



Market analysis

Availability of forest products and by-products

Portugal

Client:

Engie - Electrabel
boulevard Simon Bolívar
B-1000 Brussels

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1. Introduction

SGS has been assigned by Electrabel to analyse the market availability of the feedstock used to produce wood pellets in Portugal, in order to assess to what extent the use of those materials for energy purpose might compete with the industrial use of those resources both locally and internationally.

This report will cover the following wood resources used as raw material by pellet producers in Portugal:

- Wood processing residues
- Round from forest thinning & harvesting
- Forests management residues
- Cork waste and by-products

The industrial activities concerned by those materials are:

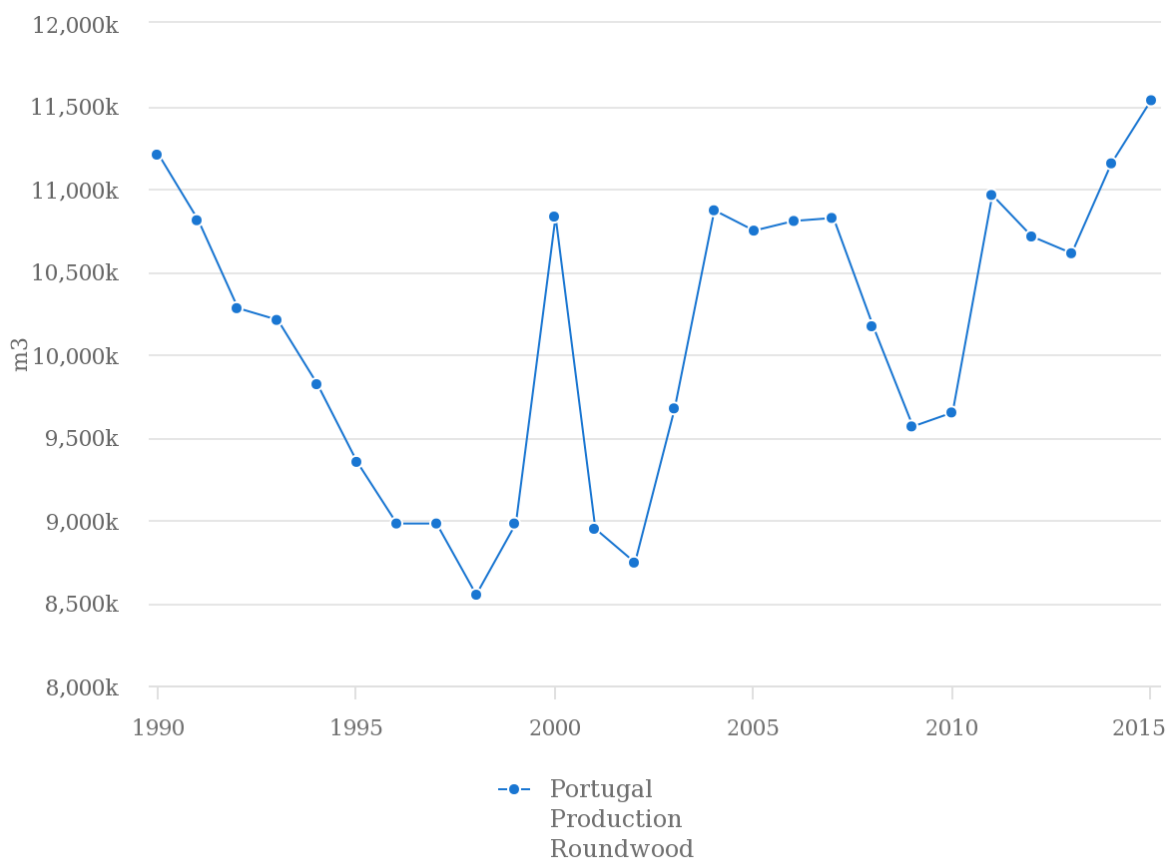
- pulp and paper
- wood panels production
- sawnwood production

The geographic range covered by the analysis includes the Republic of Portugal.

All the data from FAOstat consist in an aggregate of official, semi-official, estimated or calculated data.

2. Production volumes

According to the most recent statistics from the FAO (Figure 1) the production of roundwood has been oscillating between more than 11 million m³ and less than 9 million m³ for the last 25 years. For almost ten years from 1990 to 1998, the production decreased significantly to its lowest value: 8,548,000 m³. A sharp rise happened in 2000 with a production of 10,831,000 m³, immediately followed by a drop to 8,742,000 m³ in 2002. After it, the production volume stabilized at approximately 10.8 million m³ between 2004 and 2007. A fall in the volumes occurred from 2007 to 2009, prior to the global economic crisis. It increased again to almost 11 million m³ in 2011, just to decrease until 2013. This last decrease may be linked to financial crisis that happened between 2010 and 2013 in Portugal¹. After the recession, the production c increased again up to a new maximum in 2015: 11,533,376 m³.



