Observations About Marijuana Demand and Production Economies

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1. Daily & Near-Daily Users Are (Almost) All that Matter for Sales/Profits

• 80/20 rule: The one-in-five past-year users who consume more than 20 days per month account for ~80% of consumption
Frequent Users Also Use More Intensively (EU Data)

Average Grams Consumed per Day of Use

# of Days of Cannabis Used in Past Month

1. 0.5
2. 0.8
3. 1.0
3-5 1.0
6-10 1.3
11-20 1.5
21-29 1.8
30 2.8
Daily & Near-Daily Users Dominate Consumption

Past-Month Users

- 1-3 Days: 10%
- 4-10 Days: 20%
- 11-20 Days: 30%
- 21-29 Days: 40%
- 30 Days: 50%

Days of Use

- 1-3 Days: 20%
- 4-10 Days: 30%
- 11-20 Days: 20%
- 21-29 Days: 10%
- 30 Days: 40%

Consumption

- 1-3 Days: 30%
- 4-10 Days: 20%
- 11-20 Days: 20%
- 21-29 Days: 10%
- 30 Days: 20%
2. Wal-Mart not Whole Foods Clientele (Days of Use by Educational Status)
3. Production Cost Effectively $0 with Industrial Farming (National Legalization)

- Production costs
  - $5,600 - $18,500 per acre per year for comparable plants
  (Often < $1,000 per acre for industrial hemp)

- Yield
  - ~500 pounds per year of Sinsemilla
  - Roughly comparable amount of THC in other parts of plant
    (Implies 5-10 typical Midwest farms can supply entire country)

- $10,000 / 500 pounds = $20 per pound
  < 1% of current wholesale price
  (~5¢ per day for a pound per year user)
State & Local Agencies Dominate Marijuana Sales Arrests

Arrests for Marijuana Sales

- **National**: 6,000
- **CA**: 15,000
- **MI**: 3,000
- **MO**: 2,000
- **WA**: 2,000
- **CO**: 1,000
- **OR**: 1,000
- **MT**: 100

- **Other than DEA**: Total 17,000
- **DEA**: Total 4,000
4. Production Costs Also Very Low with Grow Houses + Zero Enforcement Risk

Sources: *Altered State?* (RAND 2010), interview with medical marijuana cultivator, Kilmer (2012)
Potential “Export” Market about 50 Times Greater than In-State Sales

Transport Costs now $400 per Pound per 1,000 Miles Under Prohibition

\[
y = 0.4633x + 281.53 \\
R^2 = 0.4728
\]

\[
y = 0.3428x + 561.22 \\
R^2 = 0.454
\]
5. If CO Wholesale Marijuana Leaked, Could Depress Prices Across U.S.

Percent Price Decrease/lb
- 74%-79%
- 79-84%
- 84%-89%
- 89%-94%

6. If Block that, Couple of Smurfs Can Match Production of a Grow House

- Amendment 64’s Section 5(c) is a “Smurf Protection Clause”
  - IN ORDER TO ENSURE THAT INDIVIDUAL PRIVACY IS PROTECTED, NOTWITHSTANDING PARAGRAPH (a), THE DEPARTMENT SHALL NOT REQUIRE A CONSUMER TO PROVIDE A RETAIL MARIJUANA STORE WITH PERSONAL INFORMATION OTHER THAN GOVERNMENT-ISSUED IDENTIFICATION TO DETERMINE THE CONSUMER’S AGE, AND A RETAIL MARIJUANA STORE SHALL NOT BE REQUIRED TO ACQUIRE AND RECORD PERSONAL INFORMATION ABOUT CONSUMERS OTHER THAN INFORMATION TYPICALLY ACQUIRED IN A FINANCIAL TRANSACTION CONDUCTED AT A RETAIL LIQUOR STORE.

- If a couple each buy an oz. in 12 stores/day
  Then $2 \times 12 \times 365 / 16 = 548$ pounds per year
  (same as 1,325 sq. ft. at Toonens’ 505 gm/m²/harvest)
7. Taxes Can Only Partially Offset Decline in Price

• Amendment 64 tax cap is low
  – 15% of wholesale price & only on non-medical
  – Becomes very small if production costs fall

• Furthermore, high taxes encourage evasion
  – CA tobacco tax ~$2/oz & evasion > 14% (BOE 2007)
  – “Tax” for smuggling across Mexican border is $20/oz.
  – Preventing price decline might require $200/oz.

• May need something akin to a state monopoly to stay close to black market prices
Conclusion: Cannabis Plant’s Productivity Will Alter Market Structure

• Basic facts about production
  – 505 gms sinsemilla per m² per harvest (Toonens, ‘06)
  – 4 harvests per year
  – $8 per gram (current price of sinsemilla)
  – 1,325 sq. ft. growing area in a residential house
  – 10.764 sq. ft. per m²

• Imply $2,000,000 revenue per house per year

• Production & distribution costs can’t support current price if there is no arrest risk

• State borders can’t support large price gaps
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Back up Slides
Even $50 per Oz. Tax Has No Precedent in Terms of Value per Unit Weight

<table>
<thead>
<tr>
<th>Units</th>
<th>Marijuana</th>
<th>Cigarettes</th>
<th>Beer</th>
<th>80-Proof Distilled Spirits</th>
<th>Soda Pop</th>
<th>Gasoline</th>
<th>Ratio of MJ tax to next highest</th>
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</thead>
<tbody>
<tr>
<td>Tax per Unit</td>
<td>$50</td>
<td>$1.88</td>
<td>$0.78</td>
<td>$14.10</td>
<td>$0.01</td>
<td>$0.65</td>
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<tr>
<td>Tax per gram</td>
<td>$1.76</td>
<td>$0.09</td>
<td>$0.0002</td>
<td>$0.0040</td>
<td>$0.0003</td>
<td>$0.0002</td>
<td><strong>18.8</strong></td>
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<tr>
<td>Tax as % of retail price</td>
<td>50%</td>
<td>47%</td>
<td>7%</td>
<td>11%</td>
<td>31%</td>
<td>21%</td>
<td><strong>1.1</strong></td>
</tr>
<tr>
<td>Annual tax for typical daily user</td>
<td>$644</td>
<td>$685</td>
<td>$53</td>
<td>$80</td>
<td>$117</td>
<td>$260</td>
<td><strong>0.9</strong></td>
</tr>
</tbody>
</table>
Mexican Imports Getting More Potent

Average THC Potency of Kilobrick Observations in the UMISS Data

- Avg + 2 SE
- Average
- Avg - 2 SE
Sinsemilla’s Market Share Appears to Be Rising

Sinsemilla's share of all Obs Has Grown

- Sinsemilla
- Other