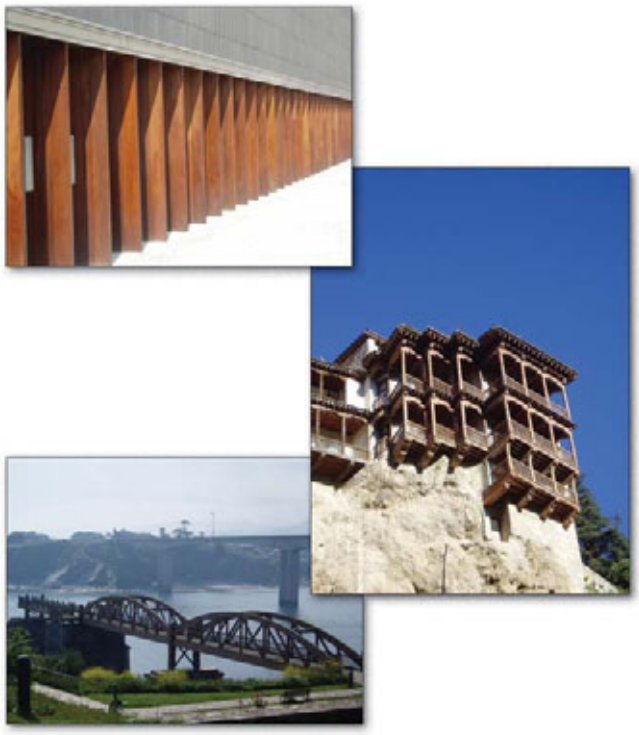
Institutionen för skogens produkter och marknader

Spanish Woodworking Industry

– Geographical structure, Export and Import



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– Geographical structure, Export and Import

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Spanish Wood Forest Products Industry its idiosyncrasy

Preface

First of all, I would like to thank all the staff and workers at the Forest Product and Market Department (SPM). This gratitude is not only for support of my thesis and help with small everyday life details; but also for the huge effort, which was been done of this Department in order to hold forestry education in Uppsala, about this I can only say that time is a wise counsellor.

During this time I have spent more time than what was my intention, looking and searching for information about the wood product industrial sector in Spain. In my short research life, no longer than one year, I have faced with this in two times; this problem is something that pops up every time in a Spanish Foresters life, so we are adapted to this situation. We foresters are users of a huge number of information but we are not the producers and what it is worse, as a general rule in Spanish administration there is no communication among producers and users of those data. This lack of communication and collaboration between different administrations and official boards should be improved, in order to get a more flexible bureaucracy system. If this could be solved I think that the University in Spain, could be a good connection point between the administration, the society and industrial sector. As someone said long time ago: "*la vida es un sueño y los sueños, sueños son*".

But one day when I was upgrading my project in Spain, I had also a dream that was to sign up for my current program "Master Science in European Forestry". In someway this was possible not only to the SILVA NETWORK and Joensuu University, but in my case mainly to the personal support of Mari Törrö, so I could never return you all my gratitude. I do not know if I have been able to express in my Spanglish all the data and information that I have been collecting during this year, but I have done my best.

Thanks and have a nice reading.

"Toda base de datos, tiene unos datos que están esperando a ser analizados".

"There are data waiting for analysis in all databases".

Francisco J. Ureña Lara,

European Forester,

Uppsala 2004-2005.

Abstract.

Spain has been the geographical area for this work, where Spanish Wood Products transformation sector have been studied. Spain has been divided in 6 different geographical units, which include the peninsular territories plus the Canary and Balears Islands.

The Spanish Wood Products Manufacturers have been defined like the addition of activities regarding to wood and cork industries (sawmilling, board and panel production, wood structures and joinery carpentry, packing and other wood products and non-wood forest products) plus furniture manufacturing.

For these activities data have been collected from two official online databases, the INE and Customs Authority one, from the year 1998 to 2003. The basic structure of the wood manufacturers has been described using densities and concentration values. In addition economic data have been used to obtain the sector contribution to the Spanish national economy.

In a second part of the document, the main import and export movement of the sector have been described. Extra information has been collected for a group of five countries. These countries are: Chile, Finland, France, Sweden and USA, these countries were chosen by the important share of the Spanish wood products importations.

Different results have been obtained for each of the geographical units, activities and the sector as a whole. The highest densities and concentrations of sawmilling and wood board and panels manufacturing were for the north-east units, while values for carpentry activities were higher in the north and the Canary Islands. In the case of packing industries the sector high value in the Ebro axis and other wood and NWFP products values were bigger in the Mediterranean Coast. Furniture manufacturing had high values in all the Spanish territory, but they were higher in the Central, South and East areas.

In year 2003 1.4 billions of euros of furniture products were imported by Spain, which was the same value of the furniture products exported by Spain. Among the other products, sawmilling and wood board and panels products had a key position with an importation value of 900 and 500 millions of euros, also in the year 2003. In the case of exportation of Spanish wood products, wood boards and panels had a value of 400 millions euros, while the share of the other activities was lower.

Keywords: Spain, Wood products producers, Geographical structure, Import, Export.

1. Background

1.1 Spanish Society

In order to understand the current situation of the Spanish society a person needs to consider two years, 1978 and 1986. In 1978 Spanish Constitution was approved by the parliament, while in 1986 Spain became a member of the European Union. This is clearly a drastic change, in less than 8 years Spain set the base for a democratic state and broke its isolation, during the second half of the XX century.

Spain has been a frontier in geographical aspects, before the arrival of Columbus to America it was consider the western frontier of the known world. This geographical position as the Mediterranean western getaway or exit, has given Spain an important role as transit point, expansion area and strategic point. Spain had been part of the Roman Empire, a Muslim kingdom and a Christian Kingdom, among others. These and other facts have developed a culture of drastic and fast changes. A long period of time under muslin domination in conjunction with previous roman culture, set the base for widespread agricultural practices in Spain. In fact it can be said that forest remained at places, where production of agricultural crops were not suitable.

Actually population migration is still happening, but for different reasons. Firstly by people who are looking for better life conditions in the European Union, coming mainly from Africa, Asia, Central and South America; secondly a growing amount of people looking for milder climate conditions and a lower taxation system inside the European Union, coming from northern and central Europe.

Latest data of Spanish population showed a total number of 40.87 million habitants. The population is distributed in an uneven way, the higher population figures are in *Andalucía* (7.35), *Cataluña* (6.34), *Madrid* (5.43) and *Comunidad Valenciana* (4.16). There is a group formed by five regions which populations are between 1.5 and 3 millions of habitants, these regions are *Galicia, Castilla y León*, *País Vasco*, *Castilla la Mancha* and *Islas Canarias*. Finally a group of regions *Murcia*, *Aragón*, *Extremadura*, *Asturías*, *Islas Baleares*, *Cantabria*, *Navarra* and *La Rioja*, have figures under 1.5 millions of habitants. There are two autonomous cities in the north of Africa, *Ceuta* and *Melilla*, their populations are respectively 71,000 and 66,000 habitants. The highest population density is achieved in *Madrid* with a value higher than 600 habitants/km^2, *País Vasco* achieves the second highest value with almost 300 habitants/km^2. *Islas Canarias*, *Cataluña*, *Comunidad Valenciana* and *Islas Baleares* have population densities close to 200 habitants/km^2. *Murcia*, *Cantabria*, *Asturias*, *Galicia* and *Andalucía* densities are circa 100 habitants/km^2. Finally a group formed by 6 inland regions has the lowest population densities, under 55 habitants/km^2. Spanish population migration have resulted in a concentration of population in urban areas reducing the rural population, but also movements from inland to coastal areas, mainly towards Mediterranean coast have occurred.

1.2 Spanish Forests and Other Wooded Lands (FOWL)

1.2.1. Forest Land Area

In Spain Forest and other wooded land (FOWL) cover an area of 25.98 Mha, according to FAO the forest area is nearby 13.1 Mha. In the document Forest Resources Assessment (FRA 2000), forest area is defined as: “Lands of

more than 0.5 hectares, with trees able to reach a minimum mature height of 5 meters *in situ* and with a canopy cover of more than 10 percent, which are not primarily under agriculture or urban land use". Defining other wooded land as: "Land either with a crown cover (or equivalent stocking level) of 5-10 percent of trees able to reach a height of 5 meters at maturity *in situ*; or a crown cover (or equivalent stocking level) of more than 10 percent of trees not able to reach a height of 5 meters at maturity; or with shrub cover more than 10 percent".

Total Area	FOWL	Forest Area	Percent of TA	Percent of FOWL
50.60	25.98	13.51	27	52

Table 1: Forest Area (UN-ECE/FAO 2000). Areas in Mha.

Spanish Environmental Ministry (*Ministerio de Medio Ambiente*) is in charge of the National Forest Inventory (*Inventario Forestal Nacional*), this source point out at the II NFI (1996) that forests ecosystems (*montes*) occupied an area of 26.28 Mha, where 14.17 Mha were mainly covered with trees (*montes arbolados*) and 11.56 Mha had other kind of vegetation (*montes desarbolados*). The definition of *Monte* considers the presence of forest tree, shrubs or grass species, which fulfil environmental, protection, production, cultural, aesthetic or recreational functions, according with the Forest Law (*Ley de Montes* 2003).

Although FAO and Spanish Environmental Ministry have used different definitions it can be concluded that FOWL/*Montes* and Forest Area/*Montes Arbolados*, can be used as similar definitions with minor deviation.

1.2.2. Composition of Species

In Spain, the most relevant evergreen and broadleaved species belong to the genus *quercus* (oaks) for example *Quercus ilex* (holm oak), *Q. suber* (cork tree) or *Q. pyrenaica* (tauzin oak); while the genus *pinus* it is the most important among conifers with *Pinus halepensis* (haleppo pine), *P. pinaster* (maritime pine) or *P. sylvestris* (scot pine) as main representants. *Eucalyptus globulus* (blue gum) and *Pinus radiata* (radiata pine) have been introduced with success in several areas of Spain, mainly in the north and southwest coast. *Pinus pinaster*, *P. radiata* and *Eucalyptus globulus*, are the main sources of raw material for the Iberian industrial wood sector. *Quercus suber* is an important non-wood forest product in some regions of Spain, like *Andalucía*, *Cataluña* and *Extremadura*.

Species	Area Mha	Growing Stock Mm^3	Annual Removals Mm^3	Annual Increment Mm^3
Pinus pinaster	1.75	109.46	3.46	6.23
Pinus radiata	0.17	33.92	2.37	2.60
Pinus sylvestris	1.36	91.29	0.71	3.70
Quercus ilex	1.65	36.15	-	-
Eucalyptus globulus	0.38	26.63	3.91	5.09

Table 2. Species Composition Spain (Tolosona *et al*, 2000)

1.2.3. Growing Stock, Annual Increment and Felling

The growing stock in Spain is estimated to 595 Mm^3, the annual increment has a value of 30.10 Mm^3, with a felling rate of 50 percent of this annual increment. Logging operations are concentrated in the north and northwest regions (Galicia and Cantabric Coast) and to the species *Eucalyptus globolus*, *Pinus pinaster* and *P. radiata*.

There is a clear shortage of domestic timber in the Spanish forest industry. For first industrial transformation it is estimated to be ca 5.3 Mm^3 (Table 3), but if further industrial transformations as carpentry, furniture or use of recycled paper are added this shortage could be up to 10 Mm^3.

Growing stock	Annual Increment	Annual Felling	Industrial Wood	Industrial Consumption
595	30.10	15.86	12.63	18

Table 3: Forest Facts from Spain (UN-ECE/FAO, 2000; Pelkonen *et al*., 1999)

1.2.4. Ownership Structure

The private sector with non industrial forest owners (NIFP) is the biggest group of forest owners in Spain, their share is close to two thirds of the total.

Public		Communal		NIFP		Industrial		Other	
Area	Percent	Area	Percent	Area	Percent	Area	Percent	Area	Percent
1.09	4.21	5.38	20.79	17.78	68.70	0.26	1	1.37	5.29

Table 4: Forest Ownership Structure in Spain (Pelkonen *et al*., 1999; Tolosona, 2000) Areas in Mha.

The municipalities are the dominant owner of the public forestland (20 percent). Little forestland belongs to the state and regional governments (less than 5 percent). The forest industry sector is not a big owner of forestland in Spain, only 1 percent.

There is no history of cooperation and communication between the industrial sector and the private forest owners; this has been a problem since forest operations are mostly performed by small contractors, who work as isolated actors.

1.2.5. Role of Plantation Forestry on the Iberian Peninsula

During the second part of the last century, vast reforestation programs were performed in Iberia. Around 3.7 Mha were planted in Spain between 1940 and 1986.

The main aim of these programs were protective aspects with consideration to erosion and water quality, but production aspects were also taken into account. Actually there are 1.29 Mha of fast growing specie plantations in Spain, mainly (*Pinus pinaster* in northwest area, *Pinus radiata* and *Eucalyptus spp*). These plantation activities have sometimes caused negative effects in the society, because the lack of public participation in those processes.

Nowadays, plantation forestry is focused on afforestation of former agricultural lands, with an annual rate of 70,000 ha/year in Spain (Pelkonen *et al*., 1999). This is due to European agricultural policy in order to reduce the surplus of agricultural production.

1.3 Other Important Sectors

1.3.1 Construction Sector

The construction industry is usually referred as the engine of the Spanish economy. As a first approach during the years 2001 and 2002 a number slightly higher than 500,000 new housing were finished and 525,000 houses were under construction. In the Spanish house market, there is a breaking point between the years 1996 and 1998, where

the rate of new houses increased faster; also the same trend for reformation works could be seen. In the figures for reformations, activities regarding structural elements are the only ones included.

	1995	1996	1997	1998	1999	2000	2001	2002
Finished housings	221,252	274,299	299,058	298,810	356,366	415,793	505,174	519,686
On going housings	302,339	287,199	323,202	407,856	510,767	533,700	523,747	543,060
Finished reformations	22,412	27,527	33,003	23,392	28,650	41,651	58,570	50,983
On going reformations	35,633	38,202	43,265	36,116	51,495	62,416	80,823	57,688

Table 5: Number of Constructions. Source: Spanish Statistical Analysis 2004 (INE).

Three things must be kept in mind in order to get a real understanding of these figures. The entrance of Spain in the European Monetary Union in 2002, during the previous years there was a necessity of washing money and one of the best ways were to invest in housing. The general crisis of the stock markets drove people to alternative investments. In Spain investments in construction was preferred by national investors. Last but not least foreign investors were attracted to invest in retirement houses, which is a big item in touristy areas around the Mediterranean Coast and Canary Islands.

Spanish Statistical Office (INE) estimated that 31 percent of the total value of the sales within the wood industries were sold to the construction sector, during the period from 1990 to 1994. This value is a clear indicator that the development of the construction sector will directly affect the use of wood products in Spain.

1.4 Policy and administration

The current administrative organization is based on three levels. A National level, where their administrative bodies are Ministries (*Ministerios*) and Autonomous Boards (*Organismos Autonomos*), their main goal is to coordinate basic general normatives. A second administrative level is at Regional level (*Comunidad Autónoma* or *Autonomías*), nowadays this is the level where the real decisions are done, and they implement basic normatives; administrative bodies are called *Conserjerías*. Finally a third level are municipalities, where the city council (A*yuntamiento*) is the administrative body.

An intermediate level between Regional and Municipality level exists. They are called *Diputaciones*; their role is to create agreement for activities, which affect several municipalities in one determinate geographical area. Nevertheless some of them like in *País Vasco* and *Navarra* have a special legislation, with relevant administrative responsibilities.

As summary, there are 17 different regional policies inside the same frame set by the State and the European Union, but with a total freedom of movement in that frame. This is usually leads to a mutual misunderstanding among different regions, and between regions or groups of regions and the national administration, depending on the political party which has the power.

Figure 1.Regions of Spain.

A point to stress out is that the current system is starting to be decentralized, but there is a risk that this process is going to end up in centralization at a regional level, instead of a local or provincial development.

2. Introduction

This paper has been produced within the *Svenskt Trä till Spanien* project umbrella. This project is a joint venture of a group of Swedish wood producing SME (Small and Medium size Enterprises) and the Department of Forest Products and Markets (SPM). During one year I have been working in this project; a part of my job consists of writing a Master Thesis for the European Forestry Program, which I will end once Joensuu University and my tutors at SPM accept this document.

For current Spanish forest policy and management practices, production aspects are not an important issue; there are not big efforts in order to implement proper logging systems, silvicultural treatments, wood technology aspects, commercialisation or education programs, which could make the use of wood coming from Spanish forests more attractive for entrepreneurs and the society. Other dimensions of forestry and environmental sciences seem to be more attractive to the public opinion and so to politicians, than cutting trees and the further use of timber, although sale and removal of timber is the economic source that could support those other activities. Forests are a resource and the current use of Spanish forests, is under environmental requirements for a sustainable management. It is clear that we as professionals dealing with forests must address the demand of the Spanish society, and today's demands scoop to other aspects than production ones.

But the forest system does not end at the edge of the forest, it continues into the industries and further on to our households, as we are users of wood, wood and fiber based products. There is a growing demand of raw material in the Spanish forest products industry, which is satisfied mainly by the importation from other countries.

This fact has several disadvantages; we are using resources from other areas of the planet, where it could be hard to know how forest and logging operations are carried out, while we thread forest operations in Spain as a result of setting a different scale of values. A second important item is that a big area of forests in Spain are man made forest, which need our help to ensure their future; even a typical Mediterranean ecosystem as *Dehesas*, need the human hand as it was needed in the past when it was created, otherwise the future is not ensured. In addition Spanish forest are located on isolated areas, where they can be a good source of income for the local population and fighting against depopulation processes, which is one of the main goals of both European, National and Regional policies. Maybe a more drastic argument could be that a thing without a use could have the risk of disappearing, this could be a sad end for forests, foresters and forestry in the Spanish history.

There are tools, knowledge and actors to change this trend. A systemic analysis of the Spanish forest system should be done in order to obtain a list of major actions needed and actors, who could be involved in that process. An important fact to be solved is the lack of communication, among the different forest related actors and from the forest sector to the rest of the society. Improving the communication with the society, foresters could show up the importance of forest as source of goods and services, for the rest of the society and other sectors.

2.1 Actors of the Forestry and Forest Industry Sector in Spain

Forestry and forest related polices are mainly formulated by the Environmental Ministry (*Ministerio de Medio Ambiente*) and the Regional Environmental Offices or Boards (*Conserjerías de Medio Ambiente*).

There are companies denominated as mixed companies, which are partly owned by the State or different Regional Administration. The role of these companies is important, being responsible for a big share of forest operations either in a direct way or in an indirect one, by subcontractors. Among the more important we could mention Tragsa Group, Egmasa and Vaersa.

There are possibilities to study university programs, where forestry is the main topic in 14 universities. There are two main programs which can be chosen, a 3 year program *Ingeniero Técnico Forestal* and a 5 or 6 year program *Ingeniero de Montes*. Two main specialization areas are forest management and forest industries. There are other university degrees, which are connected to forestry issues like Environmental Sciences; architects programs can be potential wood product users.

There are both public and private financed research centres. For public ones, those which main financial source is the central government and those ones which main financial source are coming from regional or local entities. Among the first group we could point out CIFOR (*Centro de Investigación Forestal*), this institute has research lines for both forest product industry and forest management. They are based in the Madrid area.

There is a big group of regional and local forestry research centres, *Centro de Investigacións Forestais e Ambientais* in Lourizan (*Galicia*), *Centre Tecnologic Forestal de Catalunya* (CTFC) in Solsona (*Cataluña*), *Instituto del Corcho la Madera y el Carbón Vegetal* (IPROCOR) in Mérida (*Extremadura*) are among the most relevant ones. The main research lines of these centres are forest management, ecology, fire behaviour and tree breeding aspects.

There is a group of research centres with a strong industrial link, because of their ownership or membership. *Centro de Investigación y Tecnológica* (CIT) belonging to ENCE group, are doing research about industrial processes of pulp production and eucalyptus breeding and genetic programs. Also AIDIMA, AITIM and CIDEMCO must be mentioned, which are research centers focused on solid wood based products and furniture industry, including biological control of wood decay.

Two main industrial associations are involved in forestry and forest industry in Spain. *Asociación Nacional de Empresas Forestales* (ASEMFO), is a conglomerate of forestry and forestry operation companies dealing with silvicultural, logistics, logging and fire control activities. Confemadera is an umbrella for wood industries, where there are two kinds of associations, by one side regional or provincial associations, by the other associations of companies dealing with the same type of production.

An increasing number of activities and interests in forest certification schemes have happened in the last couple of years in Spain, therefore there are local standard application and companies with chain of custody certificates from both of the more widespread systems, FSC and PEFC.

Finally there are also some associations and societies related to forestry topics. There are a couple of forester associations, forest worker associations and a Spanish Society for Forestry Sciencies (*Sociedad Española de Ciencias Forestales*), which is on charge of the organization of the National Forest Congress each four years.

3. Objectives

This paper will describe the main structural data of Spanish Wood Products Manufacturers (SWPM); further more these data could be used for a deeper and more detailed analysis in the project *Svenkt Trä till Spanien*. This is an analysis of the national economic relevance of this activity; a comparative analysis is done between different Spanish geographical areas.

The Spanish wood product sector has been considered as a system, where not only the transformation has been studied, but also import and export aspects. The aim of this approach is to give a systemic and holistic perspective of this industrial activity, which could help for a more realistic interpretation of the role of wood product manufacturing in Spain, as a part of the National Economy.

One of the main causes for the realization of this master thesis was the lack of basic information of information of the Spanish Wood Products sector. This fact could create problems for further more details studies.

4. Material and Methods

4.1 Information Sources

The National Statistics Office (*Instituto Nacional de Estadística*) database is a big mixture of different sources and own produced statistics. The main parts used for this document origin from DIRCE (Entrepreneurs Directory) and

the Annual Statistic Inform. One important issue, is the classification used for different economic activities, know as CNAE. (*Clasificación Nacional de Actividades Económicas*).

According to CNAE classification, the Spanish Wood Product Manufacturers has been defined as the addition of the activities from groups 20 (cork and wood industries) and 361 where furniture manufacturing is registered, as it is explained in table 6.

Group	Definition	CNAE name
201	Sawmilling and industrial transformation of timber	*Aserrado y preparación industrial de la madera*
202	Wood boards and panel manufacturing	*Producción de tableros, paneles y chapas de madera*
203	Wood structures and joinery carpentry manufacturing	*Fabricación de estructuras de madera, piezas de carpintería y ebanistería para la construcción*
204	Packing products manufacturing	*Producción de envases y embalajes de madera*
205	Other wood and NWFP manufacturing	*Fabricación de otros productos de madera, corcho, cestería y espartería*
361	Furniture manufacturing	*Fabricación de muebles.*

Table 6. Activities belonging to Spanish Wood Product Manufactures (SWPM).

Export and import information have been collected from Custom Authority (*Aduanas*) database, through the web page of Trade Chambers Organization (*Cámaras de Comercio*). The time period considered in this paper has been defined by the available data; the limits have been set by Custom databases, from 1998 to 2003.

Once the data had been transferred into friendly computer software, basic calculations were done in order to get comparative values, like density of the companies, productivity and added values. In this part of the document the methodology used was presented by Trade Chambers Council in the document: "*La Creación de Empresas en España, Análisis por Regiones y Sectores*" published in 2001.

