Determination of the Competition Level inside the Organization in the Marketing Activities: The Case Study in Kastamonu Forest Regional Directorate

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Abstract

In Turkey, sources of supply in the market of wood based forest products are divided into three groups as following; General Directorate of Forestry (GDF), importers and private sector. GDF realizes 76% of industrial wood sales and 50% of fuel wood sales in the wood based forest products markets. Although GDF has a significant market share, GDF has taken into account the increasing market share of importers in two decades. Therefore; GDF has been working to increase its competitiveness via changed in product differentiation and sales procedures in an increasingly competitive market environment. It is required to identify and analysis within the organization to improve competitiveness and to provide a competitive advantage. GDF should benefit from the advantage of competition by means of regional structuring at the provincial organizations. In this study, 21 Forest District Directorates in Kastamonu Forest Regional Directorate are designated as the sample area. We aimed to determine the constraints which reveal competition within the organization and individual competitiveness. Factor analysis was applied to identify these constraints. According to the analysis result, Kastamonu FRD is divided into clusters in terms of constraints affecting competition. In this way, units which are advantages and disadvantages in competition were determined at the regional level. Also; Kastamonu OBM is provided opportunity for developing strategies with more rational approaches in the wood-based forest product markets.

Keywords: Forestry organization, Competitiveness, Wood based forest product, Market, Turkey

Pazarlama Faaliyetlerinde Örgüt İçi Rekabet Düzeylerinin Belirlenmesi: Kastamonu Orman Bölge Müdürlüğü Örneği

Özet

Türkiye'de oduna dayalı orman ürünleri pazarının arz kaynakları; Orman Genel Müdürlüğü (OGM), ithalatçı işletmeler ve özel sektör olarak üç grupta toplanmıştır. Oduna dayalı orman ürünleri iç piyasasında endüstriyel odun satışlarının %76'sını, yakacak odun satışlarının %50'sini OGM gerçekleştirmektedir. Genel anlamda piyasa payının önemli bir bölümüne hâkim olan OGM; ithalatçı işletmelerinin son yirmi yılda artan pazar paylarını dikkate alarak; pazarda artık var olan rekabet ortamında; genel anlamda ürün farklılaşması ve satış usullerindeki değişikliklerle rekabet edebilirliğini artırmaya çalışmıştır. Rekabet edebilirliği ve rekabette üstünlüğü sağlamak için örgüt düzeyinde de tanımlama yapılması gerekmektedir. OGM'nin taşra örgütünde bölgesel düzeydeki yapılanmasından faydalanarak; OGM, rekabetten maksimum şekilde yararlanmalıdır. Bu çalışmada Türkiye'de OGM örgütünde örgüt içi rekabet ve piyasada bireysel rekabet edebilirliği ortaya koyacak kısıtların belirlenmesi amaçlanmıştır. Kastamonu Orman Bölge Müdürlüğü (OBM)'ne bağlı 21 Orman İşletme Müdürlüğü örnek alan olarak belirlenmiştir. Bu örnek alanda belirlenen kısıtlar, faktör analizi ile değerlendirilmiştir. Analiz sonucunda rekabete etki edebileceği tahmin edilen kısıtlar bakımından Kastamonu OBM kümelere ayrılmıştır. Bu sayede örgüt içinde rekabette avantajlı ve dezavantajlı olan birimler bölgesel düzeyde tespit edilmiştir. Ayrıca Kastamonu OBM'nin oduna dayalı orman ürünleri pazarında daha rasyonel yaklaşım ile stratejiler geliştirmesine imkân sağlanmıştır.

Keywords: Ormancılık örgütü, Rekabet, Oduna dayalı orman ürünleri, Pazar, Türkiye

Introduction

Supply sources of wood-based forest products market are divided into three groups as General Directorate of Forestry (GDF), importers and private sector enterprises in Turkey. GDF holds 76% of industrial wood sales and 50% of its sales firewood of wood-based forest products in the domestic market (OGM 2013). GDF has a dominant producer position in the market in the current situation

Therefore, it can be mentioned *"imperfectly competitive conditions"* in the market of forest-based wood products, today (Daşdemir 2015). At the same time, GDF is a large organization consists of subunits. According to data from 2016, GDF is an organization consisting of 28 Forest Regional Directorate (FRD) and 243 Forest District Directorates (FDD) (URL 1). The spread of forest assets on the country is an important factor on the basis of organizational structure. (Özdönmez vd 1998). When that is reduced from general to specific, GDF is managing 243 FDD which they are adjacent to each other, engaged in manufacturing and offering these products to the market.

