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The Perception Analysis of Forest Products Certification in the Wood and Wood Products Sector in Turkey

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Abstract

Industrialisation has improved a manufacturing-oriented comprehension in the forest industry along with the entire industry sector. The forestry and forest products certification, which has been developed to ensure a sustainable development and to reduce the pressure of this comprehension on the forest resources, is gradually gaining importance. In this research, it is aimed to carry out a perception analysis of the wood and wood products sector in Turkey towards the forestry and forest products certification. Therefore, a face-to-face survey has been conducted in 131 managements operating in the wood and wood products sector throughout the country. In the survey, the problems, which are expected to be encountered with the effect of certification on sector employees, forestry activities, and forest products market, are addressed to the participants in such a way that includes the sub-propositions. As a result of the analysis conducted, a significant diversity is observed concerning the opinions of executives on certification and environmental certificate possession status of managements. It is confirmed that there are noteworthy differences in opinions of executives about certification in regard to target market status of the businesses. In addition to this, the location and activity area of businesses creates significant diversity in views of business executives towards the certification. On the other hand, it is understood that the operating period, number of employees and annual sales revenue of businesses don't influence on the certification perception of business managers. As a consequence, it has been determined that forestry and forest products certification perception of the wood and wood products sector needs to be improved.

Keywords: Certification, Wood and wood products sector, Sustainable forest management

INTRODUCTION

The interaction of humankind with natural resources has become more controversial in recent years than ever with the over-exploitation of these resources and the beginning of negative externalities destroying the ecological balance. In addition to population growth, the continuous production tools developed to meet the increasing and diversifying needs have led to a further increase in the pressure on natural resources (Türker *et al*, 2001).

Forests that are one of the most important natural resources have also been affected significantly by these negative developments. As from the 1960s, considerations has begun to develop in the direction that this situation has threatened the continuity of improvement and the increase in production should be planned together with environmental and social influences (Urungu, 2010).

The United Nations Conference on Environment and Development in 1992 played an important role in the development of certification process, which is based on forest resource conservation, effective management and stakeholder engagement, of the forest and forest product (Bozloğan, 2005; Urungu, 2010; Özmehmet, 2012). The forestry product certification, which is developed in this process, is emerged as a system monitoring and ensuring that the entire production chain process is in accordance with international standards starting from the forest as a raw material source. This system is stated as licensing that a product has less damage to the environment among alternative products according to regulated lifecycle information of a product (Durusoy, 2002).

Forest product certification systems will increase the preferability of environmentally-conscious products among alternatives in conjunction with the increase in consumer awareness (Varangis *et al*, 1995). At the same time, these systems make environmental management, which keeps environmental damage to a minimal level in meeting consumer demands, an important element that can be used for the development of the management (Hansen, 1997).Worldwide, organisations that commonly certify forest products are the Forest Stewardship Council (FSC) and The Program for the Endorsement of Forest Certification (PEFC) (Durusoy, 2002). Product certifications issued by these organisations are known as the Chain of Custody (CoC) (Türkoğlu & Tolunay, 2013). The number of firms with CoC product certification worldwide has reached to 39 609 by year of 2015 (UNECE/FAO, 2015).

Certification of forest products in Turkey has started to develop since 2008. In Turkey, the number of enterprises with FSC CoC certificates is 213 and the number of enterprises with PEFC CoC certificates is 213 in 31 different business areas, as of 2016 (FSC, 2016; PEFC, 2016).

In this study, it is attempted to determine the certification perception of forestry and forest products certification by analysing the opinions of the business executives in the sub-sector of wood and wood products of forest products industry.

MATERIAL and METHOD

The research area of the study constitutes of the firms in the wood and wood products sector among the sub-sectors of the forest products industry in Turkey. In the field of manufacturing of wood and wood products, there are 11 022 workplaces in our country according to the distribution of business establishments covered by SGK 4/a according to the activity branches and business size (SGK, 2015). In this field of activity, there are companies which make tree mowing and planing, wood plated panel and tree based panel manufacturing, production of plywood, MDF (medium density fiberboard), plywood etc. panels from compressed fiber, and parquet flooring manufacturing.