4.2 Territorial Structure of the Forest Wood Product Manufacturers

Spain is divided into 6 geographical units, which are shown in the table 7. The Cantabric Area, spread along the north and northwest coast of Spain, from France to Portugal. The Mediterranean Arch covers the main part of the east shore of Spain, Mediterranean coast, including *Islas Baleares, Cataluña, Comunidad Valenciana and Murcia*. The Ebro Axis is defined as part of the area covered by the Ebro river watershed. There are three inland regions, two of them along the Pyrenees, *Navarra* and *Aragón*, and the third one *La Rioja*. The Centre Area is formed by the aggregation of *Madrid* and the two *Castillas*, *Castilla León* situated north west and *Castilla la Mancha*, south of *Madrid*. The rest of the peninsular territory of Spain is defined as South Area, covering the regions of *Andalucía* and *Extremadura*. Finally *Islas Canarias* is set as another geographical unit.

Geographical Unit	**Regions**
Cantabric Area	*Galicia, Asturias, Cantabria and País Vasco.*
Mediterranean Arch	*Cataluña, Comunidad Valenciana, Murcia and Islas Baleares.*
Ebro Axis	*Aragón, Navarra y La Rioja*
Centre Area	*Madrid, Castilla la Mancha and Castilla León*
South Area	*Extremadura and Andalucía*
Canary Islands	*Islas Canarias.*

Table 7 Spanish Geographical Units.

Figure 2 Geographical Units.

4.2.1. Total number of industries

The total number of enterprises registered in DIRCE belonging to the Spanish Wood Product Manufacturers (SWPM), had an average annual value of 40,500 during the period from 1999 to 2003. Of each 100 companies, 52 were furniture manufactures and 31 were dealing with wood structure and joinery carpentry. These two categories represented more than 80 percent of the industries, but their share had a different development during this period of time. Furniture manufacturers had slightly increased it share from 50.5 percent to 53.2 percent, while wood structure and joinery carpentry decreased from 31.5 percent to 29.9 percent. As average a total number of 21,100 and 12,400 entrepreneurs belong to furniture manufactures and wood structure and joinery carpentry activities (figure 3).

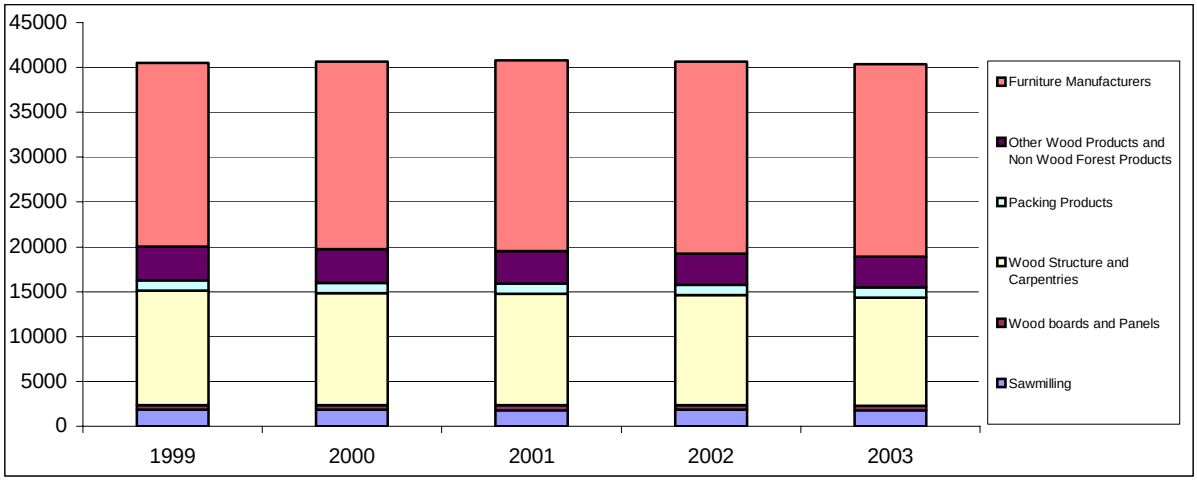

Figure 3. Members of SWPM per Group Activities.

The other four categories had lower shares. These values were 8.9 percent for other wood products, 4.4 for saw milling, 2.7 for packing products and 1.2 for boards and panels. Other wood product has decreased its share value

with one point from 9.4 to 8.4 percent, while values for the other categories have been maintained at a constant level (figure 3).

From a geographical approach, the largest numbers of companies were in the Mediterranean Arch with circa 15,400 companies and the Centre Area occupied the second place with almost 8,500 companies. The Cantabric Area and the South Area had similar amount of 6,600 enterprises in 2003, but they have had a different evolution. In the Cantabric Area the numbers were stable, while in the South Area the number grown with almost 1,000 units. For the Ebro Axis the number of producers has decreased during the five year time period from 2,632 to 2,268. Finally the Canary Islands has the lowest contribution, with a number of 1,339 companies for 2003, this value has decreased from 1,411 since 1999 (Figure 4).

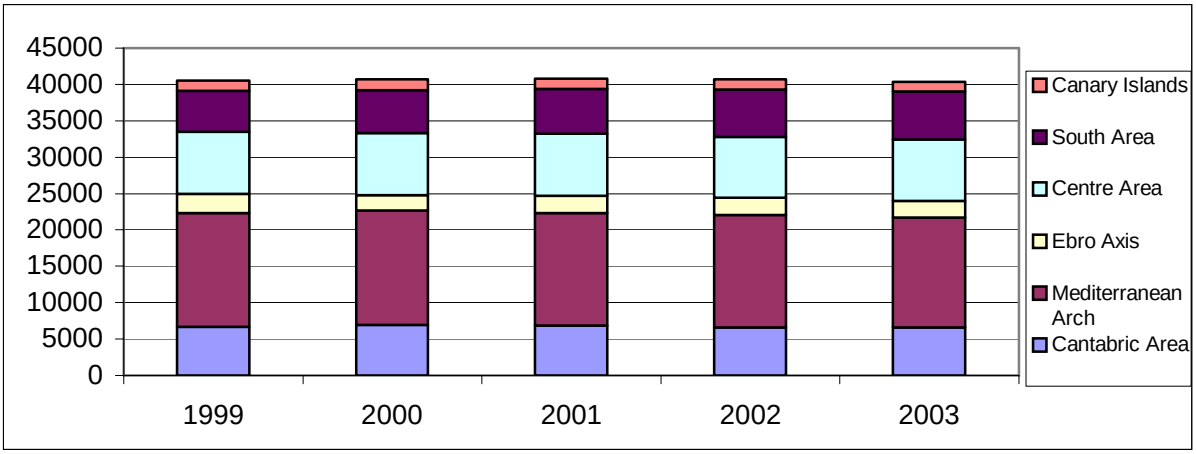

Figure 4 Geographical Distribution of SWPM.

4.2.2 Distribution of Activities by Geographical Areas

As average for this period a total of 741 entrepreneurs, were working in this activity in the Cantabric Area, this represented around two of each five Spanish sawmills; continuing with the same comparative, the Mediterranean Arch and the Central Area would have one sawmill each and the fifth one would be set between the Ebro Axis, the South Spain and the Canary Islands.

The total number of sawmill entrepreneurs has decreased from 1,847 in 1999 to 1,762 in 2003. There were significant reductions in the number of companies, 38 in the Cantabric Area, 34 in the Central Area, 31 in the Mediterranean Arch and 9 in the Ebro Axis. This meant an eight percent reduction for the Mediterranean Arch, the Ebro Axis and the Central Area, while the reduction for the Cantabric Area was five percent. But in other geographical units like the South Area and Canary Islands, the number has increased with 22 and 7 members respectively (Figure 5).

The main production of wood board and panel manufactures is based in the Mediterranean Arch, with 285 of 509 entrepreneurs. The Cantabric and the Central Areas had an average value of 69 and 76 companies working with boards, which represent 13 and 15 percent. The remaining 16 percent was distributed mainly in the Ebro Axis (7

percent) and the South Area (8 percent). For 2003 there was only a company producing wood boards and panels in the Canary Islands. The increment of wood board and panel manufacturing from 1999 to 2003 was 3 percent; during this period there was a reduction of entrepreneurs only in the Cantabric Area and in the Canary Islands (figure 6).

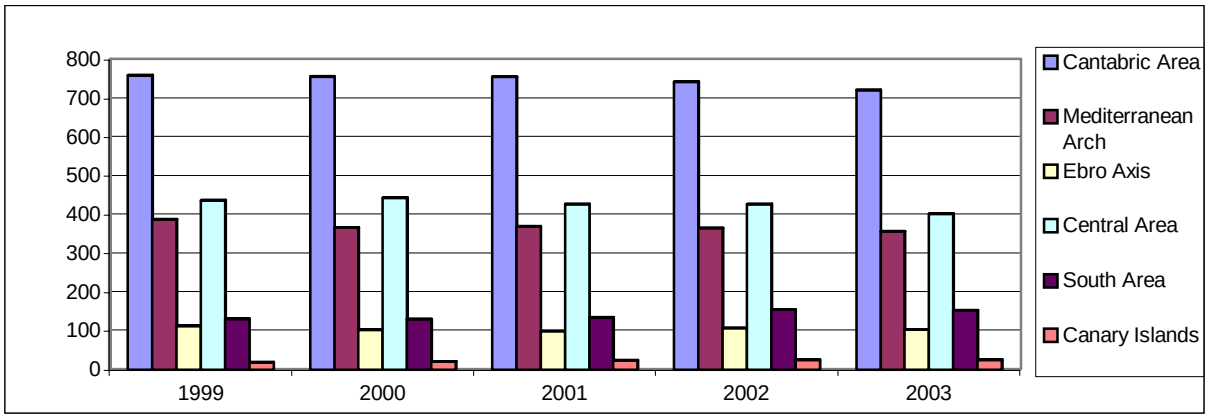

Figure 5. Sawmilling Distribution per Geographical Unit.

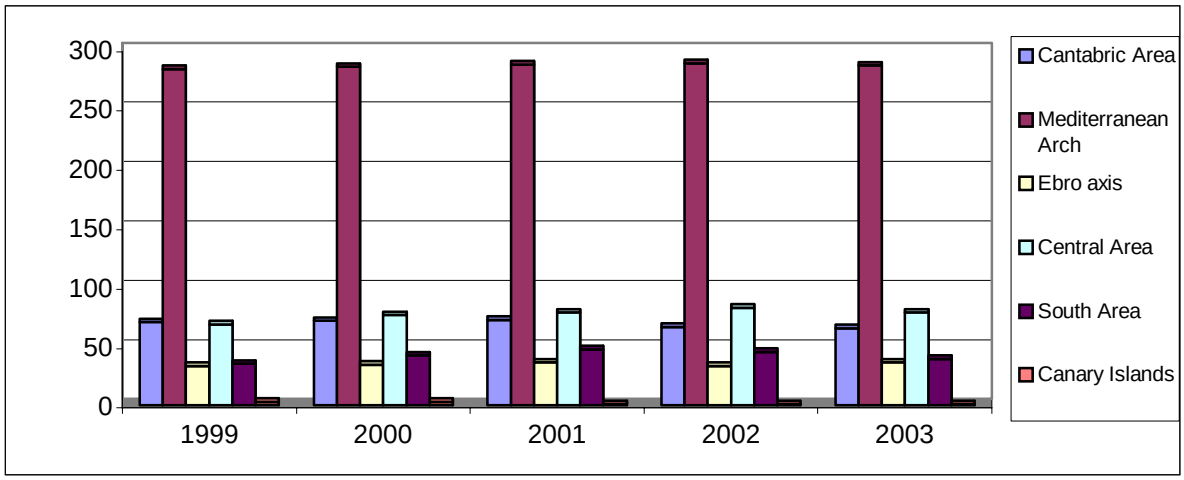

Figure 6. Wood Board and Panel Manufacturers Distribution per Geographical Unit.

The total number of entrepreneurs working with wood structures and joinery products has reduced with circa 5.5 percent from 12,768 in 1999 to 12,081 in 2003. This national trend was not similar in the South Area, where an increment of 3.5 percent happened for this time period. The highest reductions occurred in the Ebro Axis (29 percent) and in the Canary Islands (9 percent). In the case of the Ebro Axis, data could not be correct, because in one of the regions *Navarra*, there was a reduction with 309 societies of a total of 578 in just one year. Around 40 percent of the total amount of enterprises working with wood structures and joinery products were in the Mediterranean Arch. The Cantabric Area, the Central Area and the South Area had a share of circa 15 percent, while the Ebro Axis and the Canary Islands values were lower than 5 percent (figure 7).

The total number of packing enterprises at the end and the beginning of the period had a similar value, but there was a strong increment from 1999 to 2001, which was followed by a notorious reduction from 2001 to 2003. This pattern

also happened in the Cantabric Area, the Mediterranean Arch and the Canary Islands, while the Central and the South Areas grew from 1999 to 2003 (figure 8).

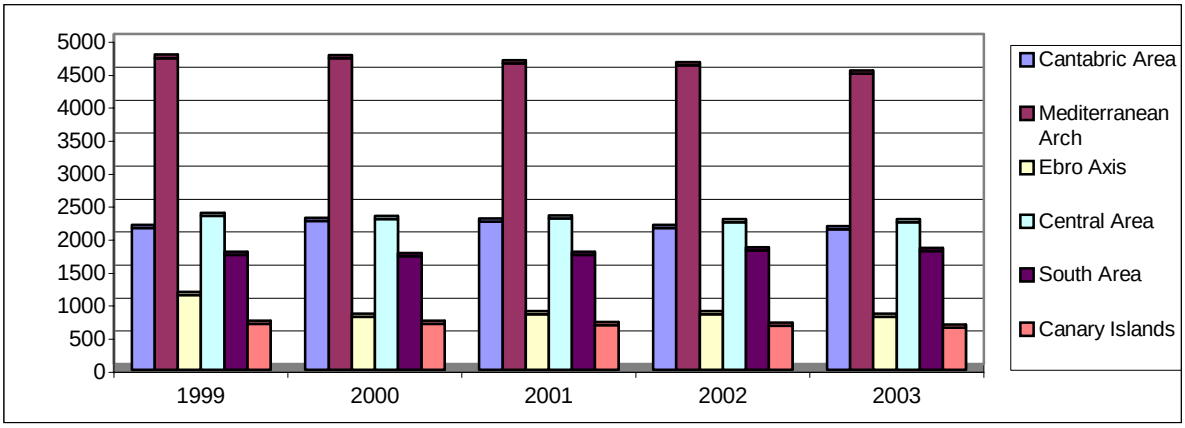

Figure 7. Wood Structure and Joinery Carpentry Manufacturers per Geographical Unit.

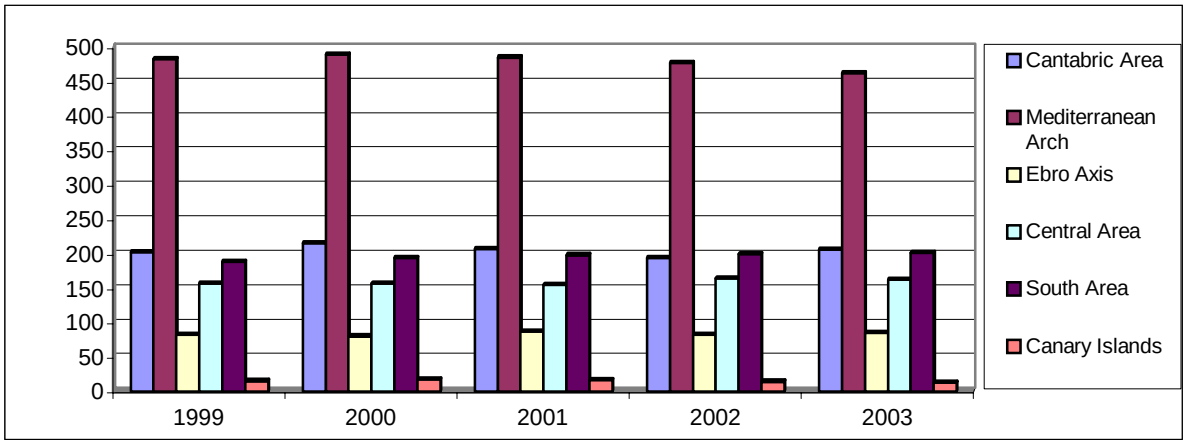

Figure 8. Packing Product Manufacturers per Geographical Unit.

The number of companies working with other wood products and Non Wood Forest Products (NWFP), descended circa 12 percent from 3,822 in 1999 to 3,401 in 2003. In percentages the bigger reduction happened in the Canary Islands (27 percent), the Ebro Axis (16 percent) and the Mediterranean Arch (15 percent), while the Cantabric (6 percent), the South (3 percent) and the Central Areas (3 percent) had lower reductions. The highest number of enterprises belonging to other wood products and NWFP, were located in the Mediterranean Arch (46 percent), the Central (18 percent) the Cantabric (16 percent) and the South (15 percent) Areas. A minor number of enterprises were situated in the Ebro Axis (4 percent) and the Canary Islands less than 2 percent (figure 9).

The total number of furniture manufacturers in Spain has increased from 20,452 in 1999 to 21,479 in 2003. This increment has occurred in all the geographical units, but mainly in the South Area, where the growing rate has been 21.5 percent during those five years. The growth rates in the Cantabric and the Central Areas have been 3 and 2 percent respectively, while values lower than 0.5 percent succeeded in the Ebro Axis, the Canary Islands and the Mediterranean Arch. The Spanish furniture sector is concentrated in the Mediterranean Arch (37 percent) and the

Central Area (23 percent). The South (18 percent) and the Cantabric (14 percent) Areas, have relevant representations, while the Ebro Axis (5 percent) and the Canary Islands (3 percent) had minor share of the total number of enterprises in the country (figure 10).

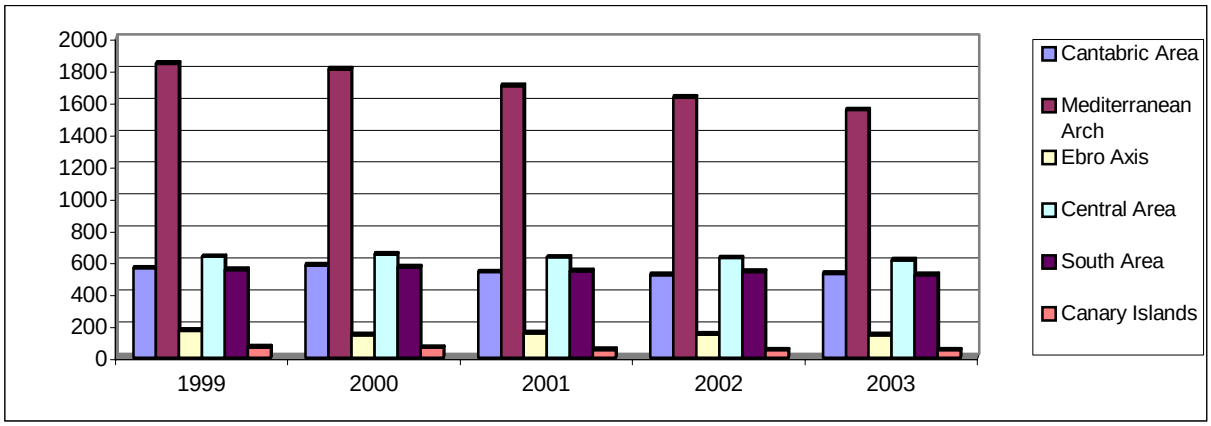

Figure 9. Other Wood and Non Wood Forest Product Manufacturers per Geographical Unit.

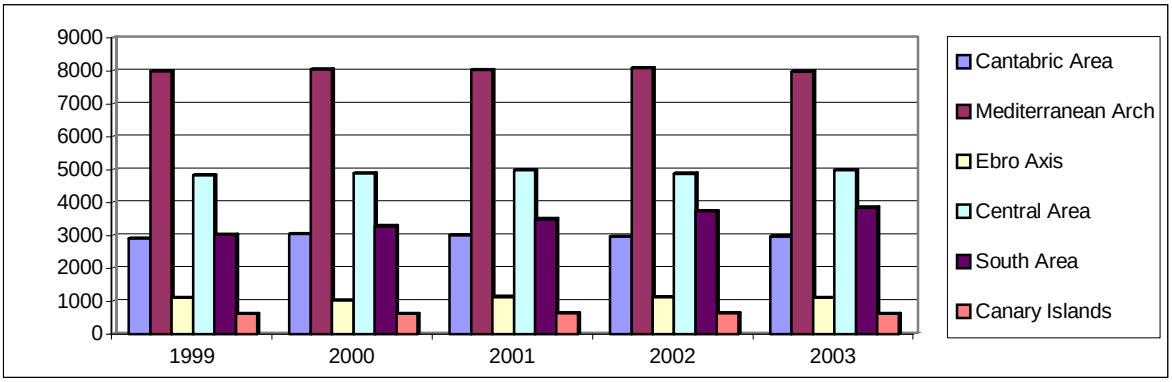

Figure 10. Furniture Manufacturers per Geographical Unit.

4.2.3 Density of woodworking companies

For the calculation involved in this chapter only the data from 2002 have been used. The main reason is the low variation of the input values for the period of time from 1999 to 2003, in addition 2002 data were available a longer time than 2003 that allow a more flexible work with them.

In order to avoid wrong interpretations, which could happen with the total value of enterprises, two basic ratios have been calculated. These two ratios are the density of industries per 100,000 habitants (formula 1); secondly a concentration index (formula 2) has been calculated. These two ratios will be helpful for the further interpretation of the forest products sector and possible differences among geographical units.

$$Density = \left(\frac{members}{population} \right) * 100{,}000 \text{ (formula1)}$$

$$CI = \left(\frac{\frac{Ax}{Nx}}{\frac{Asp}{Nsp}} \right) \text{ (Formula 2)}$$

Being x the different geographical units, and sp Spain. A are the numbers of members for the activities/wood producers and N are the number of industries/wood producers.

The concentration index is a ratio, where the numerator is the share of the activity of the wood product manufacturers in the geographical unit and the denominator is the share of the same activity in Spain. In the case of concentration index for wood product manufacturers, the share values are referred to as the total number of industries in the region at the numerator and Spain at the denominator. The value for Spain is set as 100 points, which means that regions with values higher than 100 have a bigger share for that activity than in the whole Spain, obviously regions with values under 100 have a lower share for that activity than Spain.

In figures 11 and 12, the density values for the different activity groups of the forest products sector and industry, have been plotted. Forest products sector, group 203 (wood structures and joinery carpentry) and group 361 (furniture manufacturing), densities are calculated per 100,000 habitants and while industry density is calculated per 10,000 habitants.

