

WORKING P A P E R

Cost of Marijuana Prohibition on the California Criminal Justice System

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Abstract

We estimate the current cost of enforcing marijuana laws in California, both in total and for those 21 and over, and contrast these estimates with those of Gieringer (2009) and Miron (2005, 2010). The primary method is simply combining official estimates of numbers of activities (e.g., arrests) with unit cost estimates from the literature. The estimates are rough since unit costs are rarely marijuana- or even California-specific. Nevertheless, the calculations suggest that total costs probably do not much exceed \$300 million, with perhaps one-fifth of those costs associated with defendants under the age of 21. These estimates are far below the roughly \$1B in savings some predict from marijuana legalization in California, and it is worth noting that savings – in the sense of reduced spending – could be smaller than current enforcement costs if freed resources are reallocated to enforcement against other crimes, rather than being “rebated” to the taxpayer.

Introduction

Legalizing marijuana would save law enforcement resources, but how much is very hard to say. Estimating marijuana enforcement costs is difficult because marijuana enforcement is rather different than enforcement against most other crimes. For example, most arrests are for misdemeanors, not felonies, and there appears to be little information in the literature describing how burdensome those arrests are for police or how they are subsequently adjudicated.

When specific figures are mentioned, they are often on the order of \$1 billion for California (e.g., Segal, 2009; Reuteman, 2010), based directly or indirectly on a widely-cited working paper written by Harvard economist Jeffrey Miron (2005) or its update and extension (Miron, 2010). This chapter reviews Miron’s estimate and a parallel one by Gieringer (2009), and then offers our own, which arrives at a much lower figure.¹

In his 2005 paper, funded by the Marijuana Policy Project, Miron estimated the dollar value of criminal justice resources currently being spent enforcing laws against marijuana production, distribution, and use. The original estimates are \$7.7 billion per year for the U.S. in total,

¹ Note: California State Bill 1449 – which at this time has passed the Senate and is before the California Assembly – would make possession of less than an ounce an infraction akin to a parking violation rather than being a misdemeanor offense. Passing it would presumably reduce marijuana enforcement costs, so the incremental reduction in enforcement costs created by legalization marijuana would be smaller. Our estimate here is relative to the status quo, without passage of SB 1449. The bill’s text is available at http://www.leginfo.ca.gov/pub/09-10/bill/sen/sb_1401-1450/sb_1449_bill_20100219_introduced.html.

including \$5.3 billion for state and local governments and \$2.4 billion at the federal level. Miron's paper included state-specific figures; for California the estimate was \$981 million (in 2003 dollars). Others have adapted Miron's approach to derive more customized estimates for particular states, including Hawai'i (Boyd, 2008) and Alaska (Bates, 2004).²

A recent update (Miron, 2010) increased the national estimate from \$7.7 billion to \$13.7 billion and the California-specific estimate to \$1.87 billion.

Dale Gieringer (2009), the director of California NORML uses a somewhat different methodology and comes up with a much lower figure of \$204 million.

We also estimate the cost of marijuana enforcement in California to be much smaller, perhaps in the range of \$280 – 370 million per year with roughly \$215 - \$300 million associated with adults 21 and over. The Proposition does not legalize possession or use by those under age 21.

The main reason why Gieringer's (2009) and our estimates are lower than those in Miron (2005) is that we both obtain lower estimates of the cost of arrest and prosecution, as opposed to incarceration. As explained below, those differences occur because Miron uses an aggregate expenditures approach, prorating entire agency budgets in proportion to arrests, whereas Gieringer and we use a bottoms up unit costing approach, which multiplies the cost per arrest (or other activity) times the number of instances of those activities that are related to marijuana.

Miron's (2010) update, in contrast, imputes a much higher cost of marijuana-related incarceration because he prorates all drug-related incarceration across drugs in proportion to the fraction of sales/manufacturing arrests by drug. However, marijuana offenders are less likely to be prosecuted and they receive shorter sentences if they are prosecuted, so this assigns far too much of drug-related incarceration costs to marijuana.

There are many limitations to our estimate's precision and completeness. For example, the unit costs are generic, not marijuana- or in some cases even California-specific. No attempt is made to speculate how enforcement against those 21 and under might change. (We simply report current enforcement costs in total and for those aged 21 and over.) There is no consideration of indirect effects of legalization, such as any effect marijuana legalization might have on alcohol consumption and associated enforcement costs (alcohol is a major driver of criminal activity). However, all of these limitations apply equally to the previous estimates. To the extent that participants in the debate about marijuana legalization in California want to use estimates of this sort, we believe the figures provided here are more defensible than are estimates of \$1 billion or more.