Source: FAOSTAT (Jun 13, 2017)

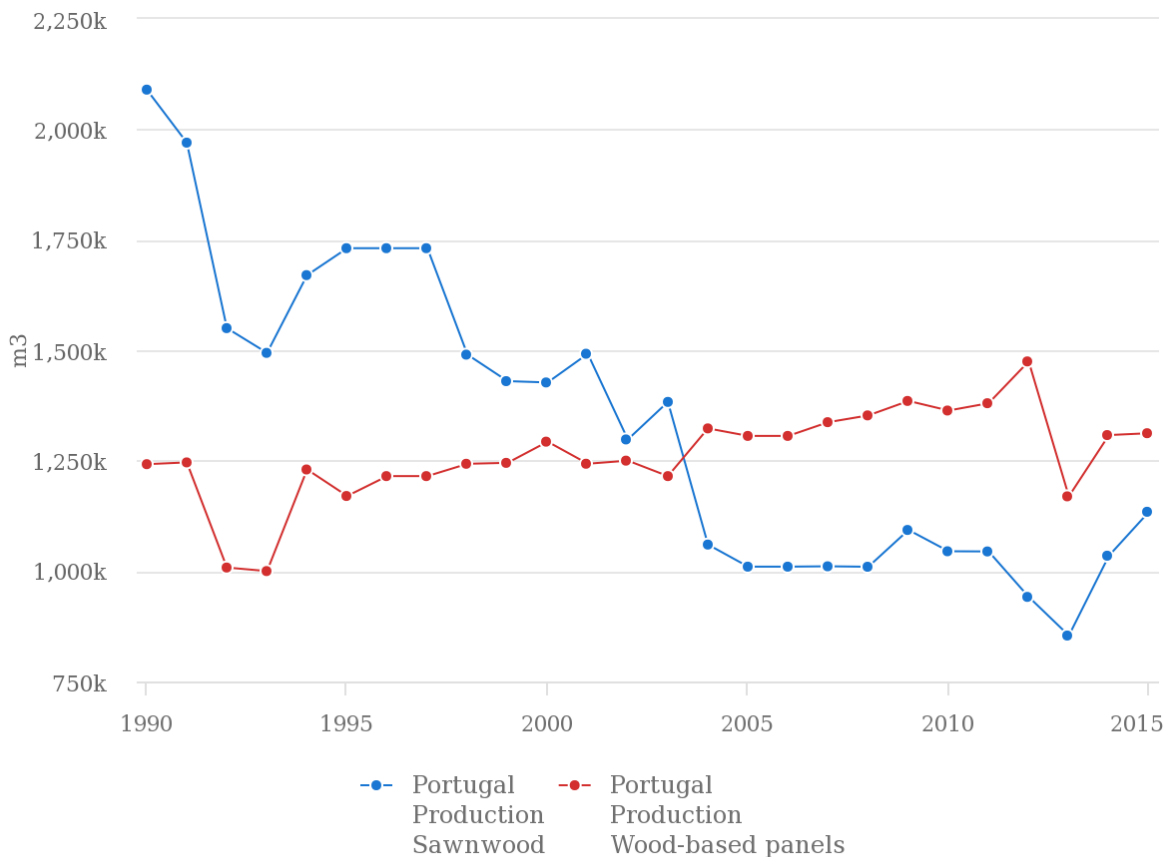
Figure 1 : production of roundwood in Portugal (1992-2015)
(source : FAOstat)

The production of sawnwood and wood-based panels from FAOstat can be seen in Figure 2.

¹ https://en.wikipedia.org/wiki/Economy_of_Portugal#Portuguese_financial_crisis_.282010-2013.29

Even though the production of sawnwood sees its trend undergoing ups and downs from 1990 to 2015, the global trend for the period 1990-2003 is oriented towards a decrease from the maximum volume value of 2,090,000 m³ in 1990; it decreased until 1993 and increased in order to stabilize between 1995 and 1997. It underwent large decreases and small increases until 2005 and another stabilization occurring for four years. The production did not seem to suffer from the economic crisis from 2008; however it saw its volumes decrease with the financial crisis in Portugal in 2011. From 2013 to 2015, it went from its lowest value of 854,025 m³ up to 1,134,255 m³.

The production of wood-based panels has been rather stable since 1990 except for a drop in 1991 and a larger one in 2012. Between the two, the trend was on the rise. Since 2013, it increased and reached a production volume of 1,312,112 m³ in 2015. With a trend oriented towards the increase and the decreasing production volumes of sawnwood, wood-based panels production exceeded sawnwood one between 2003 and 2004.

