



TESTIMONY

THE ARTS
CHILD POLICY
CIVIL JUSTICE
EDUCATION
ENERGY AND ENVIRONMENT
HEALTH AND HEALTH CARE
INTERNATIONAL AFFAIRS
NATIONAL SECURITY
POPULATION AND AGING
PUBLIC SAFETY
SCIENCE AND TECHNOLOGY
SUBSTANCE ABUSE
TERRORISM AND
HOMELAND SECURITY
TRANSPORTATION AND
INFRASTRUCTURE
WORKFORCE AND WORKPLACE

This PDF document was made available from www.rand.org as a public service of the RAND Corporation.

[Jump down to document](#) ▼

The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world.

Support RAND

[Browse Books & Publications](#)

[Make a charitable contribution](#)

For More Information

Visit RAND at www.rand.org

Explore [RAND Testimony](#)

View [document details](#)

Limited Electronic Distribution Rights

This document and trademark(s) contained herein are protected by law as indicated in a notice appearing later in this work. This electronic representation of RAND intellectual property is provided for non-commercial use only. Unauthorized posting of RAND PDFs to a non-RAND Web site is prohibited. RAND PDFs are protected under copyright law. Permission is required from RAND to reproduce, or reuse in another form, any of our research documents for commercial use. For information on reprint and linking permissions, please see [RAND Permissions](#).

TESTIMONY

Legalizing Marijuana

Issues to Consider Before Reforming California State Law

ROSALIE LICCARDO PACULA

CT-334

October 2009

Testimony presented before the California State Assembly Public Safety
Committee on October 28, 2009

This product is part of the RAND Corporation testimony series. RAND testimonies record testimony presented by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.



Published 2009 by the RAND Corporation
1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138
1200 South Hayes Street, Arlington, VA 22202-5050
4570 Fifth Avenue, Suite 600, Pittsburgh, PA 15213-2665

RAND URL: <http://www.rand.org>

To order RAND documents or to obtain additional information, contact
Distribution Services: Telephone: (310) 451-7002;
Fax: (310) 451-6915; Email: order@rand.org

Rosalie Liccardo Pacula, PhD¹
The RAND Corporation

Legalizing Marijuana
Issues to Consider Before Reforming California State Law²

Before the Committee on Public Safety
California State Assembly

October 28, 2009

Thank you very much for the opportunity to speak to you today. Let me begin by stating that I am not here to oppose or endorse the legalization of marijuana, but merely to raise the point that there is an insufficient amount of information available on which to base a decision at this time. As an economist who has been conducting drug policy analyses for almost 15 years, it is very important to consider a full cost-benefit analysis (or at least attempt one with all the available information today) before undertaking large reforms like marijuana legalization.

Today I will present just four areas that I believe need further consideration, as they affect either the potential revenue or cost associated with adopting a change in policy and in my view have not been adequately considered thus far in the discussion. First, prohibition against the supply of marijuana has made it substantially more expensive to purchase than if it was sold in a legal market. According to the DEA, low quality marijuana in California sells on the black market from anywhere between \$300 - \$350 per pound. I was involved in a study in which we constructed an estimate of what it would cost to grow some marijuana at home (not in mass, and not necessarily the best quality), and the cost of producing it in your own backyard is conservatively estimated at \$75 per pound (Hall and Pacula, 2003). Prohibition raises the cost of production by at least 400% because of information problems it creates in the market as well as imposing risk on producers/sellers. Legalizing marijuana would cause the price of marijuana to fall considerably, more than just the 50% that has been incorporated into current revenue estimates.

Second, while the proposal to tax marijuana at \$50/ounce might sound like a useful strategy to keep prices high in a legal market (and capture desired revenues), such a tax is not realistic. According to law enforcement, the current black market price of an ounce of low-grade marijuana today ranges from \$75 - \$100 per ounce. If we take the upper range estimate (\$100) and assume

¹ The opinions and conclusions expressed in this testimony are the author's alone and should not be interpreted as representing those of RAND or any of the sponsors of its research. This product is part of the RAND Corporation testimony series. RAND testimonies record testimony presented by RAND associates to federal, state, or local legislative committees; government-appointed commissions and panels; and private review and oversight bodies. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors.