In the study, a survey structured according to five point likert scale was conducted to managers (general manager, business manager, production manager, marketing manager, manager assistants etc.) of businesses in the wood and wood products sector of Turkey Forestry Products Industry (FPI) and other employees (marketing and other unit chiefs). In the questionnaire, 25 propositions were used under four main headings, which include general ideas about the effects of forestry and forest products certification on sector workers, forestry practices and forest resources, forest products market and certification. Questionnaires which were used as data collection tools were applied with face to face interview technique.

In the study, since the number of elements in the population is known, the following formula has been used for determining the sample size (Özdamar, 2013).

$$n= [N.t^2.p.q]/[d^2.(N-1)+t^2.p.q] \quad (1)$$

N: Number of individuals in the population,

n: Number of individuals to be sampled,

p: the frequency of occurrence of the event to be investigated (probability),

q: the frequency of non-occurrence of events to be examined (1-p),

t: The theoretical value in the "t" table at a determined degree of freedom and at the specified error level,

d: It is shown as the desired deviation according to the frequency of occurrence of the event.

According to the formula above, although the number of samples is determined at least 96, in the study questionnaire was conducted to a total of 131 FPI business managers and other employees which were distributed in different geographical regions of Turkey, 31 of which were certified and 100 were non-certified. The Cronbach Alfa reliability coefficient was calculated as 0.894 based on the answers given to 25 propositions in the questionnaires. On the other hand, the data validity coefficient was found as 0.805 using the Kaiser-Meyer-Olkin (KMO) test. These calculated values show that the validity and reliability of the data are at a high level.This study, which aims to analyse the perceptions of the forestry and forest products certification of the wood and wood products sub-sector of FPI in Turkey and to reveal the differences of opinions, includes views of the managers and other employees in the previously mentioned firms. IBM SPSS (20.0) package program was used on analysis of collected data. Kuskal-Wallis was used in comparisons involving three or more independent sampled analyses and Mann-Whitney U tests were used in comparisons involving two independent sample analyses (Tavşancıl, 2014). Microsoft Office Excel 2007 program was utilised in the calculation of frequencies, ratios and arithmetic averages in the study.

RESULTS and DISCUSSION

As part of the study, the distribution of FPI firms, of which executives and other empolyees were conducted in the survey, according to some variables is given in Table 1. While the highest level of participation at the geographical region level was achieved in the Black Sea Region, the ratio of the surveyed production firms to the grand total was 92%. While seventy-six percent of the FPI firms enlisting had no environmental certifications, 24% were FSC or PEFC certified managements. Whereas the share of the companies operating in only domestic market was 48%, the share of the companies operating in both domestic and foreign markets was 52%.

Table 1. The distribution of the surveyed FPI firms according to some variables.

Variables		Frequency	Rate (%)
Certificate Status	Uncertified	100	76
	Certified	31	24
	Total	131	100
Target Market	Domestic	63	48
	Abroad	68	52
	Total	131	100
Activity Area	Production	120	92
	Marketing	11	8
	Total	131	100
Geographical Region	Marmara	36	28
	Black Sea	39	30
	Aegean	9	7
	Mediterranean	15	11
	Central Anatolia	28	21
	Eastern Anatolia	4	3
	Total	131	100

Differences of opinions according to owner's certificate ownership

The presence of significant differences ($p < 0.05$) on proposition groups between FPI firms in terms of certificate holders and opinions of management on the certification in evaluations concerning forest ownership and management, forest products market and general acceptance can be seen in Table 2. Accordingly, it is understood that the certified FPI business managers think that the certification will have a big positive effect in other areas apart from company employees.

The results showing that the certification system of enterprises will similarly provide great benefits to sustainable forest management have also been obtained in different studies on the certification of timber products (Koomson, 2000; Murray & Abt, 2001) were reached. On the other hand, it is reported as an important factor that enterprises producing wood products can use monitoring and documentation systems to increase their market share (Owari *et al*, 2006).