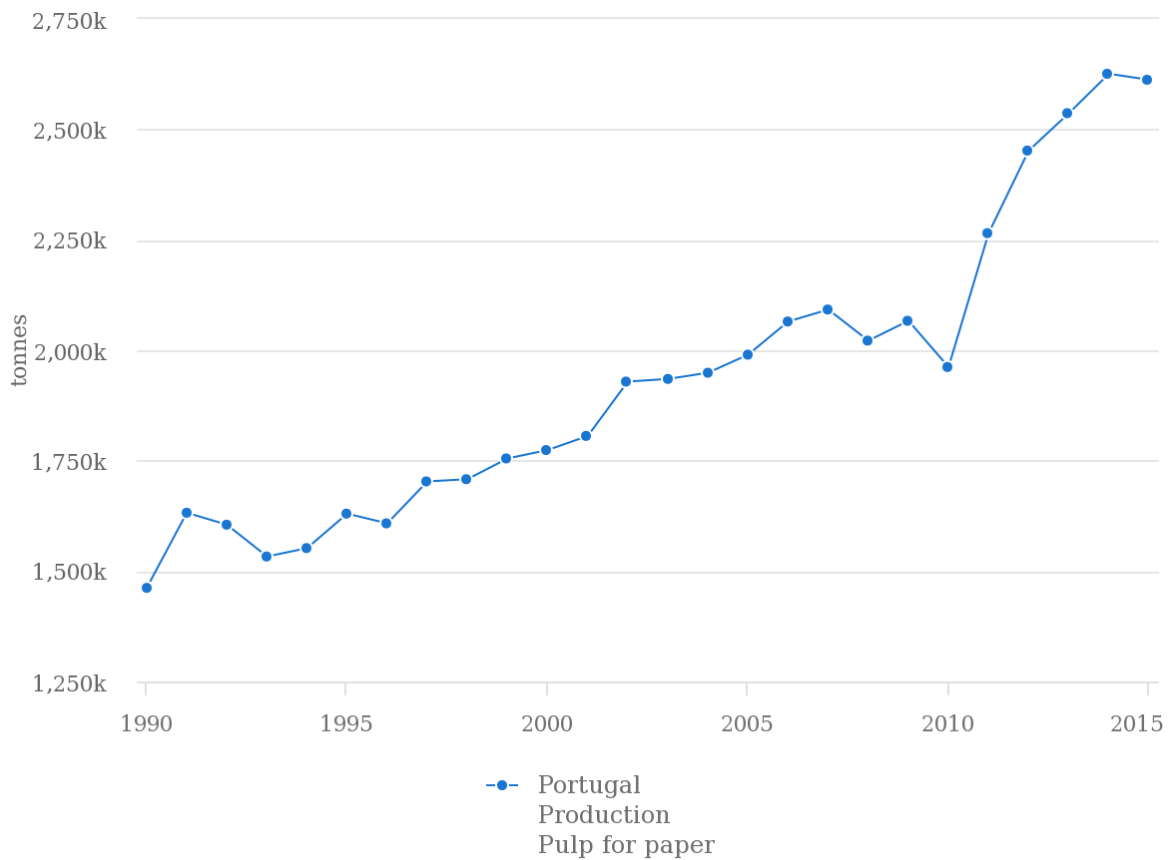


Source: FAOSTAT (Jun 14, 2017)

Figure 2 : production levels of sawnwood (m³) and wood-based panels (m³) in Portugal between 1990 and 2015
(source : FAOstat)

The production of pulp for paper in Portugal (Figure 3) increased from its lowest value (for the period) of 1,462,000 t in 1990 to 2,092,175 t in 2007. A small decrease period followed until 2010, to increase

again to its maximum value of 2,625,900 t in 2014. The production underwent a last small decline down to 2,612,300 t in 2015.



Source: FAOSTAT (Jun 13, 2017)

Figure 3 : production levels of pulp for paper (t) in Portugal between 1990 and 2015
(source : FAOstat)

Considering the cork industry, Portugal is the leader in production as it produced 100,000 tons in 2015, which accounts for 50% of the total world production².

² <https://www.corkqc.com/pages/industry-statistics>

3. Forest exploitation levels

According to Eurostat, felling in forests available for wood supply was about 13 million m³ of timber in 2010 (Table 1). The global economic crisis caused a fall in Roundwood prices. This led to a reduction of harvested timber. This partly explains the decrease from 2005 to 2010. Meanwhile the increment was rather stable for the period 1990-2010 ranging from 18.5 million m³ and 19.1 million m³.

The percentage of felling volumes of the net increment both oscillate between 66% and 76% with a mean average of 71% for the period 1990-2010. Given the felling globally decrease, without any other loss of wood, an increase in forest stock could be expected. However, the volumes of growing stock decline from 1990 to 2005 and stabilize around 187 million m³ after. It can be partly explained by forest fires that ravage wooded area in the country. This point is described in details in SGS's report on forest sustainability.

	1990	2000	2005	2010
Growing stock in forests and on other wooded land	203,276.36	197,759.48	186,790	187,800
Increment in forests available for wood supply	18,564	19,054	18,870	19,086.77
Fellings in forests available for wood supply	13,852.14	12,649.75	14,228.92	13,041.58
Fellings in percent of net increment (%)	74.62	66.39	75.4	68.33

Table 1: Evolution of wood volume from 1990 to 2010 (volume in 1000m3)

(source : <http://epp.eurostat.ec.europa.eu>)

4. Price of wood resources

Exports and imports prices are shown in Figure 4 and Figure 5. The trend for export unit price was rather stable between 2000 and 2015. The global economic crisis had a negative impact on the prices of roundwood, wood pulp and sawnwood.

Considering the import unit prices, the trends are more inhomogeneous than export unit prices. The year 2008 is distinguishable for an increase of paper and paperboard, sawnwood and wood pulp prices; however wood charcoal saw its price dropping. In 2012, the prices of Paper and paperboard, wood pulp, sawnwood, wood-based panels and wood charcoal declined, this may be related to the financial crisis of 2010-2013 in Portugal. Since 2014, the prices seem to show a slight decreasing trend.

