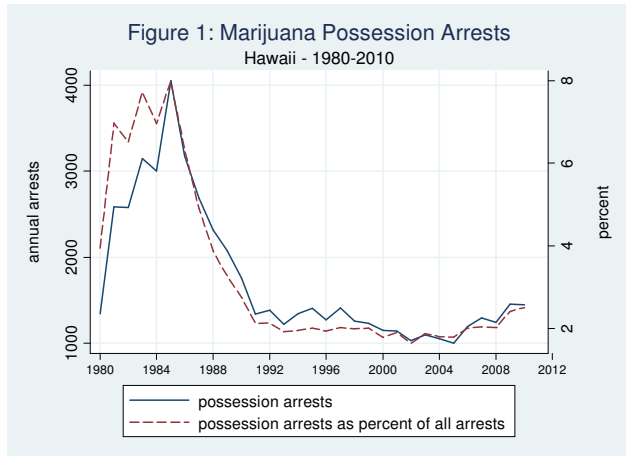
- First, I describe the context for marijuana law in Hawai‘i. More current and historical data continue to support the depiction presented by Boyd, but there are important new developments in marijuana enforcement in Hawai‘i. In addition, this report provides data not examined by Boyd that sheds light on the social justice aspects of marijuana law enforcement in Hawai‘i.
- Second, I estimate the enforcement costs that would be avoided for the state and county governments that would result from decriminalization of marijuana possession. The methodology for the second section follows Boyd’s techniques very closely, but makes the important improvement of adjusting for inflation.
- Third, I estimate the enforcement costs that would be avoided for the state and county governments if Hawai‘i legalized marijuana manufacture and distribution. Again, the methodology follows Boyd’s technique closely, and additionally adjusts for inflation.
- Fourth, I estimate the increased use and revenue stream that could be expected if Hawai‘i legalized marijuana along the lines of Colorado’s Amendment 64 to tax and control marijuana distribution. For this fourth section, I depart from Boyd’s somewhat cryptic description of a technique and instead rely on the estimation strategy employed by Stiffler (2012).

² The cost analysis of this report is limited to actual budget expenditures and does not address larger cost-benefit factors, such as social or health consequences of marijuana use or incarceration. The science behind those additional factors remains significantly behind that of expenditure analysis at this time.

Context for Marijuana Laws in Hawai'i

Marijuana Arrests Are Relatively Infrequent in Hawai'i

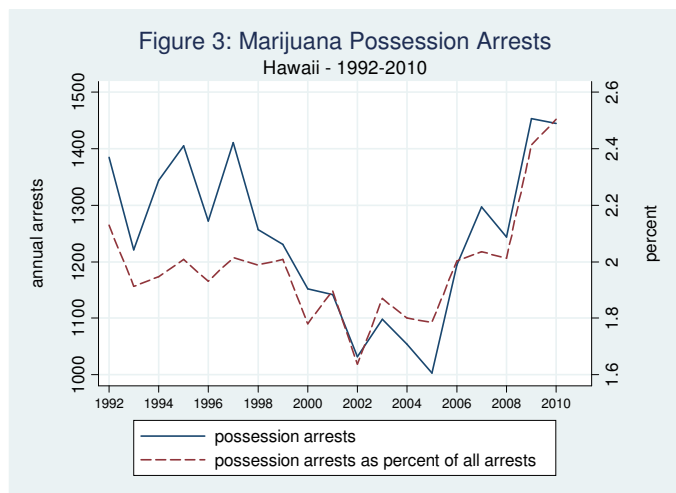
In broad terms, the most current data continue to support conclusions reached by both Boyd and Miron (2010) that Hawai'i enforcement of marijuana laws is relatively muted. While the Boyd study did not provide a long historical perspective, this report does, and finds that marijuana possession and distribution arrests have declined precipitously, compared to the experience during the height of the war on drugs in the 1980s.



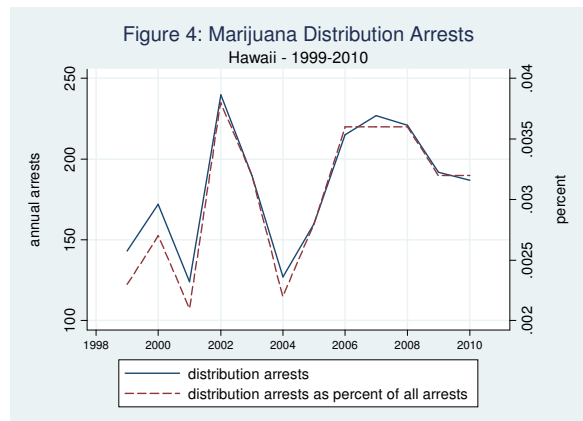
sources: Uniform Crime Report Tables for Hawai'i, various years.

