Determinants of radical innovation using alternative research methods:

Luxury carmenere wine from Chile

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Introduction / motivation

An unusual story: a commodity-producing country (Chile) which is exporting wine at US 50 dollars or more a bottle (‘luxury’).

We use alternative research methods to explore who joins in this process, who does not, when, and why

The opportunity

Opportunity recognition and opportunity exploitation.

A long-lost Bordeaux grape variety, carmenere, believed extinct, was rediscovered in Chile in the 1990s.

Possibility of new international partnerships: French (and other) partners innovate without putting their established brands at risk, Chilean partners access new technologies and markets

Other aspects of the opportunity

The Chilean wine export boom had already started. Large geographical, geological, climate diversity. Cheap(ish) land and labour of diverse skill levels. Favourable macroeconomic and political economy conditions. Positive attitude towards foreign direct investment. Some attractive potential local partners. Some government support
So, as a result ...

By 2012, over 40 wineries in Chile (about 20 percent of the total) were making their own brands of ‘luxury carmenere’ (LC), defined as:

Made using new / careful / expensive technologies and production methods.

Using carmenere grapes or carmenere-based new blends.

Retailing at US 50 dollars or more per bottle

Is LC from Chile a success?

Five out of Chile’s top 10 wines were LC in March 2012 (according to Robert Parker’s *The Wine Advocate*).

A LC was made ‘Wine of the Year’ by *Wine Spectator* in 2008.

In the UK, both Waitrose and The Wine Society have LC at the top of their Chilean wine lists.

Montes’ Purple Angel 2003 selected for the *Decanter* Fine Wine Encounter 2013 Masterclass on Aging in New World Wines

How important is LC (in dollars)?

<table>
<thead>
<tr>
<th>Luxury carmenere (LC) brand</th>
<th>Total output value (retail, US dollars)</th>
<th>Share of the respective firm’s exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almaviva 2003/2005</td>
<td>9.0 - 10.2 million</td>
<td>100 percent</td>
</tr>
<tr>
<td>Altair 2003/2004</td>
<td>1.1 – 1.8 million</td>
<td>100 percent</td>
</tr>
<tr>
<td>Concha y Toro Carmin de Peumo 2005</td>
<td>1.5 million</td>
<td>About 1 percent</td>
</tr>
<tr>
<td>Errazuriz Kai 2005</td>
<td>Not known (US imports: 0.1 million)</td>
<td>(Less than 1 percent)</td>
</tr>
<tr>
<td>Montes Purple Angel 2004/2005</td>
<td>1.0 - 1.4 million</td>
<td>About 5 percent</td>
</tr>
</tbody>
</table>

Some theory

US 50 dollars as ‘luxury’: this is arbitrary, applicable to Chile but not France or California. ‘Luxury’ wine in consumption, gifts and ostentation. About 1 percent of the world wine market.

Radical innovation: new ideas, technologies and production methods, for a market that does not even exist (new market and new consumers).

Needed: access to finance, human capital, marketing and distribution channels
Research methods

Who engages in LC innovation, who does not, and why?
Why in a particular year, and not before or after?

Do the answers depend on the research method used?

The sample: the top 78 Chilean wineries, according to exports, presence in the most successful geographical production cluster, international awards, and LC innovation (the latter is the variable to be explained)

X² tests and binary probit regressions

Other possible explanatory variables: firm age, long-term employment of a senior expert winemaker, strength of knowledge network links, foreign influence, and ability (or willingness) to retain expert winemakers.

Significance of association between two attributes (one of the two always being LC innovation).

Multiple regressions with yes/no (to LC innovation in 2001-11) as the dependent variable

Alternatively: a time-explicit, path-dependent, non-regression method

Who LC-innovated first?

Can any patterns be identified in terms of foreign influence (ownership / partnership / advice)?

Can patterns be identified in terms of movement, or migration, of key winemakers between firms? (this is impossible to do with other research methods)

Any other possible patterns?

Some interesting results from this alternative approach

By about 2001, LC innovation was being made possible by foreign influence (3 out of 3 firms in 2001). But a decade later it was ‘led’ by national firms (16 out of 20 in 2008-11).

LC innovation progressed from firm to firm, as key expert winemakers migrated between these firms (at least 20 winemakers, in 27 out of 33 firms, in 2001-11).

Some firms did not make a new wine, but just increased the price of their old wine (11 in 39 wines).

The winemaker migration and the price increases could not have been detected using other research methods
Ordered probit, censored and truncated regressions

The same possible explanatory variables as before, but analysed more formally.