Until recently, 279. Notification "Standardization and Sales Principles of Forest Assets" contained the wood-based forest products marketing principles for FDD (Anonim 1987). Since 2015, 303. Notification "Selling Principles and Procedures of Wood-Based Forest Products" is in force (Anonim 2015).

When examining the general framework of Notification; the emphasis on market and customer demand is observed. Also, according to notification; FDD should adopt flexible marketing policy and adapt open market condition (Anonim 2015). Customer base - oriented approach leads to a move away from production-oriented approach to marketing and raises the efforts to meet expectations. Essentially; customer-oriented approach in GDF's marketing policy in this paper brings up these questions: *"In the marketing process, Could to expect the same performance from 243 FDDs be right?"* or *"Although FDD supplies products with similar characteristics to the market, Could it expected the same marketing skills of all FDD?"* Also *"Has the difference in general characteristic of FDDs an effects on their marketing activities?".*

To answer these questions and also to determine place of FDD in the wood base-forest products market was carried out this study. In other words, to reveal the degree of competitiveness of FDD is aimed for a decent marketing policy.

In Turkey, studies has been done by scientists in order to reveal measure of success in terms of forest-wealth, population density and influence, administrative and technical specifications of FDDs (Çağlar and Öncer 1990, Daşdemir 1996, Daşdemir 1998, Şentürk 2007, Şafak 2009, Öztürk and Türker 2010, Korkmaz 2012). In this study, unlike others we have focused on only marketing functions of businesses. Also, the FDDs' degree of competitive is tried to determine in terms of the factors of market-marketing.

Material and Method

KOBM, the number of products and sales seen as the first place among FRD in Turkey, selected as sample area in this study. It has 21 FDDs. This study is decided to examine on 48 variables in the marketing of wood based forest products (Field properties; crown-closure1,2,3; economic, ecological and socio-cultural function; (non)productive growing stock and annual increment; production estimates for 2016, the amount of production-sales in 2015 and average sales price in 2015 (log, mining pole, utility pole, paper pulp wood, fibre/chip wood and fire wood); the amount of stumpage sales; distance to major market places (Ankara, İstanbul, Kayseri and Adana)). Simple pearson correlation analysis were done on these variables. The results of these analysis indicates that 17 variables which is about each other's above + 0,25 and under – 0,25 were found (Özdamar 2002). The variables and abbreviations is given in Table 1. In this study, factor estimations of 17 variables are made. After the factor estimations, factors coefficients and factor scores were determined. In this study, SPSS 20 and ArcGIS software packages were used.

Table 1. The variable and abbreviations

N.	Abbreviations	Unit	Descriptions
1	FOREST_LAND	ha	Forested Area
2	CROWN_CLOSURE_3	ha	Crown-closure-3 Forested Area
3	ECONOMIC_FUNCTIONS	ha	Forested Area in Economic Function
4	TOTAL_FINAL_YIELD	m3	Foreseen to be taken amount of regeneration prescribed cut in planning period
5	TOTAL_INTERMEDIATE_YIELD	m3	Foreseen to be taken amount of improvement prescribed cut in planning period
6	PRODUCTIVE_GROWİNG_STOCK	m3	The amount of growing stock in productive forest area
7	PRODUCTIVE_ANNUAL_INCREMENT	m3	The amount of increment in productive forest area
8	SALVAGE_LOGGING_2015	m3	The amount of unregulated felling in 2015
9	LOG_2016	m3	The amount of projected timber harvest in 2016
10	PULPWOOD_2016	m3	The amount of projected pulpwood in 2016
11	FIBRE_CIPH_2016	m3	The amount of projected fibre cips in 2016
12	INCOME_2015	TL	Total income in 2015
13	PRODUCTION_COST_2015	TL	Production costs in 2015
14	TOTAL_COST_2015	TL	Total costs in 2015
15	LOG_SALES_2015	m3	The amount of log sold in 2015
16	PULPWOOD_SALES_2015	m3	The amount of pulpwood sold in 2015
17	FIBRE_CIPS_SALES_2015	m3	The amount of fibre cips sold in 2015

Results

17 variables of 21 FDDs, they affect the competition of the wood based forest product markets, were identified. Properties of forest asset, incomes and expenses (2015) of FDDs, amount of production and sales (2015), estimated production level of 2016 has been identified as independent variables. Pearson correlation analysis was applied to this variables. The results obtained are given in Table 2.