Table 2. Mann-Whitney U test results towards differences on participants' opinion according to FPI management certificate ownership.

Assessment with respect to certification	**Certificate Status**	**Number (N)**	**Mean Rank**	**Mann-Whitney U**	**Wilcoxon W**	**Z**	**Asymp. Sig. (2-tailed)**
The effects on company employees	Uncertified	100	68.77	1273.5	1769.50	-1.503	0.133
	Certified	31	57.08				
	Total	131					
Effects on forest existence and management	Uncertified	100	59.03	853.0	5903.0	-3.786	0.000*
	Certified	31	88.48				
	Total	131					
Impacts on forest products market	Uncertified	100	61.46	1096.0	6146.0	-2.467	0.014*
	Certified	31	80.65				
	Total	131					
Evaluations concerning general acceptance	Uncertified	100	57.19	669.0	5719.0	-4.800	0.000*
	Certified	31	94.42				
	Total	131					

*p<0.05

Disagreements according to the target market situation of the operator

It is understood from Table 3 that there are significant differences ($p<0.05$) in the opinions of the target markets and the managers of the FPI firms concerning the effects of the forest and forest product certification on forest existence and management. Accordingly, it can be said that the firms operating in the foreign market think that the certification has much

more positive effects on the forest existence and the sustainable forest management in comparison with the firms operating in the internal market.

It has been reported that forestry and forest products certification is an important factor in improving access especially to foreign markets (Marx, 2010) and the certification awareness of businesses, especially those trading in western countries, is higher (Durusoy *et al*, 2003). The fact that nearly half of our forest products trade is done with EU countries (TOBB, 2012) supports the positive views of companies working towards foreign markets on certification.

Table 3. Mann-Whitney U test results towards participants' opinion differences according to the target market of FPI firm.

Assessment with respect to certification	Target Market	Number (N)	Mean Rank	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
The effects on company employees	Domestic	63	71.87	1772.0	4118.0	-1.711	0.087
	Abroad	68	60.56				
	Total	131					
Effects on forest existence and management	Domestic	63	56.95	1572.0	3588.0	-2.634	0.008*
	Abroad	68	74.38				
	Total	131					
Impacts on forest products market	Domestic	63	60.17	1774.5	3790.5	-1.699	0.089
	Abroad	68	71.40				
	Total	131					
Evaluations concerning general acceptance	Domestic	63	60.70	1808.0	3824.0	-1.548	0.122
	Abroad	68	70.91				
	Total	131					

*p<0.05

Disagreements according to the operator's field of activity

There were significant differences (p <0.05) between the opinions of the FPI managements that produced the products and the managers of the firms marketing these products and the opinions of the other employees regarding the general acceptance propositions of the certification (Table 4). Accordingly, it can be said that executives and other employees of businesses engaged in marketing have more positive attitudes about certification compared to the production firms.

It has been reported that companies producing do not yet have the substructure on some issues such as quality management systems required by certification (Trishkin *et al*, 2014) and they are hesitant to take economic risks due to insufficient funding (Büyükkeklik *et al*, 2010). On the other hand, the low cost of additional certifications for marketing firms and direct the consumer can be said to be a sign of positive ideas of managers in this group about the certification.

Table 4. Mann-Whitney U test results towards participants' opinion differences according to the activity area of FPI firm.

Assessment with respect to certification	Activity Area	Number (N)	Mean Rank	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2-tailed)
The effects on company employees	Production	120	66.55	594.0	660.0	-0.550	0.583
	Marketing	11	60.00				
	Total	131					
Effects on forest existence and management	Production	120	64.20	443.5	7703.5	-1.802	0.720
	Marketing	11	85.68				
	Total	131					
Impacts on forest products market	Production	120	65.03	543.5	7803.5	-0.970	0.332
	Marketing	11	76.59				
	Total	131					
Evaluations concerning general acceptance	Production	120	63.89	406.5	7666.5	-2.116	0.034*
	Marketing	11	89.05				
	Total	131					

*p<0.05

Disagreements according to the geographical area where the firm is located

It is understood from Table 5 that there are significant differences (p<0.05) between the opinions of business executives and other employees on the effects of the certification on the business employees and general acceptance propositions according to the geographical region where the FPI firms are located.