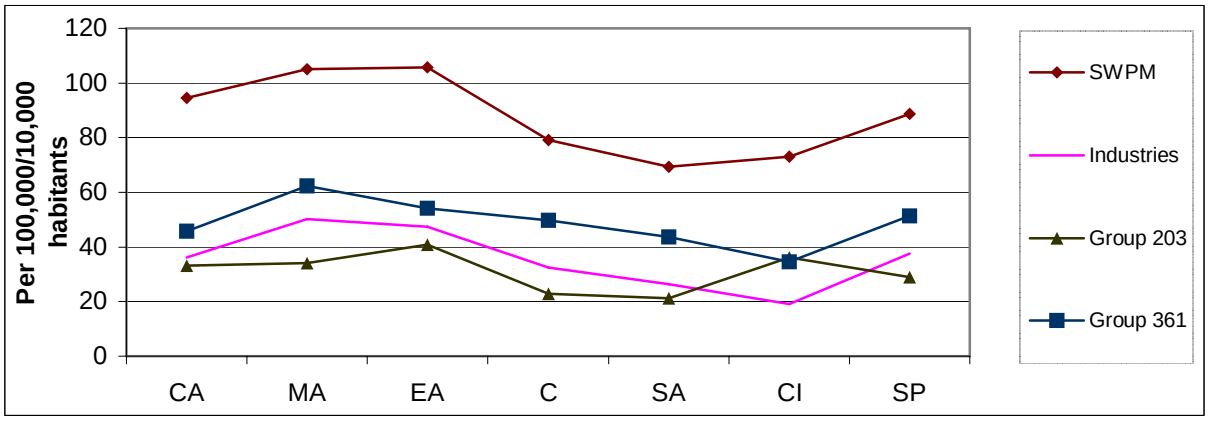

Figure 11. Densities of Wood Products Manufacturers, Industries, Groups 203 and 361.

4.2.3.1 Densities of Wood Products Manufacturers

In the figure 11 the industrial sector enterprises densities per 10,000 habitants have been plotted together with Spanish Wood Products Manufacturers (SWPM), groups 203 (wood structures and joinery carpentry) and 361 (furniture manufacturers) enterprise densities per 100,000 habitants. These values for Spain were 37.48 per 10,000 habitants in the case of industries, and 88.64, 29.05 and 51.31 per 100,000 habitants respectively for wood products producers, group 203 and group 361. Industries and forest products sector densities in the Mediterranean Arch and the Ebro Axis were over the country values, while the Central and the South Areas and Canary Islands were under the country values. The Cantabric Area had a higher value of wood products producers, but a lower one for the industry sector (figure 11).

There are 29 carpentry enterprises (group 203) per each 100,000 habitants in Spain. This value is bigger in the Cantabric Area, the Mediterranean Arch, Ebro Axis and the Canary Islands, while the values are under the country density in the Central and the South Areas (figure 11).

For furniture manufactures (group 361) there were 51.6 enterprises per each 100,000 Spanish habitants. The density for the activity was higher in the Mediterranean Arch and the Ebro Axis, and lower values were shown for the rest of geographical units (figure 11).

Density for group 201 (sawmilling and timber preparation) was 4.3 per each 100,000 habitants. There were significant differences among the geographical units, thereby the Cantabric Area had a value of 11.5 circa three times the value for Spain, while the Mediterranean Arch (2.8) the Canary Islands (1.3) and the South Area (1.8) densities were under the density for the whole country. The Ebro Axis and the Central Area had values slightly higher and lower, than the density for Spain (Figure 12).

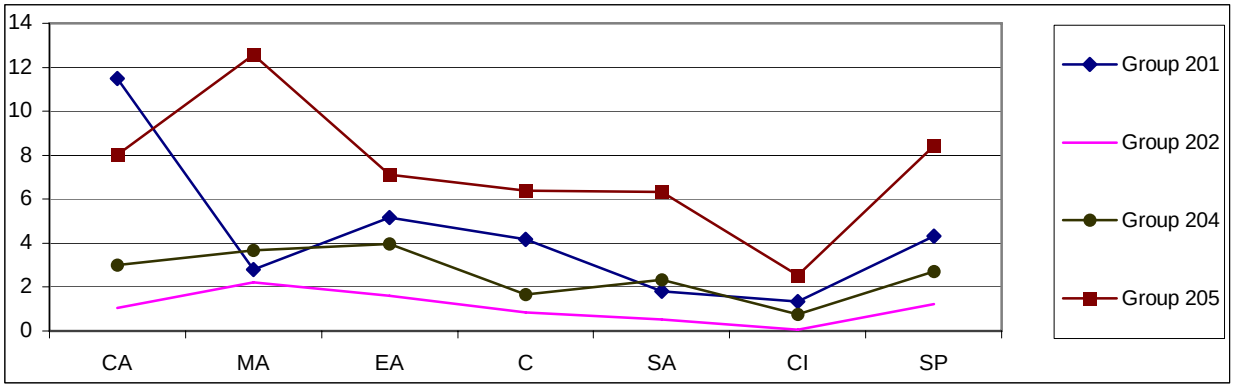

Figure 12. Densities for Activity Groups 201, 202, 204 and 205 per 100,000 Habitants.

Higher densities of board and panel manufacturers (group 202) were found in the Mediterranean Arch (2.22) and the Ebro Axis (1.59), while the density for the rest of the geographical areas was lower than for the Spanish territory (1.24).

Packing manufacturing densities (group 204) for Spain was 2.71 enterprises per each 100,000 habitants. There were big concentrations of packing manufactures in the Cantabric Area (3), the Mediterranean Arch (3.67) and the Ebro Axis (3.96), while the rest of the geographical units had lower values (figure 12).

Density of enterprises in Spain for Other Wood Products and Non Wood Forest Products activities was 8.42. Only the Mediterranean Arch had a higher density with 12.57 enterprises per each 100,000 habitants, while the rest of geographical areas had lower values than the Spanish density (figure 12).

4.2.3.2. Concentration Index for Wood Products Manufacturers

Concentration Indexes have been calculated for the Spanish wood products manufacturers and for the activity groups 201, 202, 203, 204, 205 and 361. These indexes for Spain have been set as 100. This will allow distinguish between geographical units where wood products industries have a higher weight than other industrial activities. In the case of activity group the comparison is done with the total number of wood manufacturers for each geographical units. The

comparison of activities concentration indexes in each geographical unit, will allow us to find out which activities are more important in each geographical unit.

The highest wood product manufacturer value was in the Canary Islands, where the concentration index was 1.5 times the Spanish value. The Cantabric, the South and the Central Areas had also higher values, above 100. The lowest industrial concentration in wood products was in the Mediterranean Arch with 88.37, while the Ebro Axis had an intermediate value of 94.5 (figure 13).

In the Cantabric Area, wood forest product sector showed up a specialization in saw milling with a value of 249, meaning 2.5 times more sawmills than the average for Spain. The lowest concentration index was for board and panel manufactures with of 78.5 (figure 13).

In the Mediterranean Arch board and panel manufacturers, other wood product and packing manufactures had concentration indexes higher than 100, their values were 151, 126 and 114. Furniture manufacturers and joinery carpentry had values around 100, while the lowest value was for sawmilling activities with a value of 55 (figure 13).

In the Ebro Axis, packing activities had the highest concentration index with 122. Joinery carpentry, board and panel manufactures and sawmilling show concentration indexes over or equal to 100 with values of 117, 108 and 100. For this geographical area, other wood products and furniture manufactures had lower specialization indexes, with values of 88 and 74.

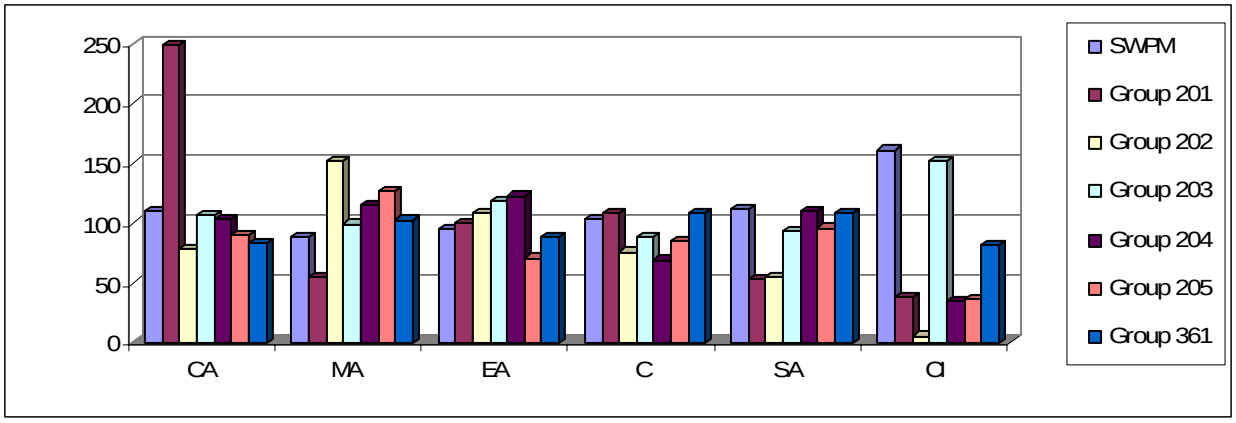

Figure 13. Concentration Indexes for Wood Forest Product Sector and Activity Group.

With a value of 108 both sawmilling and furniture manufactures had the highest values in the Central Area. The lowest concentration indexes were for packing activities and board and panel producers, with values of 69 and 75. Joinery carpentry and other wood products have values over 75 but under 100 (figure 13).

Packing activities and furniture manufacturers had the highest concentration indexes, 109 and 108 respectively in the South Area. Other wood product and joinery carpentry had values under 100, but the lowest concentration indexes were for sawmilling (53) and board manufacturers (54) (figure 13).

For the Canary Islands only wood structures and joinery carpentry activities had values above 100, with 151. The lowest concentration index value was for board and panel manufacturers with 5, while packing, other wood products, saw milling had values around 35. Furniture manufacturers had an intermediate value of 82 (figure 13).

4.2.4 Economic Aspects

Two economic figures have been used to describe the economic relevance of the Spanish wood product manufacturers. These figures are the Gross Added Value (*Valor Añadido Bruto*) (figure 14) and the Productivity (figure 16), which is defined as the Gross Added Value divided with the number of workers employed in that activity. Two different groups have been considered for these figures, by one side the furniture manufacturers group 361, while in the second activity group of CNAE from 201 to 205 are included. This second group has been labelled in the tables as non-furniture manufacturers. Additionally in the figure 16 data from the industrial productivity has been included, these values does not cover the construction and the energy sector.

At figure 15 the share in terms of Gross Added Value in the industrial sector has been plotted for the Spanish Wood Products Manufacturers. The same distinction has been done for furniture and non-furniture manufactures, and the industrial sector (excluding energy and construction sector).

In terms of Gross Added Value, only in two geographical units the furniture manufacturers had a lower value than non furniture manufacturers, these units were the Cantabric Area and the Canary Islands. The highest Gross Added Value for furniture manufacturers were in the Mediterranean Arch (1,490 M€) and the Centre Area (664 M€), the Canary Islands had the lowest (29 M€). The Ebro Axis, the Cantabric and the South Areas had values close to 400 M€. In the case of non-furniture manufactures again the highest value was in the Mediterranean Arch (1,070 M€), but the difference with the Cantabric Area (594 M€) was lower than for furniture producers. The Centre Area with a value of 540 M€ occupied the third place. The Canary Islands had again the lowest value in terms of Gross Added Value.

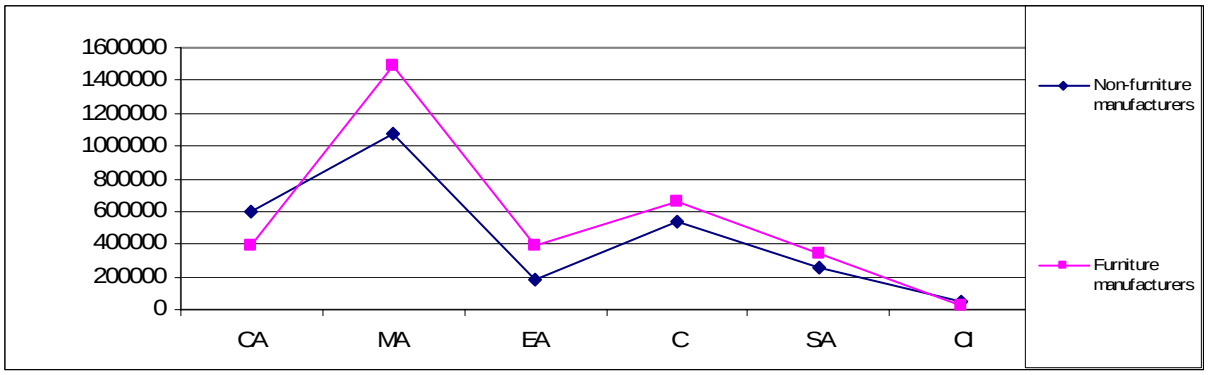

Figure 14. Gross Added Value (VAB) in 1,000 €.

The share of the industrial sector Gross Added Value has been plotted for furniture manufacturers and non-furniture producers in figure 15. The share for furniture manufacturing was proximally 3.2 percent for whole Spain, the lowest point was set at 2 percent for the Cantabric Area, while the highest was in the Ebro Axis with 4.8 percent. The South

Area and the Canary Islands had values higher than the Spanish one, while the Centre Area was bellow the country value. Finally the industrial share in the Mediterranean Arch was slightly bigger than the Spanish average value.

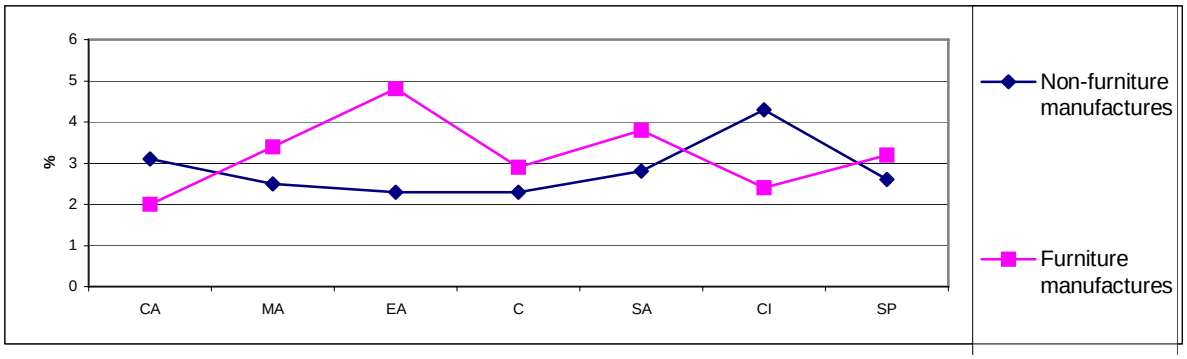

Figure 15. Industrial Share of the Spanish Wood Products Manufacturers in Terms of Gross Added Value.

2.6 was the industrial share value for non-furniture producers for Spain. The highest point was in the Canary Islands with 4.3 percent, while the Ebro Axis and the Centre Area have the lowest value 2.3. Both the Cantabric and the South Areas values were over the national one, while the Mediterranean Arch value was below the national one.

As a first approach the productivity in the wood products industrial sector is lower than for other industrial activities. Productivity for both furniture and non furniture manufacturing in Spain is 15,000 € per worker and year, representing less than half of the value for the Spanish industries. Only in the Ebro Axis and the Mediterranean Arch the productivity is higher for furniture manufacturers than for non-furniture ones.

The highest productivity is achieved in the Ebro Axis for furniture manufacturing with 32,900 €, while the lowest is in the Canary Islands for furniture manufacturing with 4,280 € per worker and year. For non-furniture manufacturers the range of productivity, spread from 18,261 in the Cantabric Area to 9,242 € per worker and year in the Canary Islands.

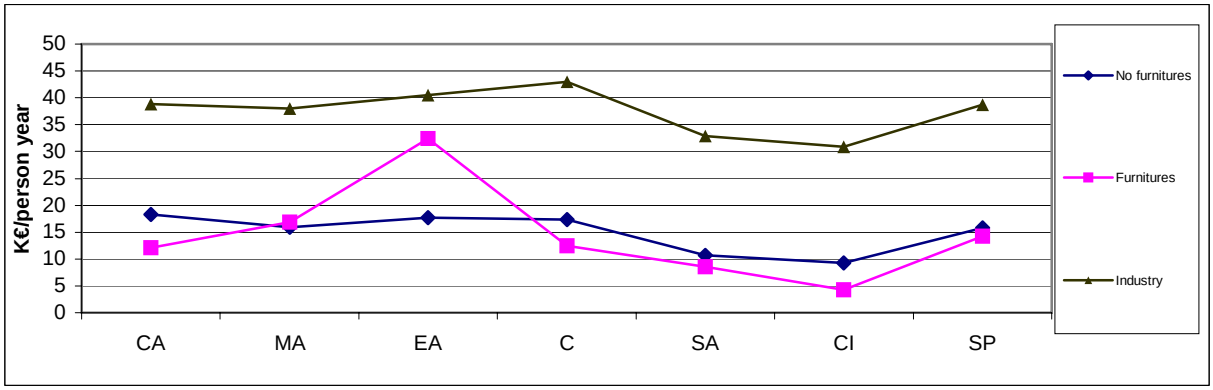

Figure 16. Productivity in Terms of Gross Added Value per Worker and Year in 1,000 €.

4.3 Importation of Spanish Wood Products Manufacturers.

During the year 2003 Spain imported 3.12 Mm^3 sawn wood of which almost 2 Mm^3 were sawn softwood, coming mainly from Sweden, Finland and USA. Around 1 Mm^3 of sawn hardwood were imported during 2003, half coming

from temperate areas and the other half from tropical ones. Among temperate areas, the main sawn wood species were oak coming from USA (157,500 m^3) and beech (48,300 m^3) from Germany. It must should be mentioned that there are big volumes of round wood coming from France, mainly oak (70,700 m^3) and beech (48,300 m^3).

The most important tropical area exporting sawn wood to Spain is western Africa, for example Cameroon and Ivory Coast. During 2003 Africa exported 0.44 Mm^3 of sawn wood and 0.13 Mm^3 of round wood to Spain.

In order to get a monetary value and weight of these importation flows, the Spanish Tax and Custom Authority (*Agencia Tributaria*) information has been used. This database has no information about the volume or a credible one for species, but allows a comparative analysis with C.N.A.E. classification of activities. The queries were done under the fall of 2004, through Trade Chambers web page (*Cámaras de Comercio*). These queries were focused on the activity groups 201, 202, 203, 204, 205 and 361 from C.N.A.E. classification.

Spanish importation of wood forest products (groups 201, 202, 203, 204 and 205) had an economic value of 2 billion of euros during 2003. The biggest part of this was sawn wood products (group 201) with an economic value of 925 M€ and board products (group 202) with an amount of 507 M€. Non Wood Forest Products and Other Wood Products (group 205) importations had a value of 290 M€, carpentry products (group 203) importations were slightly higher than 225 M€. The lowest economic relevance in the wood forest product sector was in the case of packing products (group 204) with 67 M€. Finally furniture manufacturer (group 361) importations were set at 1.40 billion of euros in the year 2003 (figure 16).

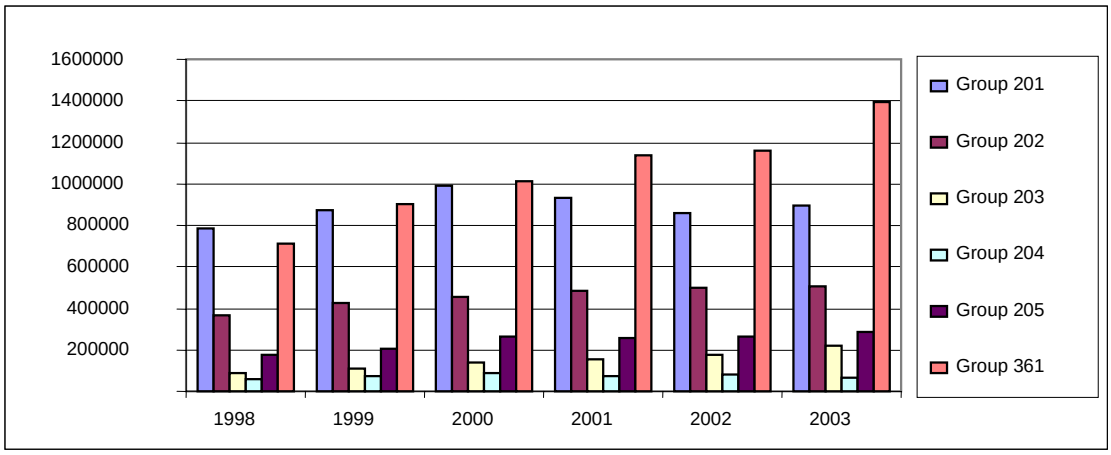

Figure 17. Evolution of Wood Products Importation per Activity Groups. Values in 1,000€.

The economic value of sawn wood product importations had a peak in 2000 with 1 billion of euros after that, it went down to 900 M€ in 2003. Boards and veneer products importations had a continuous increment from 1998 to 2003, the economic value of boards and veneer products importations was 367 M€ in 1998 and in 2003 was 507 M€, an increment slightly higher than 35 percent.

Joinery carpentry and wood structures products importations have had a continuous increment during the period 1998- 2003, the value for 2003 was two and half times the one for 1998. After an increment during the period 1998

to 2000, packing products importations had a reduction from 2000 to 2003. During this five year time period its economic value has passed from 60 to almost 67 M€, an increment of 10 percent.

Other wood products and non-wood forest products importations had an increment of 65 percent from 1998 to 2003, but this growth was slower from 2000 to 2003. 2003 the economic value of furniture manufacturers importations was 1.39 billions of euros two times bigger than 1998.

4.3.1 Importations of Activity Group 201 (Sawmilling)

After a growing period from 1998 to 2000, sawn wood importations reduced its size from 2000 to 2003. From 1998 to 2003 the economic value of sawnwood imports grew 14 percent, while the increment for its weight was 32 percent (figures 18 and 19).

Importations coming from USA had bigger reduction after year 2000, the economic value decreased 43 percent from 2000 to 2003, while weight suffered a reduction of 20 percent (figure 18 and 19).

The economic value of import from Sweden increased with 14 percent from 1998 to 2003, the same increment than sawn wood product area. Swedish sawn wood followed a pattern of peaks and valleys around a central value of 95 M€ (figures 18 and 19).

After a maximum value in 2000 of 90 M€, French sawn wood importations decreased to 77 M€. The total weight of French sawn products importation increased with 36 percent from 1998 to 2003, but its economic value did only 7 percent (figures 18 and 19).

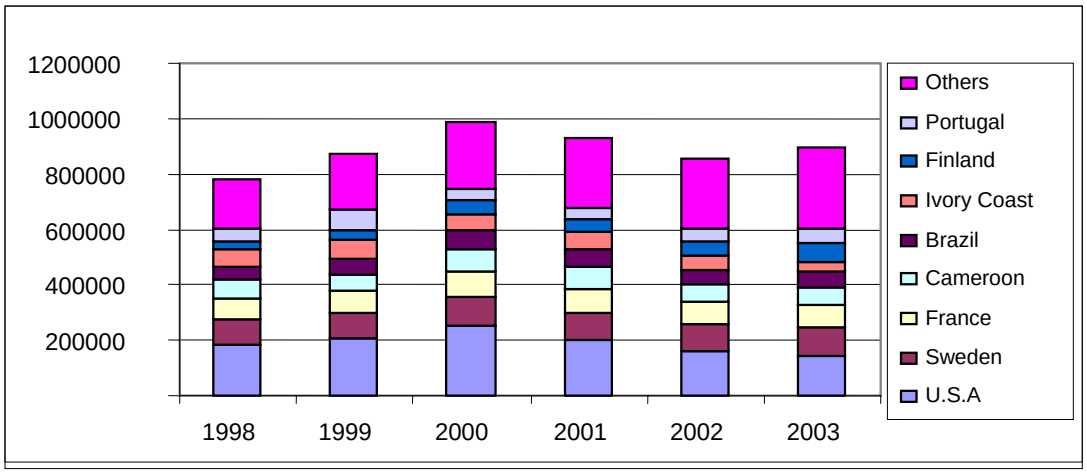

Figure 18. Economic Values of Sawn Wood products (group 201). Values in 1,000 €.

