

The Economic Importance of Kastamonu Province in Turkish Forest Products Industry in Terms of Some Products

*Bahadır Çağrı BAYRAM¹, İlker AKYÜZ², Tutku ÜÇÜNCÜ¹

¹Kastamonu University / Faculty of Forestry / Department of Forest Industry Engineering / Kastamonu / TURKEY

²Karadeniz Technical University / Faculty of Forestry / Department of Forest Industry Engineering / Trabzon / TURKEY

*Corresponding Author: bahadircagri@gmail.com

Received date: 05.02.2015

Abstract

In this paper it was aimed to prove and emphasise the economic importance of Kastamonu in Turkish forest products industry via some analysis and calculations. Mainly; the most common manufactured and used products in Turkey, such as: Plywood, fibreboard (MDF), particleboard and round wood were selected for this research to study. First of all: The situation in Turkey was investigated and then the situation of Kastamonu was analysed. The used data were gotten from; Food And Agriculture Organization Of The United Nations (FAOSTAT), Turkish Statistical Institute (TURKSTAT & TUIK), The Union of Chambers and Commodity Exchanges of Turkey (TOBB) and Turkish Exporters Assembly (TIM). For an easy understanding, the results were shown on tables and figures. At the conclusions section our suggestions were given.

Keywords: Kastamonu, Forest Industry, Economic Situation, Export, Turkey, Forest Products

Bazı Ürünler Bakımından Türkiye Orman Ürünleri Endüstrisinde Kastamonu'nun Ekonomik Önemi

Özet

Bu çalışmada, çeşitli analizler ve hesaplamalarla Kastamonu'nun Türkiye orman ürünleri endüstrisindeki yerinin ortaya konması ve ekonomik öneminin vurgulanması amaçlanmıştır. Genel olarak, Türkiye'de en çok üretilen ve kullanılan ürünler arasında olan: Kontrplak, lif levha (MDF), yonga levha ve odun bu çalışmada araştırmak üzere seçilmiştir. İlk olarak önce Türkiye'nin sonra da Kastamonu'nun durumu analiz edilmiştir. Kullanılan veriler: Birleşmiş Milletler Gıda ve Tarım Örgütü (FAOSTAT), Türkiye İstatistik Kurumu (TUIK), Türkiye Odalar ve Borsalar Birliği (TOBB) ve Türkiye İhracatçılar Meclisi (TIM) veri tabanlarından alınmıştır. Daha kolay anlaşılması açısından sonuçlar tablolar ve şekiller ile gösterilmiştir. Sonuç bölümünde de bizlerin önerileri verilmiştir.

Anahtar Kelimeler: Kastamonu, Orman Endüstri, Ekonomik Durum, İhracat, Orman Ürünleri

Introduction

Kastamonu province is one of the provinces at the Black Sea Region in Turkey. Kastamonu, the capital of the district; is quite small with approximately 100.000 population in centrum (URL1, 2014) but rich in terms of forests. According to the data of General Directorate of Forestry, in 2012 the province holds nearly 5.7% of Turkey's Forests (OGM, 2012). Because of being in an abundant area and geographically advantageous location, the forest products industry is well developed at the district. The city has some of the biggest facilities in Turkey which are also exporting to the most of the world. In this paper the latest situation of most commonly used industrial products such as: plywood, fibreboard

(MDF), particleboard and round wood will be investigated for: Explaining the position of Kastamonu in Turkish forest industry and emphasising this small city's economic importance. Before passing into the materials and methods, it is better to give some information about these products which were already mentioned above. As you may know there are many engineered products in the market but just because of studying about a restricted area, we have preferred focusing on the basic products which make greater income.

Plywood: has its origins in laminating veneers around 3500 years ago in Egypt and is known as an engineered wood which has excellent physical and mechanical properties

and it is relatively cheap (Eltawahni et al., 2013). Plywood is one of the important wood-based composites produced from different tree species, and it has some superior advantages compared to solid wood (Bal and Bektas, 2014). It is composed of wood plates which were glued together and create a larger and more solid composite unit that is firmer and tougher than the individual parts (Kral et al., 2014). It has wide range of use in many different areas. Plywood panels can be used as underlayment, exterior trim and soffits, interior panelling, doors and cabinets (Nemli et al., 2007).