A distinct question is whether the California state budget savings from marijuana legalization would equal the current amount now being spent on marijuana prohibition. It likely would be less for at least three reasons: (1) freed resources may be used for other purposes rather than be

² For example, in Alaska some prisoners are housed in community residence centers; thus Bates' (2004) adjusted Miron's methods (as described in an earlier working paper; Miron, 2003) to account for this.

“refunded” to the taxpayer,³ (2) most of the criminal justice resources associated with marijuana enforcement involve local and county, not state agencies, and (3) there would be new administrative, regulatory, and even enforcement costs of managing the legalized distribution of marijuana.

The remainder of this paper is divided into four parts: some observations about historical cost prorating exercises generally, reviews of Miron’s (2005) and Gieringer’s (2009) estimates, and then a description of our own.

1. Comments on Methods Generally

Miron’s basic approach is pro-rating of historical costs. If the total expenditures on an activity (such as arresting) is \$100 million per year and 10% of those actions involve marijuana offenders, then the estimate of that component of enforcing marijuana prohibition is \$10 million dollars per year.

We, as well as Gieringer (2009), take a slightly different, bottom-up approach that uses unit costing of all the units of an activity involved in marijuana enforcement. This is only slightly different because often estimates of the cost per unit ultimately come from dividing total budgets by total activity levels, in which case the two approaches reduce to the same thing. However, in the case of policing where resources serve multiple purposes simultaneously, unit cost methods the differences can be significant.

There are limitations of either variant of the basic approach. For one, they ignore fixed costs, a point made by Austin (2005). Reducing by 10% the number of actions (e.g., in this example, arrests) might not reduce total effort or expenditures by 10% if the cost of expanding or contracting arrests at the margin is different than the average cost of arrests.

All the estimates discussed here are just the product of an accounting exercise, not an empirical assessment of a natural experiment or other mechanism that allows one to contrast a treatment and control group of states that do and do not enforce a marijuana prohibition.

Thus, there is no attempt to trace out indirect linkages. This may be an important limitation. Some indirect effects of marijuana legalization could be of first order importance. In particular, if enforcing a prohibition on marijuana has even a modest effect on alcohol use (because marijuana and alcohol are complements or substitutes), then, since alcohol use is causally responsible for much crime and, hence, law enforcement expenditures, indirect effects via interactions with alcohol could be quite important. Nevertheless, this pro rating accounting exercise already plays a prominent role in the policy debate concerning marijuana legalization, so if a proportionality-based figure is going to be used and cited, that figure should be as accurate as possible.

³ As the Legislative Analysts’ Office (2009, p.3) notes in its assessment of the Fiscal Impact of Legalizing Marijuana, “it is likely that some or all of such [court and law enforcement] resources would be redirected to other law enforcement and court activities, reducing or perhaps eliminating the savings that could otherwise be realized.” This possibility seems particularly relevant with respect to incarceration, where the effect might not be so much reallocation to other crimes as moving from being grossly over-crowded to somewhat less grossly over-crowded institutions.

Arguably the main difference between our estimate and Miron's has to do with how fine-grained is the partition of criminal justice activities. Generally speaking, finer partitions are better because they avoid implicitly assuming homogeneity with respect to costs of all activities within one group of the partition.

This is best illustrated by example. Suppose there are two types of prisons, minimum and maximum security, and the cost per prisoner-year of incarcerating people in those institutions is \$40,000 and \$60,000 per year, respectively. (Maximum security prisons might be more expensive because they have more guards, no double-bunking of more than one prisoner in a cell, etc.) Suppose further that for all crimes in total, half of prisoners are in minimum and half are in maximum security prisons, but that all marijuana offenders are held in minimum security prisons. Given that set up, if one multiplied the total prison budget by the proportion of prisoners incarcerated for marijuana violations one would overstate the cost of enforcing marijuana laws because one would implicitly be multiplying the number of marijuana inmates by the average cost of all incarceration (\$50,000 per prison-year), not the correct \$40,000 per prisoner-year for the institutions that actually house marijuana offenders. The error could be avoided by using a finer-grained partition that separately multiplied the proportion of minimum security prisoners who are marijuana offenders by the budget for minimum security prisons and then added the proportion of maximum security prisoners who are marijuana offenders by the budget for maximum security prisons.

