A Preliminary Analysis of Investing in Wine Grape Production: Evidence from the State of Connecticut, USA

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V.D.Q.S. 2011, Angers, France
• All 50 states produce wine - even Alaska
• California is the #1 producer (with 90% of US Wine Output), followed by New York’s Finger Lakes and Long Island regions
• CA’s market share is declining as wineries continue to sprout up all over the country
• Yet, CA’s lions share of production remains as the driver of total US wine output.
A Brief History of Winemaking in Connecticut

• 1978: Haight-Brown Vineyard is Established in Litchfield County, CT

• 1987: The CT Farm Wine Development Council is Established through the USDA

• 2008: CT Wine Trail Map & Brochure

• 2009: First Annual CT Wine Festival & Passport Program Awards are Given in Goshen, CT
Connecticut’s Wine Industry in Recent Years

- Market data suggest considerable variability in output growth over the past 20 years.

- The average growth rate in CT is +3.9% per year.

- Excluding California, the national avg. is +3.7% per year.
Putting Connecticut on the Map
CT Posts Its Share of Industry Growth

**Connecticut: +3.9%/yr**

**Outside California: +3.7%/yr**

Source: Alcohol and Tobacco Tax and Trade Bureau
U.S. Department of the Treasury
http://www.ttb.treas.gov/wine/wine-stats.shtml
Varieties Grown in CT:

- **Vinifera** –
  - Whites: Chardonnay, Gewurztraminer, & Pinot Gris (Grigio)
  - Reds: Cabernet Franc, Merlot, Pinot Noir, & Lemberger

- **French American Hybrids** –
  - Whites: Traminette, Chardonel, Seyval, Cayuga, & Vidal Blanc
  - Reds: St. Croix, Chambourcin, Marechal Foch, Baco & Corot Noir
• How much? – Yields and Prices:
  • Prices are Set by New York State Vineyard Industry.

• Vinifera Varieties –
  • Chardonnay: ~3 tons/acre @ $1,400/ton
  • Cabernet Franc: ~3 tons/acre @ $1,700/ton
  • Pinot Gris: ~3 tons/acre @$1,700/ton

• French American Hybrid Varieties:
  • Premium: Traminette: ~3.5 tons/acre @ $1,100/ton
  • All Other Varieties: ~5.5 tons/acre @ $600-$700/ton
The Major Obstacles for CT Vinedressers:

- Occasional Wet Rainy Summer: June 2009 had 25/31 Days of Rain.
- Late Spring, Early Fall - grapes do not ripen to their fullest.
- Pests – Japanese beetle, deer, birds, & wasps.
- Land Cost – Price of Land & greater alternative land use value (opportunity cost) for real estate development.
Table 1. Cash Flow Summary for a 15-Acre Representative CT Farm Vineyard

<table>
<thead>
<tr>
<th>Year</th>
<th>Vinifera Varieties</th>
<th>Hybrid Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Inflows</td>
<td>Outflows</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>5,027</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>4,573</td>
</tr>
<tr>
<td>3</td>
<td>2,747</td>
<td>1,759</td>
</tr>
<tr>
<td>4-20</td>
<td>4,226</td>
<td>2,405</td>
</tr>
</tbody>
</table>
Table 2. Investment Analysis Summary for a Representative CT Farm Vineyard

<table>
<thead>
<tr>
<th>Discount rate (r)</th>
<th>Vinifera Varieties</th>
<th>Hybrid Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NPV</td>
<td>IRR</td>
</tr>
<tr>
<td>9%</td>
<td>42,089</td>
<td>13%</td>
</tr>
</tbody>
</table>

Table 3. Sensitivity Analysis for NPV’s with Variation in the Discount Rate (r)

<table>
<thead>
<tr>
<th>Discount Rate (r)</th>
<th>Vinifera Varieties</th>
<th>Hybrid Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>$92,094</td>
<td>$20,059</td>
</tr>
<tr>
<td>8%</td>
<td>$56,570</td>
<td>($3,239)</td>
</tr>
<tr>
<td>10%</td>
<td>$29,394</td>
<td>($20,839)</td>
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</tbody>
</table>
Some Preliminary Analysis: Alternative Technologies

- Drip Irrigation System – Typically not needed for CT Viticulture because of Shallow Aquifers & Summer Rain Patterns
- Pest Control:
  - Bird Netting: Includes Net’s & Netting Applicator
  - Deer Fencing: Deer Overpopulation in CT is a Major Ecological Issue

Table 4. Vinifera Profitability with Alternative Technological Assumptions

<table>
<thead>
<tr>
<th>Alternative Technology Assumptions</th>
<th>Baseline</th>
<th>Irrigation</th>
<th>Deer Fence</th>
<th>Bird Net</th>
<th>Full Pest</th>
<th>Full Monty</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPV (9%)</td>
<td>$42,089</td>
<td>$10,324</td>
<td>$24,666</td>
<td>($11,468)</td>
<td>($28,891)</td>
<td>($60,656)</td>
</tr>
<tr>
<td>IRR</td>
<td>13%</td>
<td>10%</td>
<td>11%</td>
<td>8%</td>
<td>7%</td>
<td>4%</td>
</tr>
</tbody>
</table>
Some Preliminary Analysis: Size Matters

- NPV increases with Size Though Some Important Considerations Include:
  - Scale assumptions: will hold up to roughly doubling in size ~30 acres, further size increase = new technological & machinery assumptions;
  - Vineyard diversification: mitigate risk by planting complementary varieties (eg. disease resistance, ripening, & cold hardiness).

Table 5. Investment Analysis Summary for a 30 Acre Vineyard (Double Size)

<table>
<thead>
<tr>
<th></th>
<th>Vinifera Varieties</th>
<th>Hybrid Varieties</th>
<th>Mixed Variety Plot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>NPV</td>
<td>IRR</td>
</tr>
<tr>
<td>9%</td>
<td>$123,567</td>
<td>15%</td>
<td>$14,094</td>
</tr>
</tbody>
</table>
The Bigger Picture: Keynesian Thoughts & Wine

• “My only regret in life is that I did not drink more champagne.”
  - John Maynard Keynes

• Connecticut Wine production may “boost” the states economy.

• Local & regional consumption of CT products generates further economic activity within the area if a portion is re-spent locally.

• Increased local production leads to increased exports, and a “multiplier effect”, through the re-spending of income on imports as well as tax revenues generated by local government.

• The “multiplier effect” ranges from 1.25 - 2.75.
Wine Spillovers

• Why Should The Public Support Local Wine?
  • Clean Green Industry: Low Impact Waste, Aesthetically Pleasing
  • Preservation of Farmland & Open Space: Piggybacks on CT’s Purchase of Development Rights (PDR) Program.
  • Potential Benefits to other segments of the Economy: Food, Lodging and Entertainment.
  • Wine oriented events: The CT Wine Festival!!!
Thank You!