Fibreboard (MDF): Fibreboard is a fibrous-felted, homogeneous panel made from lignocellulosic fibres, combined with a synthetic resin or other suitable bonding system, and then bonded together under heat and pressure (Ye et al., 2007). Medium density fibreboard (MDF) a dry formed panel product (Akgül and Çamlıbel, 2008). MDF is frequently used as substitute of solid wood, plywood and particleboard in furniture production. It is also used for door skins, mouldings and interior trim components (Nemli et al., 2007).

Particleboard: Particleboard is produced by mechanically reducing the chips into small particles, applying various types of adhesive to the particles after a drying process and consolidating a loose mat of the

particles with heat and pressure into a panel product (Nemli et al., 2007). Some of the typical applications for particleboard are floor underlayment, home constructions, cabinets, stair treads, shelving, table tops, domestic, institutional and office furniture, cabinetry, vanities, counter tops, speakers, core for solid core flush doors, bifolds, sliding doors, lock blocks, interior signs, displays, table tennis, pool tables and electronic game consoles (Anonymous, 1996).

Materials and Methods

The number of establishments in Kastamonu, the production, exportation and importation quantity and values of the mentioned products were used as the data for this research. All of the data are the latest, up to date and announced by the governmental institutes and officials. They were gotten from Food and Agriculture Organization of The United Nations (FAOSTAT), Turkish Statistical Institute (TURKSTAT & TUIK), The Union of Chambers and Commodity Exchanges of Turkey (TOBB) and Turkish Exporters Assembly (TIM). In this paper: First of all, the situation of Turkey was analysed and then the situation of Kastamonu Province in Turkish Forest Industry was analysed by comparing with the total of Turkey. For an easy understanding the results were shown with figures and tables also they will be examined and explained at the results and discussion part.

Results and Discussion

Table 1. The situation of Particleboard and MDF in 2014 According to TUIK, 2014

Product	Number Of Establishment	Production Amount	Production Value (TL)	Sales Amount	Sales Value(TL)	Periods
Particleboard	13	818.101	367.295.753	368.217	204.368.309	Period 1
	13	906.800	444.868.167	426.488	263.109.668	Period 2
	13	876.032	447.773.491	432.098	274.476.164	Period 3
MDF (Thicker than 9mm)	5	*	*	*	*	Period 1
	5	36.719.248	357.142.007	15.473.611	185.434.345	Period 2
	5	35.752.511	358.079.904	17.259.113	197.949.852	Period 3

The unit for particleboard amount is M³ while M² is for MDF

Periods contain the following 3 months in a row

As it shown at the Table 1, either industries have serious income for the Turkish economy. If the periods were investigated, it is obviously seemed that at the period 3 the sales amount and value had been increased in both of the industries. Actually the values will be higher for the MDF industry in real, the reason

of this situation is the various thickness values at the production, but just because TUIK based the ones thicker than 9mm we also had to use that data at this table and it limited us. Also if a comparison about the production-sale amount and values was done, the fluctuation in price can easily be recognised.

Table 2. The situation of Particleboard, MDF and Plywood in Turkey in 2013 (Faostat, 2014)

Element Name	Amount	Unit	Item Name
Production	4.300.000	m3	Particleboard
Import Quantity	427.000	m3	Particleboard
Import Value	110.405	1000 US\$	Particleboard
Export Quantity	313.000	m3	Particleboard
Export Value	78.589	1000 US\$	Particleboard
Production	4.285.000	m3	MDF
Import Quantity	332.000	m3	MDF
Import Value	116.214	1000 US\$	MDF
Export Quantity	425.000	m3	MDF
Export Value	223.337	1000 US\$	MDF
Production	114.000	m3	Plywood
Import Quantity	293.000	m3	Plywood
Import Value	325.750	1000 US\$	Plywood
Export Quantity	22.200	m3	Plywood
Export Value	16.583	1000 US\$	Plywood

According to FAO: The production amount of particleboard and MDF is approximately same in 2013 but when the profitability of the boards was investigated, it is seen that MDF is ahead. By basing the Table 2 it is possible to say, particleboard and MDF industries are fulfilling the domestic needs

but it is hard to say the same for the plywood industry. But although the numbers are looking low at the plywood industry when the profitability was analysed, it was seen that the plywood industry is ahead of MDF and particleboard.