Sawn wood importations from Cameroon had a hieratic development during this period of time. It had a peak of 77 M€ in 2000, while 1999 value was almost 61 M€. 2003 value was 67 M€, slightly lower than 69 M€ for 1998 (figure 18).

The economic value of Brazilian sawn wood importations increased 15 percent from 1998 to 2003, passing from 47 to 54 M€. This increment has not been constant, so after a value of 69 M€ in 2000, the importations decreased to 54 M€ (figure 18).

Sawn wood importations from Ivory Coast had an economic value, which varied between 59 and 64 M€ from 1998 to 2001. But they had a drastic reduction of 45 percent from year 2001 to 2003, achieving a value of 35 M€ in year 2003 (figure 18). The weight had a constant reduction of almost fifty percent passing from 101 to 54 thousand tonnes (figure 19).

Import from Finland had a spectacular increment during this six year time period. Their economic value was 165 percent bigger in 2003 (69 M€) than in 1998 (27 M€), and its weight was 178 percent higher in 2003 than in 1998. This increment was only slowly stopped during year 2001 with a reduction of 14 percent in economic terms and 6 percent in weight (figures 18 and 19).

During this period of study, import of Portuguese sawnwood had an uneven development with a maximum of 74 M€ for year 1999 and a minimal of 43 M€ for year 2001 (figure 18). Nevertheless its weight had slightly decreased from 262 to 251 thousand tonnes, during this period of time (figure 19).

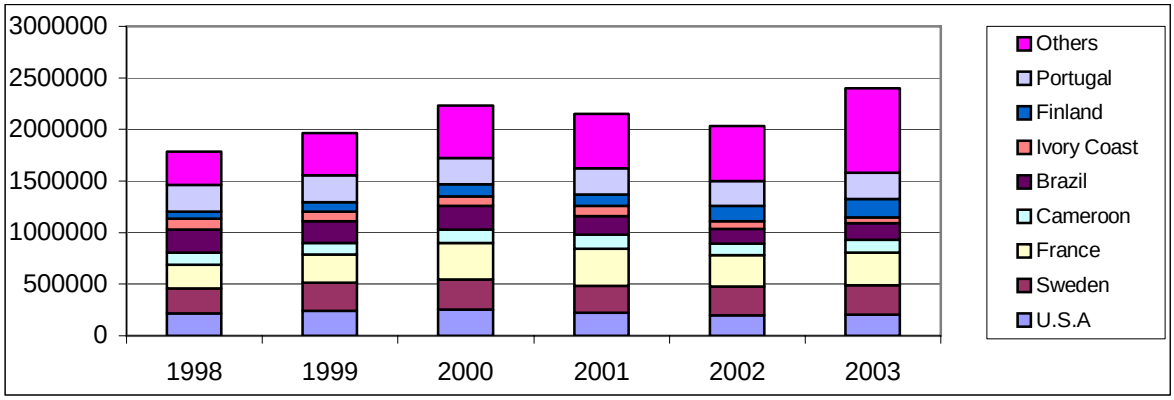

Figure 19. Weights of Sawn Wood Products (group 201) Importation in tonnes.

The most important contributors among the other countries were Chile, Russia, Romania and China. This category had an increment of 4 and 5 times bigger than the whole product area, respectively in economic terms and weight (figures 18 and 19).

4.3.2 Importation of Activity Group 202 (Wood Boards and Panel Manufacturing)

The economic value of Spanish wood board and panel importations has increased 38 percent, while its weight has increased 2 percent from 1998 to 2003. The four main supplier countries in economic terms were Portugal, France, USA and Germany. In addition countries like Finland, Italy and Belgium have an important share of the Spanish wood board and panel importations market (figures 20 and 21).

Import from Portugal have reduced its economic value from 120 M€ in 1998 to 102 M€ in 2003, a reduction of 15 percent. For the same period of time the weight of board importations has gone down with 41 percent (figures 20 and 21).

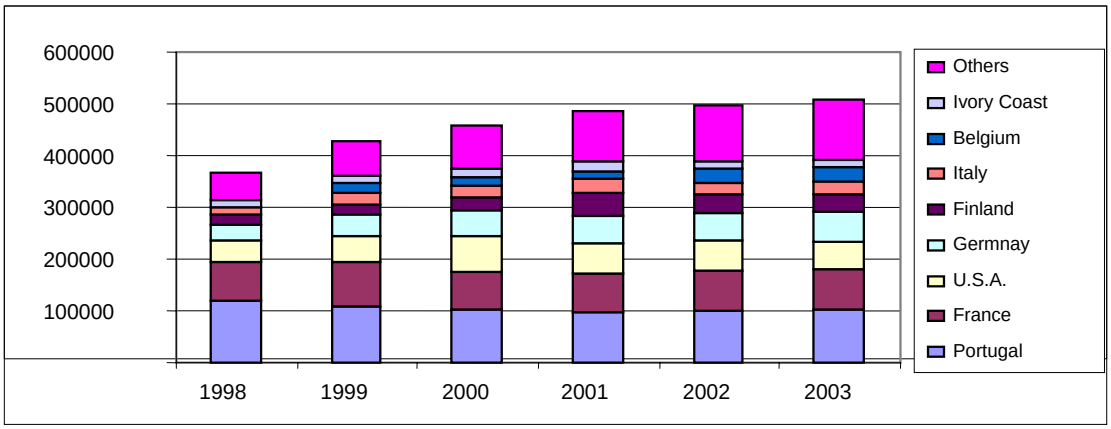

Figure 20. Economic Values of Board and Panel products (group 202). Values in 1,000 €.

Importation of French boards and panels has risen from 74 M€ in 1998 to 79 M€ in 2003. The growth at the beginning of the period stopped after 1999. In weight terms French wood board and panel importation has increased with 35 percent from 1998 to 2003, with an ending value of 248,000 tonnes (figures 20 and 21).

Importation from USA increased until 2000 passing from 42 M€ to 67 M€. After this, importations decreased to 51 M€ in 2003. In weight terms importations has oscillated from 17,000 in 2001 to 13,000 tonnes in 1998 (figures 20 and 21).

Importation from Germany have doubled its economic value from 1998 to 2003, passing from 30 M€ to 58 M€. The weight of the importations has increased more than the economic value, being the maximum 51,000 tonnes in 2001 (figures 20 and 21).

Importation from Finland got an economic value of 35,5 M€ for year 2003. Its economic value has almost doubled from 1998 to 2003, but the maximum was 46 M€ in 2001. Importations from Finland have increased 184 percent in a constant way achieving 37,600 tonnes in 2003 (figures 20 and 21).

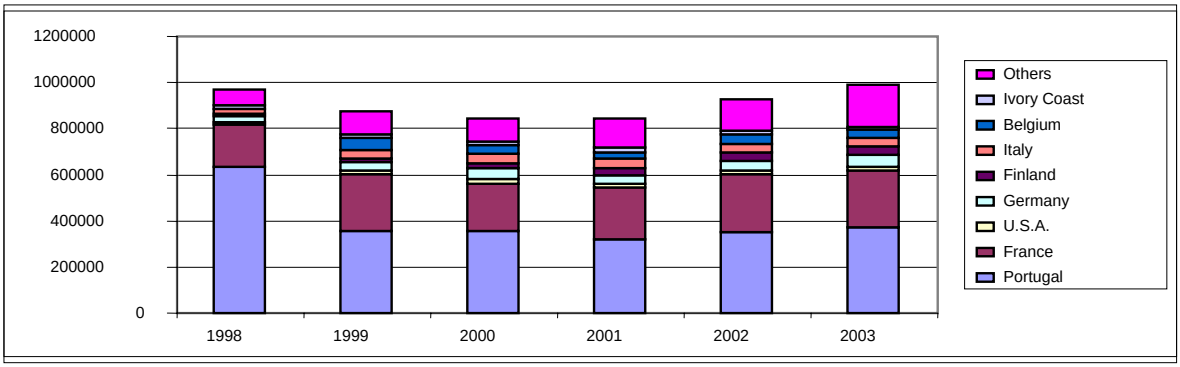

Figure 21. Weight of Board and Panel Products (group 202) Importation in tonnes.

Importations from Finland increased until 2001 achieving an economic value of almost 26 M€, after that the value went down to 24 M€ in 2003, the overall increment from 1998 to 2003 was 60 percent. The weight has increased

with almost 100 percent from 16,400 tonnes in 1998 to 32,000 tonnes in 2003, but the maximum weight was achieved in 2000 with 41,500 tonnes (figures 20 and 21).

The economic value of wood board and panel products coming from Belgium has increased from 18 M€ in 1999 to 27 M€ in 2003, which meant an increment of 50 percent in an unstopped way for the whole period. The weight decreased from 1999 to 2001, increasing afterwards to 36,700 tonnes in 2003. Wood board and panel importations from Ivory Coast had an economic value of 13 M€ in 1998 and 2003. After achieving a value of 17,5 M€ in 2001, it went down to a level of 13 M€. Importations weight from Ivory Coast followed the same trend, having a value of 13,000 tonnes in 2003 (figures 20 and 21).

Wood board and panel importation coming from other countries has increased its economic value with 119 percent and its weight with 158 percent; this trend has not stopped during the period between 1998 and 2003. This category involved countries like Austria, Switzerland, Sweden and Russia (figures 20 and 21).

4.3.3 Importation of Activity Group 203 (Wood Structures and Joinery Carpentry Manufacturing)

Joinery carpentry product and wood structure importations have increased its economic value with 159 percent and its weight with 262 percent from 1998 to 2003. The main supplier countries were Denmark, Germany, France and Sweden (figures 22 and 23).

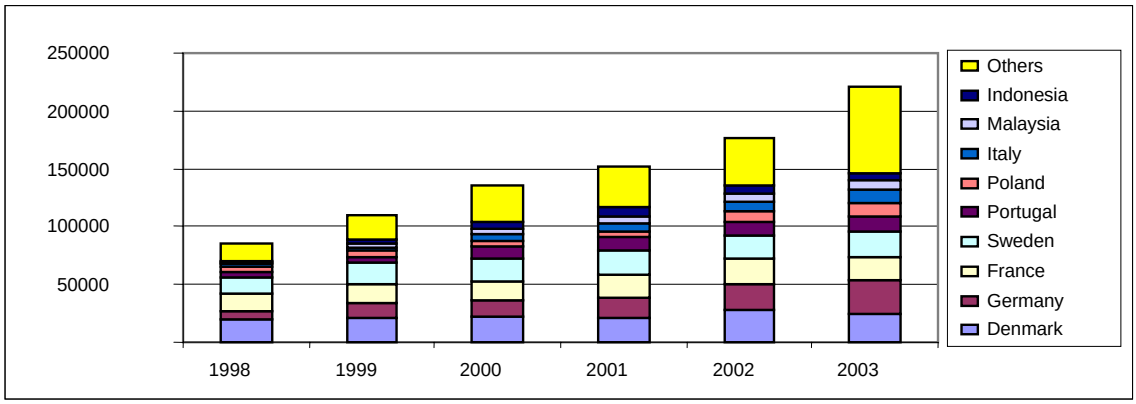

Figure 22. Economic Value of Import of Joinery Carpentry and Wood Structure Products (Group 203) in 1,000 euros.

Denmark has kept its position on the carpentry product market in Spain from 1998 to 2003, the economic value has increased with 31 percent passing from 19,6 M€ to 24,9 M€, but the weight has reduced with 10 percent (figures 22 and 23).

Import of German carpentry products has increased its economic value with 271 percent to 28 M€ in the year 2003. Its weight has increased 5 times, going from 4,000 tonnes in 1998 to 21,000 in 2003 (figures 22 and 23).

Both Swedish and French carpentry products have a similar evolution in economic terms with an increment of 42 and 50 percent respectively, setting a level of 20 and 22 M€ for year 2003. Importation volume from Sweden has increased 70 percent, while French increased 50 percent (figures 22 and 23).

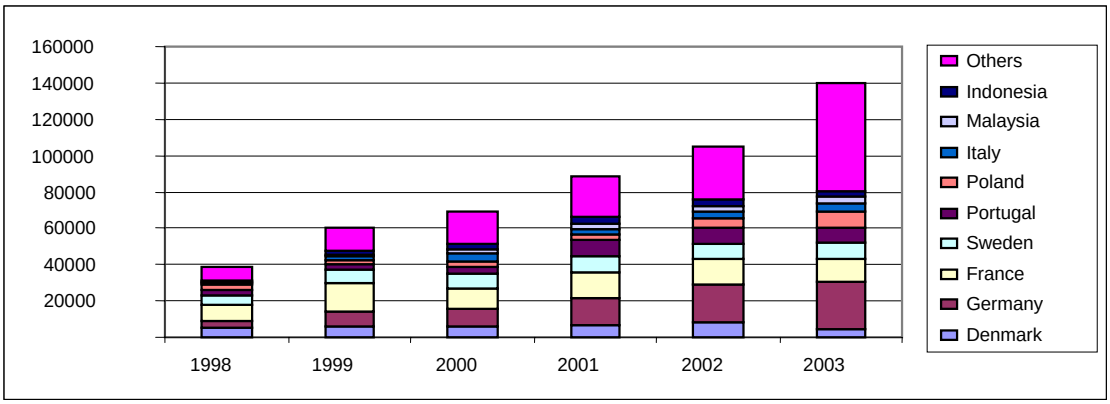

Figure 23. Weight of Joinery Carpentry and Wood Structure Products (Group 203) Importation in tonnes.

Importation from Poland and Portugal had a similar starting and ending points for both the economic value and weight. They went from 5 M€ in 1998 to 12 M€ in 2003, and their weight increased from 2,900 to 8,600 tonnes (figures 22 and 23).

Importations of carpentry products from Italy, Malaysia and Indonesia have had an enormous increment from 1998 to 2003 both in economic and weight terms. Italian importations have passed from 2 to 11,7 M€, Malaysian from 0.7 to 7.8 M€ and Indonesian from 1.6 to 5.7 M€. Their weight has increased with the same terms for that period of time (figures 22 and 23).

Finally the group of other countries like Hungary, Austria, China and Brazil has increased its importation to Spain with 414 percent in economic terms and 268 percent in weight from 1998 to 2003. 2003 values were 75 M€ and 59,000 tonnes (figures 22 and 23).

4.3.4 Importations of Activity Group 204 (Packing Products Manufacturing)

The maximum value of packing products importation was 89 M€ in 2000, while the minimum was 60 M€ in 1998. Importations of this group activity increased 11 percent from 1998 to 2003 in economic terms, while the weight increased 33 percent during the same period (figures 23 and 24).

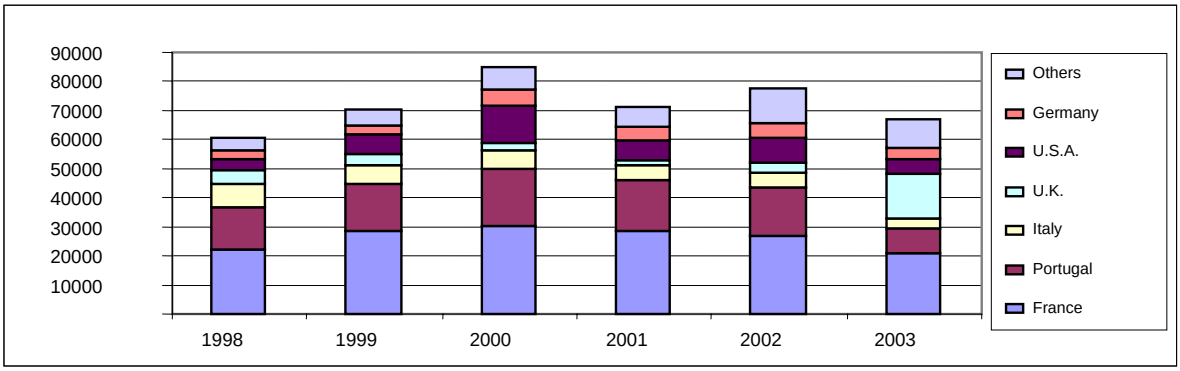

Figure 24. Economic Value of Packing Product Importation in 1,000 €.

The main supplier countries were France, United Kingdom and Portugal, they shared more than 66 percent of the market in both economic and weight terms in 2003. The remaining third were coming from Italy, Germany and USA (figures 24 and 25).

Importation from France and Portugal had a similar evolution that the whole market area. They showed a maximum in 2000 of 30 M€ and 19 M€, afterwards it came down to 21 and 8.5 M€ in 2003. There was a reduction by 10 percent in the case of France and 38 percent for Portugal in economic terms. The weight of import from France have been reduced with 17 percent passing from 39,400 tonnes in 1998 to 32,700 in 2003, while import from Portugal has increased with 5 percent achieving a value of 39,000 tonnes in 2003 (figures 24 and 25).

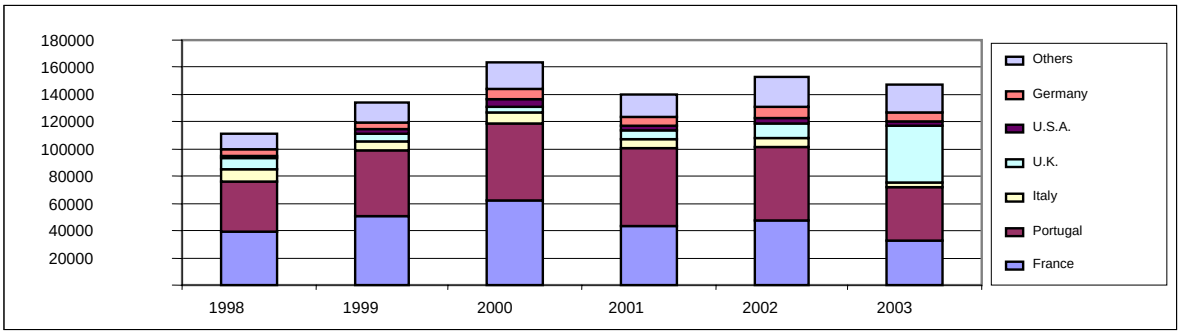

Figure 25 Weight of Packing Product Importation in tonnes.

Import from USA and Germany also followed the same trend. So they had a maximum in 2000, 12.6 M€ for USA and 5,6 M€ for Germany. Importation has grown 39 and 13 percent in economic terms, respectively from USA and Germany. But importations from USA suffered a drastic reduction between year 2002 and year 2003 from 8.4 M€ to 5.4 M€. Importation from Germany has increased with 61 percent, while importation from USA has doubled, both in weight terms between 1998 and 2003 (figures 24 and 25).

Importation from Britain and Italy has had an opposite evolution for this period of time. While Import from Britain have grown with 240 percent, import from Italy have reduced more than a half in economic terms. The huge growth of importation from Britain succeeded during year 2003, where they passed from 3.3 M€ to 15 M€. Importation from Italy had a constant reduction during this period of time (figures 24 and 25).

4.3.5 Importations of Activity Group 205 (Other Wood and Non Wood Forest Products Manufacturing)

Non-wood and other wood forest products importations stopped its growing in year 2001, going from 17.6 M€ in 1998 to 28.9 M€ in 2003. The weight has increased in a constant way passing from 58,000 tonnes in 1998 to a figure almost three times that value in 2003 (figures 26 and 27).

The two main countries selling goods to Spain within this activity group were Portugal and China. They shared more than 50 percent of the market in both economic and weight terms. While importation from Portugal were stable on 82 M€ during the last three years, importation from China grew in an unstopped way going from 38 M€ in 1998 to 80 M€ in 2003, reflecting an increment higher than 110 percent. In weight terms, importation from China have been multiplied by one time and a half during this six-years time period and Portugal did 40 percent (figures 26 and 27).

Importations coming from Italy and France have increased with 40 percent their economic value, achieving a value of 16 and 28.6 M€ in year 2003. The increment in weight have been bigger, 80 percent for France and 467 percent for Italy (figures 26 and 27).

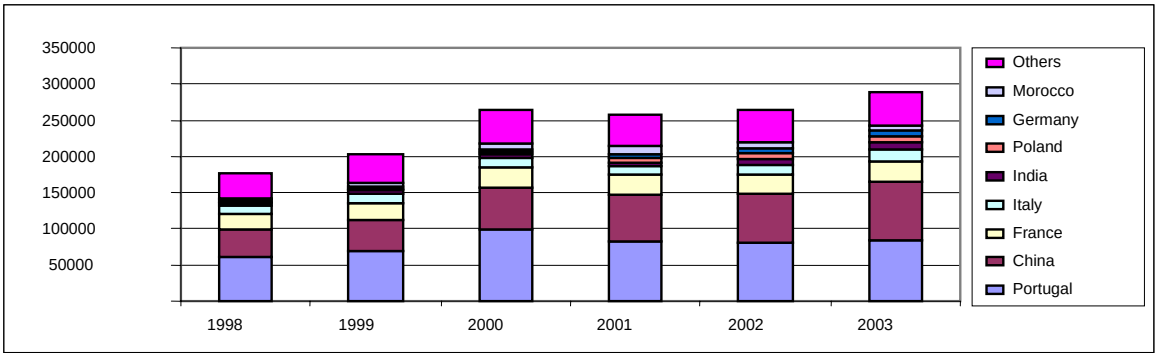

Figure 26. Economic Values of Non-Wood and Other Wood Forest Products Importation in 1,000€.

Importations from countries like India, Poland or Morocco had experimented an enormous growth during these six years, their increments in economic terms were 163, 616 and 305 percentage respectively. Their increment in weight ranged from 225 for Morocco to 288 percent for India, having Poland an intermediate value of 270 percent (figures 26 and 27).

Finally importations coming from Germany had a value of 8.3 M€ in 2003, with an increment of 173 percent since 1998. During this period of time the increment in weight was 457 percent (figures 26 and 27).

The countries in the category others have risen their economic value from 34.5 to 46.5 M€. The members of this group among others are Thailand, Indonesia, Vietnam, Brazil, Finland and Romania. Its relevance in weight increased with 154 percent from 1998 to 2003 (figures 26 and 27).

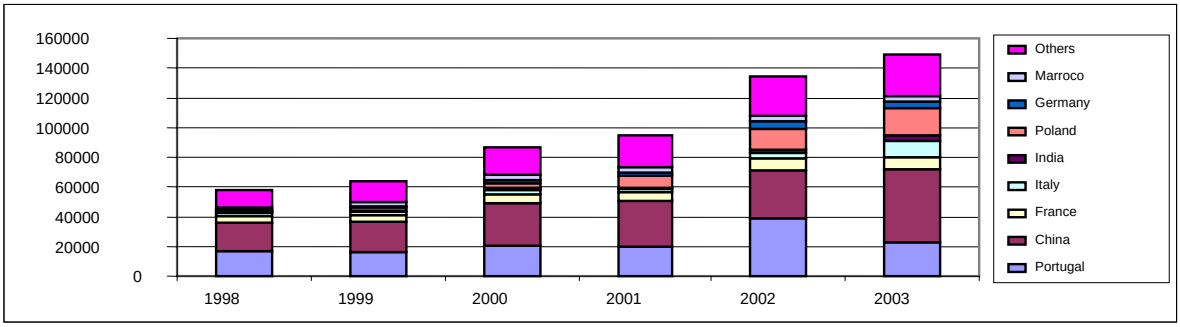

Figure 27 Weight of Non-Wood and Other Wood Forest Products Importation in tonnes.