We use this example in part because we tried but failed to find the data necessary to do this particular break down; it is one of many ways our estimate could be improved. (Neither Gieringer nor Miron broke their estimate down by prison type either.)

With that background we now turn to the particulars of Miron's (2005) estimate.

2. Miron's (2005) Estimate

We focus on Miron's older (2005) estimate because it is better known than the more recent update (Miron, 2010), and with respect to marijuana the two studies use essentially the same methods. The main difference between Miron's 2010 and 2005 papers, beside using updated parameters, is that the 2010 study addressed all illegal drugs (in total, and broken down by drug), whereas the 2005 study addressed only marijuana.

Miron (2005) breaks the criminal justice process down into three components: police, judicial, and corrections.

Policing expenditures on marijuana enforcement are estimated as the total budget for policing services multiplied by the proportion of arrests that are for marijuana offenses, after making an adjustment for the possibility that some marijuana arrests are incidental to other enforcement action.

Naturally individuals can be arrested for multiple offenses simultaneously. A custom in criminal justice is to attribute such actions to the most serious offense, usually treating any Uniform Crime Report (UCR) Part I crime as more serious than a drug offense. So if the police arrest

someone for homicide and that person happens to possess marijuana at the time of arrest, the event would – appropriately – be coded as a homicide arrest. However, if the police pull someone over for speeding and the driver happens to possess marijuana, that event will be coded as a marijuana arrest even though the police would have taken action even if marijuana had been legal. To adjust for this, Miron assumes that only 50% of marijuana possession offenses are “stand-alone,” so the total number of marijuana arrests for purposes of his prorating exercise is equal to all of the sale/manufacturing arrests plus half of the possession arrests.⁴

The particular numbers for California in Miron (2005) are \$8.703 billion spent on police services * (0.9% of arrests being for marijuana sales/manufacture + 0.5 * 1.8% of arrests being for marijuana possession) = \$228 million.

There are two main flaws in this reasoning. First, not all arrests are equally burdensome on police. The investigative effort involved in making a homicide arrest is typically much greater than that involved in making a marijuana arrest, which may in turn be greater than the effort involved in making some other arrests (e.g., for loitering). By prorating the entire police budget in proportion to arrests, Miron is assuming that all arrests are equally burdensome including, implicitly, that all arrests are preceded by equal amounts of investigative effort.

One important distinction is between arrests for felonies vs. misdemeanors; as discussed below, the latter are much less resource intensive. Most (78%) marijuana arrests in California are for misdemeanors, a proportion that is higher than for arrests generally (67%) or for other drugs (42%).

So far we – as well as Miron – have used the term “arrest” loosely, to mean all of the police activities related to the apprehension of a suspect. One can, though, distinguish between arrest itself, basically meaning apprehension, and “booking”, or the processing of the arrestee that occurs back at the police station (fingerprinting, gathering of information, confiscating personal effects, placing the suspect in a holding cell, etc.). California penal code 11357 states that those caught possessing less than 28.5 grams will not be booked if they have proper identification and give a written promise that they will come to court.⁵ Hence, for (most) California misdemeanor arrests, one should subtract the cost of booking from an estimate of “arrest” cost that uses the looser definition to mean “arrest and booking”.

The second and more fundamental flaw in Miron’s approach is that police exist to do much more than just arrest people. They also do traffic enforcement, emergency response, crime prevention other than via deterrence (e.g., via community policing and education interventions), and a host

⁴ Miron’s (2005, p.6) explanation of the 50% figure is: “There are few hard data on the fraction of “stand-alone” possession arrests, but the information in Miron (2002) and Reuter, Hirschfield and Davies (2001) suggests it is between 33% and 85%.⁷ To err on the conservative side, this report assumes that 50% of possession arrests are due solely to marijuana possession rather than being incidental to some other crime”.

⁵ “In any case in which a person is arrested for a violation of this subdivision and does not demand to be taken before a magistrate, such person shall be released by the arresting officer upon presentation of satisfactory evidence of identity and giving his written promise to appear in court, as provided in Section 853.6 of the Penal Code, and shall not be subjected to booking.”

of other functions. It is very hard to prorate police budgets across these functions. The problem is analogous to figuring out how much of a Coast Guard cutter's cost to attribute to drug interdiction as opposed to interdicting other goods, life saving, fishing regulation enforcement, and other Coast Guard roles (see Murphy (1994) for a discussion of these and other, related drug control budgeting issues). As is discussed below, it appears that the share of policing budgets that should be assigned to arresting criminals is more like one-third, suggesting that this issue alone might inflate Miron's estimate of marijuana policing costs by a factor of three.