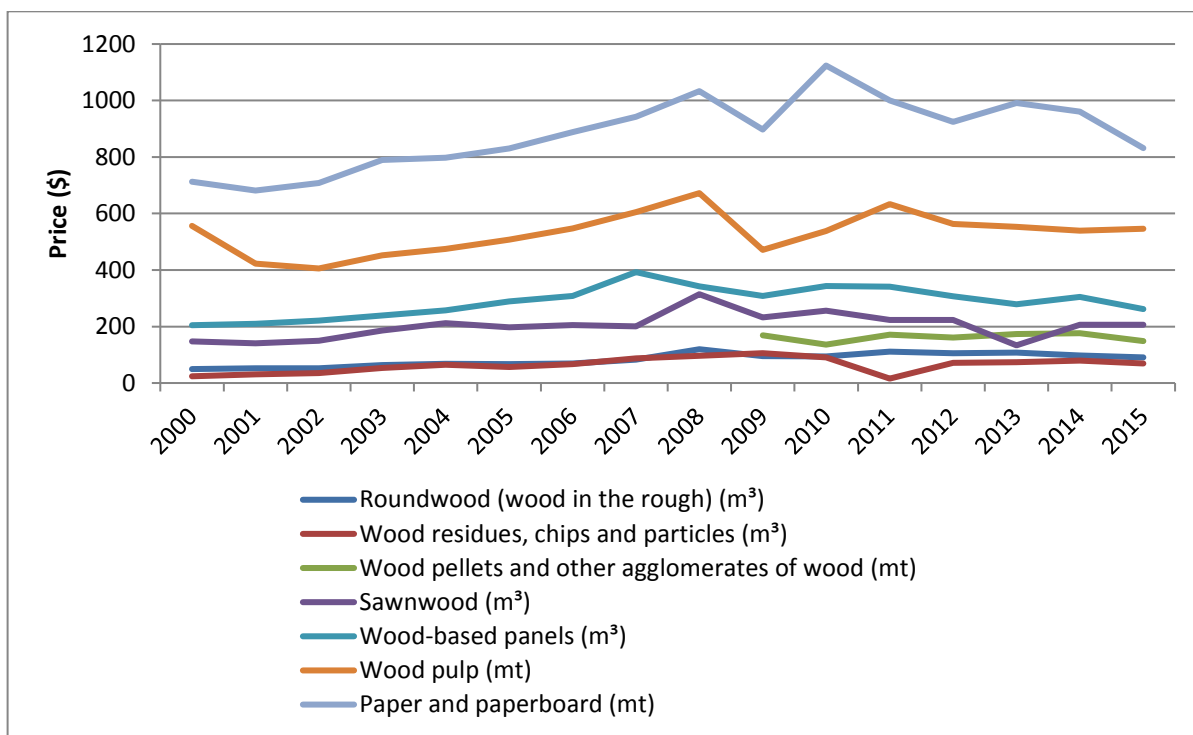


Figure 4 : Export unit price (in \$ per m³ or mt)
(source : <http://www.unece