4.3.6 Importations of Group Activity 361 (Furniture Manufacturing)

In economic terms, import of furniture products had grown continuously from 1998 to 2003. Their weight after a reduction in 2001 continued growing in 2002 and 2003. The economic value of furniture manufacturing products importations have passed from 708 M€ in 1998 to 1,394 M€ in 2003, meaning an increment of almost 100 percent (figures 28 and 29).

French, Italian, German and Portuguese products shared 57 and 50 percent, respectively in economic terms and weight of the total Spanish importation of furniture products. Germany has double its exportation to Spain in economic terms, while Italy, Portugal and France grew with 74, 54 and 44 percent respectively, also in economic terms (figures 28 and 29).

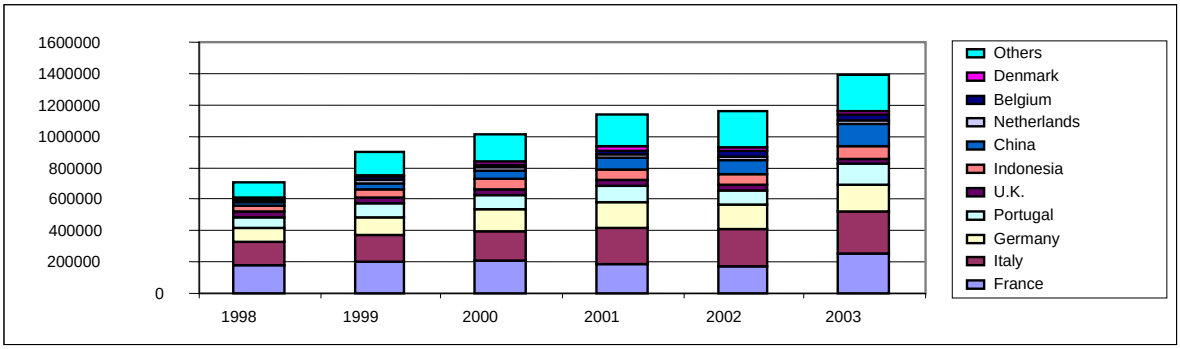

Figure 28 Economic Value of Furniture Products Importation in 1,000€.

Importations coming from Netherlands and Denmark varied between 10 M€ and 26 M€ having a value of 20 and 26 M€ in 2003. In economic terms Dutch exportations increased 20 percent, and Danish with 160 percent. Danish products increased 200 percent and Dutch did 25 percent, both in weight terms and from 1998 to 2003 (figures 28 and 29).

Importation from China had an enormous development during this six year period of time, passing from 24.7 to 142 M€ and from 11,900 tonnes to 73,200 tonnes. These figures meant an increment with 475 percent in economic terms and with 515 percent in weight (figures 28 and 29).

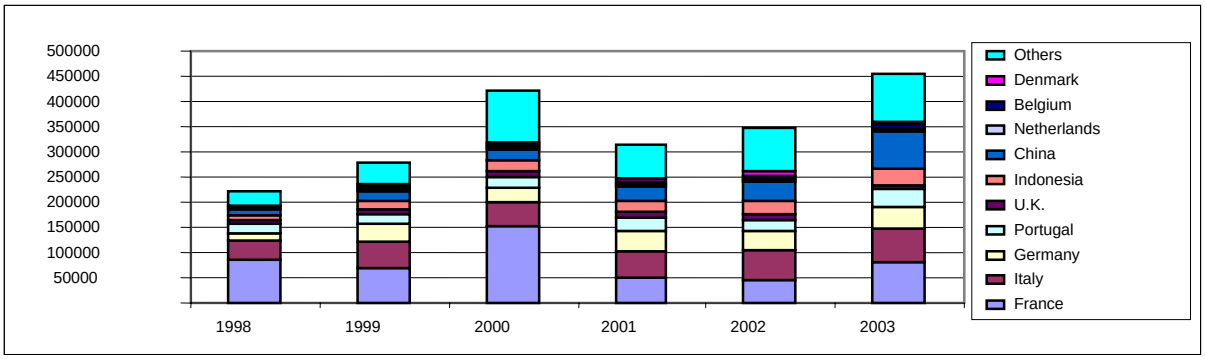

Figure 29.Weight of Furniture Products Importation in tonnes.

4.4. Spanish Wood Products Exportations

Figure 30 give us an idea of the share of each activity group in Spanish wood products exports. It is clear that the main activity was furniture manufacturing (group 361), this value include all type of furniture manufacturing also metal and glass representing a value which ranged from 1,420 to 1,680 M€. The maximum was in 2001, while similar minimum values were achieved at the end and beginning of the studied period.

The rest of the activity groups included in Spanish wood product manufacturers groups from 201 to 205 had an export economic value, which varied from 800 M€ to 1,060 M€. From 1998 to 2002 they increased their exportation value with circa 32 percent, while they had 7 percent reduction in 2003 (figure 30).

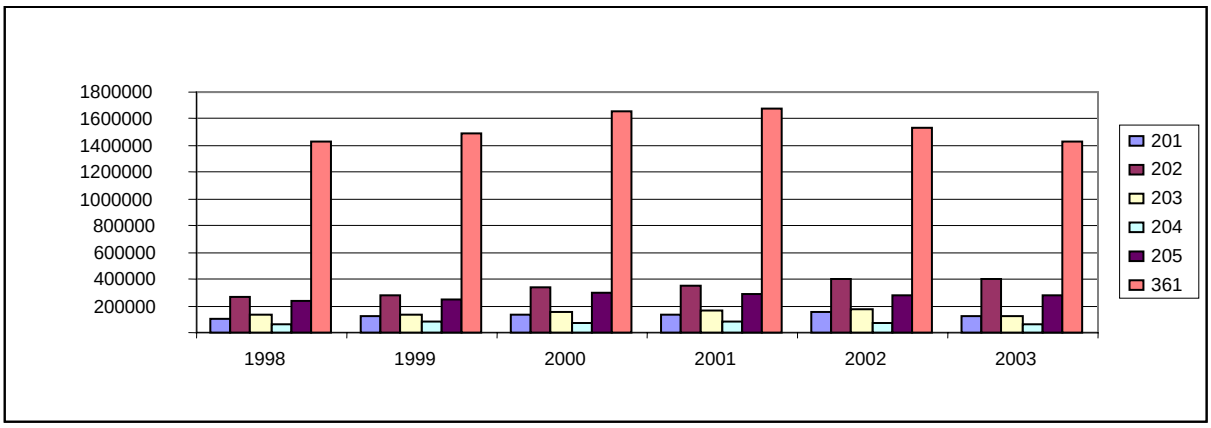

Figure 30. Evolution of Wood Products Exportation by Activities Group in M€.

It was group 202 (wood board and panel products), that had the highest exportation value after furniture manufacturing. This value increased in continuously from 269 M€ in 1998 to 403 M€ in 2003, almost an increment with 50 percent. Groups 201 (saw milling), 203 (carpentry products), 204 (packing products) and 205 (other wood and non wood forest products), had a similar development in economic terms with increments until year 2002, which was followed by a reduction in 2003. In the case of other wood and packing products the reduction started already in 2001 (figure 30).

Other wood and non-wood forest products (group 205) occupied the third place in economic terms. Its export economic value ranged from 235.8 M€ in 1998 to 297.1 M€ in 2000. 2003 the value was 275.2 M€, an increment of 17 percent since 1998, but with a reduction of 7 percent during the last three years (figure 30).

Fourth and fifth positions according to their export economic values were occupied by the saw milling (201) and carpentry (203) groups. While values for saw milling industry went from 103 M€ in 1998 to 150 M€ in 2002, carpentry product exportations went from 127 M€ in 2003 to 172 M€ in 2002. At the end of the studied period the values were 123 and 127 M€, respectively for group 201 and 203. Saw milling products exportation had a net increment of 19 percent from 1998 to 2003 and carpentry products had a small reduction of 2 percent. It must be pointed out the reduction of 20 percent for saw milling products and 26 percent for carpentry products exportations from 2002 to 2003.

The last place in terms of exportation economic value was for packing products, with a value which varied from 58 M€ in 2003 to 83 M€ in 2001. This exportation had a reduction with 10 percent from 1998 to 2003, but the reduction from 2001 value was slightly higher than 30 percent (figure 30).

4.4.1 Group 201 Exportations (Sawmilling)

In 1998 Spain exported 100 M€ of sawn wood products. After a maximum of 150 M€ in 2002, value decreased to a level of 120 M€, that was under 1999 value. After a drastic reduction of almost one third in year 1999, the weight of

the sawn wood products exportations has increased to a value close to 160,000 tones during year 2001, 2002 and 2003 (figures 31 and 32).

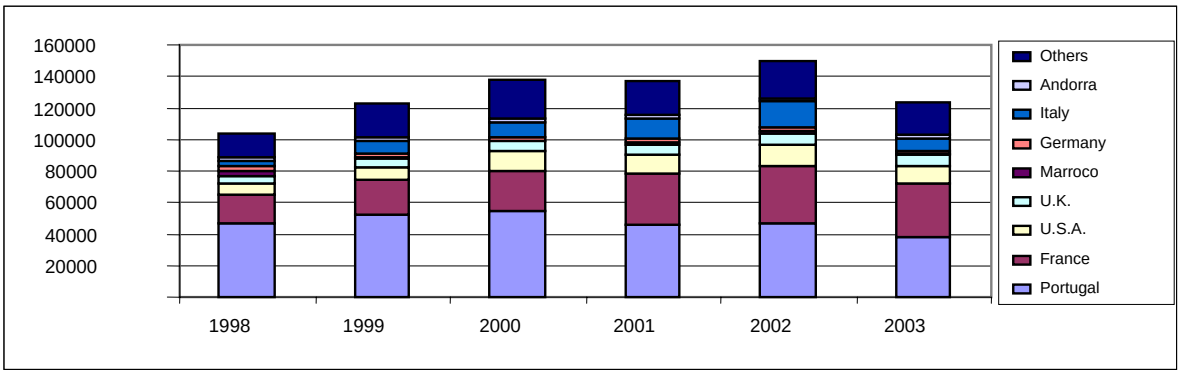

Figure 31 Economic Value of Sawn Wood Products Exportation in 1,000€.

The main markets for Spanish sawn wood products were Portugal, France, UK, Italy and USA. Exportations to Portugal had a maximum value in 2000 of 54 M€ this value was reduced to 37 M€ in 2003. After an enormous reduction more than 50 percent in 1999, the weight of the exportations has varied around 60,000 tones ending at 63,000 tonnes in 2003 (figures 31 and 32).

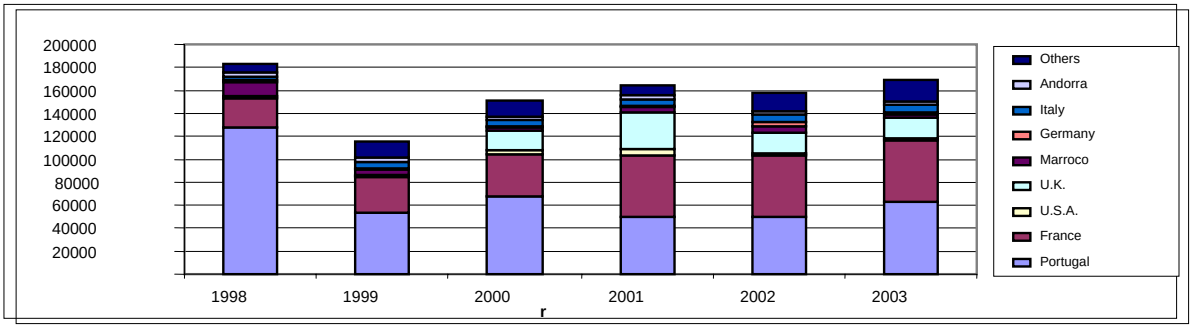

Figure 32 Weight of Sawn Wood Product Exportation in tonnes.

Sawn wood product exportations to France have increased both in economic and weight terms. Starting at 18.45 M€ and 25,000 tones in 1998 and ending at 34 M€ and 53,000 tones in 2003. This mean an increment higher than fifty percent in weight and slightly lower than fifty percent in economic terms (figures 31 and 32).

Export to United Kingdom of sawn wood products grew considerably in the last six years in weight, passing from 1,300 tones in 1998 to 17,600 tones in 2003. The economic figures has increased in a less drastic way, passing from 49.8 M€ in 1998 to 72.9 M€ in 2003 (figures 31 and 32).

The increment of sawn wood product exportations to USA was stopped in 2003 in economic terms and 2002 in weight value. But from 1998 to 2003, this trade has increased from 6.5 to 11.2 M€ and from 700 to 2,400 tones (figures 31 and 32).

Exportation of sawn wood products to Italy had a peak value of 16.7 M€ in year 2002, afterwards the economic value went down to 7.9 M€. The weight was doubled between 1999 and 1998 after that, the value has been between 5,000 and 6,000 tones for the rest of the period (figures 31 and 32).

4.4.2 Group 202 Exportations (Wood Board and Panel Products)

The economic value of Spanish wood board and panel exportations was 403 M€ in 2003, this figure has increased from 255 M€ in 1998 to a level close to 400 M€ in year 2002. In weight terms two big increments have occurred, firstly in 1999 with an increment of 15 percent, secondly in 2002 achieving a value of 900,000 tones an increment of 30 percent (figures 33 and 34).

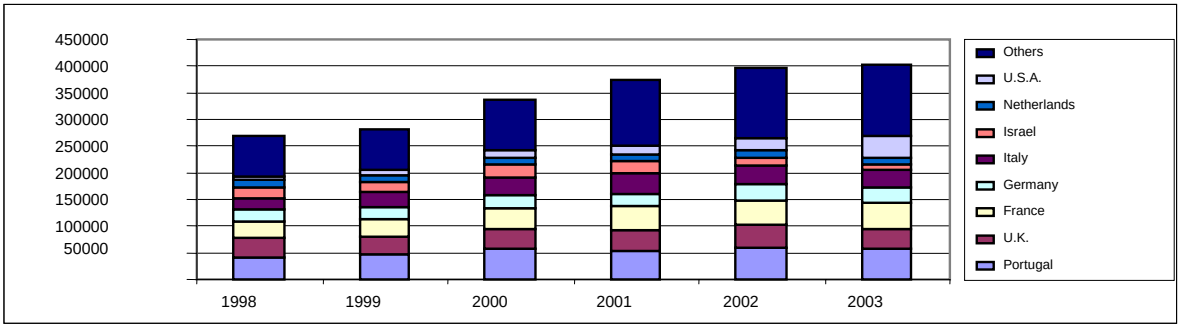

Figure 33.Economic Value of Wood Board and Panel Exportation in 1,000 €.

The main markets for Spanish wood board and panel products were Portugal, United Kingdom, France, USA Germany and Italy. Portugal bought products for a value of 41 M€ in 1998, while this value was 56.5 M€ in 2003, being the maximum 59 M€ in 2002. The weight of exportations to Portugal had also a maximum of 134,000 tones in 2002 after that, it was reduced to 121,000 tones (figures 33 and 34).

Only in 2002 British wood board and panel product importations from Spain had a value over 40 M€, during the rest of the period the values were between 32.7 and 39 M€. In weight terms, exportations going to United Kingdom also follow the same trend that the economic values, having a maximum of 113,000 tones in 2002 (figures 33 and 34).

The economic value and the weight of exportations going to France has increased from 31.6 M€ and 49,000 tones in 1998 to 49.8 M€ and 88,600 tones in 2003, which represented a 60 and 80 percent of increment during this six year period of time (figures 33 and 34).

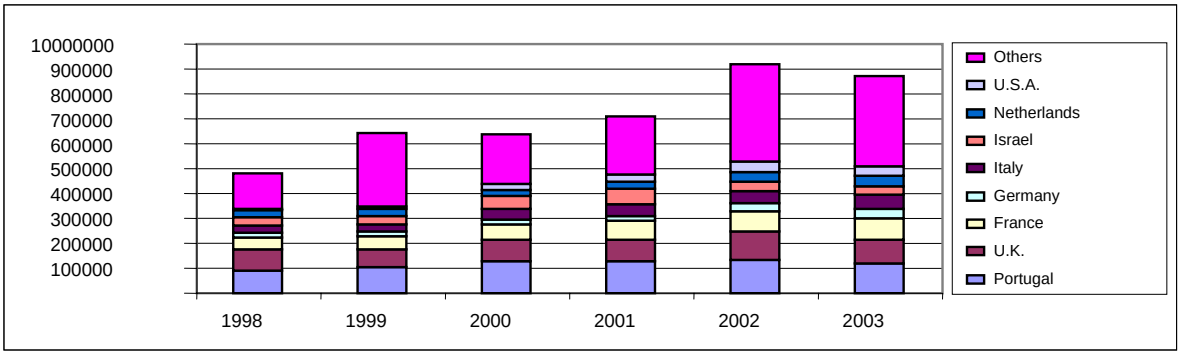

Figure 34. Weight of Wood Board and Panel Exportation in tones.

Exportations of wood board and panel products to Germany ascended to 29,2 M€ in 2003, while in 1998 were 20,6 M€, this is an increment with 40 percent during this period of time, there was a minimal reduction of 1 M€ in 2003. From 1998 to 2003 the weight has increased in a continuous way passing from 18,000 tones to 38,100 tones (figures 33 and 34).

Italian importations of wood board and panel products coming from Spain had a maximum economic value of 39 M€ in 2001, afterwards this figure reduced to 33 M€ having a net increment of 50 percent from 1998 to 2003. Weight increment stopped in year 2002, but it has passed from 26,600 tones in 1998 to 53,200 tones in 2003, an increment of 100 percent (figures 33 and 34).

Exportation to USA has multiplied its economic value by 8 times from 1998 to 2003. 1998 figure was 5,6 M€, and in 2003 this value ascent to 40,2 M€. This evolution has been reflected also in the weight, which has passed from 3,000 tones in 1998 to 37,800 tones in 2003. This development has set USA as the third buyer of wood board and panel products, just after Portugal and France in economic terms (figures 33 and 34).

4.4.3 Group 203 Exportations (Wood Structures and Joinery Carpentry Products)

In 2003 Spanish wood structures and joinery carpentry product exportations amounted 127,2 M€, this value was slightly lower than 1998, which had a value of 129,3 M€. A positive tendency stopped in 2003 with a reduction of 48 M€, which represented 27 percent of 2002 value. Weight has a similar pattern in its development with a strong reduction during the last year, but in the overall period there was an increment of 35 percent (figures 35 and 36).

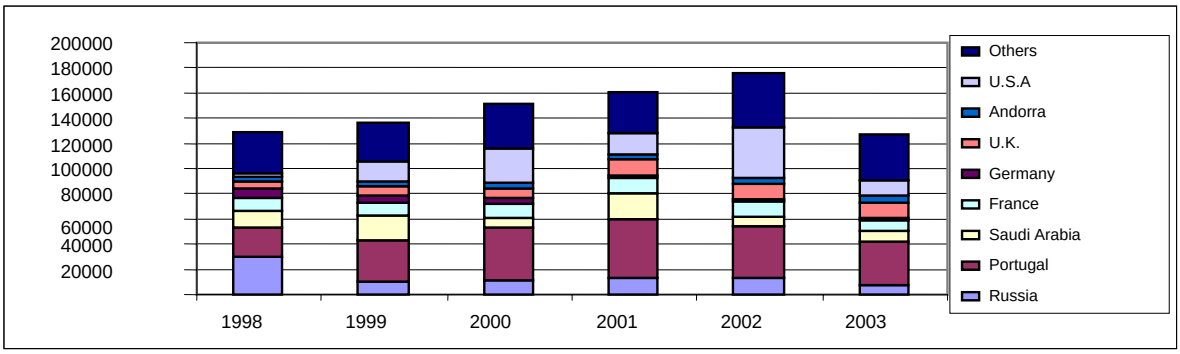

Figure 35. Economic Value of Wood Structures and Joinery Carpentry in 1,000 €

In 1999 exportation to Russia decreased to 20 M€, which represented two thirds of 1998's value, after this reduction values had been steady around 11 M€ until 2003, when it went down to 7 M€. These two reductions in 1999 and 2003 had been reflected in a similar way for the weight of this trade to Russia (figures 35 and 36).

Portugal bought products for a total amount of 35 M€. In economic terms this trade had a maximum in year 2001 of 46.9 M€, which decreased to 41.7 M€ in 2002. In the overall period this value has increased with 52 percent. In weight terms, there is a maximum in year 2001 of 16,800 tones, the increment from 1998 to 2003 has been 54 percent (figures 35 and 36).

Saudi importations of Spanish group 203 products decreased mainly in economic terms, while the weight of this trade has stayed around 500 tones. In 1998 Saudi Arabia imported a total amount of 12.9 M€ and 547 tones, while it was 7.6 M€ and 536 tones in 2003. The maximum level of this trade was in year 2001 with 19.9 M€ and 751 tones (figures 35 and 36).

In 1998 Spanish wood structure and joinery carpentry exportation to France ascended to 10 M€ and this value was 9.1 M€ in 2003. For this lapse of time the weight has increased in a constant way until 2002, passing from 3,000 tones in 1998 to 13,000 tones in 2002, decreasing afterwards to 10,200 tones (figures 35 and 36).

Germany has decreased their importation of wood structures and joinery carpentry products from 7,9 M€ in 1998 to 1,9 M€ in 2003. This reduction has succeeded in a continuous way, but stopped in the last year. Weight has a similar development as the prices with a reduction from 4,300 tones in 1998 to 1,200 in 2003 (figures 35 and 36).

After two big increments between 1998 and 2000 and in 2002, USA importation went down to a value of 12.5 M€. The maximum value was 40 M€ in year 2002, while the minimum was 3.2 M€ in 1998. The weight followed a similar pattern than the economic values (figures 35 and 36).

British imports have increased from 1998 to 2001, achieving a maximum of 12.4 M€. After this, the value has stabilized in 12 M€ level in 2002 and 2003. Weight development has oscillated between 2,000 and 3,000 tones from 1998 to 2003 with the exception of year 2002, where the value was 4,900 tones (figures 35 and 36).