Table 2. The result of Pearson correlation analysis

NUMBER	FOREST_LAND	CROWN_CLOSURE_3	ECONOMIC_FUNCTIONS	TOTAL_FINAL_YIELD	TOTAL_INTERMEDIATE_YIELD	PRODUCTIVE_GROWİNG_STOCK	PRODUCTIVE_ANNUAL_INCREMENT	SALVAGE_LOGGING	LOG_2016	PULPWOOD_2016	FIBRE_CIPH_2016	INCOME_2016	PRODUCTION_COST_2015	TOTAL_COST_2015	LOG_SALES	PULPWOOD_SALES	FIBRE_CIPS_SALES
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	,782**	,812**	,576**	,715**	,539*	,779**	,643**	,590**	,592**	,874**	,590**	,604**	,636**	.402	,830**	,759**
2		1	,824**	,541*	,790**	,859**	,930**	,462*	,780**	,785**	,878**	,843**	,848**	,806**	,640**	,758**	,822**
3			1	.393	,824**	,637**	,819**	,538*	,558**	,558**	,897**	,712**	,710**	,714**	,508*	,720**	,900**
4				1	,435*	.422	.423	,699**	,629**	,650**	,586**	,583**	,562**	,526*	,488*	,730**	,448*
5					1	,578**	,852**	,538*	.374	.378	,828**	,566**	,562**	,532*	,440*	,615**	,757**
6						1	,853**	.263	,841**	,827**	,743**	,874**	,842**	,809**	,758**	,587**	,646**
7							1	.405	,631**	,622**	,880**	,758**	,755**	,745**	,573**	,680**	,822**
8								1	,505*	,513*	,667**	,511*	,512*	,478*	,583**	,782**	.426
9									1	,996**	,686**	,888**	,845**	,815**	,833**	,770**	,518*
10										1	,687**	,890**	,854**	,791**	,824**	,763**	,526*
11											1	,782**	,809**	,790**	,613**	,808**	,873**
12												1	,961**	,905**	,883**	,740**	,742**
13													1	,908**	,813**	,672**	,790**
14														1	,748**	,748**	,781**
15															1	,660**	.419
16																1	,633**
17																	1

**. Correlation is significant at the 0.01 level (2-tailed)./ *. Correlation is significant at the 0.05 level (2-tailed).

The moderate and high levels relationship between 17 variables, applied correlation analysis, were identified. The intercorrelated 17 variables were applied factor analysis in order to create new and fewer dimension-variable (Özdamar 2002, Büyüköztürk 2012). The Kaiser_Meyer_Olkin measures of sampling adequacy were 0.729 and Bartlett's test of sphericity was significant at a level of 0.000.

Obtained as a result of factor analysis, the eigenvalues and percentage of variances are given in Table 3.

Table 3: Variance explained.

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	12,127	71,336	71,336
2	1,716	10,092	81,428
3	1,320	7,765	89,194

As the presents of the Table 3, initial eigenvalues of the three components are greater than one. Factor_1 included 2/3 of total variance. In other words, Factor_1 is an important factor obtained in this study. Even so Factor_2 and Factor_3 was evaluated because of their eigenvalues >1. Factor analysis' result of 21 units and 17 variables are shown Table 4.