Recent Years Have Seen a Surge in Marijuana Arrests

However, since bottoming out in 2004, the last data points in the Boyd study, marijuana possession arrests have increased almost 50% and distribution arrests almost doubled. These increases have consequences for current estimates of enforcement costs in later sections.



There is some evidence that the “Peaceful Sky Initiative”³ has had the intended effect of reducing manufacture/distribution arrests since it was passed by a majority of Hawai‘i Island residents in 2008 (Newswatch Staff 2012). But the impact might be attributed to changing growing practices (Burnett 2012), and the decline in distribution arrests since 2009 has been muted by state and other narcotics offices taking over Hawai‘i county interdiction, to an extent (Hunt 2009).



Marijuana Possession Arrests Have Dramatically Differential Impacts on Segments of Hawai‘i Society

Some additional data shed light on the social justice aspects of marijuana laws in Hawai‘i. For example, the laws impact males and the young much more heavily than females and established adults. This phenomenon mirrors the national pattern, but the numbers available for Hawai‘i are striking. Over 75% of marijuana possession arrests in Hawai‘i are of males, though males are only about half of the population. Put another way, males have more than a 50% greater chance of arrest for marijuana possession than females in Hawai‘i. Such arrests and the ensuing court proceedings and social disruption impose a substantial additional burden on males in Hawai‘i. The same phenomenon imposes additional burdens on the young. Since 1991, over ten thousand juveniles have been arrested for possession of small amounts of marijuana, according to Hawaii’s Uniform Crime Report tables.

Marijuana laws impact the neighbor islands - specifically Maui and Hawai‘i Island - more heavily than Oahu. It would be ideal to be able to examine the regional distribution of possession arrests within counties. Presumably, disadvantaged communities on Oahu would be shown to bear a greater burden of marijuana possession arrests than their share of the island’s population. The Honolulu Police Department reports some crimes by district and sector, but marijuana violations are not included in the more detailed reports.

Marijuana possession arrests in Hawai‘i impact some key ethnic groups much more heavily than others. For example, Native Hawaiians are arrested for marijuana possession six times more often than their share of the population, statewide. This pattern mirrors disparities identified for Native Hawaiian juveniles in many other areas of the Hawai‘i criminal justice system (Umemoto et al. 2012). The same dynamic that works against Native Hawaiians is evident in data available for Hawai‘i Island (Burnett 2012), and a similar dynamic has been documented for Latinos and

³ A County ballot initiative passed in 2008 to designate cannabis as the lowest law enforcement priority.

Blacks in Colorado (Levine et al. 2012).

Table 1: Marijuana Arrest Disparities

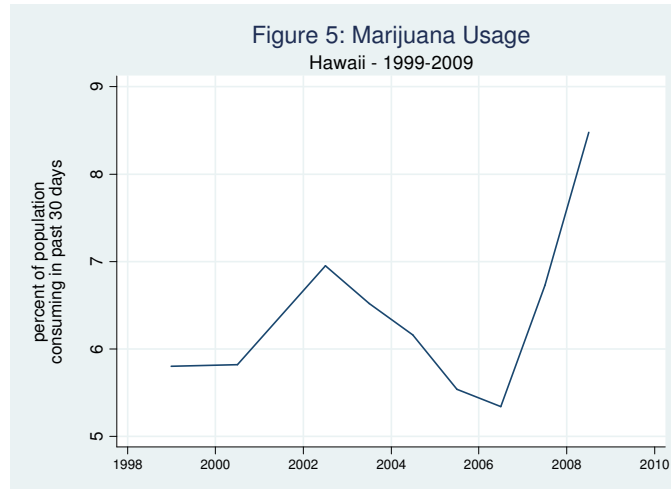
	2010 state population	marijuana possession arrests, 2009	odds ratio
male	50.1%	76.2%	1.5
female	49.9%	23.8%	0.5
adult	76.7%	60.0%	0.8
juvenile	23.3%	40.0%	1.7
age 0-24	31.9%	66.4%	2.1
age 25+	68.1%	33.6%	0.5
Honolulu	69.9%	42.8%	0.6
Hawai'i	13.9%	22.8%	1.6
Maui	11.3%	27.2%	2.4
Kaua'i	5.0%	7.2%	1.4
White	30.7%	30.7%	1.0
Hawaiian ⁴	21.3%	35.3%	1.7
Filipino	14.5%	18.6%	1.3
Japanese	13.6%	4.1%	0.3
Samoan	1.3%	1.7%	1.3
Black	1.6%	1.0%	0.6
Chinese	4.0%	0.9%	0.2
Korean	1.8%	0.9%	0.5
Indian	0.2%	0.0%	0.0
Other	26.4%	6.7%	0.3