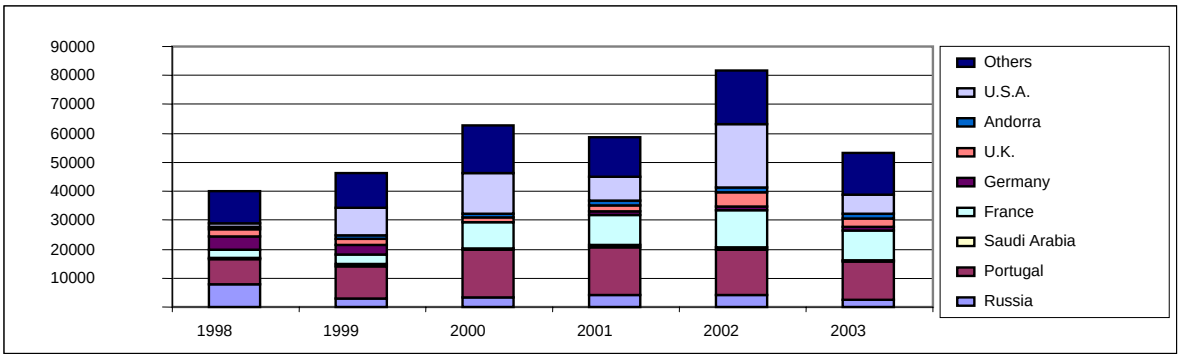

Figure 36. Weight of Wood Structure and Joinery Carpentry Exportation in tones.

4.4.4 Group 204 Exportations (Packing Products)

Spanish packing product exportations maximum value was 83 M€ in 2001, that value was reduced to 58.9 M€ in 2003. The weight of Spanish packing product exportations had also a peak in year 2001 with 140,000 tones. In year 2003 exportations weight was 68,000 tones, which represent a reduction of 14 percent from 1998 to 2003 (figures 37 and 38).

The main three exportation markets for this kind of products were France, United Kingdom and Morocco, the amount of these three countries shared more than two thirds of the total Spanish exportations, in both economic and weight terms for the studied period.

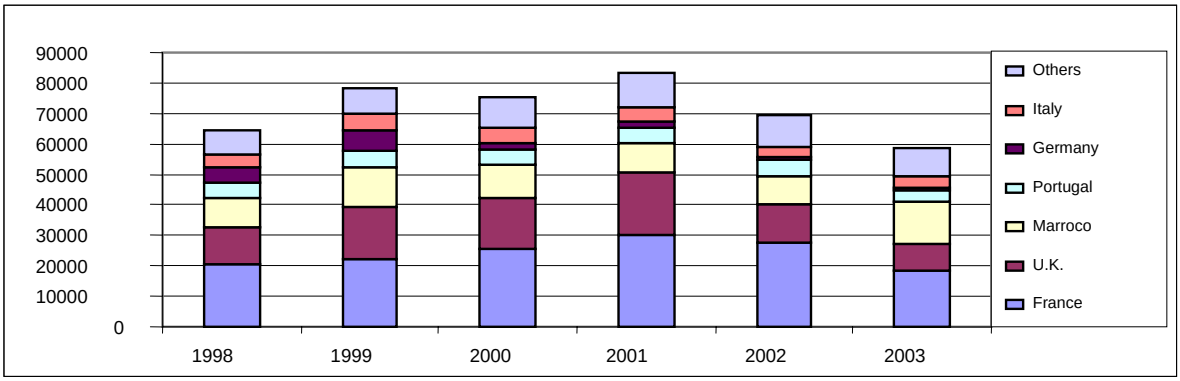

Figure 37. Economic Value of Packing Products Exportation in 1,000 €.

Exportations to France had a maximum in 2001 of 30.2 M€ and a figure of 18.5 M€ at the end of the period, this value was lower that the one at the beginning of the period (figures 37 and 38).

In 2003 Moroccan importations of Spanish packing products achieved a value of 13,8 M€, having the maximum between 1998 and 2003 and representing an increment with 47 percent from the 1998 value. The weight distribution had a maximum in year 1999 within 17,300 tones, after this the value went down to 13,000 tones in years 2000, 2001 and 2002. In 2003 the value was 16,200 tones, an increment with 45 percent from the 1998 value, 11,300 tones (figures 37 and 38).

Spanish packing products exportations to United Kingdom amounted 8.9 M€ in year 2003, reflecting a reduction of 27 percent from the 1998 value. Maximum value was 20.5 M€ in year 2001. The reduction in weight terms was bigger than the economic one, mainly during the period from 2001 to 2003 going from 32,200 to 3,600 tones (figures 37 and 38).

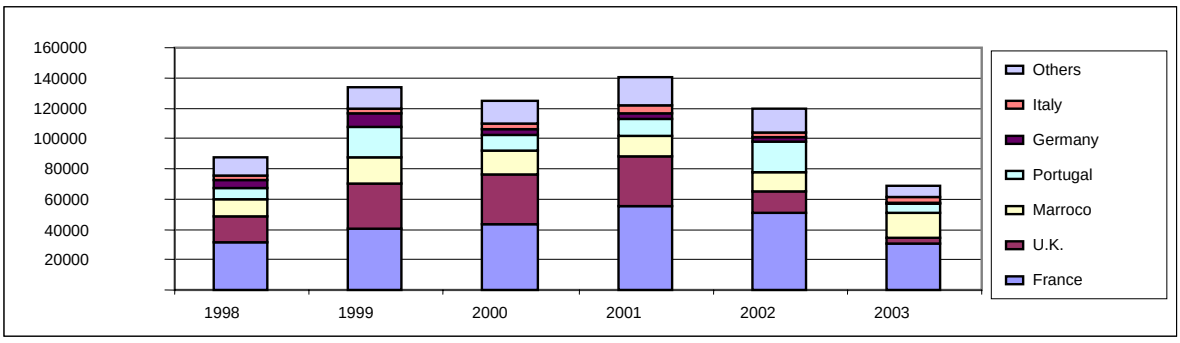

Figure 38. Weight of Packing Products Exportation in tones.

Portuguese importations of Spanish packing product had a stable value of 5 M€ from 1998 to 2002, after this the value decreased to 3.8 M€ in 2003. The weight has a more uneven development with big increments in year 1999 and 2002, following by reduction in years 2000 and 2003 (figures 37 and 38).

4.4.5 Group 205 Exportations (Other Wood and Non Wood Forest Products)

In 2003 Spanish other wood and non-wood forest product exportations had a value of 275.2 M€ .In weight terms, the value was 76,400 tones in year 2003, an 9 percent increment from 1998 levels. The four main Spanish markets for

group 205 products were France, Portugal, Italy and USA, the four countries share more than 75 percent both in economic and in weight terms (figures 39 and 40).

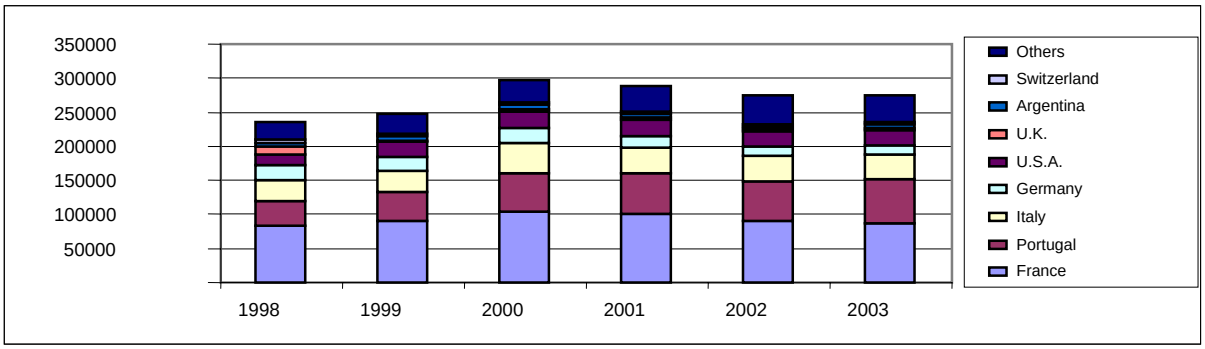

Figure 39. Economic Value of Non-Wood and Other Wood Forest Products Exportation in 1,000 €.

French importation of Spanish group 205 products ranged from 83.3 M€ to 103.9 M€, maximum in year 2000 and the minimum in year 1998. In 2003 exportation of group 205 products amounted 87.5 M€, showing an increment of 5 percent from 1998. The weight has decreased continuously going from 24,400 tones in 1998 to 17,200 in 2003 (figures 39 and 40).

Portuguese importations grew in a continuous way in both economic and weight terms from 1998 to 2003, going from 35.8 M€ and 15,000 tones to 63.7 M€ and 36,400 tones; increments with 80 and 140 percent, respectively in economic and weight figures (figures 39 and 40).

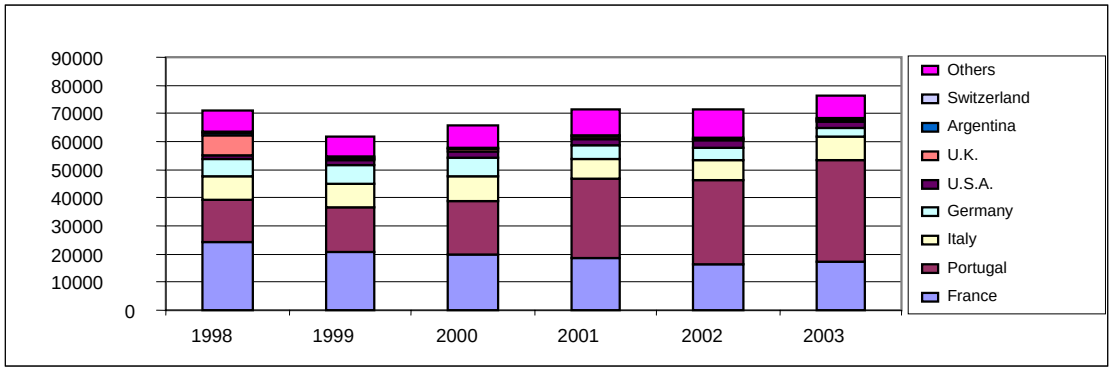

Figure 40. Weights of Non-Wood and Other Wood Forest Products Exportation in tones.

After achieving a value of 43 M€ in 2000, Italian importation have been steady around 37 M€ from 2001 to 2003. While USA importations has increased from 15.8 M€ in 1998 to 22.2 M€ in 2003, German exportation reduced the economic value from 21.7 M€ in 1998 to 12.9 M€ in 2003 (figure 40).

4.4.6 Group 361 Exportations (Furniture Products)

From 1998 to 2003 Spanish furniture exportation had an economic value, which varied between 1,430 and 1,680 M€. Exportations achieved a peak in 2001, while a value of circa 1,430 M€ was obtained in both years 1998 and 2003. In terms of weight the highest value was also in 2001, with a figure of 437,000 tones and 400,000 tones in 2003 (figures 41 and 42).

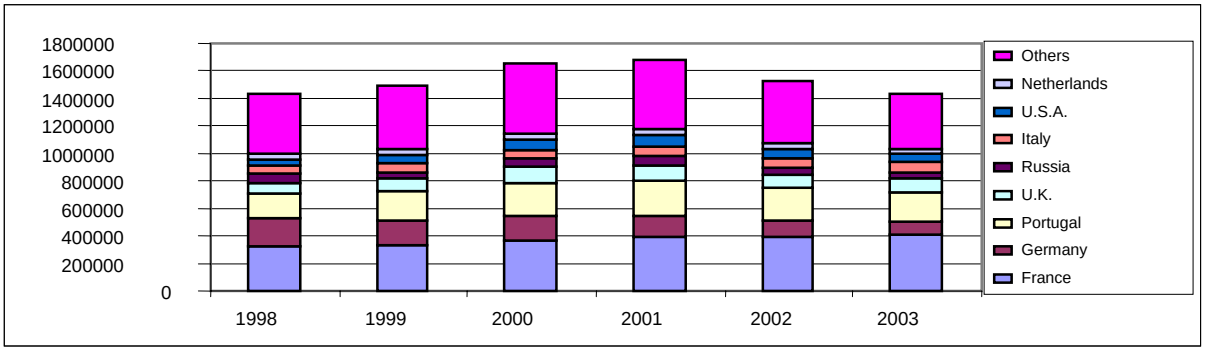

Figure 41. Economic Value of Furniture Products Exportation in 1,000 €.

The main export markets for Spanish furniture were France, Germany, Portugal, United Kingdom, Russia, Italy and USA. For both economic value and weight terms exportations to France, Germany and Portugal sharing half of the total values during the time from 1998 to 2003 (figures 41 and 42).

French importations increased from 327 M€ in 1998 to 405 M€ in 2003,an increment of 24 percent (figure 40). During this 6 year time period the weight has increased from 116,000 tones to 141,000 tones (figures 42).

German importations has experienced a continuous reduction in both economic and weight values, going from 175.8 M€ and 36,200 tones in 1998 to 97 M€ and 23,800 tones in 2003, a reduction with circa 50 percent (figures 41 and 42).

Portuguese importation of furniture products increased between 1998 and 2001, afterwards it decreased to a value of 216.2 M€ and 63,500 tones in 2003. For the whole 6 year period exportations going to Portugal increased with 37 and 26 percent, respectively in economic and weight figures (figures 41 and 42).

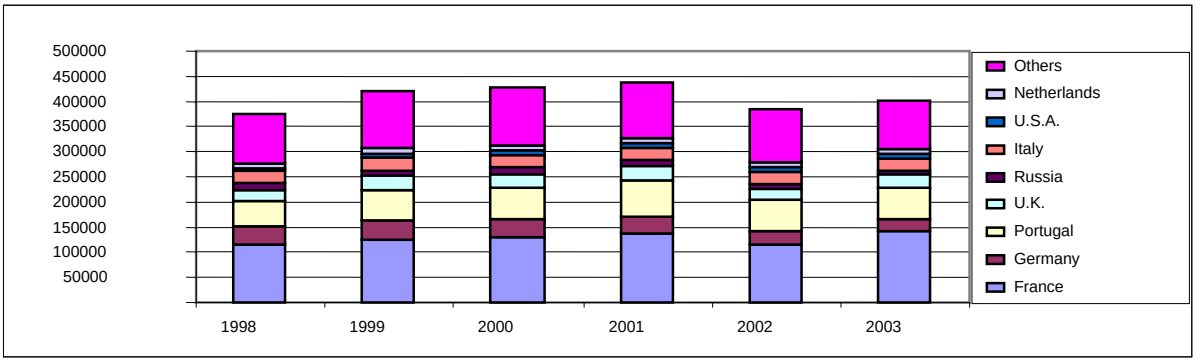

Figure 42. Weight of Furniture Products Exportation in tones.

Products going to both United Kingdom and USA increased until year 2001 with an economic value of 79.8 and 112 M€, decreasing to a value of 61 and 100 M€ in 2003. For the whole six year period British imports increased 25 percent, while American did so with 27 percent. American imports weight showed the same pattern than the economic value, but British one seemed to recover in year 2003 (figures 41 and 42).

Russian importations had a hieratic behaviour with two big reductions in years 1999 and 2002. 1998 economic value was 70.2 M€, while value in 2003 was 46 M€ a reduction with 34 percent (figure 41).

Spanish exportations going to Italy had a similar trend than for other countries like USA, UK or Portugal, but the value increased in year 2003. The values went from 59.8 M€ in 1998 to 72.9 M€ in 2003, with 43 percent increment for this period of time. From 1998 to 2003 an increment less than 5 percent in weight happened (figures 41 and 42).

5. Results

5.1 Spanish Wood Products Manufacturers

In this par of the document some values and ratios described in the material and methods chapter are used, in order to get the relevance and distribution of the wood products manufacturers sector. These figures are the gross added value, the shared value of the industrial activities (without construction and energy), productivity (defined as the gross added value divided by the total number of workers involved in that activity) and concentration index. This last index gives us information about the special relevance of activities for some areas, this could stem from a better supply of raw materials, a closer situation to the end users of the products or other, always according to a quantitative aspect.

As average there were 40,500 companies dealing with wood based products and non-wood forest products in Spain. This figure has undergone minor changes during the last five years, but this overall number doesn't reflect the changes, which have occurred in Spanish wood products sector. The two main activities were furniture manufacturing and joinery carpentry. While the number of carpentries has reduced from 12,768 companies in 1999 to 12,081 in 2003, furniture manufacturing companies did from 20,452 to 21,479.

The changes in other activities belonging to wood producers are not reflected in the overall numbers because of their small share in the sector. The main changes occurred in non-wood forest products with a reduction of 11 percent and saw milling activities with a 5 percent reduction. Finally wood board and panel manufacturers have increased with almost two percent, while non significant changes in packing product activities have happened.

Geographical Units	Gross Added Value	Share of industrial activities	Productivity	Concentration Index
Cantabric Area	594,309	3.1	18.3	110.5
Mediterranean Arch	1,070,835	2.5	16	88.4
Ebro Axis	189,082	2.3	17,7	94.6
Centre Area	540,260	2.3	17.3	103.1
South Area	256,567	2.8	10.6	111.1
Canary Islands	53,640	4.3	9.2	161.1
Spain	2,704,695	2.6	15.8	100

Table 8. Results for Spanish Wood Product Manufacturers excluding Furniture Manufacturing year 2002.

Only in two of the geographical units, the gross added value was higher for non-furniture manufacturing than for furniture manufacturing; these areas were the Cantabric Area and the Canary Islands. For both furniture and non-furniture industries, the highest gross added values were in the Mediterranean Arch, while the lowest were in the Canary Islands. The Cantabric Area for non-furniture and the Centre Area for furniture manufacturing occupied the second place. The Ebro Axis and the Cantabric and South Areas had gross added values between 340 and 400 M€. The third place in non-furniture manufacturing was occupied by the Centre Area with a value of 540 M€, while the

South Area had a value of 256 M€ and 189 M€ in the Ebro Axis. Canary Islands value was much lower with 53 M€ for non-furniture industries and almost 30 M€ for furniture manufacturers (table 8).

In 2002 the Spanish wood forest products, excluding furniture manufacturing, had a gross added value of 2,700 M€, this represent 2.6 percent of the total gross added value of the Spanish industrial sector during that year. Three regions had values above 2.6 percent, these regions were Canary Islands, the Cantabric Area and the South Area and among these the Canary Islands had the highest share value with 4.3 percent of the total Industry in that geographical unit. The Mediterranean Arch, the Ebro Axis and the Centre Area had for year 2002 an industrial share value under 2.5 percent (table 8).

Geographical Units	Gross Added Value	Share of industrial activities	Productivity
Cantabric Area	390,942	2	12.1
Mediterranean Arch	1,490,585	3.4	16.9
Ebro Axis	396,558	4.8	32.4
Centre Area	664,335	2.9	12.5
South Area	346,099	3.8	8.5
Canary Islands	29,831	2.4	4.3
Spain	3,318,350	3.2	14.2

Table 9. Results for Spanish Furniture Manufacturing year 2002.

In the case of furniture manufacturers, 2002 contribution to the economy in terms of gross added value was 3,318 M€, representing 3.2 percent of the total industrial contribution to the Spanish economy. This share value was higher in three geographical units, the Ebro Axis with 4.8 percent, the South Area with 3.8 percent and the Mediterranean Arch with 3.4 percent, while the other three units had value lower than 3 percent (table 8).

The productivity was calculated by dividing the gross added value by the number of workers in each activity. For both non-furniture and furniture manufacturing productivity values are lower than the total value for industries; only the value for furniture manufacturing in the Ebro Axis was on the same level that the lowest for the rest of the industries. With two exceptions, Ebro Axis and Mediterranean Arch, productivities are higher for non-furniture manufacturers than for furniture manufacturers. This value was 18,300 € for the Cantabric Area, 16,000 € for the Mediterranean Arch, 17,000 € the Ebro Axis and the Centre Area, 10,000 € for the South Area and 9,200 € for Canary Islands (table 8).

For Spanish furniture manufacturers productivity per worker during 2002 was 14,200 €. Two units were above this value, remarkable was the Ebro Axis, which twice the Spanish value. The lowest one was 5,000 € per year and worker in the Canary Islands, while the Cantabric, Centre and South areas had intermediate values but bellow the Spanish one (table 9).

As reference the total number of industries in the different geographical units has been used, in order to calculate the wood product manufacturer concentration indexes for each geographical units. This index is set as 100 for the Spanish territory. Four regions have higher values than 100, these units were the Canary Islands and the South, the Cantabric and Centre Areas, while is was lower for the Mediterranean Arch and the Ebro Axis, even that these values were quite closed to 100 points. According with this index the highest concentration in wood products manufacturers was in the Canary Islands, while the lowest was in the Mediterranean Arch. The South and the Cantabric Areas, had values slightly higher than 110 points (table 7).

5.1.1. Saw Milling Industries

The highest number of companies dealing with saw milling was based in the Cantabric Area. This activity had also a big importance in the Mediterranean Arch and Central Area.

When the population in the area was taken into account in order to get the densities, Cantabric Area had a value much higher with 11.50 sawmills per 100,000 habitants, than 4.20 and 2.80 sawmills in the cases of Central Area and Mediterranean Arch. In the case of Ebro Axis this industries were not big in number, but their density was over the national value, achieving a value higher than 5 sawmills per 100,000 habitants, due to the low population of the area.

Finally in the Cantabric Area the concentration index for saw milling activities achieved the maximum value with circa 250, which meant that the number of sawmills in the area was two and a half times higher, than the contribution of the activity in the total number of wood products manufacturers in Spain. Ebro Axis and the Central Area had values around 100, while values for the Mediterranean Arch and the South Area were at the level of 50.

Geographical Unit	Members	Density per 100,000 hab.	Concentration Index
Cantabric Area	743	11.50	250
Mediterranean Arch	365	2.80	54.90
Ebro Axis	107	5.20	100.20
Central Area	427	4.20	108
South Area	155	1.80	53,50
Canary Islands	25	1.40	38
Spain	1,822	4.30	100

Table 10. Results for Sawmilling Activities.

5.1.2. Wood Board and Panel Industries

According to the data collected in this document, wood board and panel industries are clearly based in the Mediterranean Arch. The total number of industries was also important in the Cantabric and Central Areas, while the contribution was much lower in the South Area and the Ebro Axis and minimal in the Canary Islands.

Only the Mediterranean Arch and the Ebro Axis had higher densities than 1.24, which was the value for whole Spain. Clearly the reason for these higher values were different for these two regions, in the Ebro Axis it was due to lower population, and for the Mediterranean Arch it was due to high amount of entrepreneurs dealing with this transformation activity. Density values were much lower in the South Area and the Canary Islands, having an intermediate value in the case of the Cantabric and Central Areas.

Geographical Unit	Members	Density per 100,000 hab.	Concentration Index
Cantabric Area	67	1	78.60
Mediterranean Arch	288	2.20	151.40
Ebro Axis	33	1.60	108
Central Area	82	0.80	75.70
South Area	45	0.50	54.30
Canary Islands	1	0.05	5.30
Spain	516	1.20	100

Table 11. Result for Wood Board and Panel Activities.

Specialization indexes for board and panel manufacturing was higher than 100, in the Mediterranean Arch and Ebro Axis; it has a value of 70 percent in the Cantabric and Central Areas, while the value was lower in the South Area and practically irrelevant in the Canary Islands.

5.1.3. Wood Structures and Joinery Carpentry

The highest number of wood structures and joinery carpentries were based in the Mediterranean Arch, its number has been reduced gradually from 4,727 in 1999 to 4.488 in 2003. This activity had also a high number of members in the Cantabric and Central Areas, their members were closed to 2,200. This activity had slightly increased in South Area passing from 1,737 in 1999 to 1801 in 2003, while in the Ebro Axis the members have reduced from 1,129 to 803, during the same period of time. Finally the lowest contribution in absolute terms was the Canary Islands with circa 650 members.

