Market developments for pine products: actors and patterns of trade in a changing market conditions

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Outline

• Ongoing structural changes affecting the pine market economy
• Three commercial products:
  – Pine nuts
  – Pine resin
  – Wood logs and sawnwood from pine
• Conclusion

Ongoing structural changes affecting the pine market economy

4 trends:
A. Reduced consumption of pulp and paper
B. Development of the bio-energy segment
C. Growing role of forest plantations in wood supply
D. Increasing importance (and recognition) of NWFP

… under a general feature of the market: structural instability

A. Reduced consumption of pulp and paper (EU market)
Reduced consumption of newsprint (US market)

Source: Peter J. Ince, 2008

Reduced employment in the pulp and paper sectors (US market)

Source: Peter J. Ince, 2008

B. Development of the bio-energy segment

Forest Bioenergy in Europe: Reassessment needed

Source: TEMA, 2010

Figure 14: Development woody biomass potential demand and potential supply

Source: TEMA, 2010
Opposite views

Recent studies (EUwood, 2010) have suggested that the EU’s forest biomass supply would increase by 15% from 2010 to 2030. However, assuming the EU’s 2020 climate and energy targets, and the continuation of forest products markets along past trends, this study also estimated that the demand for forest biomass would increase by 15%. This would mean a shortage or a “gap” of 3.4 million m³ of forest biomass in 2030.

Key message: we will face a problem of scarcity

However we do have to consider:
- The reduced demand for industrial wood
- The role of trade (import from outside EU)
- The role of prices (higher demand → higher prices → higher supply)

Unfair competition between the bioenergy and the panel industry sectors

http://www.forthenergy.co.uk/biomass.asp

1300 M€ investment
300 MWe + 260 MWt
40 new jobs (32.5 M€/employee)
Consumption: 5.3 M ton biomass/yr
90% imported (75% from Florida)

Market distortion by public interventions.
An interesting example

Unfair competition between the bioenergy and the panel industry sectors
The "cascade approach" (2013 EU Forest Strategy communication, p. 5-6)

The "cascade approach"

230 M ha in 2005
75% for production, 25% for protection
mainly conifers: 32% gen. Pinus; Eucalyptus 8%

C. Growing role of plantations

Planted forests in the world according to management objectives and continent (1990–2006–2005)

Ten countries with largest area of planted forests, 2005 (1,000 ha)

C. Growing role of plantations

Pine plantations around the globe: main functions


Age-classes of pine plantations around the globe: quite a lot of young stands

Productive pine plantations by age class and geographical distribution: a great potential in NA


Forecast of industrial roundwood consumption from forest plantations (Source: FAO)

Forecasts of industrial roundwood consumption and industrial price from forest plantations (Source: FAO)

Total consumption

Wood from plantations


Global forest regions and expected IRRs* from forest investments

* Internal Rate of Return

Source: Daos Oy, 2012

Historical sources of return from forest plantations

Biological growth 65-75%

Timber price changes 25-35%

Land value changes 2-5%
Forests as an opportunity for investments: land prices

“Buy land, they’re not making it anymore.”
- Mark Twain

Source: Daos Oy, 2012

Forests as an opportunity for investments: wood prices

Source: Daos Oy, 2012

“...From Chile to Portugal, from Brazil to Indonesia, from Uruguay to Spain, from South Africa to New Zealand, from India to Thailand, people are organizing to oppose what they have called tree deserts, green cancer, green invading army, selfish trees or socioeconomic deserts...” (www.wrm.org.uy)

D. Increasing importance of NWFP
Wood vs. NWFP: general trade overview (raw prod.)

Wood codes: 4401, 4403
NWFP: only wild raw products collected in EU
The problem of NWFP definition

Different definitions, different outputs!

NWFP/industrial wood production values in different EU countries

Source: Forest Europe 2011, modif. (year 2007)

NTFPs (1/2)

Total value: €822.44 M
Average marginal value: €18.10/ha

% incidence of wood & NTFP production value in MED countries and sub-regions

Source: own elaboration from FAO, 2010

A general feature of the market: structural instability

A good indicator: wood prices

Source: Daos Oy, 2012
Instability not only in the demand (economic crisis) but also in the supply. Main large damage event (storms, fires, insect attacks, …) to (ageing) European forests.