Whereas Eastern Anatolia Region FPI business executives and other employees agreed at the highest level with that the certification would have a positive effect on the employees, participation in the discussions on this issue involved at the lowest level in the Marmara Region where the industrial facilities and the hardcore firms were located. On the other hand, among the general acceptance proposals regarding the certification, the FPI management employees in the Marmara Region have shown the highest level of positive opinion. In a survey done on environmental certification systems, it was reported that the certification motivation depends on consumer satisfaction and it may vary according to the sectoral activity areas and the geographical area in which the operator is located, which supports the findings o this study (Tuppura *et al*, 2015).

Table 5. Kruskal-Wallis test results for differences in opinion of participants according to the geographical area where FPI operation is located.

Assessment with respect to certification	Geographical Region	Number (N)	Mean Rank	Chi-Square	df	Asymp. Sig.
The effects on company employees	Marmara	36	51.67	14.495	5	0.013*
	Black Sea	39	80.33			
	Aegean	9	70.61			
	Mediterranean	15	56.73			
	Central Anatolia	28	63.61			
	Eastern Anatolia	4	96.38			
	Total	131				
Effects on forest existence and management	Marmara	36	82.99	10.634	5	0.059
	Black Sea	39	59.55			
	Aegean	9	64.83			
	Mediterranean	15	53.53			
	Central Anatolia	28	61.41			
	Eastern Anatolia	4	57.50			
	Total	131				
Impacts on forest products market	Marmara	36	74.07	6.867	5	0.231
	Black Sea	39	66.19			
	Aegean	9	56.22			
	Mediterranean	15	57.10			
	Central Anatolia	28	58.77			
	Eastern Anatolia	4	97.50			
	Total	131				
Evaluations concerning general acceptance	Marmara	36	83.94	25.153	5	0.000*
	Black Sea	39	74.79			
	Aegean	9	54.61			
	Mediterranean	15	47.27			
	Central Anatolia	28	43.23			
	Eastern Anatolia	4	74.00			
	Total	131				

* $p<0.05$

On the other hand, in analyses made to determine the effects of the business's operating duration, number of employees and annual sales income on the certification perception of business managers, it was seen that these factors did not cause significant differences in opinion on the certification perception of firm management and other employees of FPI.

CONCLUSIONS

In this study, the forestry and forest products industry is evaluated in terms of differences in opinion by taking into account the different variables of forest and forest product certification perceptions of managers and other employees of firms in the sub-sector of wood and wood products. The survey was conducted towards the managers and technical staff of FPI companies operating across Turkey.

According to the evaluation results of the data obtained in the study, the certification awareness of the participants in FPI firms uncertified remains lower than the certified firms. On the other hand, it has been understood that certification are likely to have limited positive effects on the employees because of their concerns that the certification would increase the workload on the employees.

In the study, it is determined that business managers, who open to international markets where forestry and forest product certification is widely used, think that certification will provide significant contributions to forest resources and sustainable forest management. Accordingly, it can be said that the certification awareness in the wood and wood products sector in Turkey, which can create environmental sensitivity on the enterprises, has not yet reached sufficient level. Results reveal that the forestry and forest product certification awareness of manufacturing companies is lower than the marketing businesses. Comparisons

results at the regional level have shown that the FPI business executives in the regions, where industrial facilities are dense, find that certification is acceptable as a general understanding but they think that its effects on employees will be negative. As a result, it is clear that the certification perception in the wood and wood products sector needs to be improved. In addition to efforts to improve the environmental sensitivities of end consumers, it is also important that actions towards FPI business managers are not neglected. In studies made in this context, the costs of forestry and forest product certification and the additional workload that will be brought to the employees should be analysed and the results achieved should be shared with the sector enterprises.

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