Geographical Unit	Members	Density per 100,000 hab.	Concentration Index
Cantabric Area	2,144	33.20	107
Mediterranean Arch	4,617	34	98.90
Ebro Axis	844	40.80	117.70
Central Area	2,234	22.80	87.80
South Area	1,807	21.10	92.90
Canary Islands	668	36.20	151.40
Spain	12,314	29.	100

Table 12. Results for Wood Structures Activities and Joinery Carpentries.

This distribution changed once that the population in each geographical unit was considered. The highest density values were for the Ebro Axis and the Canary Islands, with densities at the level of 40 carpentries per 100,000 habitants. In the case of the Cantabric Area and the Mediterranean Arch values were at the same level that the Spanish ones, 29 carpentries per 100,000 habitants. This activity achieved the lowest density in the South and Central Areas.

According to concentration index values, Canary Islands with one and a half times more carpentries in proportion to the whole Spain, had the highest specialization in carpentries. Two geographical units, the Cantabric Area and the Ebro Axis, showed a positive specialization in this activity with values slightly higher than 100, The lowest concentration index was in the Central Area, having also the Mediterranean Arch and South Area values under 100.

5.1.4. Packing Products

The highest number of industries dealing with packing products was situated in the Mediterranean Area, with 462 companies in 2003. In absolute terms the South Area and the Cantabric Coast achieved important positions with a value closed to 200 members within this activity. The Central Area had a lower value of 160 members, while members coming from Ebro Axis achieved a number of 85 in 2003. Finally the lowest number of members was in the Canary Islands with 13 in 2003.

In relative terms, Ebro Axis had the highest density of packing products industries with almost 4 industries per 100,000 habitants. In the Mediterranean Arch and in the Cantabric Area the density is higher than in Spain, while the

South and the Central Areas had lower densities than in Spain. Finally the lowest density was achieved in the Canary Island with a value under 1.

According to their concentration indexes and in a decreasing order, the Ebro Axis, the Mediterranean Arch, the South Area and the Cantabric Area had a certain degree of specialization in this activity. Values under 100 show a low specialization for both Central Area and Canary Islands.

Geographical Unit	Members	Density per 100,000 hab.	Concentration Index
Cantabric Area	207	3	103.90
Mediterranean Arch	477	3.70	114.50
Ebro Axis	82	4	122.60
Central Area	164	1.70	69.10
South Area	199	2.30	109.70
Canary Islands	14	0.80	34
Spain	1,143	2.70	100

Table 13. Results for Packing Activities.

5.1.5. Other Wood Products and Non-Wood forests Products Industries

The highest number of other wood and non-wood forests products enterprises belonged to the Mediterranean Arch; the number of members has decreased from 1,841 in 1999 to 1,552 in 2003. Other geographical areas like the Central, the South and the Cantabric also had a high number of companies, between 650 and 519 members. The Ebro Axis with a value of 143 in 2003 occupied a lower position, and the lowest contribution is in the Canary Islands with 47 members.

Clearly the highest density was in the Mediterranean Arch with a value higher than 12 companies per 100,000 habitants. Between eight and six companies were the densities for the Cantabric Area, the Ebro Axis, Central and South Areas. The lowest density value was 2.4 in the Canary Island.

Geographical Unit	Members number	Density per 100,000 hab.	Concentration Index
Cantabric Area	519	8	89.50
Mediterranean Arch	1,631	12.60	126.10
Ebro Axis	147	7.10	70.80
Central Area	625	6.40	84.80
South Area	540	6.30	95.90
Canary Islands	47	2.50	36.80
Spain	3,509	8.40	100

Table 14. Results for Other Wood and Non-Wood Forest Product Activities.

Only the Mediterranean Area had a concentration index higher than 100. In decreasing order the South Area, the Cantabric Area, the Central Area and the Ebro Axis had concentration indexes between 90 and 65, while Canary Island value was much lower under 35 points.

5.1.6. Furniture manufacturing

With 8,000 members, the Mediterranean Arch was the geographical unit with the highest number of furniture manufacturing enterprises. The Central Area occupied the second place with an amount of almost 5,000 members. An increasing number of members have set the South Area, as the third in importance with 3,800 furniture

manufacturers. Lower values had the Cantabric Area and the Ebro Axis with 2,900 and 1,100 industries respectively. The lowest amount was in the Canary Islands with 620 furniture manufacturing industries.

The Mediterranean Arch and the Ebro Axis had densities higher than 51.61 industries per 100,000, which was the Spanish density. Central Area had densities slightly lower than the Spanish one, while the lowest value was in the Canary Islands, with 38 industries per 100,000 habitants. The Cantabric and the South Areas had intermediate values at the level of 40 industries per 100,000 habitants.

Geographical Unit	Members	Density per 100,000 hab.	Concentration Index
Cantabric Area	2,961	45.80	83.70
Mediterranean Arch	8,076	62.20	102.40
Ebro Axis	1,122	54.20	88.60
Central Area	4,869	49.70	108.40
South Area	3,727	43.60	108.50
Canary Islands	638	34.60	81.90
Spain	21,393	51.30	100

Table 15. Results for Furniture Manufacturing.

The gap among the lowest and the highest concentration index values was smaller for this activity than the others. The highest values were for the South and the Central Areas with values slightly higher than 100 points, while the Mediterranean Arch had a value of 102. The lowest value was 69 points in the Canary Islands, but the differences between the Cantabric Area and the Ebro Axis, which had values at the level of 80 points were lower than in others activities.

5.2 Wood Products Trade

In this part of the document only data from five countries have been used. These data are referred to all group 20 products from CNAE classification (wood and cork products). The countries are Chile, Finland, France, Sweden and USA. The last four countries are the main exporter of wood products to Spain. In addition a fifth country, Chile, has been included for its emerging position in the Spanish market of wood products.

The input data are quite heterogeneous with a wide range of products, species, technological differences, but we have considered it very interesting to see the development of Spanish wood product imports during the last 6 years in different geographical units approach, with discrimination of their provenances. For some of the data a more sound relation can be carried out like Finish and Swedish ones, where the main share of the importations are coming from conifers sawn wood products kiln dried to moisture content of 18 and lower. Chilean sawn wood products, mainly *Pinus radiata* ones, and other softwoods coming from South America are starting to be used as substitutes of Nordic and North American sawn softwoods. There is a clear competition between hardwood products coming from USA and French ones.

Input data are economic values of Spanish wood import, weights and number of operations from 1998 to 2003. With these data two figures have been calculated, value per operation and value per kilogram. The value per operation can give information about the development of business to business activities in a market like the Spanish wood product one, where intermediation and big importers have an important share of the total volume imported by Spain. The unit for value per operation is 1,000 euros.

The value per kilogram can provide data about new resources available for the country, changes in productivity process or adaptation to changes in the markets, among others. The value per kilogram is expressed in €/kg.

5.2.1. Spain

Chile is among the five countries, the one with the most uneven distribution to the Spanish territory. For example value per operation increased from 1999 to 2000, with 75 percent and one year after it had a similar value to the 1999 one (figures 43 and 44).

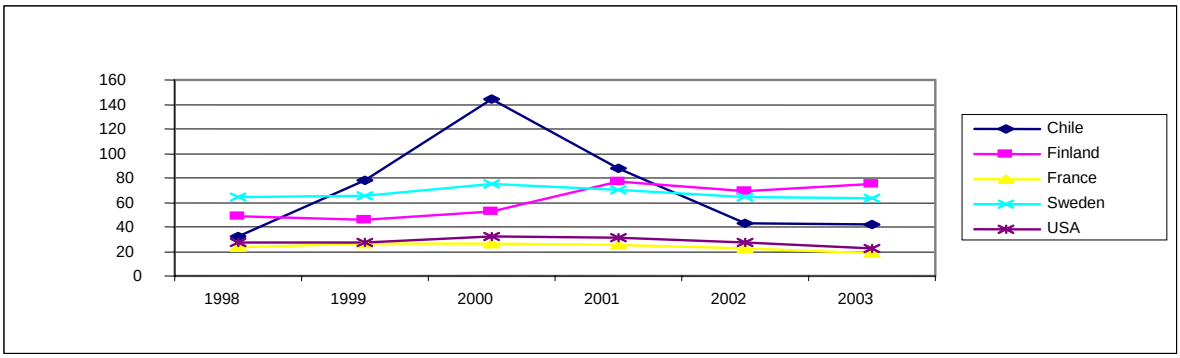

Figure 43. Value per Operation Spain in 1,000 €

While Swedish prices had an evolution with little changes, Finish had a livelier one. As a result Finish prices of wood products has reduced 21 percent from 1998 to 2003, while Swedish did 0.4 percent. Finish wood products have reduced the marginal to Swedish ones from 14 to only 2 cents per kilogram, the higher per year reductions happened in 1999 and 2002. Swedish value per operation achieved a maximum of 75,300 € in year 2000, afterwards the value has reduced to 63,300 €. Average Finish operation increased 46 percent during year 2001 achieving a value of 77,000 €, after this increment Finish values were over the Swedish ones for the rest of the studied period (figures 43 and 44).

From 1999 to 2001 Chilean wood products exportations had the highest value per operation, being the maximum 144,000 € in 2000. This value decreased to 40,000 €, which is under the Nordic operations but above the French and North American ones. Wood products coming from Chile decreased their prices from 0,41 €/kg in 1998 to 0,12 €/kg in 1999, after that the price have slightly increased achieving a value of 0,24 €/kg in 2002, ending at 0,22 €/kg in 2003 (figures 43 and 44).

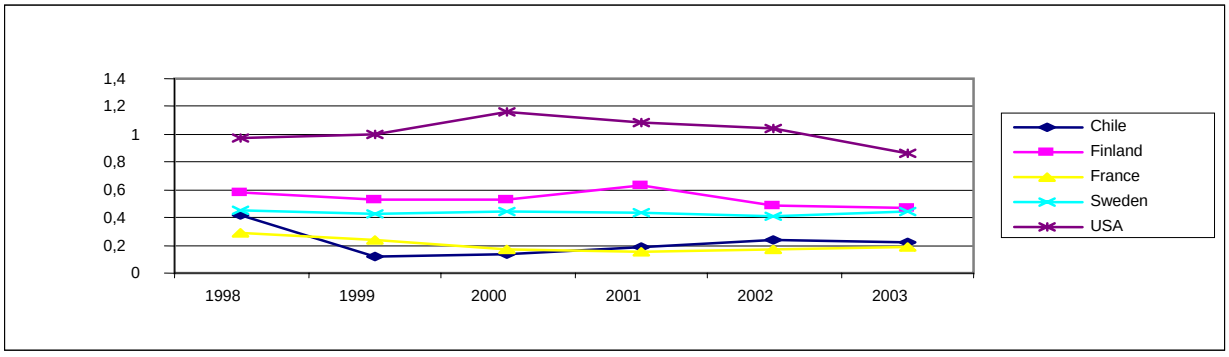

Figure 44. Values per kg Spain in € .

Both North American and French operation sizes had an even distribution with minor changes from 1998 to 2003. They had a little increment until 2000 achieving values of 26,000 and 32,000 €. This value decreased until 2003 to values bellow 1998 levels. North American products were the most expensive in a kilogram basis, after a peak of 1,16 €/kg in 2000, prices reduced to 0,86 €/kg in 2003 representing a reduction of 25 percent. French prices were under the rest, with the exception of Chilean prices in years 1999 and 2000, after a reduction of 41 percent between 1998 and 2000, prices have been slightly increased to 0,18 €/kg in 2003 (figures 43 and 44).

5.2.2 Cantabric Area

Three areas can be distinguished in the diagram showing operation values (figure 45). There is an area of big or enormous sizes from Chile year 2000 and latest Finish values and Swedish Values. While Swedish operations sizes have clearly decreased from an average size of 153,000 € in 2000 to 117,000 € in 2003, Finish sizes have increased passing from 79,000 € in 2000 to 172,000 € in the year 2003. The 2000 Chilean value was the maximum for this studied period and area with 388,000 €. Chilean exportations sizes have an uneven distribution with big changes.

There is an intermediate level, where Chile has its values for the beginning and the end of the period. These values ranged from 100,000 to 50,000 € (figure 45).

The lower part of the graphic was for French and USA exports, which had a similar trend with stable sizes until 2001, followed by reductions during the years 2002 and 2003. The sizes for the first part of the period until 2001 were 27,000 € and 44,000 € respectively for French and USA operations, while the values for the end of the studied period were 19,000 € and 22,000 € (figure 45).

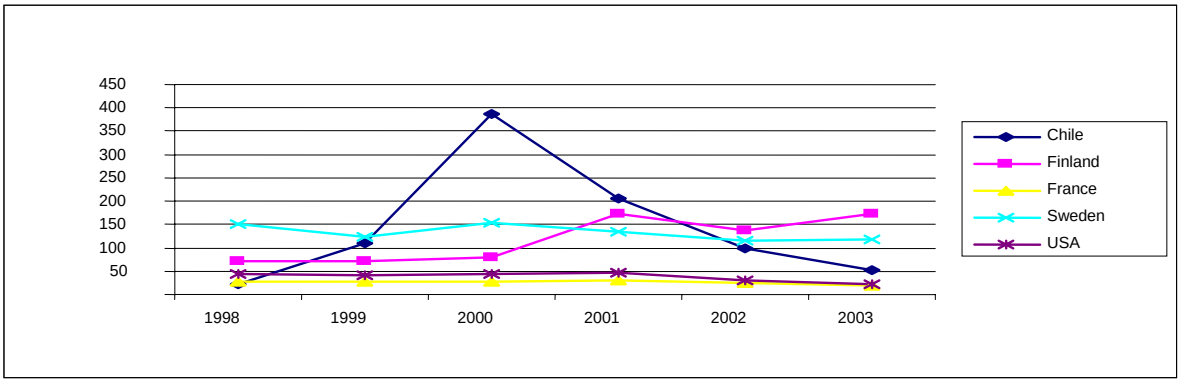

Figure 45. Values per Operation Cantabric Coast in 1,000 €

The most expensive products per kilogram were North American ones, while Chilean and French products had the lowest prices, Nordic prices are distributed between this lower and upper level (figure 46).

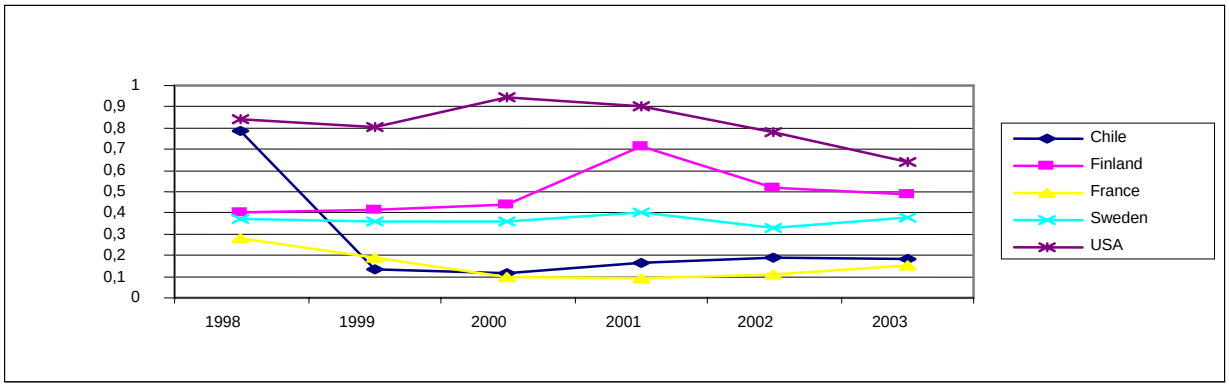

Figure 46. Values per kg Cantabric Coast in €.

Nordic prices showed up a different evolution, while Swedish ones have been stable on the level of 0,37 €/kg with the exception of 2002, Finish prices had various changes with an increment of 25 cents in 2001 followed by a reduction of 0.19 €/kg. Finish prices at the end of the period were 25 percent higher than at the beginning of the period, despite of the reduction from 2001 to 2003 (figure 46).

After 60 percent reduction from 1998 to 2001, it seems that French prices has recovered going from 0.09 €/kg to 0.16€/kg. North American prices had a reduction period starting in 2000, but reductions were bigger after 2001 (figure 46).

5.2.3. Mediterranean Arch

Nordic operations had the biggest sizes with values over the 44,000 €, Swedish ones bigger than Finish ones, although the gap has reduced during 2002 and 2003. Chilean sizes were in an intermediate position between Nordic and both French and North American ones. Both French and North American operations have experienced a reduction during 2000 and 1999, respectively of 25 percent and 30 percent for U.S.A. and France ones (figure 46).

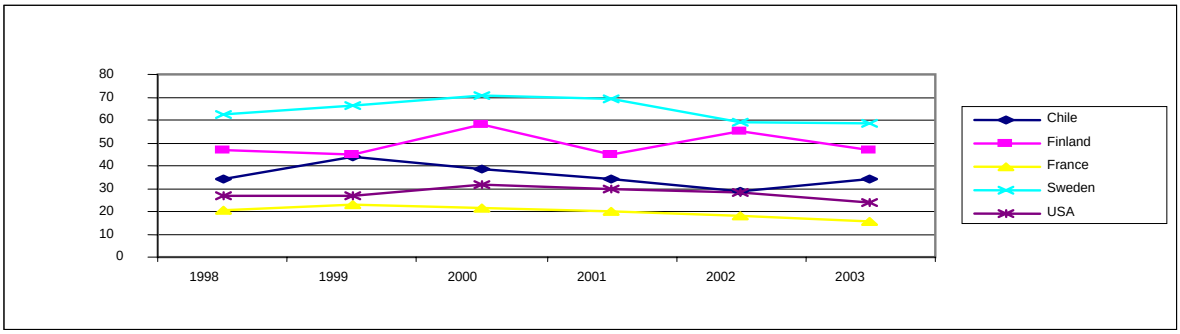

Figure 47 Values per Operation Mediterranean Arch in 1,000 €

In a Nordic comparative of prices Finish prices reduced with 37 percent from 1998 to 2003, while Swedish ones have been stable around a level of 0,48 €/kg. As a result in 2003 finish values were only 0,02 €/kg over Swedish prices (figure 47).

Fluctuations were common in the prices of products coming from Chile. For example they experienced a reduction with more than 50 percent from 1998 to 1999 and afterwards the prices went up 166 percent again in just one year.

After this it seems that changes in prices have been smoother, having a value of 0,34 €/kg in 2003. During this period of time, Chilean prices were under the Nordic ones and above French ones (figure 48).

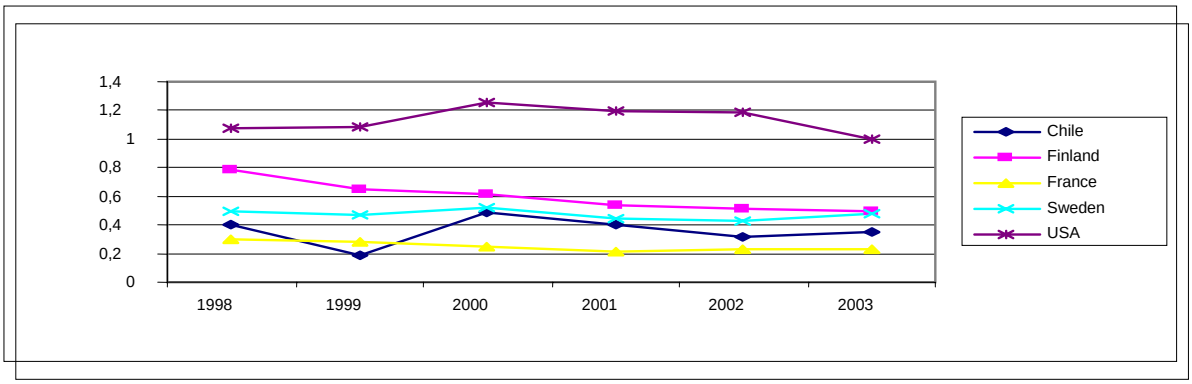

Figure 48 Values per kg Mediterranean Arch in €

North American prices had the highest value, while French ones had the lowest with the exception of year 1999, when Chilean prices had it. After an increment in North American prices, which made them go over 1.2 €/kg in 2000, prices have reduced to 1 €/kg in year 2003, this reduction was stronger in the last year. French prices had a smooth development with small yearly reductions from 1998 to 2001 with a couple of cents, achieving a value of 0.21 €/kg. During years 2002 and 2003 prices seem to be stabilized in a level of 0.23 €/kg (figure 48).

5.2.4 Ebro Axis

The maximum and the minimum operation sizes in the Ebro Axis were Chilean ones, with the maximum 69,000 € in 2000 and the minimum 12,000 € in 2002 (figure 49).

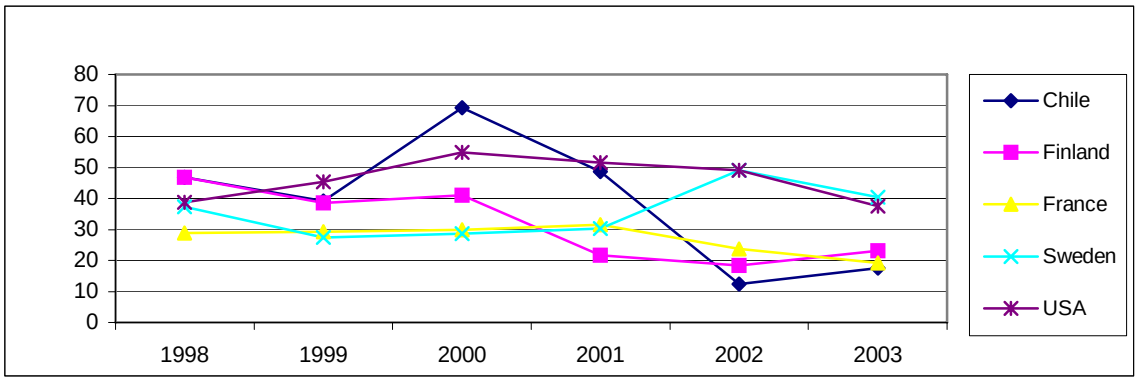

Figure 49. Values per Operation Ebro Axis in 1,000 €.

Nordic average operations were higher at the beginning of period in the case Finland, but at the end Swedish operations were bigger than Finish ones. The changing point was in 2002, where Finish operations decreased from a size of 40,000 € to 21,000 € and Swedish operations increased from 30,000 € to 50,000 € (figure 49).

In the Ebro Axis the differences among Nordic operations and French-USA ones were smaller than in other geographical areas. French operation sizes were stable until year 2001 in 30,000 € level after this, the size was reduced to 20,000 € in 2003. The size of operations coming from USA, increased from a value of circa 38,000 € in

1998 to a value of 55,000 € in 2000. This increment was followed by a reduction that set the sizes to a level of 37,000 € (figure 49).

After an increment of 52 cents North American prices achieved a level of 1.60 €/kg, which was maintained until 2003, when prices went down to 1.30 €/kg. After a reduction of a few cents of euros in year 1998 and 1999, French prices were steady at the level of 0.12 €/kg from 2000 to 2003. Chilean prices increased until 2000, afterwards they went down to 0.37 €/kg in 2003 (figure 50).