For judicial costs, Miron (2005) multiplies the total judicial budget (\$6.255 billion for California in Miron) by the fraction of felony convictions in state courts that are for marijuana, using a national fraction of 10.9% since state-by-state data are not available. This raises three concerns. First, just as police do more than arrest, so to do courts do more than adjudicate criminal cases; some proportion of the judicial budget might be "charged" to civil and family court issues, for example. On the other hand, it is not clear whether the judicial budget is comprehensive (e.g., of time arresting officers spend testifying). Second, not all felony convictions consume the same amount of judicial resources; nationally, the proportion of drug convictions obtained by guilty pleas (which are generally cheaper than trials) is somewhat higher than it is for other offenses, particularly violent offense (Sourcebook of Criminal Justice Statistics, Table 5.46). Third, the national 10.9% figure may not apply to California; California might have relatively more marijuana felonies because it is a center for outdoor growing or less because California has a fairly liberal medical marijuana law and long ago decriminalized marijuana (which affects what constitutes a felony).

These concerns are of some importance inasmuch as judicial costs account for 70% of Miron's (2005) estimate of the total cost of marijuana enforcement in California (\$682 out of \$981 million). That is, if Miron's estimates are sound, then most of the criminal justice savings will come not from fewer arrests or fewer people incarcerated, but rather from the reduction in felony trials allowing the judicial budget to shrink.

Finally, Miron estimates the corrections costs of marijuana enforcement as the California Corrections budget (\$7.17B) multiplied by 1%, where the 1% is the weighted average of the proportion of prisoners incarcerated on marijuana charges in five states. California is one of those five states, and its proportion (0.8%) is lower than the weighted average (Miron, 2005). This would make 1% of \$7.17B an over-estimate by 25%. However, as we discuss below, there is evidence that marijuana offenders make up a larger proportion of parolees than they do of the incarcerated population, so applying an incarceration proportion to the entire corrections population, as opposed to just the portion that is associated with incarceration, might tend to make this an under-estimate.

At any rate, as mentioned above, our estimate of the corrections cost of marijuana enforcement is not so different than what is estimated by Miron (2005), although it is much lower than what is reported by Miron later in the 2010 update and extension to other drugs.

Miron then adjusts these costs for seizures and fines collected, but those adjustments are minor.

3. Gieringer's (2009) Estimate

Gieringer's approach is (primarily) a straight forward summing of numbers of marijuana related enforcement activities times the unit cost of each activity, for the following activities: misdemeanor arrests, misdemeanor court cases, felony arrests, felony prosecutions, and offenders in state prison. The exceptions are jail (estimated simply as 40% of the prison cost) and the California Marijuana Suppression Program, which is listed as \$3.8 million, perhaps based on a budget line item. Also, Gieringer assumes that fines are sufficient to offset the cost of misdemeanor arrests (which he would otherwise have counted as \$300 per arrest).

The striking difference between Gieringer and Miron's estimates is Gieringer's much lower average cost per arrest. Gieringer's figures are 17,000 felony arrests at \$732 per arrest. There were roughly 61,000 misdemeanor arrests. If we cost them at \$300 per arrest, that implies an average cost per arrest of \$395 (since $17,000 * \$732 + 61,000 * \300 divided by $17,000 + 61,000$ is \$395). In contrast, dividing Miron's (2005) estimated policing cost of \$280 million (the inflation adjustment of \$228 million, which was in 2000 dollars) by 78,000 arrests would imply an average cost per arrest of \$3,600, or about nine times as much per arrest.

We believe Gieringer's estimate of average cost per arrest is too low; it rests on an inflation-update of a study that dates to 1977.⁶ The advantage of Gieringer's source is that it was marijuana-specific. We found nothing more recent that was marijuana specific. But much has changed since 1977 besides inflation, so in our judgment it was better to base arrest costs on more recent studies even if they were not marijuana specific. Clearly the best basis would be a recent, California-specific, and marijuana-specific study of the arrest process and associated costs; conducting such primary data collection was beyond what we could accomplish in the time and resources available, but it represents an important opportunity for improving the state of the art of studies of this sort.