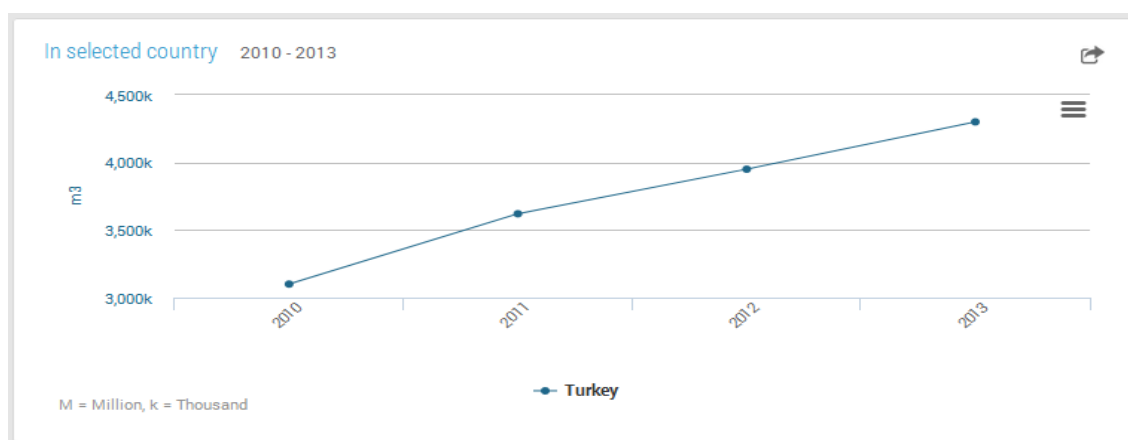


Figure 1. The Production Quantity of Particleboard (FAOSTAT, 2014)

Figure 1 shows the production quantity of particleboard from 2010 to 2013. As it shown at the chart Turkey has an increasing tendency.

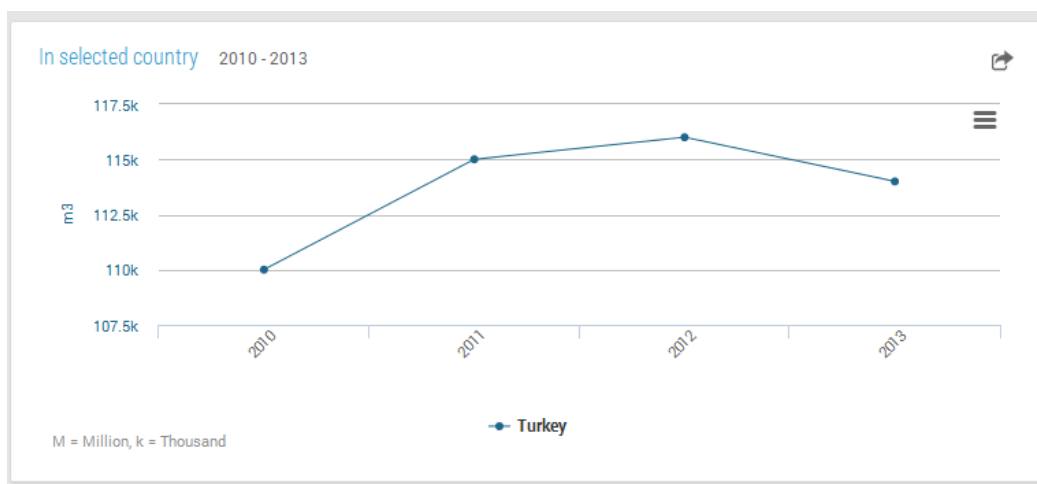


Figure 2. The Production Quantity of Plywood (FAOSTAT, 2014)

Figure 2 shows the production quantity of plywood from 2010 to 2013. As it shown at the chart Turkey has a fluctuating tendency. Even though the amount at 2013 is higher than 2010 it is still lower than 2012.