Table 4: The result of factor analysis

Communalities	Common factor variance	Unrotated Factor_1 loading	Rotated Factor loadings		
			Factor-1	Factor-2	Factor -3
LOG_2016	.950	.860	**.877**	.213	.367
PULPWOOD_2016	.943	.859	**.867**	.213	.381
INCOME_2015	.955	.929	**.839**	.434	.253
LOG_SALES_2015	.825	.782	**.830**	.163	.331
PRODUCTIVE_GROWİNG_STOCK	.926	.854	**.826**	.494	-.009
PRODUCTION_COST_2015	.911	.917	**.796**	.477	.224
TOTAL_COST_2015	.849	.896	**.742**	.494	.231
TOTAL_INTERMEDIATE_YIELD	.846	.751	.137	**.869**	.267
ECONOMIC_FUNCTIONS	.891	.850	.308	**.855**	.254
FIBRE_CIPS_SALES_2015	.873	.834	.345	**.854**	.157
PRODUCTIVE_ANNUAL_INCREMENT	.920	.881	.471	**.829**	.108
FIBRE_CIPH_2016	.949	.937	.422	**.780**	.403
FOREST_LAND	.853	.816	.213	**.733**	.520
CROWN_CLOSURE_3	.925	.938	.595	**.725**	.211
SALVAGE_LOGGING_2015	.885	.650	.179	.279	**.880**
TOTAL_FINAL_YIELD	.768	.664	.365	.176	**.777**
PULPWOOD_SALES_2015	.895	.867	.447	.461	**.694**

As the presents on Table 4, competitiveness level of 21 FDDs are consist of three Factors. The common factor variance explained by the three factors are between 77-% 96%. Factor_1 consists of the following variable; LOG_ 2016, PULPWOOD_2016, INCOME_ 2016, LOG_SALES, PRODUCTIVE_ GROWİNG_STOCK, PRODUCTION_ COST_2015, TOTAL_COST_2015.

Factor_2 consist of the following variable; TOTAL_ INTERMEDIATE_ YIELD, ECONOMIC_ FUNCTIONS, FIBRE_ CIPS_SALES, PRODUCTIVE_ ANNUAL_INCREMENT, FIBRE_ CIPH_ 2016, FOREST_LAND, CROWN_ CLOSURE_3. Factor_3 consist of the following variable; SALVAGE_LOGGING, TOTAL_ FINAL_YIELD, PULPWOOD_ SALES. Factor scores according to 21 FDDs are given Table 5.

Table 5: The factor scores

N.	Units	Factor_1	Units	Factor_2	Units	Factor_3
1	AYANCIK	3.79614	TASKOPRU	3.00599	BOYABAT	3.40969
2	SINOP	0.80364	SINOP	1.36229	ARAC	0.78632
3	KARADERE	0.51448	KURE	1.18942	IHSANGAZI	0.65181
4	ARAC	0.50071	INEBOLU	0.56780	KARADERE	0.50308
5	DADAY	0.30923	BOYABAT	0.48893	SINOP	0.46458
6	AZDAVAY	0.24845	AZDAVAY	0.42313	DURAGAN	0.34318
7	TURKELI	0.01758	KARADERE	0.40193	TOSYA	0.32952
8	KURE	-0.01864	DADAY	0.37289	DADAY	0.26846
9	TOSYA	-0.04033	CIDE	0.11445	SAMATLAR	0.20057
10	BOYABAT	-0.11751	KASTAMONU	-0.12143	TASKOPRU	0.12696
11	TASKOPRU	-0.16539	PINARBASI	-0.17502	HANONU	0.06990
12	CIDE	-0.21063	TOSYA	-0.21491	TURKELI	-0.07910
13	KASTAMONU	-0.24682	BOZKURT	-0.54672	KASTAMONU	-0.07971
14	SAMATLAR	-0.35071	DURAGAN	-0.64013	AYANCIK	-0.57902
15	IHSANGAZI	-0.39817	TURKELI	-0.65930	BOZKURT	-0.64364
16	HANONU	-0.54969	ARAC	-0.78052	CATALZEYTIN	-0.68211
17	PINARBASI	-0.56520	HANONU	-0.80676	PINARBASI	-0.78422
18	CATALZEYTIN	-0.73579	CATALZEYTIN	-0.84056	CIDE	-0.99126
19	INEBOLU	-0.80039	AYANCIK	-0.87465	INEBOLU	-1.03708
20	BOZKURT	-0.82985	SAMATLAR	-0.90598	AZDAVAY	-1.07837
21	DURAGAN	-1.16111	IHSANGAZI	-1.36086	KURE	-1.19954

According to factor_1 score; in Kastamonu FRD, Ayancık FDD is the most powerful competitor and Durağan FDD is the weakest competitor. According to factor_2 score; in Kastamonu FRD, Taşköprü FDD is the most powerful competitor and İhsangazi FDD is the weakest competitor. According to factor_3 score; in Kastamonu FRD, Boyabat FDD is the most powerful competitor and Küre FDD is the weakest competitor.