4. Our Estimate

4.1 Arrests

We distinguish between misdemeanor and felony arrests. Numbers of each are readily available from official California statistics; in 2008 (most recent year for which data are available) there were 17,126 felony and 61,338 misdemeanor arrests in California (including juvenile as well as adult arrests).⁷ Figures for the cost per arrest are harder to pin down; we found no California or even marijuana specific figures in the time available. Carey et al. (2005) studied California drug courts, producing county-specific average costs per arrest for a number of counties, mostly in the range of \$300 - \$400, but arrests associated with drug courts might not be representative of all arrests. Cohen et al. (1994) praise a 1987 Miami Dade County as being particularly strong for costing; after adjusting for inflation its cost per arrest (including investigation and booking) was \$1,233, but that is dated, and pertains to all arrests not just drug arrests. We use it only for their estimate of the cost of booking (\$186 per case, or \$347 after adjusting for inflation).

⁶ Gieringer's explanation of arrest costs is "Arrest costs based on report by State Office of Narcotics and Drug Abuse to the Cal. legislature "A First Report of the Impact of California's New Marijuana Law" (1977), adjusted for inflation".

⁷ We used 2008 data (latest year available) from the California Criminal Justice Profile, http://stats.doj.ca.gov/cjsc_stats/prof08/, downloaded May 28, 2010.

We turn instead to a classic study in the criminal justice benefit-cost literature (Aos et al., 2001) and a lesser known but more recent study by the same authors (Aos et al., 2006). Both used as parameters costs per arrest broken down by type of arrest, although unfortunately not to the level of distinguishing marijuana arrests from other drug arrests. Indeed, Aos et al. appear to lump drug and property crime arrests together. Also, both are based on Washington State not California data.

Table 1 summarizes the Aos et al. cost figures both as reported and updated for inflation to 2009 dollars. Multiplying by the number of marijuana arrests produces estimates of roughly \$90 million and \$105 million in policing costs for enforcing marijuana laws in California, after subtracting \$20 million to account for the fact that in California, as opposed to Washington, most marijuana misdemeanants would not be booked (\$20 million is the number of misdemeanor arrests (61,388) times the booking cost estimate (\$347 per event).

Table 1: Estimated Cost of Policing Marijuana in California (Not Adjusting for Differences in Cost of Making a Marijuana Arrest vs. Other Types of Drug Arrest)

Source:	Aos et al. (2006)		Aos et al. (2001)		
Cost per Arrest	Original Value (2004 Dollars)	Inflation Adjusted to 2009 \$	Original Values (1995 dollars)	Inflation Adjusted to 2009 \$	Number of MJ Arrests in CA in 2008
Murder	\$31,648	\$35,762	\$12,551	\$17,446	
Other Violent	\$6,438	\$7,275	\$12,551	\$17,446	
Property	\$5,370	\$6,068	\$1,890	\$2,627	
Drug	\$5,370	\$6,068	\$1,890	\$2,627	17,126
Misdemeanor	\$305	\$345	\$764	\$1,062	61,388
Resulting Cost, not adjusting for misdemeanants not being booked (\$M)					
	\$125 million		\$110 million		
Implied Average Cost per Marijuana Arrests in California (\$M)					
	\$105 million		\$90 million		
Implied Average Cost per Marijuana Arrests in California (\$M)					
	\$1,338		\$1,149		

Our average cost per arrest is roughly triple Gieringer's figure, but only about one-third as large as Miron's, even though we do not cut down the number of arrests by 50% for a "stand alone" arrests adjustment. The primary reason appears to be Miron's (2005) assumption that all police do is arrest people, ignoring the time police spend on traffic control, order maintenance, crime prevention, emergency response, etc. To get a sense of the magnitude of that distinction, we multiplied the cost per arrest figures in Table 1 (after adjusting to 2000 dollars) by the numbers of arrests of various types in California in 2000. The implied total cost of making arrests of all kinds (\$2.7 - \$3.5B in 2000 dollars) was roughly one-third (31-40%) of the \$8.703 billion that Miron reports as the policing budget for California in 2000.

4.2 Adjudication

For most but not all marijuana arrests a “complaint was sought” as opposed to simply releasing the person or transferring them to another agency. Table 2 combines these numbers⁸ with Aos et al. (2001 and 2006) figures for the unit cost per *conviction* for drug offenses and misdemeanors to estimate adjudication costs for marijuana enforcement of \$65 - \$80 million. These could be slight under-estimates inasmuch as there are more complaints than convictions, so dividing court costs across convictions not complaints ought to generate a slightly higher figure. Also, the Aos et al. derived cost parameters are substantially higher than Albert-Goldberg’s (2009) estimates based on Los Angeles County information.