.org/forests/output/prices.html>)

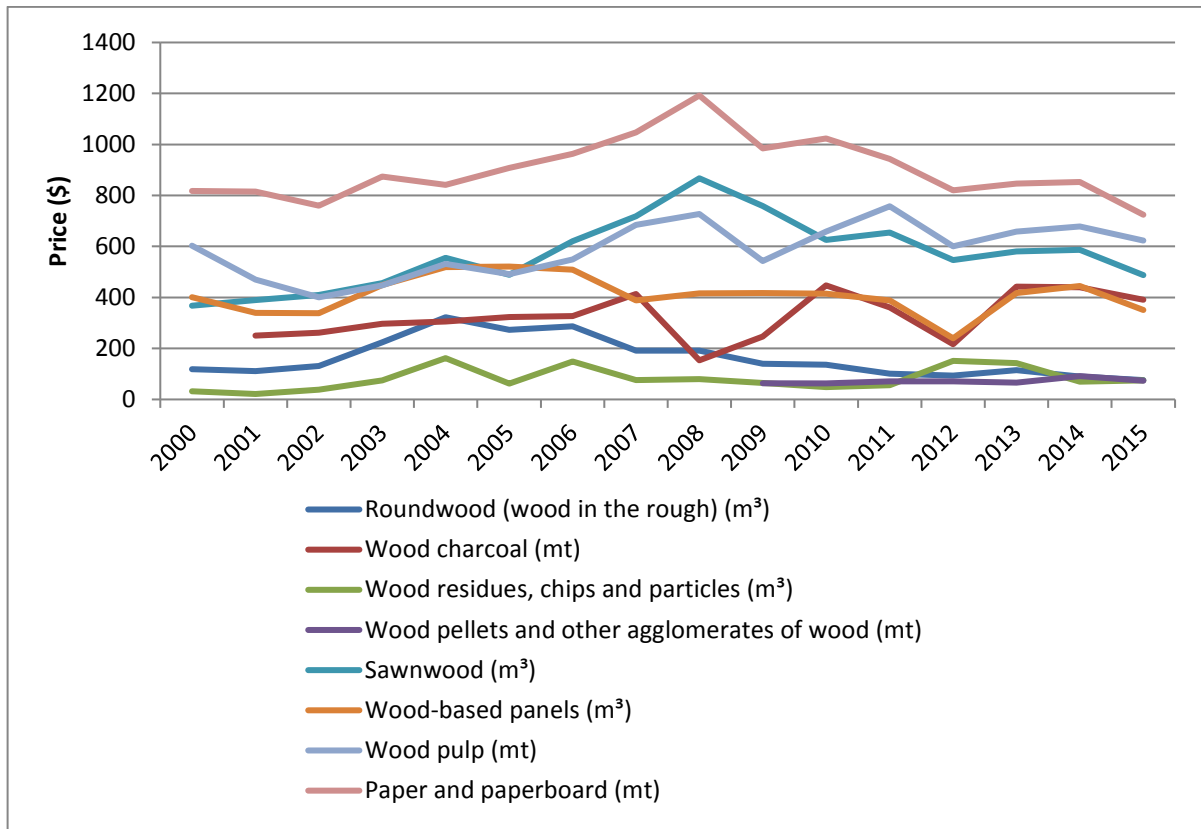
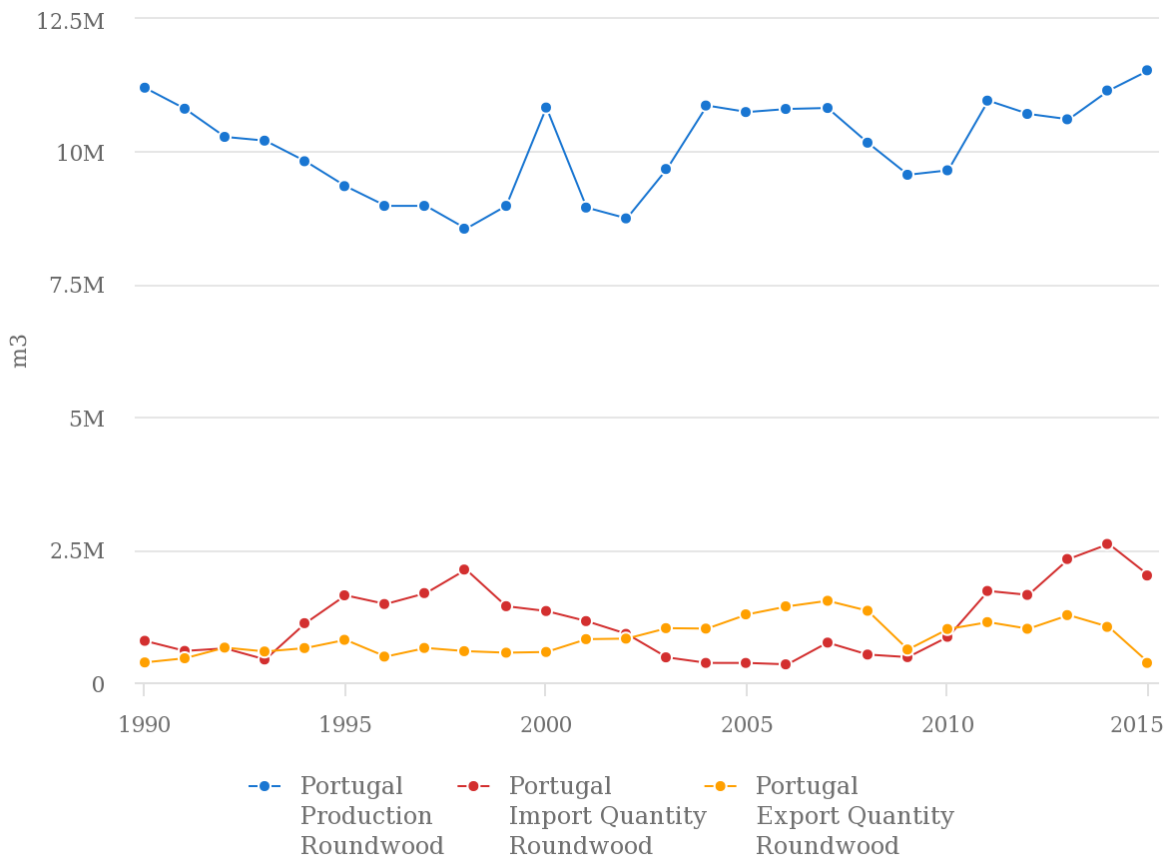