Schelhaas, 2008

Market more unstable
Forests more vulnerable

Schelhaas, 2008

Mountain Pine Beetle (*Dendroctonus ponderosae*) in British Columbia (CAN)
A brief market analysis of the main pine products

NWFP

Pine nuts
- Pine nuts production and gathering in “Mediterranean” countries (sorry Portuguese friends!)

<table>
<thead>
<tr>
<th>Country</th>
<th>Area (ha)</th>
<th>% on Total</th>
<th>Production (tons/year)</th>
<th>Value Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Minimum</td>
<td>Maximum</td>
</tr>
<tr>
<td>France</td>
<td>1,020,000</td>
<td>4.1%</td>
<td>530</td>
<td>8.1</td>
</tr>
<tr>
<td>Israel</td>
<td>12,000</td>
<td></td>
<td>120</td>
<td>1.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>146,710</td>
<td>90%</td>
<td>120</td>
<td>14,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lebanon</td>
<td>18,000</td>
<td>1%</td>
<td>1,200</td>
<td>28%</td>
</tr>
<tr>
<td>Morocco</td>
<td>12,000</td>
<td>3%</td>
<td>720</td>
<td>12,200</td>
</tr>
<tr>
<td>Spain</td>
<td>4,000,000</td>
<td>98%</td>
<td>10,000</td>
<td>14%</td>
</tr>
<tr>
<td>Tunisia</td>
<td>12,000</td>
<td>4%</td>
<td>12,000</td>
<td>14%</td>
</tr>
<tr>
<td>Turkey</td>
<td>1,000,000</td>
<td>5%</td>
<td>650</td>
<td>12,000</td>
</tr>
<tr>
<td>Total</td>
<td>569,562</td>
<td>100%</td>
<td>5,295</td>
<td>18,992</td>
</tr>
</tbody>
</table>

nr = not relevant; na = not available
* estimated assuming production levels per hectares as defined by Daly et al. (2012) for Tunisia.
Source: own elaboration from Perez et al., 2004; NFC, 2005; NFC, 2010; Mutke et al., 2012; Stier, 2011 (Note: production figures refer to pine tree cones and assume an average production of 280-120 kg/ha of edible nuts)
*Wahid et al., 2010; Mutke et al., 2013; Daly et al., 2012 (Note: production figures assume an average production of 400 kg/ha of cones, i.e. 60-180 kg/ha of edible nuts)
Pine nuts trade: a central role of the EU

<table>
<thead>
<tr>
<th></th>
<th>Quantity (000 tonnes)</th>
<th>Value (million €)</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>2477</td>
<td>11786</td>
</tr>
<tr>
<td>EU</td>
<td>2358</td>
<td>10526</td>
</tr>
<tr>
<td>% EU/world</td>
<td>96</td>
<td>96</td>
</tr>
<tr>
<td>% top 7 countries</td>
<td>97</td>
<td>92</td>
</tr>
</tbody>
</table>

Source: our elaboration on EUROSTAT data

Pine nuts: increasing EU dependence from other countries (China, Pakistan, US, …)

<table>
<thead>
<tr>
<th>Country</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Average 2006-2010</th>
<th>% on Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>738</td>
<td>616</td>
<td>246</td>
<td>325</td>
<td>333</td>
<td>446</td>
<td>17%</td>
</tr>
<tr>
<td>Greece</td>
<td>26</td>
<td>12</td>
<td>91</td>
<td>193</td>
<td>66</td>
<td>64</td>
<td>2%</td>
</tr>
<tr>
<td>Italy</td>
<td>154</td>
<td>215</td>
<td>128</td>
<td>330</td>
<td>239</td>
<td>264</td>
<td>8%</td>
</tr>
<tr>
<td>Spain</td>
<td>148</td>
<td>262</td>
<td>114</td>
<td>175</td>
<td>255</td>
<td>215</td>
<td>8%</td>
</tr>
<tr>
<td>Turkey</td>
<td>51</td>
<td>44</td>
<td>30</td>
<td>54</td>
<td>64</td>
<td>52</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>3,571</td>
<td>2,637</td>
<td>1,772</td>
<td>2,487</td>
<td>2,717</td>
<td>2,672</td>
<td>195%</td>
</tr>
</tbody>
</table>