However, the central observation is that our adjudication cost estimates are only about one-tenth of Miron’s (2005) estimate of \$682 million, which inflation adjusts to \$839 million in 2009 dollars assuming the original figure was expressed in 2000 dollars. This difference is the biggest reason why our estimate of the costs of enforcing marijuana prohibition are so much lower than Miron’s (2005) estimate.

Table 2: Estimated Cost of Adjudicating Marijuana Offenses in California

Source:	Aos et al. (2006)		Aos et al. (2001)		
Cost per Case	Original Value (1996 Dollars)	Inflation Adjusted to 2009 \$	Original Values (1995 dollars)	Inflation Adjusted to 2009 \$	Number of MJ Dispositions Sought in CA in 2008
Felony	\$1,522	\$2,055	\$1,675	\$2,328	15,783
Misdemeanor	\$593	\$801	\$336	\$467	57,522
Resulting Estimated Cost of Marijuana Adjudication (\$M)					
	\$78 million		\$64 million		

4.3 Incarceration

We would like to estimate the number of marijuana offenders who are in prison, jail, probation and parole, and multiply those numbers by the appropriate unit cost. Data limitations complicate this seemingly simple exercise.

The California Department of Corrections and Rehabilitation (2008a,b) provides estimates of the number of marijuana prisoners (1,540) and the average cost to house an inmate (\$49,000). The product would suggest an estimated cost of incarceration of \$75.5 million. (This is basically Gieringer’s estimate, although he uses 1500 rather than 1540 of the inmate count.)

The 1,540 figure is about 40% larger than the 1,100 Austin (2005) calculates for 2004 based on detailed data. It would be surprising if numbers imprisoned for marijuana charges grew so quickly during a period of relatively lenient policy, suggesting the difference may get down to definitions.

⁸ http://stats.doj.ca.gov/cjsc_stats/prof08/00/21.htm

Our only source of insight on this matter was looking at the 29 respondents to the 2004 Prison Inmate Survey who were drug offenders in California state prison with a marijuana offense (who, with survey sample weights, correspond to a very imprecisely estimated number of 2,402 inmates). For 16 of the 29 the arrest involved multiple drugs, not just marijuana; e.g., one inmate possessed 6 kilograms of cocaine and 2 ounces of marijuana. Among the 13 others, 7 had a current or past record of guns or violence, including one with 20 prior arrests for drugs, trafficking, and guns who received a 12 month sentence and two who reported firing a gun in the course of the offense for which they were arrested. Eight of 13 were on probation or parole at the time of their marijuana arrest, one of whom was caught importing 41 kilograms. That leaves only two of the 29 who were marijuana only offenders without a record of violence and whose arrest did not constitute a parole or probation violation. For one of the two the marijuana charge was the result of a charge bargain (no information on what the original charges were). The last admitted no aggravating circumstances, but also may not have been talkative; his data record had a number of missing values.

It is very hard to know how many of these 29 would not have been incarcerated if marijuana were legal. Presumably the three who were simply selling a few ounces while on probation or parole would not have been. Probably the four for whom the association with violence was only from their past record, not the current offence, although two of them charge bargained down. Possibly the person whose only other drug was 0.2 grams of crack, although he was on parole and had six prior arrests.

It does not make sense to use sample weights to compute how many inmates those eight respondents represent; the confidence interval would be much too broad to be meaningful. However, noting the circumstances of these 29 leads us to favor Austin's number over the 1,540 figure, producing a prison cost estimate of $1,100 * \$49,000 = \53.9 million.

For parolees we multiply the number of parolees (1,857) by Aos et al.'s (2001, 2006) estimate of the cost per year of parole (\$2,688 per year in 1994 dollars adjusted to \$3,844 in current dollars), yielding an estimate of \$7.1 million.

We tried but failed to locate figures for the number of marijuana-only offenders on probation in California, so we list that in the table simply as a missing number. Multiplying the number of felony marijuana arrests by an assumed one year probation per arrest and probation officers' average salaries, adjusted upward by 67% for benefits and "overhead", then dividing by the average case load for probation officers in California gives a probation cost estimate that is considerably smaller than the parole cost estimate just mentioned. There may be hidden costs of probation overlooked by such a simple calculation, but our sense is that probation case loads are so high that the unit cost per probationer would not be terribly high for probationers whose only offense pertained to marijuana. Hence, it may be that this missing value for probation is not a serious concern.