Figure 5 : Import unit price (in \$ per m³ or mt)
(source : <http://www.unece.org/forests/output/prices.html>)

5. Import and export of wood resources

In this section, imports and exports are taken into account to assess the availability of the different kind of materials.

The imports and exports of roundwood are both very low compared to the production. For certain periods, importation surpasses exportation meaning that the domestic production occasionally may not meet the local demand.



Source: FAOSTAT (Jun 13, 2017)

Figure 6 : imports, exports and production of roundwood in Portugal (1990-2015)
(source : FAOstat)

Until 2009, the imports volumes presented an opposite trend to the production, when the production grew, the imports decreased, and the contrary. After that point, even though the production increased, the importation volumes followed except for 2014-2015 meaning the domestic demand in roundwood was higher. Exports have been rather stable for the period with a drop in 2008 that correlates to the exports unit prices and the economical crisis.

Figure 7 presents the structure of Portuguese forest sector exports. Half of the exports consist in paper and paper products. 20% is dedicated to cork; 15% to wood, articles of wood and wood charcoal; 12% to wooden furniture and the last 2% to products of forestry, logging and related services.

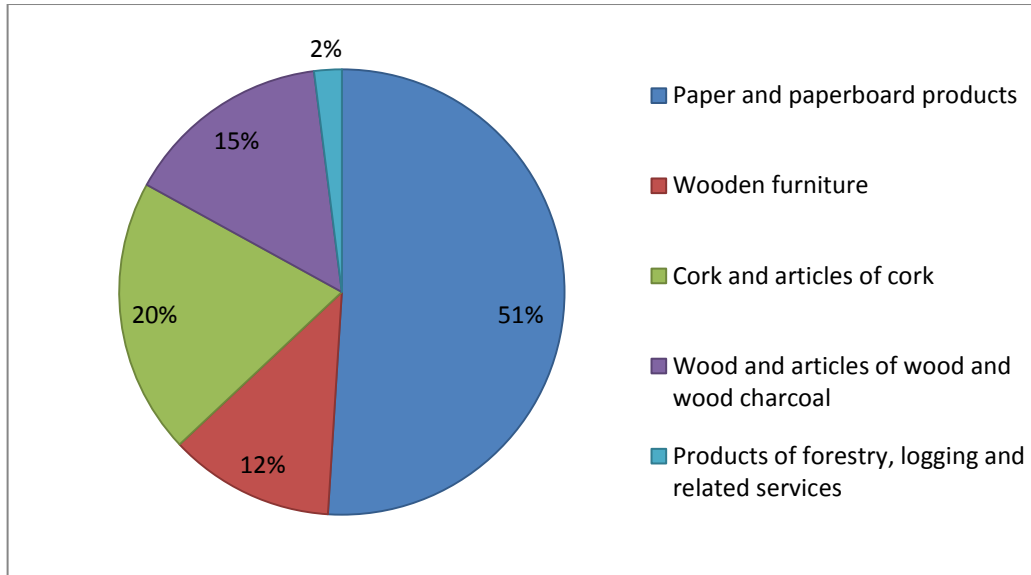
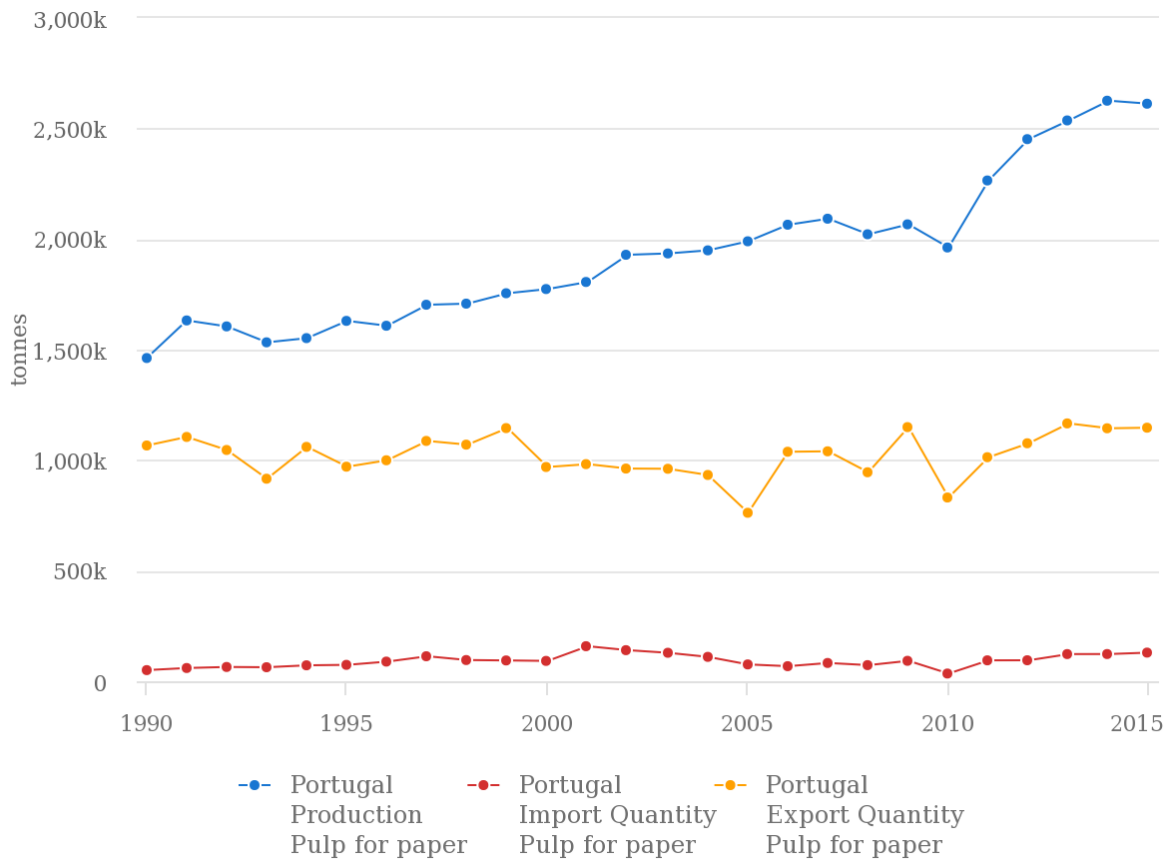


Figure 7 : Structure of Portuguese forest sector exports
(source : Statistics Portugal 2013)

As the production of pulp for paper increases almost continuously between 1990 and 2015 (Figure 8), the exports were rather stable only presenting small drops in 1993, 2005, 2008 and 2010 and a final value of 1,146,820 t in 2015. The imports stayed low, never exceeding 160,000 t. This sector of the forest industry can be described as more oriented towards exportation. The exports in 2015 accounted for 43% of the production.