sources: population - American FactFinder, U.S. Census Bureau; arrests - Crime in Hawai'i 2009, Hawai'i Attorney General Crime Prevention and Justice Assistance Division [hawaii.gov/ag/cpja/main/rs/Folder.2005-12-05.2910/CIH2009/Crime_in_Hawaii_2009.pdf]

⁴ Census data for Native Hawaiians reflects the "Native Hawaiian alone or in some combination with another race" categorization. Arrest data does not provide a direct comparison because there are no mixed-race categorizations in the arrest reports. But the U.S. Census reports that only 5.9% of the state population self-identifies as "Native Hawaiian only," so the arrest disparity for Native Hawaiians is at least as great as the 70% over-representation reported in Table 1.

Marijuana Consumption in Hawai'i is Climbing

Based on the National Survey on Drug Use and Health, there was a statistically significant increase between 2002/3 and 2008/9 in the percentage of the Hawai'i population reporting having consumed marijuana within the last 30 days.



source: National Survey on Drug Use and Health, 2002,3,8,9, Center for Behavioral Health Statistics and Quality (formerly Office of Applied Studies), SAMHSA

Boyd (2005) argues that a combination of lax enforcement of marijuana laws and high use of marijuana calls into question the usefulness of Hawaii's marijuana laws. Now that more recent data are available, it is clear that enforcement of marijuana laws has become marginally more strict and reported use of marijuana has increased in tandem. It is possible to argue that recent history demonstrates that marijuana enforcement has no or perhaps even a counterproductive impact on marijuana consumption.

Recent Increases in Marijuana Possession Enforcement Are Not Driven By Increased Consumption

It might be tempting to connect overall marijuana consumption increases with increased arrest data. But separating adult from juvenile data demonstrates that arrests are driven by factors largely if not entirely unrelated to changes in marijuana consumption. Among juveniles, arrests for marijuana possession increased over 5% while the best available consumption estimates showed a 20% reduction. Among adults, arrests for marijuana consumption grew at a rate (36% between 2002 and 2008) far in excess of the estimated growth in consumption. The pattern of mismatch between arrest and consumption trends has been noted in other research (Gettman 2009).

Table 2: Marijuana Consumption and Arrest Dynamics

	2002-2003	2008-2009	percent change
JUVENILES			
percent consuming marijuana in past year	18.09%	14.39%	-20.50%
annual marijuana possession arrests	519	546	+5.2%
ADULTS			
percent consuming marijuana in past year	10.7%	11.7%	+9.2%
annual marijuana possession arrests	513	698	+36.10%

sources: arrests - Uniform Crime Reports for Hawai‘i; consumption - NSDUH 2009, Table D2

Possession Enforcement Costs

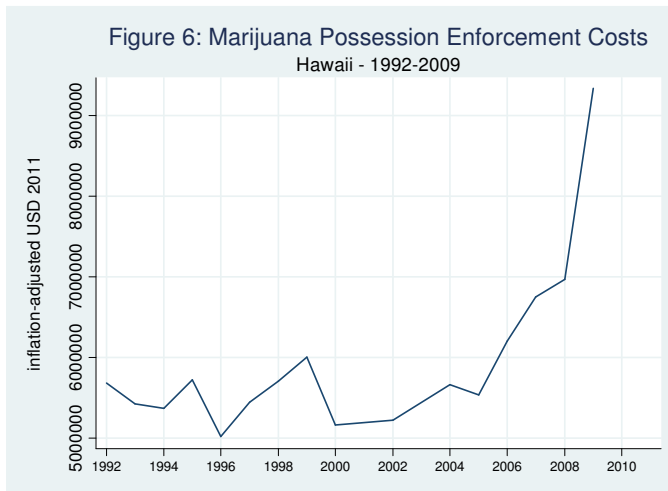
Boyd (2005) and Miron (2010) both take the approach of estimating average arrest costs as a way to ascertain likely cost savings potential of decriminalization. Recent criminology work emphasizes the importance of estimating marginal costs (the incremental change to the police budget for each additional arrest), rather than average costs (the total police budget divided by the total number of arrests), when assessing potential budget savings (Austin 2005; Henrichson & Levshin 2011; Stiffler 2012). The logic is that arrest capacity is not naturally ramped up or down in response to small changes in arrest actions. Arrests for marijuana possession constitute about 2.5% of all arrests in Hawai‘i in 2010. But if all such arrest responsibilities were removed from law enforcement, is it realistic to expect they would be able to contract their workforce by 2.5%? Some substantial fixed costs persist for police departments, regardless of small changes in arrest volume. The same logic applies to marijuana distribution, which features both an arrest and a significant prosecution cost.⁵ Marijuana distribution charges were about 3.5% of all charges in Hawai‘i state court. But an elimination of distribution as a crime (i.e. legalization) seems unlikely to actually lead to a 3.5% reduction in the judiciary’s workforce.