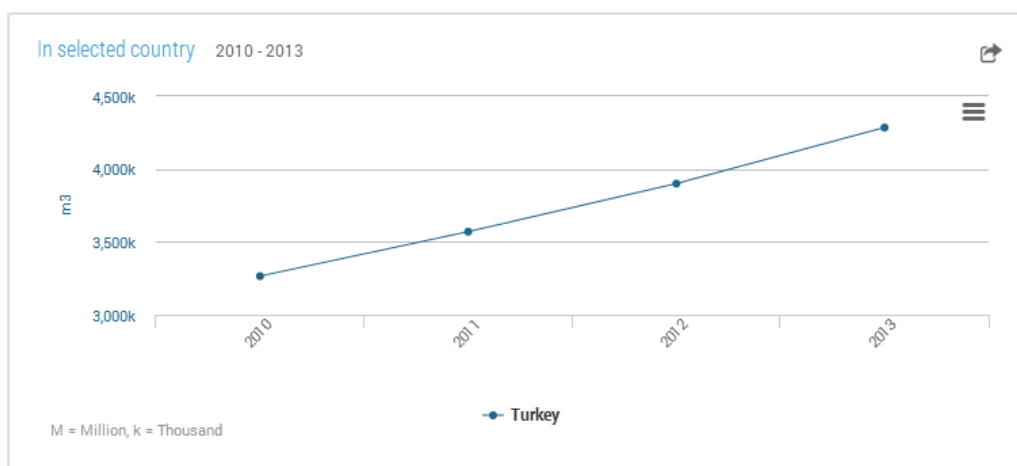


Figure 3. The Production Quantity of MDF (FAOSTAT, 2014)

Figure 3 shows the production quantity of MDF from 2010 to 2013. As it shown at the chart Turkey has an increasing tendency. As it shown at the figure 4, Turkey has a strong place at the world in MDF industry but unfortunately it is hard to say the same for the particleboard industry which is the closest one in Turkey to the MDF industry.

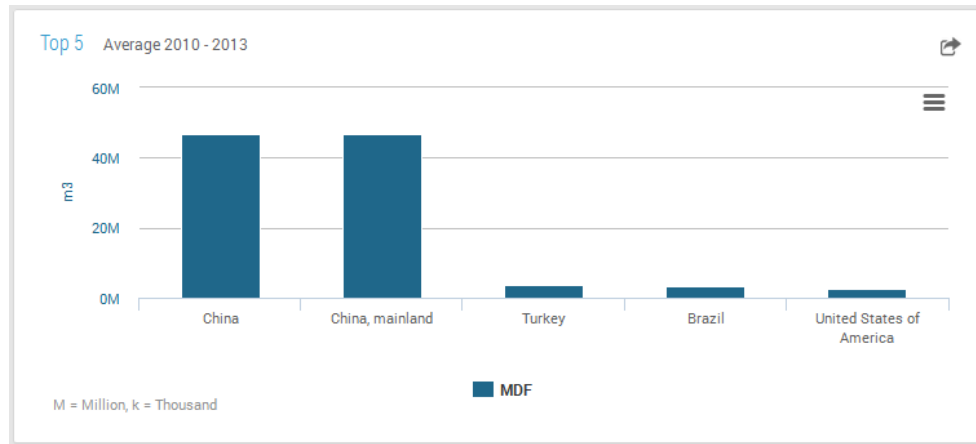


Figure 4. Top 5 MDF Manufacturers in the world (FAOSTAT, 2014)

Table 3. The situation of Round wood in Turkey in 2013

Element Name	Item Name	Amount	Unit
Import Quantity	Ind Rwd Wir (C)	552.500	m3
	Ind Rwd Wir (NC) Other	92.300	m3
Import Value	Ind Rwd Wir (C)	68.000	1000 US\$
	Ind Rwd Wir (NC) Other	25.742	1000 US\$
Export Quantity	Ind Rwd Wir (C)	6.400	m3
	Ind Rwd Wir (NC) Other	3.900	m3
Export Value	Ind Rwd Wir (C)	2.571	1000 US\$
	Ind Rwd Wir (NC) Other	568	1000 US\$

* C means coniferous, NC means non coniferous trees. (Faostat, 2014)

According to the table 3 it is obvious that the importation amount of round wood in Turkey is quite higher than the exportation. Mostly

the forest industry always speaks about this situation and it is not a myth and this table proves this fact.