Marijuana offenders are in jail at two stages: between arrest and sentencing and after conviction when serving a sentence of less than one year. We were unable to estimate the number of people in jail pre-trial because marijuana is illegal, but it may be modest. If the only charge someone is facing is a marijuana offense, they are likely to be offered bail on favorable terms. For example,

in Riverside County (2009), the bond is only \$5,000 for sale or transportation of quantities up to 25 pounds or for growing up to 50 plants.⁹ If someone is facing multiple charges including not only marijuana but also other more serious offenses, then the legality or illegality of marijuana may not affect the judge's decision about whether to offer bail.

Nevertheless, there is a conventional wisdom that many people get stuck in jail pretrial who do not really belong there. We can guess at something that might be viewed as an upper bound from national data on all drug offenses by multiplying the average days between arrest and trial (145 days, Sourcebook of Criminal Justice Statistics, 2009, Table 5.50) by the proportion of drug offenders¹⁰ detained in jail before case disposition (35%, Sourcebook of Criminal Justice Statistics, 2009, Table 5.55), and the number of felony marijuana dispositions sought (15,783). This product (2,194) is likely too high inasmuch as marijuana offenders are less likely to be held in jail pre-trial than are other offenders and to the extent that the rate and duration are higher for people with multiple offenses than for defendants whose only charge in marijuana.

For post-trial, we multiply the average number of days drug offenders are sentenced to jail (150, Sourcebook of Criminal Justice Statistics, 2007) by an estimate of the number of marijuana offenders sentenced to jail in California each year (1,908), estimated by multiplying the number of convicted drug offenders sent to jail (Brown 2005) by the proportion of new state drug prisoners who are marijuana offenders (CA Department of Corrections and Rehabilitation, 2008). This will be an underestimate to the extent that the proportion of those sent to jail who are marijuana offenders is higher than is the corresponding proportion for prison, but be an overestimate to the extent that jail terms for marijuana offenders are shorter than they are for other drug offenders.

The sum of these estimates of jail days was then multiplied by an estimated cost per jail day of \$75, which is the rough average of the \$100 per day estimate for Orange County (Orange County Grand Jury, 2007) and the \$53.45 per day reported for the Los Angeles County Men's Central Jail (2010). The \$75 per day figure suggests jail costs of \$21.5 million for post-sentence incarceration and up to \$60 million for pretrial detention.

Our sense is that the \$60 million for pretrial detention of people whose only reason for being detained is a marijuana offense is a very loose upper bound; the actual figure may well be closer to \$0 than to \$60 million. Our guess is that probation costs look more like parole costs than prison costs and so probably can be absorbed within the \$0 - \$60 million uncertainty band in the pre-trial jail estimate. So we add these figures both with and without the \$60 million, reporting the total as ranging from \$90 million (which can be thought of as probation costs equaling parole costs and pre-trial detention costs being negligible) to 83 - \$145 million per year (which can be thought of as believing that probation costs make up the difference between the actual pre-trial costs and our loose upper bound).

Table 3: Summary of Estimates of Corrections Costs (\$ million)

⁹ Bail can be more onerous through enhancements. For example, if the defendant has multiple prior serious felony convictions, then the bail may be set higher even if the present offense is only marijuana, which might make it more difficult for the person to meet bail for the marijuana offense.

¹⁰ We were unable to obtain marijuana specific figures.

	Number	Unit Cost	Cost (\$M)
Prison	1,100	\$49,000	\$53.9
Parole	1,857	\$3,844	\$7.1
Probation			?
Jail, Pre-trial <i>Upper Bound</i> (by person year)	2,194	\$27,375	\$60.1
Jail, Post-Conviction (by person year)	784	\$27,375	\$21.5
Total			<\$90-145

4.4 Other Costs

We do not attempt an independent estimate of net revenues (or costs) from fines and seizures. Miron (2005, 2009) incorporates them via a savings offset, but finds them to be small, and our sense is that is right. The DEA reports seizing \$12.4 million in assets in California associated with its domestic marijuana eradication efforts (US BJS, Table 4.38.2007). However, apparently the total value of assets forfeited in California in 2004 was only \$22.5 million for all types of offenses (California Department of Justice, 2005), and it often costs as much if not more to collect fines as the fines themselves are worth (Piehl and Williams, 2010).