² This testimony is available for free download at <http://www.rand.org/pubs/testimonies/CT334/>.

prices fall by only 50% to \$50 with legalization, then the \$50/ounce tax represents a 100% tax on the product. There is tremendous profit motive for the existing black market providers to stay in the market, as they can still cover their costs of production and make a nice profit. Substantially smaller profit margins caused by a mere \$2 per pack price differential on cigarettes between Canada and the United States created such an enormous smuggling problem during the mid-1990s that Canada decided to repeal its tax hike (Gruber, Sen and Stabile, 2003). If the State goes forward with this idea that they can use large taxes to keep marijuana prices artificially high in a legal market, it will likely have the dual burden of paying the cost associated with regulating a new legal market and continuing to pay the cost associated with deterring black market providers who have no economic incentive to disappear. The only way the State can effectively get rid of the black market for marijuana, and thus save these law enforcement dollars, is to take away the substantial profits in the market and allow the price of marijuana to fall to an amount close to the cost of production. Doing so, however, will mean a substantially smaller tax revenue than currently anticipated from this change in policy.

Third, higher marijuana prices keep use rates and the known harms of marijuana down. Marijuana is what economists refer to as a “normal” good; the demand for it by teenagers, college students, and young adults is sensitive to changes in price (Williams et al., 2004; Jacobson, 2004; Pacula et al., 2001). Current estimates of the price elasticity of demand are subject to lots of variability because of poor quality price data. Even if we did have good estimates, these numbers would not be very useful for predicting a change in consumption associated with a drop in price as large as would be expected with legalization. Demand elasticities tell us how consumption changes in response to small changes in price not large changes in price. Considerable uncertainty exists for these sorts of changes, and income effects begin to play a much larger role when price falls by amounts of this size.

Importantly, if use increases, known harms will also increase. We know that today over one third (35.6%) of self-reported past year users in the household population meet DSM-IV criteria for marijuana dependence (Compton et al., 2004). Additionally, over 160,000 people showed up in treatment facilities with marijuana as a primary diagnosis that were not referred from the criminal justice system.³ The scientific community has not determined whether these rates of dependence will increase proportionately with a rise in use; they may increase at a rate that is lower or faster. However, the cost of treating people who are dependent and seeking treatment needs to be considered in a benefit-cost calculation, as the State pays for the vast majority of drug treatment. There also may be costs associated with treating other marijuana-induced health problems. I co-

³ Estimate obtained from our own examination of the 2007 Treatment Episode Data Set (TEDS) available through ICPSR and the SAMHSA webpage.

authored a book published by Cambridge University Press in 2003 which reviewed the scientific literature on the health effects of marijuana (Hall and Pacula, 2003). While it is clear that there are some real public health problems associated with marijuana use, including respiratory problems, motor vehicle accidents, and mental health problems among adolescents, the scientific community is still evaluating to what extent marijuana use causes these health problems or just enhances them (Hall and Pacula, 2003; Hall and Degenhardt, 2009). The literature is far from resolved on this point; many intriguing puzzles remain because data are insufficient to adequately answer all of the questions. For example, a group of RAND researchers conducted a study of marijuana treatment episodes occurring in hospital settings and found that individuals admitted into hospitals with marijuana abuse/dependence as their primary diagnosis have median lengths of stay that are twice to three times longer than those experienced by patients admitted for alcohol, cocaine or heroin and therefore result in higher average charges (Pacula, et al., 2008). This result is very surprising and we still do not know what might be medically driving these costs and whether it should give cause for concern.