Unfortunately, virtually all the scientific research on marginal cost estimation is focused on incarceration costs, rather than arrest costs. In addition, there is no consensus about marginal costs, even for incarceration. The marginal costs of imprisoning one additional inmate in Washington has been estimated as 16% of the average cost, but it has also been estimated as 40% of the average cost in North Carolina. Stiffler chose to estimate that marginal costs for marijuana arrests are 70% of average costs, but is forthright that the choice is without any empirical basis. Absent an empirical basis for selecting a discount rate to estimate marginal costs of marijuana arrests, it seems best to keep with the published standard and estimate average costs.

⁵ Boyd (2005) demonstrates that prosecution costs for misdemeanor marijuana possession are vanishingly small in Hawai‘i, and are thus ignored in this report.

Possession Enforcement Costs Have Climbed

Following Boyd, marijuana possession enforcement costs are estimated as the average cost of arrest (total annual state and county police budgets divided by total annual arrests) multiplied by the annual number of misdemeanor marijuana possession arrests. In part due to growth in the number of arrests and in part due to rising police budgets in recent years, the enforcement costs for misdemeanor marijuana enforcement have skyrocketed. Whereas Boyd estimated the costs as about \$4.7 million (in 2004 dollars), the cost of arrest for simple marijuana possession now stands at \$9.3 million annually (in 2011 dollars) for the most recent year we have state and local police budget data available.



sources: police budgets - Annual State and Local Government Finances Reports, various years, US Census Bureau [www.census.gov/govs]; cpi deflator - Bureau of Economic Analysis; arrests - Uniform Crime Statistics.

Costs to Enforce Laws Against Sale/Manufacture/Distribution

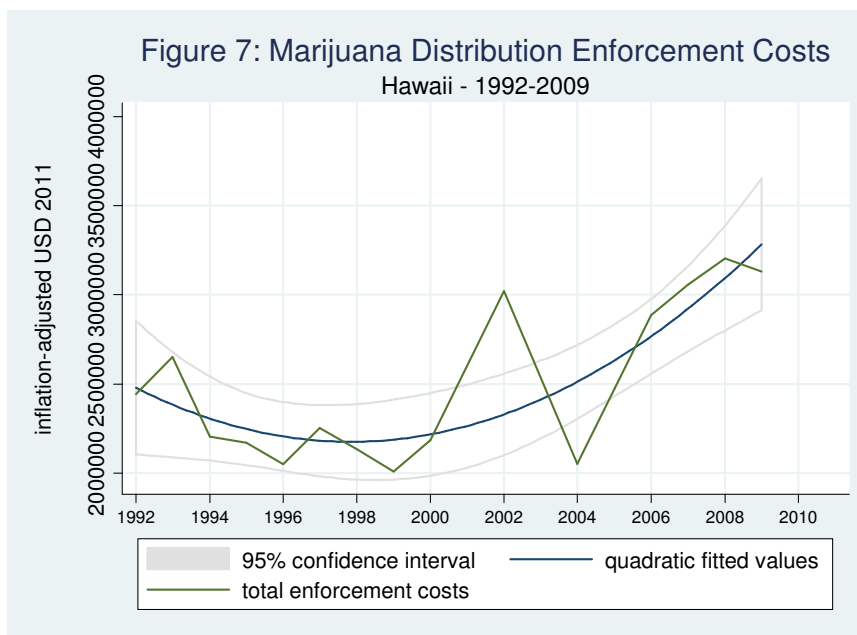
Following Boyd, I estimate the costs of enforcement of marijuana production and distribution as composed of the sum of three parts:

- (a) arrest costs - average arrest cost for state and county police multiplied by number of marijuana distribution arrests
- (b) prosecution costs - average prosecution cost for state and county judiciary multiplied by number of marijuana distribution arrests
- (c) imprisonment cost - average incarceration cost for state department of corrections, multiplied by the average number of inmates imprisoned primarily for marijuana charges. The Hawai'i Department of Public Safety estimates that in 2011 each prisoner cost \$46,355 to

incarcerate for a year in Hawai‘i.⁶ For lack of contrary evidence, I have relied on Boyd’s assertion that about 17 inmates are incarcerated for marijuana in any given year. Neither the Division of Corrections nor the Hawai‘i Judiciary provide public data on inmate sentences sufficient to improve on Boyd’s estimate.

Distribution Enforcement Costs Have Climbed

With the exception of 2002, when there was an anomalous number of marijuana distribution arrests, sale/manufacture enforcement costs seem to follow the same recent pattern as possession enforcement costs (i.e. a significant increase over the 2004 nadir). But unlike the possession costs, distribution costs remain within the same vicinity as that estimated by Boyd in 2005. In 2009, marijuana distribution enforcement cost the state \$3.1 million.



Legalization with Taxation

Boyd (2005) estimated that potential revenues captured by the state through a legalization and taxation scheme could be substantial, depending on the price structure set by state taxation levels

⁶ Hawaii Department of Public Safety - Corrections Division. *Average Head Count, Total Expenditures and Estimated Per Capita Costs, Fiscal Year 2012.*

on legalized marijuana. He estimated between \$4 million and \$23 million could fall into the Hawai'i state treasury through legalization, based primarily on an analysis of cigarette taxes.

But the analogy between marijuana and tobacco - a highly addictive substance - seems less than ideal for purposes of assessing potential consumption and price under legalization. Most recent ballot initiatives and most empirical studies have instead turned to the analogy between marijuana and alcohol. Washington's 2012 Initiative 502 will create a DUI standard for THC, making the analogy between marijuana and alcohol explicit. Colorado's Amendment 64 is titled "the Initiative to Regulate Marijuana like Alcohol." California's Proposition 19 of 2010 was similarly titled a proposition "to Regulate Marijuana like Wine."

The tobacco analogy led Boyd to conclude, for example, that decriminalization would have no discernable impact on marijuana consumption. While it may be the case that Hawai'i has a "de facto policy of lax enforcement of this law," other studies have concluded that sanctioned access to marijuana would lead to some increase in consumption (Pacula 2010). Stiffler (2012) estimates that the legalization of marijuana, after controlling for price, would result by itself in a 14% increase in marijuana consumption.

Most studies of marijuana legalization estimate that costs of marijuana (absent taxes) would decline by 50% or more. Stiffler's assessment of Colorado legalization goes several steps further by estimating that consumption would increase by 25%, at that price point. That estimate is consistent with academic research on the price elasticity of demand for marijuana (Clements & Daryal 1999; Daryal 1999; Kilmer 2010). Stiffler further estimates that a marijuana-legalized Colorado would collect \$48 million in new revenues initially, in the form of special and sales taxes. He argues that such revenues would increase to \$80 million annually, after 5 years of legalization, though that latter contention has met with skepticism.

It is not possible to adjust for the different demographic profiles between Colorado and Hawai'i, but if Hawaii's tax receipts were proportional to what is projected in Colorado, Hawai'i could expect to collect \$11.3 million annually in sales and special tax if it legalized marijuana (Colorado has a population 4.25 times that of Hawai'i).

Conclusion

In recent years, arrest patterns in Hawai'i are experiencing a bit of a reversal from the long-run trend towards de facto decriminalization of marijuana. Increased arrests for marijuana production and consumption impose rare but significant costs on residents. Those costs impact some areas and demographic groups more than others.

Increased arrests also mean that the savings from decriminalization have grown. Whereas the

most recent assessment in 2005, at the nadir of marijuana enforcement, concluded that decriminalization would reduce total state and county expenses by approximately \$5 million annually, a new assessment demonstrates that the potential savings are now about \$12 million annually (\$9 million for decriminalization, plus \$3 million for legalization).

A prior estimate of potential tax revenues that could be captured by Hawai'i if it legalized and taxed marijuana provided a range between \$4 million and \$23 million dollars, based on comparisons to tobacco taxes (Boyd 2005). An approach in this report that draws from academic studies of marijuana price elasticity suggests a number broadly consistent with that earlier assessment - at least \$11 million annually.

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