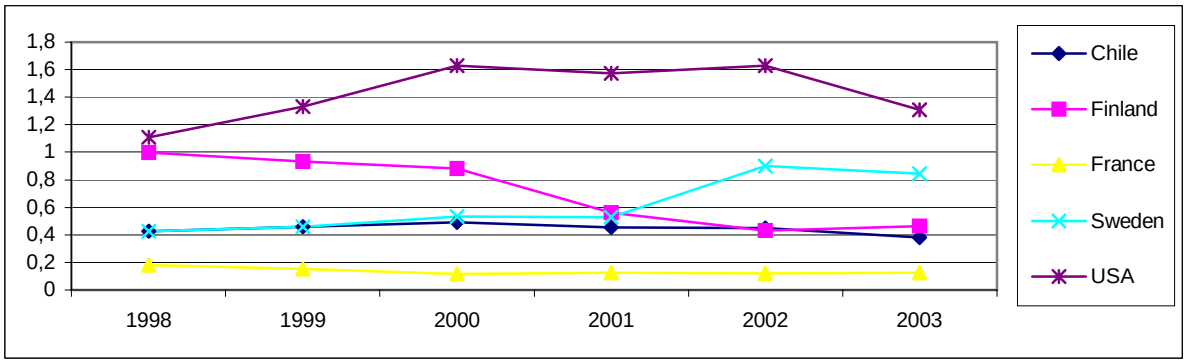

Figure 50. Values per kg Ebro Axis in €.

In year 1998 Finish prices were 0.99 €/kg, this prices decreased smoothly during the years 1999 and 2000. After a reduction of 33 cents, prices were set at 0.55 €/kg, This in addition with a big increment of Swedish prices in year 2002, have set Swedish prices almost in a double level than the Finish ones in 2003 (figure 50).

5.2.5. Centre Area

Nordic countries had an opposite development in their operations sizes in the Centre Area. While Swedish sizes increased from 20,000 € in 1998 to 53,500 € in 2003, Finish ones did from 50,000 € in 1998 to 32,800 in 2003. Chilean sizes had a similar development to the Swedish ones, with big increments from 1999 to 2001, but they were on the level of 40,000 € during the last three years. Finally French and American sizes had a similar evolution, achieving a maximum in year 2000 of 36,600 € and 28,700 € respectively and afterwards they decreased until 2003 (figure 51).

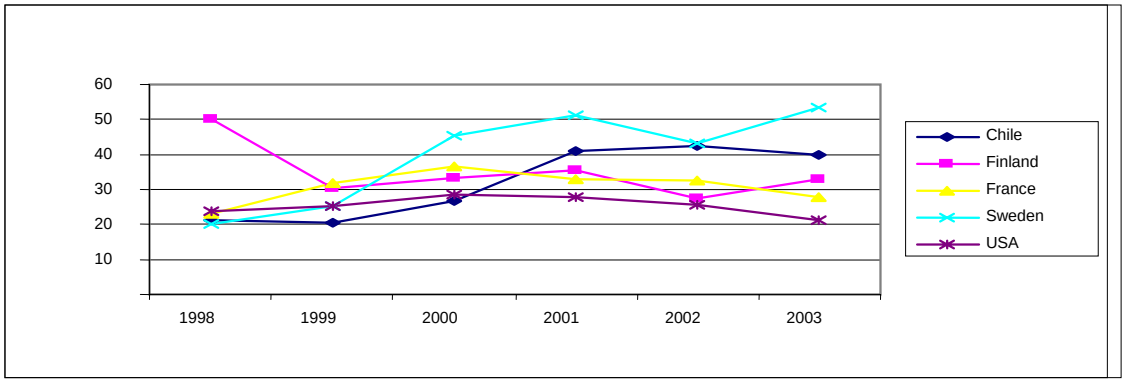

Figure 51. Values per Operation Centre Area in 1,000 €.

Swedish and Finish prices had an antagonist evolution. In 1998 Finish prices were almost two times higher than Swedish, as a result of an increment in the Swedish prices and a reduction of the Finish ones, Swedish prices were 170 percent higher than Finish ones in 2003. After a peak of 0.90 €/kg in year 2000, Chilean prices decrease to a value of 0.6 €/kg in 2003. While French prices went down 50 percent from 1998 to 2001, American prices increased circa 25 percent achieving a value of 1.15 €/kg; after this French prices were stable at the level of 0.2 €/kg and American decreased to 0.90 €/kg (figure 52).

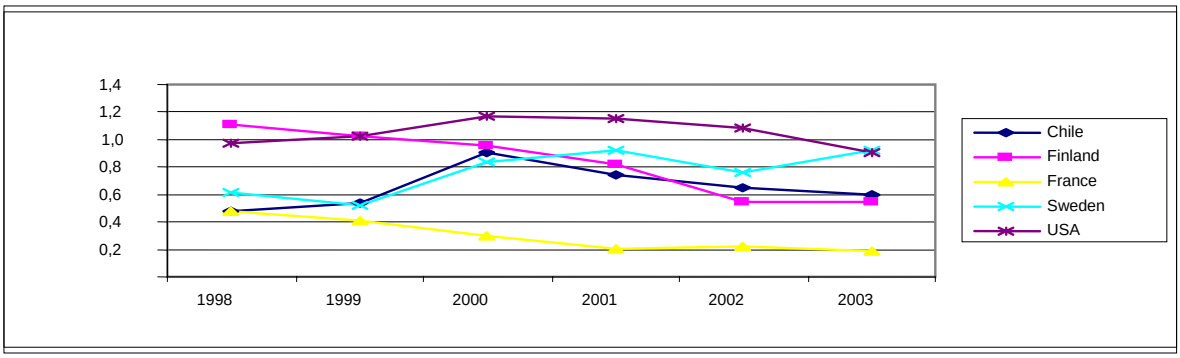

Figure 52. Values per kg Centre Area in €.

5.2.6. Southern Area

In order to get a better visualization Chilean values per operation in 2000 and 2001, have been divided by 10. This means that the real values were 801,000 € and 1,562,000 € instead of 80,100 and 156,200, that appears in figure 53.

Chilean operations grew with a huge rate from 1998 to 2001, achieving a maximum of 1,562,000 € per operation in that year, afterwards sizes decreased to values spread between 60,000 and 70,000 € until 2003. Swedish operations sizes were set at the level of 100,000 € during this period of time. In 1999 Finish operations increased with 100 percent, having a value of 150,000 between 1999 and 2002; this value decreased to 129,300 € in 2003. After increase in their sizes during the years 1999 and 2000, French and American operations achieved values of 18,700 and 21,800 € respectively, this was follow by a reduction during the rest of the period, ending at 11,300 € in the case of France and 14,600 € for American ones (figure 53).

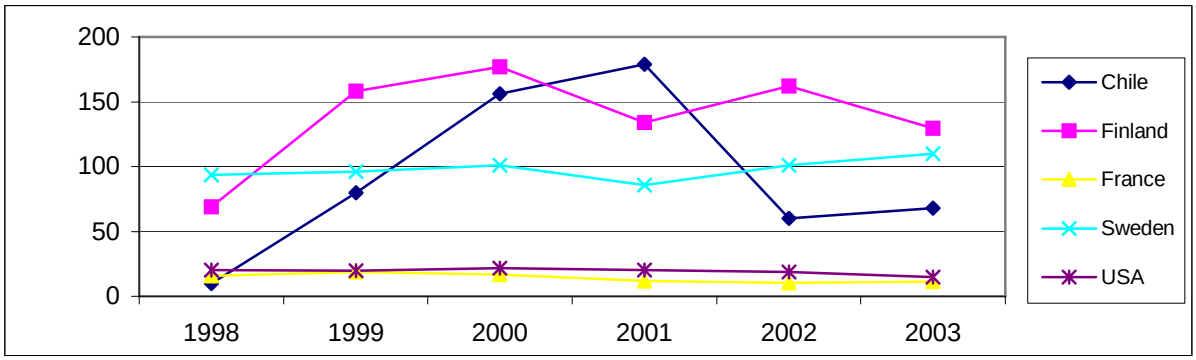

Figure 53. Values per Operation South Area in 1,000 €.

Chilean prices come down to a value of 0.09 €/kg in 1999, after this prices increased slightly until 2003 achieving a value of 0.15 €/kg. Sweden and Finland had a similar level of prices between 0.35 €/kg and 0.44 €/kg; with the

biggest differences during the years 1999 and 2000, when Finish prices were higher. During the first half of this period French prices decreased 50 percent to the level of 0.4 €/kg, which was the level until 2003. Finally American prices increased 10 cents in 2000 afterwards prices decreased until 2003. This reduction was biggest in the last year when prices came down to 0.68 €/kg (figure 54).

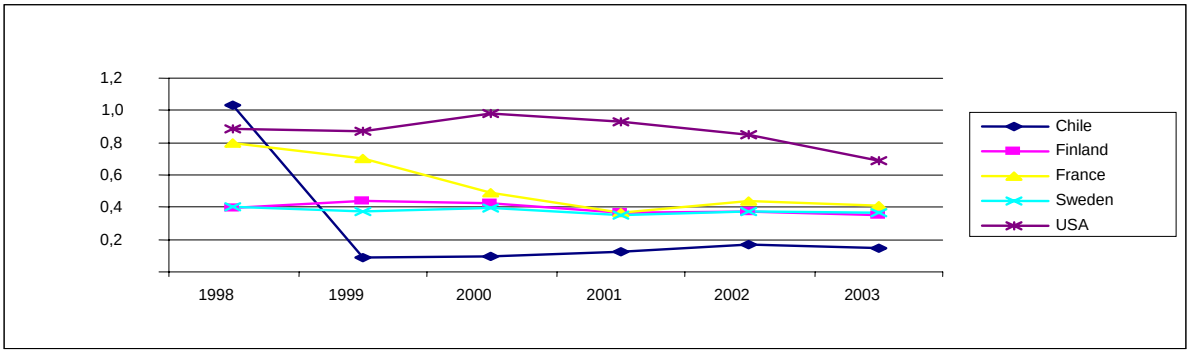

Figure 54. Values per kg South Area in €.

5.2.7. Canary Islands

Chilean wood products operations appeared in a sporadic form in the Canary Islands, with maximum of 45,000 € in 1999, while no operations at all were registered in years 1998, 2000 or 2001. North American operation were steady at a level of 20,000 € between 1998 and 2001, after that the average size decreased under 15,000 € in 2003. French average operation size had a peak value of 29,000 €, this came down and up from 2000 to 2003, ending at the value of 13,000 € in 2003 (figure 55).

Finish and Swedish operation sizes had similar values during the whole period and they decreased in a smooth way during the last half of the period. Swedish values are slightly smaller than Finish ones, with the exception of year 2000 (figure 55).

There are minor changes in the Nordic prices in the Canary Islands, so Finish prices kept its level at a value around 0.43 €/kg, while Swedish did at a value around 0.48 €/kg (figure 56).

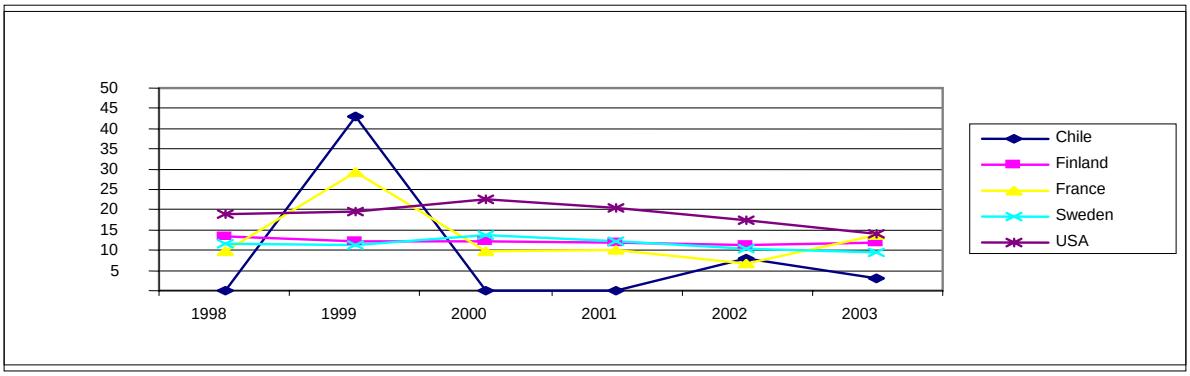

Figure 55. Values per Operation Canary Islands in 1,000 €.

After an extremely high value of 3.29 €/kg in 1999, Chilean products reappeared with a value of 0.32 €/kg in 2002. In 2000 North American prices achieved a value slightly over 1 €/kg after that, prices decreased continuously to 0.69

€/kg. With the exception of years 1999 and 2003, French prices are the highest during this period of time with prices between 1.5 and 1 €/kg, but its value in year 2003 was 0.37 €/kg (figure 55).

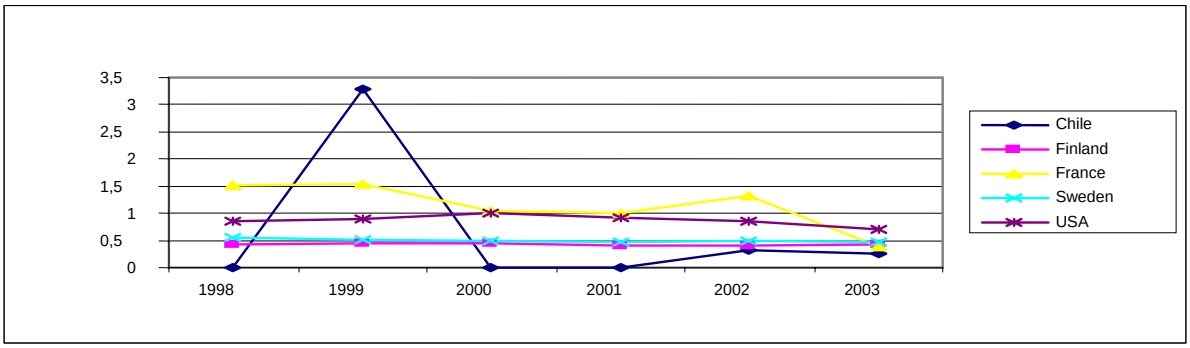

Figure 56. Values per kg Canary Islands.

6. Discussion

The Spanish sector of wood product manufacturers is not a homogeneous unit. In fact with a simple division of the country in 6 geographical units some differences have appeared. Always that some elements are grouped, there are by one side loss of information and at the same time some aspects are over represented.

Probably this is not the best division of Spain in order to describe the Spanish sector of wood product manufacturers. A better approach could be done using as study unit the Spanish provinces, the production of this higher detailed information could have some problems. First it would need other sources of information that probably could lead to the definition of some target provinces, what could reduce the information in a country perspective; these new sources will probably not be official data, this would need some kind of relationship with industrial associations in the areas. Secondly a better planning should be done in order to get a right maximization of the resources. But in addition this information with a high spatial resolution could be a great tool for knowing the current situation of the wood transformation sector in Spain and it potential development in the future.

The Central Area unit has probably the highest heterogeneity because of the huge size, differences in climate, population density among others. Some of the provinces in the northern part of the Central Area have more things in common with the Cantabric Area and some of the southern part could be included with out problems either in the South Area or the Mediterranean Arch. This could be kept on mind for further work with the Spanish Wood Products Manufacturers.

Geographical	201	202	203	204	205	361
Cantabric Area	250	78.60	107	103.90	89.50	83.70
Mediterranean Arch	54.90	151.40	98.90	114.50	126.10	102.40
Ebro Axis	100.20	108	117.70	122.60	70.80	88.60
Centre Area	108	75.70	87.80	69.10	84.80	108.40
South Area	53.50	54.30	92.90	109.70	95.90	108.50
Canary Islands	38	5.30	151.40	34	36.80	81.90

Table 16. Specialization Index per Group Activities and Geographical Units.

Geographical Units with higher supply of woody raw materials have higher concentration index values in saw milling (group 201) and board and wood panel producers (group 202); these regions are Cantabric Area, Ebro Axis and Centre Area. Two comments should be done to this affirmation, firstly board and wood panel producers in the Mediterranean Arch, where the main production is veneer using as entrance harbours in the Mediterranean Coast like Valencia or Barcelona. Secondly Cantabric and Centre Areas wood boards and panels concentration index values are lower, even that the bigger share of the Spanish wood boards manufacturing is done in those areas; this probably stem from the fact that board lines are few but big, comparing to veneer manufacturing industries.

In the case of wood structures and carpentry products (group 203), the highest concentration index is in the Canary Islands. This could be a combination of the geographical isolation and a higher demand of products coming from the residential and tourist sector. In the mainland high values are shown in the northern part of Spain, Cantabric Area and Ebro Axis, while Mediterranean Arch, Centre and South Areas have lower values. The reasons for these differences could be a lower wood culture degree in South and Central Spain, where substitution has happened with competing materials; these areas are under the Mediterranean climate domain and have extreme changes in temperature and humidity between seasons, that in addition to an impropriate use of wood products have created a bad and wrong reputation about some wood products as windows and structural elements.

Packing products are either associated to high densities of population or industries. The highest specialization index is in the Ebro Axis, this area of Spain play a key role in logistic aspects, since it is situated in a short distance to the biggest population and industrial centres, as *Cataluña, Comunidad Valenciana, Comunidad de Madrid* and *País Vasco*. Other three units are above 100 points, in the case the Mediterranean Arch and the Cantabric Area is probably linked with higher number of industries in some regions of Cantabric Area, while in the Mediterranean Arch both factors a high density of population and industries can affect this value in the area. The Centre and South Area present a opposite situation, so while central area of Spain present high values of depopulation, with the exception of Madrid, it has a high number of industries mainly concentrated also in Madrid, but South of Spain has higher densities of population in some areas and a low densities of industries, which are mainly working with agricultural production. The lowest value was in the Canary Islands, probably due to its low density of industries and the high dependency of mainland territories industries.

The main non-wood forest products in the Spanish forest are cork, pine seed and fungi. Again Canary Islands has the lowest value, while only the Mediterranean Arch is above 100. In the case of the Mediterranean Arch the transformation sector is supplied by raw materials coming from the same area but also from other areas and even from outside the country. The South and the Cantabric Area have high values but under 100; in the case of South it could be mainly cork products manufacturing, while for the Cantabric Area fungi is an important non- wood product.

The highest values for furniture manufacturing are in South and Centre Areas. The Mediterranean Arch also has a specialization index above 100, while the rest of the areas have between 80 and 90 points. In these groups of activities the maximum and minimum values are closer, which indicates a more even distribution of these activities all around Spain.

The National Statistics Office (INE) and the Customs Authority are providing data from all the Spanish territory and covering different kind of activities. The limitation of the first one is CNAE classification, which has a low detail level when activities like veneer manufacturing and MDF board manufacturing are set in the same category. With respect of Customs Authority database, data can be queried in two ways, first following CNAE categories or using TARIC categories; in this second classification the details is higher. But these TARIC categories have not a high credibility, as example it is clear that Portugal is not the main Spanish source of Scot pine (*Pinus sylvestris*). This anecdotic aspect could produce bigger problems in the intention to do a more detailed description in terms of trade and use of products. Never the less this small details should not be a big problem, in order to get a broad view of the main imports and exports of the Spanish wood product manufacturers.

When exportations from Chile, Finland, France, Sweden and USA are analyses in a national scale, the three main findings are: the uneven development of Chile, the increment of the economic volume of Finish orders and a reduction in prices of products coming from USA. The reasons for these changes could be a better knowledge of the Spanish market by Finish companies, based on a well distributed network of sellers and the entrance of Spain and Finland into the European Monetary Union. Chile starts to emerge as a source of low price materials mainly coming from *Pinus radiata*, which can be used as alternative source for more expensive softwoods products. In the case of USA the reasons could be new origins for temperate hardwoods, mainly central and Eastern Europe and the depreciation of the Dollar at the end of the studied period

If these analyses are done with different geographical units, we could see that prices and operations development are different among the units. But as average the biggest operation sizes are coming from Nordic countries, with the exception of Chilean peak values. USA and Nordic countries have higher prices, while France and Chile have lower prices. The explanation to this fact could be different kind of products and species.

When Swedish and Finish prices are compared among the Spanish areas it seems that Swedish has a positive advance in regions, which are by the sea. So prices are lower than Finish ones in the Cantabric Coast, the Mediterranean Arch, the South Area and the Canary Islands, but it seems that land based logistics are giving some advances to Finish Products prices, so they are lower in the Ebro Axis and Centre Area.

The level of French price is higher, when we move southwards and the effect of storm episodes in 2000 was bigger in the Cantabric Coast, the Centre and the South Areas. USA prices stopped their growth in 2001 after that, prices have decreased in different ways. Chilean prices showed up a different development according to geographical units; prices have raised up in the Cantabric Coast, the South Area and the Canary Islands, while in the rest of the territory prices have gone down during the last four years.

7. Conclusions

Firstly I will write two personal comments. The author of this paper has heard several times during his Spanish forestry education how hard is to get economical profit from silvicultural and forest operations in Spain. In the other side several times during my short international experience, people have asked me: “Are there forest in Spain?”. I think that with a calm lecture with this document this question could have an answer.

It is clear that wood trade involves a huge amount of money, there are strong and big groups involved in timber trade, and Spain is not an exception. The current Spanish situation, where a few number of importers are sharing the biggest part of this trade, is a highly profitable practice for these importers, but a more complicated question could be to know if is it profitable for the Spanish wood transformation sector and Spanish forests and in what terms. After the lecture with this paper, the hope of the author is that the reader will have more data in order to form an answer to this key question. Finally just to say that in order to change this situation a better knowledge of the Spanish wood product manufacturers is needed, and actions should be carried out in collaboration among both Spanish and international actors in the wood sector.

In 2003 Spain imported 900 M€ of sawn wood products. But when other groups of activities are included this figure raised up to 2 billions of euros. During the last years a big increment of wood boards, panels, joinery carpentry products have happened. A Small or Medium Size (SME) enterprise can be competitive with some of these products, because further transformation increased the cost for big companies, making them not competitive in the production of this kind of products, and at the same time the range of products is increasing being harder for a company to cover a full sortment of products.

It could be interesting for SME to invest time and resources in order to localize good partners for their products in a growing market, as it is the Spanish wood market, which could be bridges to distribute their products in a regional or national scale or a gateway to make their products known. This could be a good technique to avoid the intermediation and the use of importers.

According with the geographical division used in this document there is a clear specialisation for different activities in different geographical units:

- Sawmilling activities and board manufacturing are concentrated in the northern half of Spain in strong connection with a high supply of woody raw materials.
- Joinery carpentry and wood structures are concentrated in the Cantabric Area, Ebro Axis and Canary Islands.
- Packing products industries have found a good settlement in the Ebro Axis.
- Other and NWFP manufacturing sector had high values in the Mediterranean Arch.
- In the case of furniture manufacturing, we could conclude that there is high concentration of manufacturers in the whole Spanish territory.

It could be interesting to look for alternatives sources of information. This new sources should have:

- At least the activities covered in this document.
- The geographical scale should be provincial instead of regional.

Some aspects worth to remark among the Spanish wood products importations coming from Chile, Finland, France, Sweden and USA are:

- Uneven order sizes coming from Chile.
- Reduction in the USA prices.
- Different prices between inland and coastal areas for Swedish and Finish products.
- French and USA order sizes are smaller than the ones coming from the Nordic countries.

A deeper research should be carried out in other to know more of the Spanish wood transformation sector, which could help to understand better the role of some actors like importers, big companies and how their policies could affect the development of the wood products markets in Spain.

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