Table 4. The Situation of Labour Force According To Industries

Registered Manufacturer	Employees					Total	
	Engineer	Technician	Master	Worker	Administrative		
Timber (>6mm) Industry							
K*	17	3	11	49	421	25	511
T*	595	136	136	1383	7964	1002	10623
Particleboard Industry							
K*	2	25	39	23	384	58	539
T*	30	229	240	364	2313	482	3628
Plywood Industry							
K*	10	108	142	116	1276	152	1804
T*	225	596	607	1163	9065	1348	12853
MDF Industry							
K*	3	53	70	47	357	84	621
T*	89	366	387	459	4663	706	6594

K* means Kastamonu T* means Turkey (TOBB, 2014)

When the table 4 was investigated, the employment situation of Kastamonu's forest industry will be seen. Totally, there are 32 registered manufacturers located in the region for the selected products which approximately is the 3% of the Turkey. 3475 people are working in Kastamonu at the selected products' industries which approximately is the 10% of the Turkey. The highest

employment is in the plywood industry (1804), MDF is the second (621) and particleboard is the third (539) Even though the employment values are similar in MDF and particleboard industries, the amount of engineers is way different. MDF industry has 53 engineers (approximately 14% of Turkey) while particleboard industry has 25 (approximately 11% of Turkey).

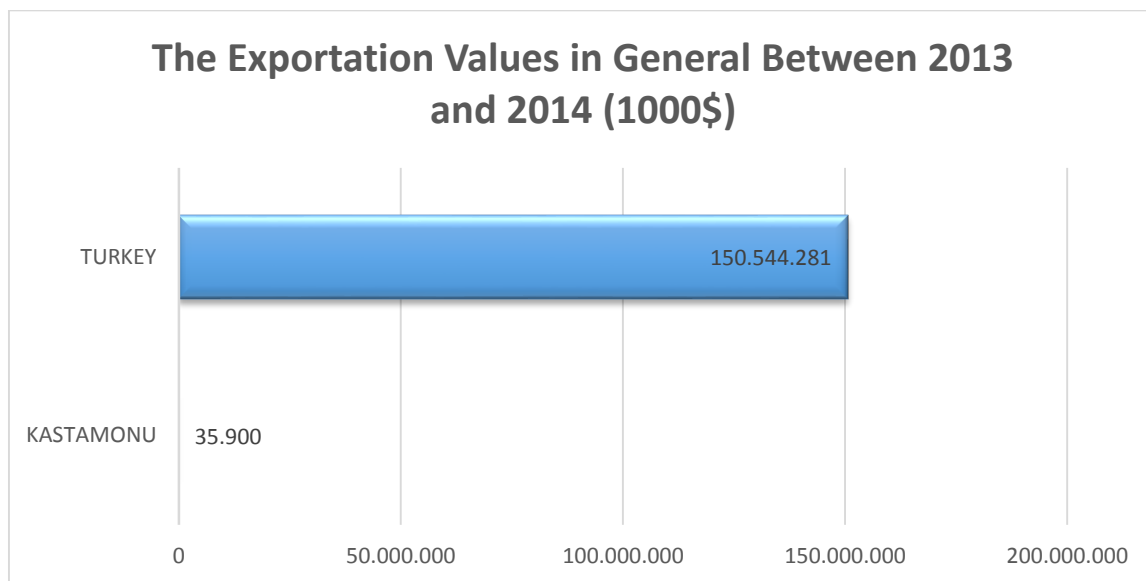


Figure 5. The Exportation Values of Kastamonu and Turkey in 2013-2014 (TIM, 2014)

As we already mentioned above, Kastamonu is a small province that's why it is not that much effective in Turkey's economy. When

the figure 5 was analysed it is clearly seen that Kastamonu approximately has the 0,024% of Turkey's exportation in general in 2013-2014.