To separate the clusters according to their level of competitiveness of 21 FDDs, hierarchical cluster analysis was applied to the obtained factor scores. The results obtained in Figures 1, 2 and 3 are given.

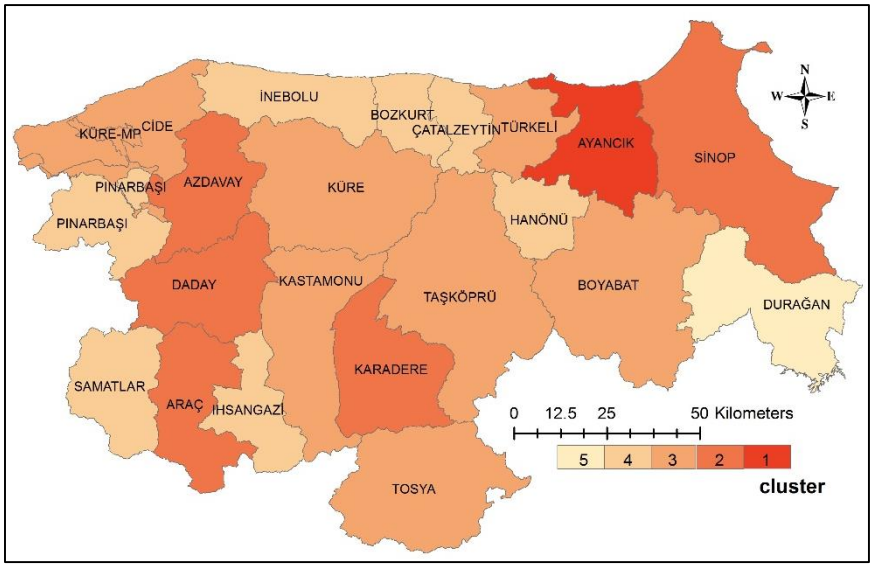

Figure 1. The result of cluster analysis (Factor_1)

According to Factor_1 score; 5 significant cluster (Wilks' Lambda $p<0.05$) has been formed. Ayancık FDD is included in the first cluster. Sinop, Azdavay, Daday, Araç and Karadere FDDs are included in the second cluster. Boyabat, Taşköprü, Tosya, Küre, Kastamonu, Türkeli and Cide FDDs are included in the third cluster. Pınarbaşı,

Samatlar, İhsangazi, İnebolu, Bozkurt, Çatalzeytin and Hanönü FDDs are included in the fourth cluster. Durağan FDD is included fifth cluster.

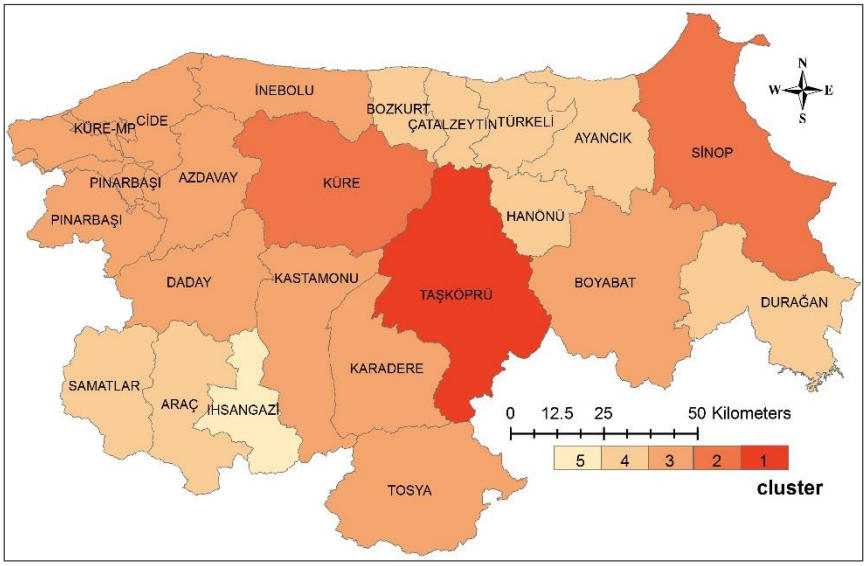

Figure 2. The result of cluster analysis of (Factor_2)

According to Factor_2 score; 5 significant cluster (Wilks' Lambda $p<0.05$) has been formed. Taşköprü FDD is included in the first cluster. Sinop and Küre FDDs are included in the second cluster. İnebolu, Cide, Azdavay, Pınarbaşı, Daday, Kastamonu, Karadere, Tosya and Boyabat FDDs are included in the third cluster. Bozkurt, Çatalzetin, Türkeli, Ayancık, Hanönü, Durağan, Samatlar and Araç FDDs are included in the fourth cluster. İhsangazi FDD is included fifth cluster.