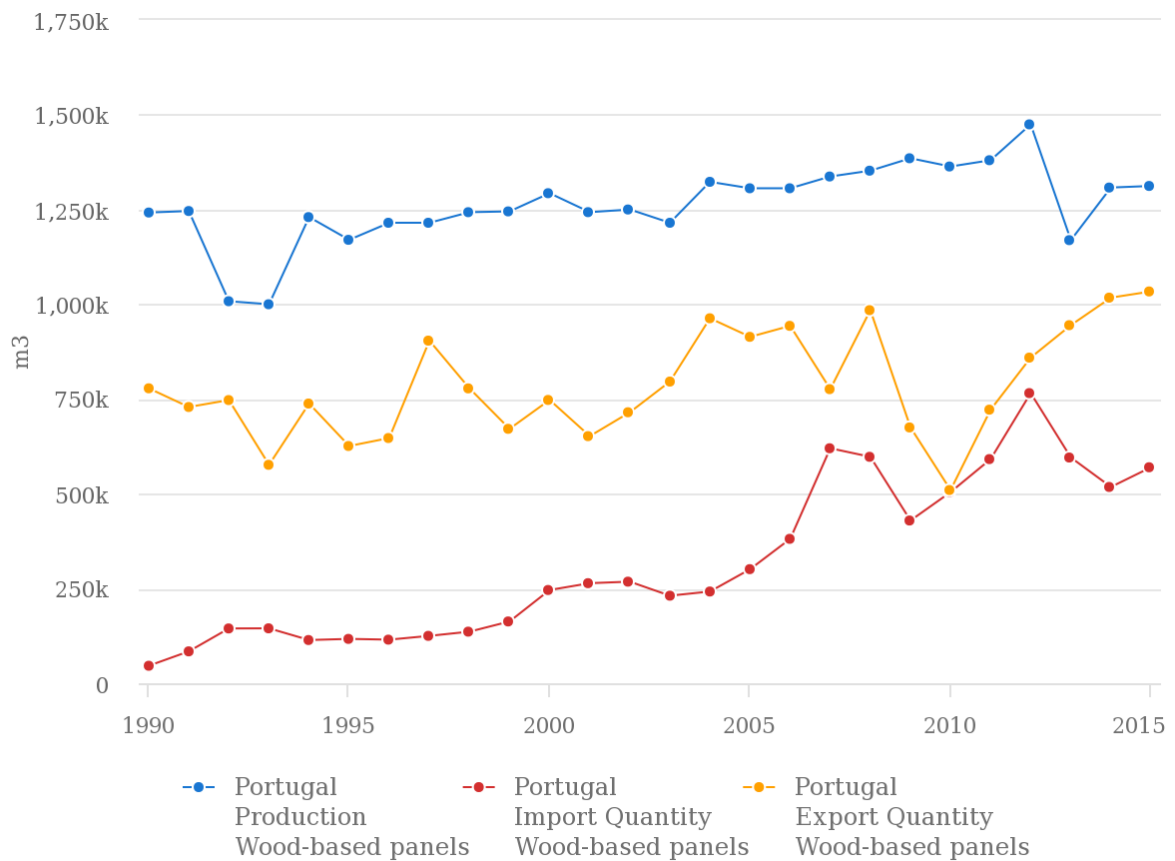


Source: FAOSTAT (Jun 13, 2017)

Figure 8 : Production, imports and exports of pulp for paper in Portugal (1990-2015)

(source : FAOstat)

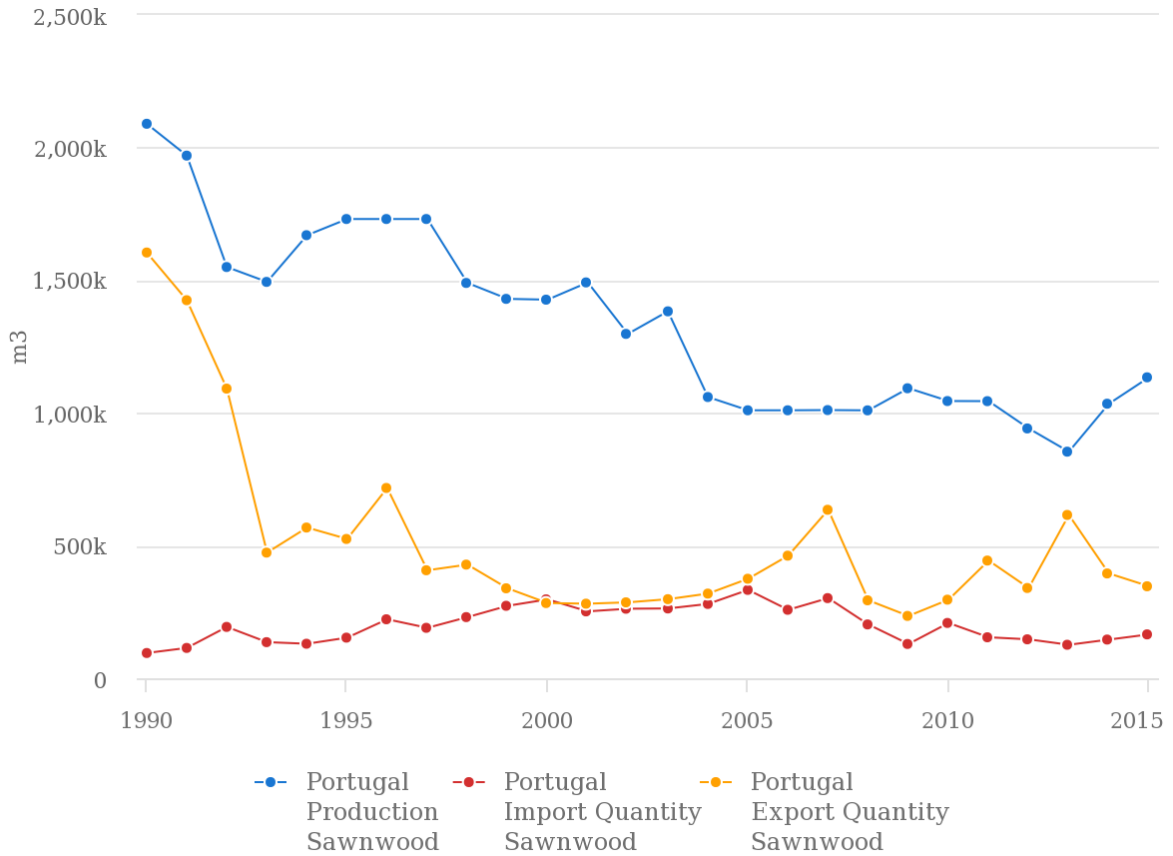
As the production of wood-based panels presents a stable trend (Figure 9), the exports volumes oscillate over time until 2008 and its economical crisis that causes a massive drop. Since 2010 the volumes increase to reach its maximum value in 2015: 1,033,768 m³. Exports represent 78% of the production. Imports volumes increased until 2007 and faced a small decline followed by a drop in 2008. It rose from 2009 to 2012, reaching the export volume in 2010. Recent years present a decline that seems to change into a raise in 2014. The volume of imported wood-based panels in 2015 equals 569,862 m³. The increasing trend of imports could mean a higher domestic demand that the production cannot respond to.



Source: FAOSTAT (Jun 13, 2017)

Figure 9 : Production, imports and exports of wood-based panels in Portugal (1990-2015)
 (source : FAOstat)

Figure 10 presents the production, imports and exports of sawnwood between 1990 and 2015. The exports underwent a major decline from 1990 to 1993. Afterwards, even though the general trend seems stable, several peaks can be witnessed in 1996, 2007, 2011 and 2013. In 2015, exports represent 30.5% of production volumes with 346.617 m³. Imports were more stable over time. It underwent an increase until 2005. From that year, it began to decrease in order to stabilize in 2011. The volumes in 2015 are 165,295 m³.