A fourth point to consider relates to the projected revenues associated with legalizing, regulating and taxing marijuana. The Board of Equalization's estimate of \$1.4 billion potential revenue for the state is based on a series of assumptions that are in some instances subject to tremendous uncertainty and in other cases not validated. As stated already, the assumption that the market can sustain a \$50/ounce tax is a highly questionable one given that such a tax does not eliminate the profit motive for black market dealers to exit the market. Another example relates to the starting assumption regarding the amount of marijuana that will be purchased in California if the drug is legalized. RAND published a study in March 2009, funded by the European Commission, in which it provided an improved methodology for estimating the size of the marijuana market in the United States as well as establishing standards for expressing the uncertainty around these types of estimates (Kilmer and Pacula, 2009).⁴ Applying this approach to estimate the size of the market in CA, generates a best estimate of consumption in California of 13.8 million ounces (smaller than the 16 million ounces estimated by the California Board of Equalization), but given the uncertainty in our assumptions underlying this estimate, the true size of the market is likely to fall within the range of 6.2 million ounces to 28.8 million ounces. The point here is that there is tremendous uncertainty underlying any point estimate of the size of the market (in the case of our estimate, there is a fourfold difference). That uncertainty can have important implications regarding the anticipated revenues generated from a tax, independent of the value of the tax. A fiscal evaluation of the net benefit of a change in marijuana policy would need to consider the potential revenue under this range of plausible values for market size, not just a single value and

⁴ Our best estimate of the size of the U.S. market was 6.5 million pounds, with a plausible range of 2.9 million pounds and 13.5 million pounds.

the implied net gain given some off-setting costs associated with regulating the legal market and paying for the increased harms will vary.

There are numerous other considerations one should consider in the construction of a realistic cost-benefit calculation for considering this policy reform, such as the cost of regulating marijuana as a legal substance and any enforcement costs associated with imposing restrictions on adolescents and drugged driving. Careful consideration of these and other costs and benefits vis-à-vis the costs and benefits of the State's current policy would be useful for understanding the total fiscal impact of a change in policy to all the state agencies that are likely to be affected by this policy. I would be happy to discuss these issues further if the committee is interested, but they extend far beyond the five minutes I've been given. For additional information on these and related topics, please go to our RAND DPRC webpage at <http://www.rand.org/multi/dprc>.

References

- Compton WM, Grant BF, Colliver JD, Glantz MD and FS Stinson. (2004) "Prevalence of Marijuana Use Disorders in the United States: 1991-1992 and 2001-2002." *Journal of the American Medical Association* 291: 2114--2121.
- Gruber J, Sen A and M Stabile. (2003) "Estimating Price Elasticities When There is Smuggling: The Sensitivity of Smoking to Price in Canada." *Journal of Health Economics* 22(5): 821-842.
- Hall W and RL Pacula. (2003) *Cannabis Use and Dependence: Public Health and Public Policy*. Melbourne, Australia: Cambridge University Press.
- Hall W and L Degenhardt. (2009) "Adverse health effects of non-medical cannabis use." *The Lancet* 374: 1383-1391.
- Jacobson M. (2004) "Baby Booms and Drug Busts: Trends in Youth Drug Use in the United States, 1975-2000." *Quarterly Journal of Economics* 119(4): 1481-1512.
- Kilmer B and RL Pacula. (2009) *Estimating the Size of the Global Drug Market: A Demand-Side Approach*. Santa Monica, CA: RAND Corporation.
http://www.rand.org/pubs/technical_reports/TR711/
- Pacula RL, Ringel J, Suttorp M and K Truong. (2008) *An Examination of the Nature and Cost of Marijuana Treatment Episodes*. RAND Working Paper presented at the American Society for Health Economics Annual Meeting, Durham, NC, June 2008.
- Pacula RL, Grossman M, Chaloupka FJ, O'Malley P, LD Johnston and MC Farrelly. (2001) "Marijuana and Youth" (pp. 193-191). In Jonathan Gruber (Ed.), *Risky Behavior Among Youths: An Economic Analysis*. Chicago, IL: University of Chicago Press.
- Treatment Episode Data Set (TEDS)
- Williams J, Pacula RL, Chaloupka FJ and H Wechsler. (2004) "Alcohol and Marijuana Use Among College Students: Economic Complements or Substitutes?" *Health Economics* 13(9): 825-843.