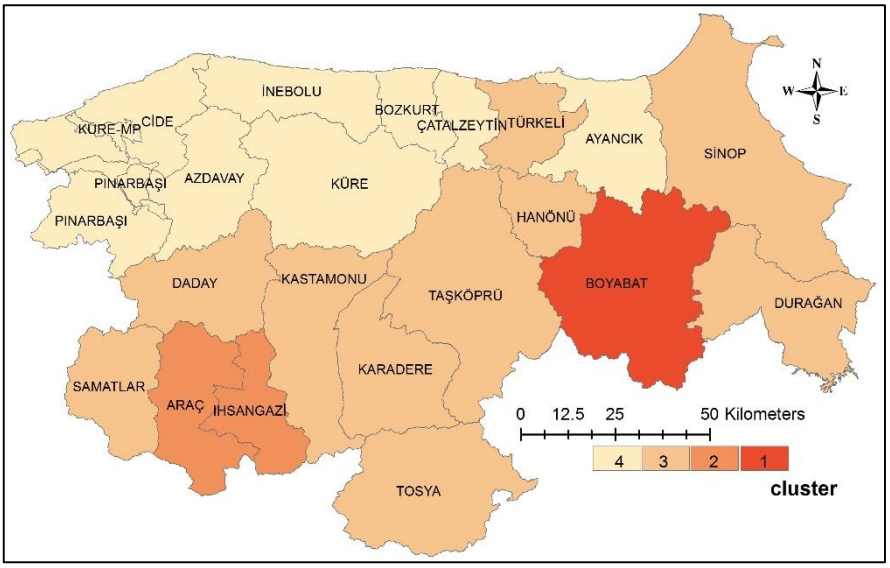

Figure 3. The result of cluster analysis of (Factor_3)

According to Factor_3 score; 4 significant cluster (Wilks' Lambda $p<0.05$) has been formed. Boyabat FDD is included in the first cluster. Araç and İhsangazi FDDs are included in the second cluster. Türkeli, Sinop, Hanönü, Durağan, Taşköprü,

Karadere, Tosya, Kastamonu, Daday and Samatlar FDDs are included in the third cluster. Cide, Pınarbaşı, Azdavay, İnebolu, Küre, Bozkurt, Çatalzeytin and Ayancık FDDs are included in the fourth cluster.

Discussion and Conclusion

21 FDDs which are significant role in wood based forest product market, were examined in terms of competitiveness. Features of forest assets (7 variables), the estimate of 2016 (3 variables), production quantities of 2015 (4 variables), financial value of 2015 (3 variables) were analyzed. Three new variables in the analysis results were obtained. When the three factor scores were examined, Factor_1 was observed to be related with measurement unit m3. Factor_2 was observed to be related with the market of fibre-chips and Factor_3 was observed to be related with the salvage logging.

In the market of measurement unit m^3 products, Ayancık, Sinop and Karadere FDDs have the competitive advantage. In the market of fibre-chips, Taşköprü, Sinop and Küre FDDs have the competitive advantage. According to factor 3; respectively, Boyabat, Tools and İhsangazi FDDs is in the first place. Whereas; the study of Çağlar and Öncel (1990), 18 FDD of Kastamonu RDF were analyzed in terms of determining the success of FDDs. Tosya FDD was determined the most successful and İnebolu FDD was determined the most failed among the others. The cause of the differences in the studies results are the number of variables, working years, different objectives etc. 21 FDD clustered in proportion to product types and production quantities by Erkan Buğday (2016). According to the study Ayancık and Taşköprü FDDs were included in the first cluster. The similar results were obtained in both Erkan Buğday (2016)'s study and this study.

According to this result; the market of wood based forest product should be considered divided into sub-(units) markets. FDDs overall situation and competitiveness are to be determined in terms of business functions. Depending on the competitiveness of FDDs, planning should be done and strategies should be set.

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