Different question: now the dependent variable is the year when a firm was first listed as a LC innovator (as opposed to who did innovate and who did not in 2001-11).

Tests repeated with a slightly different sample, 2001-2011 and 2001-2012

(Slightly) different questions get different answers

<table>
<thead>
<tr>
<th>What does explain? (right-hand variable)</th>
<th>If we want to answer: Who did innovate and who did not? (binary probit model)</th>
<th>If we want to answer: When? (truncation model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long-term presence of an expert</td>
<td>Significant (+)</td>
<td></td>
</tr>
<tr>
<td>Network size (linear effect)</td>
<td>Significant (+)</td>
<td></td>
</tr>
<tr>
<td>Ability or willingness to retain experts (in plural)</td>
<td>Significant (NEGATIVE)</td>
<td></td>
</tr>
<tr>
<td>Foreign-owned or foreign-influenced</td>
<td>Significant (+)</td>
<td>Significant (+)</td>
</tr>
</tbody>
</table>

Is there a significant association or not, regardless of sign - yes or no?
(two answers in a cell refer to periods 2001-11 and 2001-12)

<table>
<thead>
<tr>
<th>Hypoth</th>
<th>$X^2$</th>
<th>Binary pr</th>
<th>Non-regr</th>
<th>Order pr</th>
<th>Censored</th>
<th>Truncat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>no</td>
<td>no</td>
<td>No/no</td>
<td>No/no</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>no</td>
<td>no</td>
<td>No/no</td>
<td>No/no</td>
<td>No/no</td>
<td></td>
</tr>
<tr>
<td>L-t expert</td>
<td>yes</td>
<td>yes</td>
<td>Yes/yes</td>
<td>Yes/yes</td>
<td>No/no</td>
<td></td>
</tr>
<tr>
<td>Network</td>
<td>(yes)</td>
<td>yes</td>
<td>Yes/no</td>
<td>Yes/no</td>
<td>No/yes</td>
<td></td>
</tr>
<tr>
<td>Retain</td>
<td>no</td>
<td>no</td>
<td>Yes/no</td>
<td>Yes/no</td>
<td>Yes/(yes)</td>
<td></td>
</tr>
<tr>
<td>Cluster</td>
<td>no</td>
<td>no</td>
<td>No/no</td>
<td>No/no</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td>Foreign</td>
<td>yes</td>
<td>yes</td>
<td>Yes/yes</td>
<td>Yes/yes</td>
<td>Yes/yes</td>
<td></td>
</tr>
<tr>
<td>Awards</td>
<td>yes</td>
<td>(yes)</td>
<td>Yes/yes</td>
<td>Yes/yes</td>
<td>No/no</td>
<td></td>
</tr>
</tbody>
</table>

Summary of key results

Yes, different methods give different results.

Yes, different periods give different results.

The only two completely robust results apply to company age, which never explains, and foreign influence (ownership / partnership / advice), which always explains.

Possibly an ‘optimal’ size for the knowledge network.

Possibly a negative relationship between international awards and LC innovation.
Conclusions 1: research methods

Do not trust or rely on a single individual method.

Key differences between periods 2001-11 and 2001-12.

Key differences between answers to the question ‘who-did and who-did-not’, and the question ‘when’.

Non-regression approaches may be crucially important, because they address questions that cannot be approached using regression.

Conclusions 2: opportunity

Opportunity: recognised by foreigners, and first exploited by foreign-owned or foreign-influenced firms. Eventually the opportunity exploitation is taken over by nationals.

Could it have happened without carmenere? Maybe yes, but it would have been slower.

Compare with other countries and products: the initial exploitation (or even recognition) may never happen; or nationals may never take over (lack of capabilities).

Opportunity may come in many different shapes ...

Conclusions 3: a new (‘new’) middle class?

The LC innovation experience goes together with, or it is both cause and consequence of, the emergence of a new (or ‘new’) middle class.

Some authors would call them ‘knowledge workers’.

LC innovation builds on many skills, some old, some new, and it encourages and rewards these skills.

Conclusions 4: globalisation

LC innovation is a path (or part of a path) to development which fully embraces globalisation.

It strengthens non-traditional exports and international trade in general.

It encourages foreign investment, mainly into Chile, but also outward ventures by Chilean wineries.

It makes expert winemakers (and other ‘knowledge workers’) more cosmopolitan, by giving them solid and realistic international perspectives.
Many thanks

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