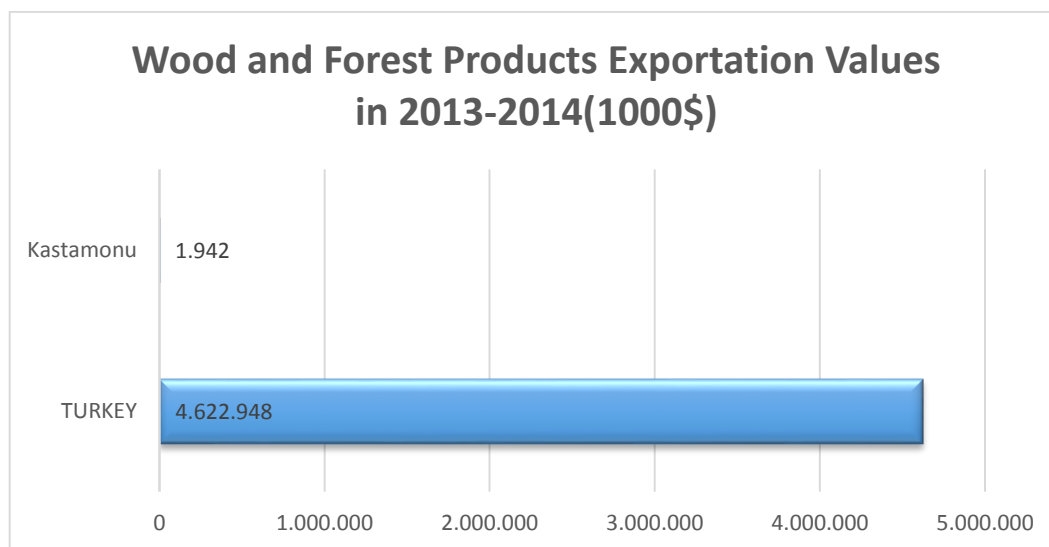


Figure 6. The Exportation Values of Wood and Forest Products Industry of Kastamonu and Turkey in 2013-2014 (TIM, 2014)

When the figure 6 analysed it is obviously seemed that Kastamonu has 0,042% of

Turkey's wood and forest products exportation in 2013-2014.

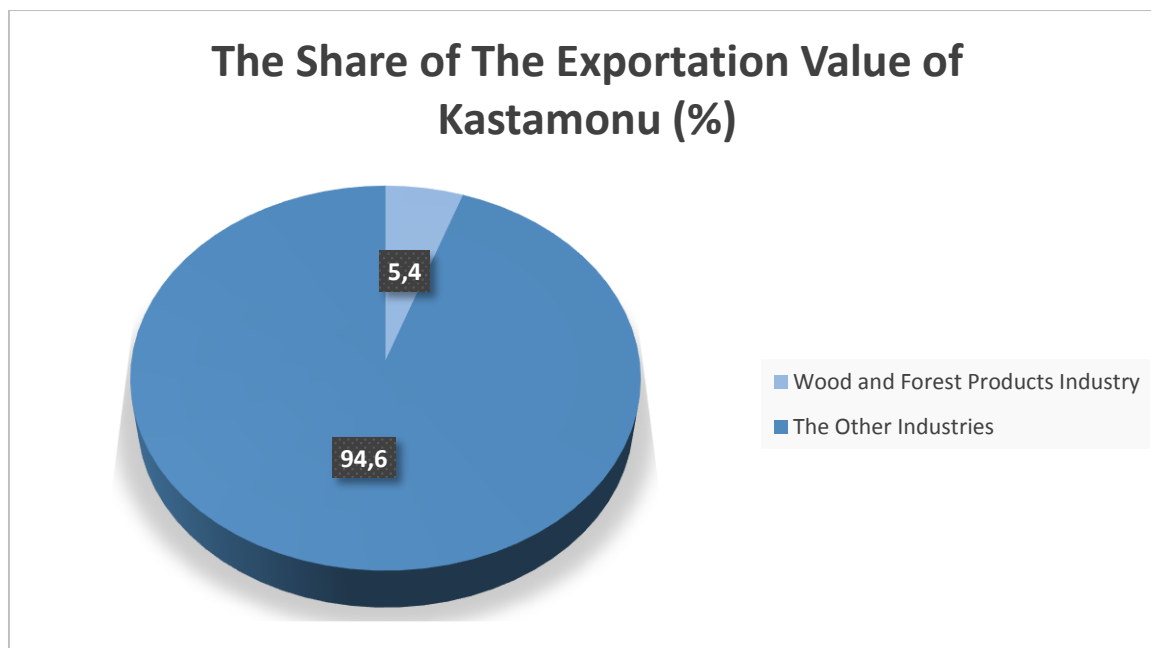


Figure 7. The Share of The Industries in Exportation Value of Kastamonu (TIM, 2014)