Source: FAOSTAT (Jun 13, 2017)

Figure 10 : Production, imports and exports of sawnwood in Portugal (1990-2015)
(source : FAOstat)

The imports and exports of cork products are presented in Figure 11. Imports and exports present a stable trend until 2008. The economical crisis had an impact on the sector as both underwent a decrease. The imports stabilized after an increase starting in 2009. The volumes of imported cork products in 2015 were 69,800 tons. Concerning the exports it grew to a maximum volume of 201,200 t in 2013. The exports seem to undergo a decline since 2013. In 2015, the volumes were 177,400 t. According to the FAO, the production volume was 100,000 t in 2010 which is far lower than the exportation volumes of 170,000 t for the same year.

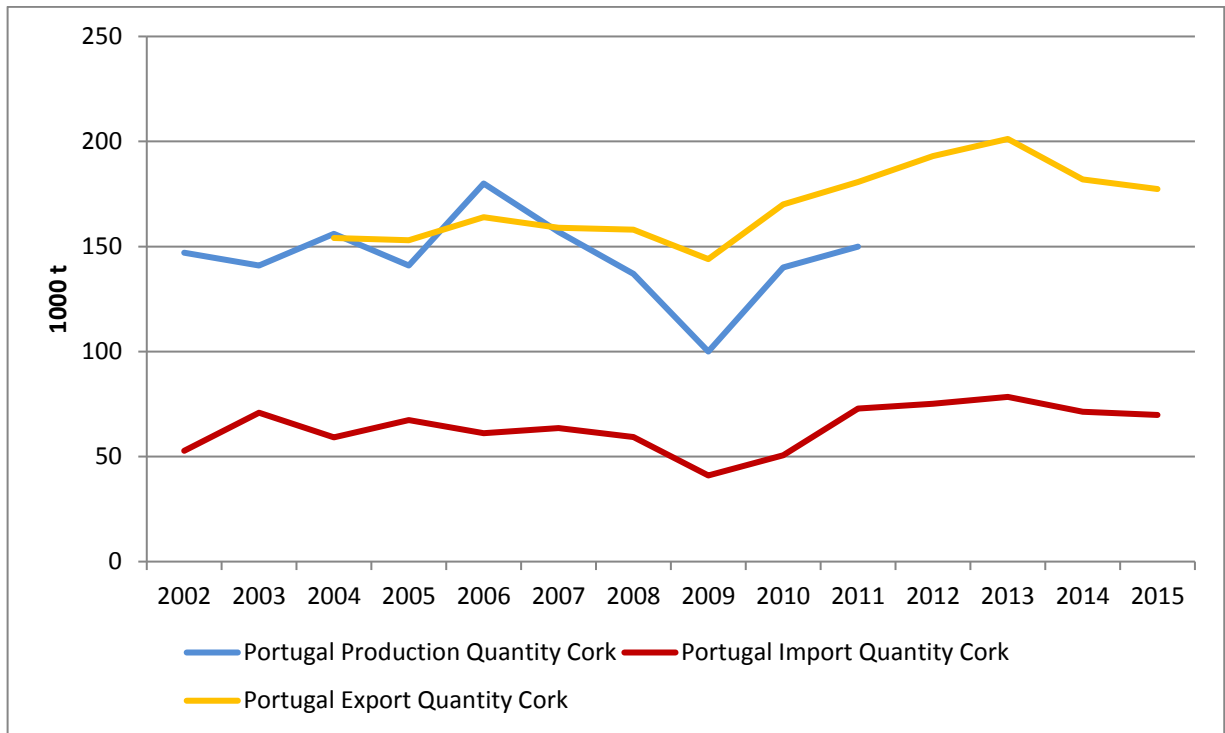


Figure 11 : Imports and exports of cork in Portugal (2002-2015)
 (source : Cork Information Bureau 2016. Cork sector in numbers & The Portuguese Forest Chains: Sector Analyses)

6. Conclusion

Portugal has a forest industry oriented towards its domestic demand and exportation. The exported products are mostly pulp and paper, cork and wood-based panels. The main export destinations are within the European Union (75%)³.

The analysis of the wood market in Portugal shows a heterogeneous trend of production, imports and exports depending on the forest industry subsector. Some activities suffered more from the global economical crisis in 2008 than others. Exports were more impacted than production and imports. However the financial crisis of 2010-2013 in Portugal did not seem to have a big impact on the sector.

The paper industry is particularly well developed in Portugal as it counts for half of the wood-related products exports.

Portugal is the first producer of cork in the world with around 50% of the global production and the first exporter with a market share of 63.9% in 2013⁴.

For the last two or three years, the production of most of the sector is on the rise, meaning a large availability of residues for bioenergy. The wood pellet production in Portugal is very developed as it is the 5th country in terms of production volume in the EU28. The volumes produced exceed 1,000,000 tons in 2014⁵. The industry is oriented towards the EU as 90% is exported to northern European countries⁶.

The amount of available growing stock diminished in the past and stagnates around 187 million m³ in the recent years. The cause is not overexploitation as the increments exceed fellings for the period 1990-2010. One of the potential causes might be forest fires that ravage country forest areas.

³ Louro G., Monteiro M., Constantino L., Rego F., 2014. The Portuguese Forest Based Chains : Sector Analyses. Springer

⁴ Cork Information Bureau 2015. Cork Sector In Numbers.

⁵ Dale A., 2015. WPAC conference : Production and Consumption of Wood Pellets in the European Union

⁶ Nunes L.J.R., Matias J.C.O., J.P.S. Catalão, 2016. Wood Pellets as a Sustainable Energy Alternative in Portugal. Renewable Energy 85:1011-1016

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