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THE AUCTION BEHAVIOR OF FELLING COMPANIES IN THE FOREST SECTOR CASE STUDY: THE COMPANIES IN THE CENTRAL REGION OF ROMANIA

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Abstract: *As part of the quantitative research from the doctoral thesis "Marketing Strategies and Policies in the Forest Sector", we have analyzed the behaviour of the managers from felling companies regarding wood auctions in the central area of Romania, more specifically in the Braşov, Sibiu, Harghita, Covasna, Mureş and Alba counties.*

Key words: *Chi square Test, crosstabulation, auctions.*

1. Introduction

In this paper we aim to determine the existence of certain statistical connections between several of the questions asked regarding the auctions and significant company identification variables, specifically the average number of employees, years of market presence and total revenue for the year 2012. The sample comprises the 78 managers who have answered all the 25 questions of the form, out of the total of 110 managers who received it.

2. Method and main results

The χ^2 test was used for determining the existence of the variable links. The theoretical frequencies were calculated for each cell first using the formula:

$$nt_{ij} = \frac{n_{.j} \cdot n_{i.}}{n}. \quad (1)$$

The χ^2 test has the formula:

$$\chi^2_{calc} = \sum_{i=1}^{p}\sum_{j=1}^{q} \frac{(n_{ij} - nt_{ij})^2}{nt_{ij}}. \quad (2)$$

The statistical hypotheses were:
H0: there is no link between the variables.
H1: there is a link between them.

The χ^2_{calc} value was compared to the χ^2 theoretical correspondent, which are $\chi^2(0,05,12)= 21,02$ and $\chi^2(0,05,8)=15,50$.

If χ^2_{calc} was higher than the theoretical one, it means that there is a link between the two analyzed variables.

The tests for each two-dimensional distribution were calculated with the aid of the SPSS software.

The first question analyzed focused on the managerial perception regarding the degree of accessibility of official web-sites which they have to access on a daily basis

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for their ongoing activity (table 1).

51 of the 78 consider that these are easy and very easy to use, which makes a percentage of 66.66% of the answers. Most of these managers come from small businesses, i.e. organizations with less then 49 employees.

Crosstabulation 1 Table 1

		21. Average number of employees:				Total
		under 9	10 - 49	50 - 249	Over 250	
2. How easy to use do you think the official websites which you use are?	1 – very hard to use	1	0	2	0	3
	2 – hard to use	0	4	2	0	6
	3 – neither -nor	8	6	1	2	17
	4 – easy to use	16	13	1	1	31
	5 – very easy to use	11	8	0	2	21
	Total	36	31	6	5	78

By applying the χ^2 test (table 2), we can see that there is a statistical link between the number of employees and the managerial perception regarding the ease of use for official web sites.

Crosstabulation 2 Table 2

Chi-Square Tests			
	value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.008[a]	12	0.004
Likelihood Ratio	24.32	12	0.018
Linear-by-Linear Association	3.745	1	0.053
N of Valid Cases	78		
a. 14 cells (70.0%) have expected count less than 5. The minimum expected count is .19			

Also, by analyzing the results of the χ^2 test we can see a connection between the way in which managers perceive official websites and the time period the company has been on the market.

In other words, the longer a company has been on the market, the more at ease it is with the use of web-sites and the easier the experience is.

There is no connection however between the managerial perception of the official websites and the total company revenue (table 3 and table 4).

Crosstabulation 3 Table 3

		22. Your company has been on the market for:			
		5 - 10 years	10 – 15 years	Over 15 years	Total
2. How easy to use do you think the official websites which you use are?	1 – very hard to use	0	0	3	3
	2 – hard to use	0	4	2	6
	3 – neither - nor	8	2	7	17
	4 – easy to use	14	11	6	31
	5 – very easy to use	9	4	8	21
	Total	31	21	26	78

Crosstabulation 4 Table 4

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.466[a]	8	0.026
Likelihood Ratio	20.05	8	0.01
Linear-by-Linear Association	3.162	1	0.075
N of Valid Cases	78		
a. 7 cells (46.7%) have expected count less than 5. The minimum expected count is .81.			

The second combination of analyzed variables was the managers' degree of satisfaction regarding the organization of auctions linked to the same identification variables (table 5).

We can see that 41 managers, 52.56% of the respondents, are happy and very happy with the way in which auctions are organized. Nevertheless, a significant number, 22 managers, i.e. 28.2%, gave a neutral response, meaning they are neither happy nor unhappy.

Crosstabulation 5 Table 5

		21. Average number if employees:				Total
		under 9	10 - 49	50 - 249	Over 250	
4. How happy are you with the way in which auctions are organized?	Very unhappy	1	1	2	0	4
	Unhappy	5	3	2	1	11
	Neither happy, nor unhappy	10	11	1	0	22
	Happy	15	15	1	2	33
	Very happy	5	1	0	2	8
	Total	36	31	6	5	78

The only variable which influenced the degree of satisfaction was the number of employees, as we can see in the table below (table 6).

Crosstabulation 6 Table 6

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	22.676[a]	12	0.031
Likelihood Ratio	18.399	12	0.104
Linear-by-Linear Association	0.474	1	0.491
N of Valid Cases	78		
a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .26.			

The third question analyzed in this paper refers to the frequency of managers' participation in auctions (table 7).

Most of them, 32 managers or 41.02% of the total, participate in 3 auctions a year. 23.07% of them (18 respondents) participate in 2.

Crosstabulation 7 Table 7

		21. Average number of employees:				Total
		under 9	10 - 49	50 - 249	over 250	
10. In how many auctions do you take part in a year?	All auctions in a year	1	3	3	0	7
	Once a year	1	7	2	1	11
	Twice a year	12	4	0	2	18
	Three times a year	14	15	1	2	32
	More rarely	8	2	0	0	10
	Total	36	31	6	5	78

Only 7 of them, 8.97%, participate in all the auctions which take place during a year.

The number of employees was a deciding factor for the number of auctions a company participates in during a year according to the following table (tab 8).

Crosstabulation 8 Table 8

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.038[a]	12	0.002
Likelihood Ratio	29.873	12	0.003
Linear-by-Linear Association	8.376	1	0.004
N of Valid Cases	78		
a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .45.			

The number of auctions in which managers participated in was considerably influenced by the total revenue in 2012 (tab. 10).

We can see (tab. 9) that most companies, 56.41% of them, had a total revenue of under 300.000 euro in 2012. But 25 of these, 32.05% registered losses in 2012.

Crosstabulation 9 Table 9

		24. Total revenue 2012:				Total
		under 300.000 euro	300.001 - 600.000 euro	600.001 - 1.000.000 euro	Over 1.000.000 euro	
10. In how many auctions do you take part in a year?	All auctions in a year	2	1	1	3	7
	Once a year	0	2	4	5	11
	Twice a year	14	1	1	2	18
	Three times a year	19	2	2	9	32
	More rarely	9	0	0	1	10
	Total	44	6	8	20	78

Crosstabulation 10 Table 10

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27.947[a]	12	0.006
Likelihood Ratio	32.65	12	0.001
Linear-by-Linear Association	8.468	1	0.004
N of Valid Cases	78		

a. 15 cells (75.0%) have expected count less than 5. The minimum expected count is .54.

The auction behaviour of managers in the felling industry depends on several other variables, such as the source of the information regarding auctions, what types of wood are on sale and what types of wood are interesting to them at that point, the preference for a type of auction, the way in which they communicate with the Forrest Districts, the way in which they use the wood and many others. We will approach these variables in a future research paper.

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