A potentially more serious concern is not accounting for how marijuana legalization could affect the role marijuana plays in technical violations for parolees and probationers whose controlling offense is not related to marijuana. After legalization, abstaining from marijuana might no longer be a condition for parole, and the people now returning to prison because of marijuana violations might serve less time for their non-marijuana offenders. Since parole violators are such a large part of the prison population, this could be a very important consideration. We do not include it for several reasons including lack of data and time. Also, neither Miron (2005, 2009) nor Gieringer (2009) included this possibility, and one of our principal aims is to improve the estimates of what they estimated. Furthermore, this effect is not part and parcel of decriminalization. Parole could still be made contingent on abstinence from legal marijuana, in the way that abstinence from alcohol can now be a condition of parole. Conversely, the parole system could stop testing for marijuana or stop revoking parole for testing positive even if marijuana remained illegal; indeed, parole is not always revoked for the first positive drug test. Furthermore, there are some claims that the numbers of violations are not enormous; corrections spokesman Paul Verke cited 256 as the number found to have technical violations in California last year solely for failing a marijuana test (Capitol Weekly, 2009). Nevertheless, exploring the possible effects of marijuana legalization on the “revolving door” of parolees being recommitted (and probationers having their probation revoked) would be a fruitful area for further inquiry.

4.5 Adjustment for Juveniles and Those under Age 21

The estimates above pertain to the cost of enforcing marijuana prohibition in California, but that is different than the cost of activities that would be rendered superfluous by the proposition being voted on this fall, which only legalizes possession and use by those 21 years old and older.

California arrest and complaints data are broken down by juveniles and adults, so we can prorate the arrest and adjudication costs above to just adults. (See Table 4.) We do not have data, but it seems doubtful that many juveniles would be in a juvenile detention facility for marijuana offenses alone.

There remains the question of 18 – 21 year olds. Nationally in 2008 for all drugs, not just marijuana, 18 – 21 years olds accounted for 18.2% of all arrests and 20.4% of arrests of adults (US DOJ, 2010). However, we did not obtain drug or state specific proportions. Absent any better figure, we scale down arrest and disposition costs by 20% for the estimate of enforcement costs for those 21 and over.

Prisoners and parolees tend to be older than are arrestees, so the adjustment to the imprisonment cost to subtract out those 18 – 21 years old is presumably smaller. We did not even uncover detailed data on the age distribution of all drug prisoners, let alone marijuana prisoners in California, but roughly 2.5% of all state prisoners are 18 – 21, so we apply that adjustment to the prison data.¹¹

Table 4: Proportions of California Marijuana Arrests and Judicial Complaints Sought for Juveniles vs. Adults in 2008

	Arrests		Dispositions	
	Felony	Misdemeanor	Felony	Misdemeanor
# of Juvenile Events	2,044	14,313	1,820	11,852
# of Adult Events	15,082	47,075	13,963	45,670
Total	17,126	61,388	15,783	57,522
% Juvenile	12%	23%	12%	21%
Prorated Cost for Adults	\$74 - \$92M		\$54 - \$65M	
Prorated for Adults 21+	\$59 - \$74M		\$43 - \$52M	

4.6 Summary Comparison of Estimates

Table 5 summarizes our cost estimates, both in total and for those 21 years and older, juxtaposed with Miron's (2005, 2009) and Gieringer (2009), both in absolute and percentage terms. Our estimate is largely in line with Gieringer's (2009) estimate except that he assumes lower per unit arrest costs. Our arrest cost estimate may be too high because we could not find arrest cost data for marijuana arrests in particular, which might be less expensive than other arrests, e.g., because they are incidental to other enforcement actions. On the other hand, Gieringer's (2009) \$12.4M figure seems too low; if the 61,388 misdemeanor arrests cost even \$300 that was not offset by fines, that would increase his estimate to \$30M.

However, our estimates are much lower than Miron's (2005, 2009).

Table 5: Summary of Estimates of the Cost in \$M of Enforcing Marijuana Prohibition in California, Based on Pro-Rating Historical Costs

	RAND (All Offenders)	RAND (21+ Yr Olds)	Miron (2005)	Miron (2009)	Gieringer (2009)
Policing	90 – 105	59 – 74	228.0	412.6	12.4
Adjudication	65 – 80	43 – 52	681.8	819.1	84.73
Corrections	90 – 145	88 – 141	71.7	659.8	102.9
CA MJ Suppression Program					3.8

¹¹ Only one of the 29 prison inmate respondents mentioned above was under the age of 21.

Total	245 – 330	190 – 267	981.5	1867.2	203.8
Policing	~34%	~29%	23%	22%	6%
Adjudication	~25%	~21%	69%	44%	42%
Corrections	~41%	~50%	7%	35%	50%
CA Marijuana Suppression Program					2%
Fines/Seizures				-1%	

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