Source: our elaboration on EUROSTAT data

Pine nut prices: huge tensions

Driving forces:
- many pathogens such as the western conifer seed bug (Leptoglossus occidentalis);
  - a reduction from 2,500 to 905 tons in 2011 (INC, 2012)
- Pine Mouth Syndrome (PMS): nuts from some species such as Pinus armandii (Chinese white pine) and Pinus massoniana (Chinese red pine) include irritating terpenoids and other compounds

Max: 65 €/kg (consumer price)

Source: our elaboration on EUROSTAT data

Price boom, with a recent reduction of trade

Source: our elaboration on EUROSTAT data
Pine resins

Areas and species used to pine resin extraction in Mediterranean countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Pine species</th>
<th>Area (ha)</th>
<th>Production (t/ha/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>France*</td>
<td>Pinus pinea* (Naples Pine)</td>
<td>1,000,000</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>Pinus halepensis (Aleppo Pine)</td>
<td>72,500</td>
<td>4,000 – 5,000 (3,000)</td>
</tr>
<tr>
<td>Italy*</td>
<td>Pinus pinea* (Naples Pine)</td>
<td>50,500</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>Pinus pinea* (Naples Pine)</td>
<td>700,000</td>
<td>1,144 - 1,121</td>
</tr>
<tr>
<td>Turkey</td>
<td>Pinus brutia (Catalan Pine)</td>
<td>5,400,000</td>
<td>3,800</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* tapping activities ceased

Source: own elaboration from *FAO, 1995; *IGN, 2013; *Spanos et al., 2010; *INFC, 2007; *Cesefor, 2009; *Magrama, 2011; *GDF, 2009 [Note: calculated according to average figures for productive forests and considering only non degraded pine forests]; *Satil et al., 2011.

Pine resin production value (1,000 Euro) in Med countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Total production (ton)</th>
<th>Value (1,000 Euro)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>3,500</td>
<td>1,000</td>
</tr>
<tr>
<td>Spain</td>
<td>1,443</td>
<td>1,000</td>
</tr>
<tr>
<td>Turkey</td>
<td>3,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Total</td>
<td>8,343</td>
<td>3,000</td>
</tr>
</tbody>
</table>

The 7 top exporter in the world (2013)

The 7 top importer in the EU (2013)

Source: our elaboration on EUROSTAT data
Rosin and resin acids: strong trade unbalance, but recent reduction in import from outside EU (China, Brazil and Argentina, Indonesia and Vietnam)

Salt of rosin: again the impacts of the economic crisis on trade

Average price changes during 2010-2013 for rosin and resin acids

Pine wood
Quantity and value of Med pine wood production: no data available (but pines are the predominant species!)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>France</td>
<td>904</td>
<td>732</td>
<td>940</td>
<td>840</td>
</tr>
<tr>
<td>Turkey</td>
<td>130</td>
<td>130</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Spain</td>
<td>150</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>Italy</td>
<td>180</td>
<td>180</td>
<td>180</td>
<td>180</td>
</tr>
<tr>
<td>Croatia</td>
<td>210</td>
<td>210</td>
<td>210</td>
<td>210</td>
</tr>
</tbody>
</table>


- Leading countries: France, Turkey, Spain, Italy, Croatia;
- Only Turkey has a clear trend (positive), much influencing the overall performance of the region;
- Still a large role played by fuelwood...

Overall fuel wood increased five times in the last 10 years

According to FAO (2012), the Mediterranean region hosts the 1st (Italy) and the 4th (Turkey) firewood importers worldwide.

Trade balance Scots pine (EU, value, 2002-13)

- Large investment in sawmills in the recent past → increased avrg. size
- Need for large amount of logs to cover the investment costs
- High prices paid for the raw material
- Stagnant domestic demand, increased export of sawnwood, lower profits for the sawmill

The reduced role of small sawmills is decreasing the stability of markets.

Trade balance other pines (EU, value, 2002-13)

Same trends! (even more pronounced)
Summary view: EU pine products imports

Red: industrial pine roundwood
Green: semi-finished pine wood products
Blue = NWFP

Conclusion

• More globalized wood and NWFP markets
• Increased demand for low grade wood assortments
• A very dynamic NWFP market, with new room for expanding EU supply
• Economic crisis: limited reduction in NWFP trade, but not in prices
• Other products (mushrooms, greeneries, …) and ES can be relevant sources of income for pine forests

Summary view: EU pine products exports

Red: industrial pine roundwood
Green: semi-finished pine wood products
Blue = NWFP

Thanks for your attention!