For a better understanding of the importance of forest products industry in Kastamonu, figure 7 could be used and when it was

examined it is seen that the wood and forest products industry has 5,4% of the whole exportation value of the province.

Conclusion

In 2014, at the board industry: Fluctuation in price has happened. The reasons behind this should be investigated and it could be a research subject for the future studies. Also when the used data and tables were investigated, it was found that MDF industry is more profitable than the particleboard but plywood industry is the most profitable one especially for export. Although it makes greater income, the production amount in Turkey is decreasing. The reasons should be examined and solved. The importation of the round wood is quite high especially the coniferous species and the production of the round wood is not fulfilling the needs of the Turkish forest products industry. This problem should be cared as soon as possible. In Kastamonu: The employment in plywood is more than MDF and particleboard, the engineers working in MDF industry is twice as much the particleboard industry but the ratio is approximately similar if it is compared to Turkey. 14% of MDF employees are engineers and in particleboard industry, the

ratio is 11%. The province has serious potential for forest products especially for the plywood but it is not being used efficiently. This matter should be fixed for increasing the economic importance in Turkey. Turkey's: 4,4% of plywood, 3,4% of MDF and 6,6% of particleboard establishments are located in Kastamonu province.

References

- Akgül, M., Çamlıbel, O. (2008). Manufacture of medium density fiberboard (MDF) panels from rhododendron (*R. ponticum* L.) biomass. *Building and Environment*, 43(4), 438–443. doi:10.1016/j.buildenv.2007.01.003
- Anonymous. Particleboard-from start to finish. National Particleboard Association, Gaithersburg, 1996.
- Bal, B. C., Bektas, I. (2013). Some mechanical properties of plywood produced from eucalyptus, beech and poplar veneer.
- Eltawahni, H. a., Rossini, N. S., Dassisti, M., Alrashed, K., Aldaham, T. a., Benyounis, K. Y., Olabi, a. G. (2013). Evaluation and optimization of laser cutting parameters for plywood materials.

Optics and Lasers in Engineering, 51(9), 1029–1043. doi:10.1016/j.optlaseng.2013.02.019

Food and Agriculture Organization of The United Nations Statistics Division Database, (2014).

Král, P., Klímek, P., Mishra, P. K., Rademacher, P., Wimmer, R. (2014). Preparation and characterization of cork layered composite Plywood Boards, 9(2), 1977–1985.

Nemli, G., Hızıroglu, S., Serin, H., Akyüz, K. C., Akyüz, I., Toksoy, D. (2007). A perspective from furniture and cabinet manufacturers in Turkey. Building and Environment, 42(4), 1699–1706. doi:10.1016/j.buildenv.2006.01.007

Nemli, G., Örs, Y., Kalaycıoğlu, H. (2005). The choosing of suitable decorative surface coating material types for interior end use applications of particleboard. Construction and Building Materials, 19(4), 307–312. doi:10.1016/j.conbuildmat.2004.07.015

Orman ve Su İşleri Bakanlığı, (2012). Türkiye orman varlığı, Ankara.

Türkiye İhracatçılar Meclisi, İhracat Rakamları (2014).

Türkiye İstatistik Kurumu Veritabanı, (2014).

Türkiye Odalar ve Borsalar Birliği, Bilgi Hizmetleri Dairesi, Sanayi Veritabanı, (2014).

URL1 2014. <http://kastamonu.gov.tr/nufus.asp>

Ye, X. P., Julson, J., Kuo, M., Womac, A., Myers, D. (2007). Properties of medium density fiberboards made from renewable biomass. Bioresource Technology, 98(5), 1077–84. doi:10.1016/j.biortech.2006.04.022.