Measure 91
How Likely is the Best Case Scenario?

Marijuana’s Legalization in Oregon and Its Implications for Revenue, Law Enforcement, and Public Health
Measure 91

- Measure to Legalize Recreational Consumption of Marijuana in Oregon
- Also implements a series of taxes aimed at increasing revenue for the state from recreational marijuana use

Number of tradeoffs to consider
- The amount of revenue
- Substitution effects
- Public health costs or benefits
Measure 91

- With its passage Oregon would be the third state to recreationally legalize marijuana in the United States.
- Following Washington and Colorado.
- Compare legislation fees across the two states.
# Measure 91: OR vs. CO vs. WA

<table>
<thead>
<tr>
<th></th>
<th>OR</th>
<th>CO</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Growth</td>
<td>Yes (4 plants)</td>
<td>Yes (6 plants)</td>
<td>No (Medical only)</td>
</tr>
<tr>
<td>Sales</td>
<td>$35 per whole sale ounces</td>
<td>2.9+10</td>
<td>6.5</td>
</tr>
<tr>
<td>Production</td>
<td></td>
<td></td>
<td>25 percent</td>
</tr>
<tr>
<td>Excise</td>
<td>$5 per plant</td>
<td>15 Percent</td>
<td></td>
</tr>
<tr>
<td>Effective Rate</td>
<td></td>
<td>30-40 Percent</td>
<td>44 Percent</td>
</tr>
</tbody>
</table>
Colorado Revenues So Far

- Original forecast of $70,000,000 (40,000,000 for schools, 30,000,000 for enforcement)
- First 6 months (21.8 Million)
Lessons from Colorado

- Tax Generation Depends on Several Factors
- Increase in supply which will lower the price
- Availability of substitute goods
- If taxes are set too high, individuals will choose substitutes with lower effective prices
- Fundamental Question: How readily available are substitute goods to legal marijuana?
How Much Will Production Increase

- Depends on Technologies
- Due to federal prohibition, most farming will continue indoors and be small scale (Caulkins et al. 2012)
- Medical marijuana laws resulted in a 10-26 percent decrease in price
- While supply increase enough to decrease the price further?
Substitutes and Taxes

- What if we introduced a tax on a very specific good?
Substitutes and Taxes

- What if we introduced a tax on a very specific good?

- What do we consume?
Substitutes and Taxes
Substitutes for Recreational Legal Marijuana

- Black Market Marijuana
- Medical Marijuana
- Personal Cultivation
- Other Drugs
- Legal Marijuana From Other States
Substitutes for Recreational Legal Marijuana

![Graph showing median price of a gram of marijuana by type of sale and quantity. The graph compares recreational and medical marijuana prices.](source: weedmaps)
## Substitutes for Recreational Legal Marijuana

<table>
<thead>
<tr>
<th></th>
<th>Medical Marijuana</th>
<th>Recreational Marijuana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>18</td>
<td>21</td>
</tr>
<tr>
<td>Doctor’s Visit</td>
<td>$45-75</td>
<td>$0</td>
</tr>
<tr>
<td>Application Fee</td>
<td>$15</td>
<td>$0</td>
</tr>
</tbody>
</table>
These Factors Affect Elasticity of Demand

- Previous studies which have been used to estimate elasticities focus on small changes in a single legal regime.

- ECONorthwest assumed a price elasticity of -.54:
  - Assumed 40 percent of black market will shift to recreational.
  - Assumed medical marijuana market will not change.
  - Forecasted revenue of $38,000,000 in the first year.

- Price Elasticities might be higher with the plethora of substitutes available.

- These factors likely contributed to Colorado’s revenue falling below the forecasted revenue.
Effects on Alcohol Use

- Anderson, Hansen, and Rees (2013)
- Crost and Guerrero (2012)
Figure 1: Alcohol and Marijuana Use Around Age 21

- Probability of Alcohol Use by Age
- Probability of Marijuana Use by Age
- Frequency of Alcohol Use by Age
- Frequency of Marijuana Use by Age
Medical Marijuana Laws

- Anderson, Hansen, and Rees (2013)
- Declines in reported heavy drinking
- 5 Percent Decline in Beer Sales
Other Effects

- Traffic injuries/fatalities?
- Suicidality?
- Crime?
- Teen Drug Use?
Traffic Fatalities

Figure 2. Pre-and Post-Legalization Trends in Traffic Fatality Rates, Ages 20-39

Based on FARS data for the period 1999-2010. On the horizontal axis, 0 represents the year in which medical marijuana was legalized. It was randomly assigned to states that did not legalize medical marijuana during the period under study. Fatality rates are expressed relative to year - 1, and are weighted by the relevant population in state s and year t.
Traffic Fatalities

- Decline by 8 percent overall
- 13 to 15 percent decline in drunk driving

Driven by 2 potential mechanisms

- Risks of high vs. drunk driving
- Private vs. Public Consumption

Outstanding question: what is the right legal limit?
Suicides

- Anderson, Rees and Sabia (2014)
- Decline by 5 percent
- 11 percent decline in suicide rate of 20-29 year old males
Crime

- Morris (2014)

- No crime exacerbating effect of medical marijuana laws

- Possible reduction in homicides and assaults (costly Measure 11 crimes)
Teen Drug Use

- Teen marijuana use does not increase in states passing medical marijuana laws.

- Anderson and Rees (2014)
- Similar evidence examining cities experiencing changes in marijuana laws
“Social Welfare is increased if fines are used whenever feasible.”

Previously marijuana use and production has been treated as a crime with incarceration.

Legalization and taxation accomplish similar effects to decriminalization and fines, with potential supply effects to enhance revenue generation.
Conclusions

- Potential for large revenue gains

- Current forecasts for revenue make necessary but perhaps “rosy” assumptions about price elasticity. Demand elasticities and increase in recreational supply are key components that may affect revenue from legalization.

- Many other benefits from legalization due to reduced enforcement costs, improved public health outcomes (reduced drunk driving), with seemingly small risks for increased crime or teen drug abuse.