

***Marijuana and economics: Consumption, pricing and legalisation.* By Kenneth Clements & Xueyan Zhao.** 2009. New York: Cambridge University Press. 422 pp. \$105.00  
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**By Jeffrey Grabinski**

With the success of the recent voter-based initiatives to legalize and regulate marijuana in both Colorado and Washington, it is obvious to most that attitudes about this often maligned substance are shifting and policy is following suit. Provided this atmosphere, academics and policy makers alike need to be seriously examining the fundamental aspects of how marijuana functions in our society and how changes in policy will affect their field and society at large. Clements' and Zhao's rigorous treatment of the subject in the context of Australian society is an ideal starting point for economists and policy makers alike. *Marijuana and Economics* seeks to determine what factors affect consumption, how marijuana is priced, marijuana's place in the market and its relationship to other legal and illegal substances, the effects of policy changes, and the uniqueness of the Australian market.

Zhao begins by examining the probability of marijuana use in Australia based on data from a national survey on drug use, conducted every 3 or 4 years. This survey provides a rich data set to be mined for differences in demographic groups and levels of use, and how consumers respond to changes in price. Zhao also looks at cross-drug correlation in order to contribute to discussions of the "gateway" hypothesis, a leading argument for maintaining prohibition policies, because it claims that the use of marijuana acts as a "gateway" to "harder" drug use, e.g. cocaine, heroin, methamphetamine, etc. The authors use econometric tools to show that ignoring the factors determining non-participation can lead to poor policy decisions.

Clements then uses data provided by the Australian Bureau of Criminal Investigation on recorded prices of different forms of marijuana to examine pricing. This investigation shows distinct differences in prices regionally and the authors look at conventional factors such as housing prices and income to try and determine what factors can account for those regional differences. The data also show that prices had decreased dramatically over the period under examination (the 1990s). Clements posits that a shift on how marijuana is produced, going from primarily outdoor to indoor production, can account for the change in price over this time period. Pricing data indicates that purchasing in larger quantities provides a significant discount. Clements shows that the discount is similar to other illicit drugs and not too different from regular consumer goods.

Clements attempts to dig deeper into consumption by trying to measure the price elasticity of demand. Price elasticity of demand is the measure of consumer's sensitivity to changes in price. Understanding how sensitive consumer demand is to price changes is an important question. However, limitations with the data make such a measure difficult. He also attempts to explore the interrelationship between marijuana and alcohol consumption. Again, data limitations do not allow for a definitive answer. Nonetheless, the research sup-

ports the need for further study of the interrelationship between these two substances and whether they are compliments or substitutes.

Clements and Zhao, together with Yihui Lan, tackle the daunting dilemma of what are the best policy approaches to dealing with marijuana in modern society from an economic standpoint. They first look at the economics of taxation, since they posit that the effects of taxation and regulation are similar to the effects of prohibition in terms of creating higher prices and lower quantities consumed. The authors demonstrate that under taxation and regulation, society would have a net benefit of gaining revenue while reducing expenditures on enforcement or shifting them to other services. Clements et al. also provide evidence that prohibition has not been a highly effective policy in reducing participation levels. The fact that Australia has different policy approaches in different territories provides the researchers with test cases that are used to determine how changes in policy affect consumption patterns. The research shows an initial increase in consumption with the reduction of penalties, but a gradual decrease in consumption over time to levels at or below the original level. Clements et al. seek to determine the risk premium of the marijuana industry. Risk premium in this case is the excessive price charged for marijuana due to its illegality and the risks that entails. Understanding the portion of the price that is attributable to risk in this illegal industry is key to understanding the likely impact on prices from legalization and hence the possible impact on revenues from taxation. The authors make an estimate, but again, the lack of specific reliable data makes a distinct determination impossible.

Lastly, Clements seeks to determine the uniqueness of the Australian society and market to gauge the applicability of this research to other nations. He finds that while tastes change regionally, consumptive behavior based on economic considerations does not. Australians are not unique in terms of market behavior.

*Marijuana and Economics* is not the only treatment of the subject, but it is the most comprehensive to date. While providing many useful insights into the markets for marijuana, it stimulates even more questions for further research. Requiring advanced statistical and mathematical knowledge, the volume is worth the heavy lifting to better understand this complex subject, especially given the shifts in public opinion today. Policy makers and academics should find this to be an enlightening and useful text when considering how to approach policy discussions and future research regarding marijuana.