

## **FACTORS AFFECTING INNOVATION ACTIVITY OF ENTERPRISES IN WOOD PROCESSING IN BULGARIA (Some Results of a Survey)**

*The aim of the paper is to identify factors, affecting innovation activities of enterprises in Bulgarian wood processing.*

*The database used and the methodology applied are developed by R. Chobanova on the base of OECD Oslo manual requirements.*

*The results presented concern:*

- a) internal and external sources for innovation ideas in enterprises in Bulgarian wood processing, divided into domestic and foreign;*
- b) factors, supporting innovation activities;*
- c) factors, hampering innovation activities.*

*The conclusions and policy making considerations, drawn at the end, concern modernization of the wood processing technology in the context of EU requirements for environmental protection and sustainable development.*

*JEL: O33, O31, Q23*

### **1. General Characteristics of the Survey**

Factors for innovation activities of enterprises from the forest sector in Bulgaria were studied by interviews. A questionnaire was used for collecting information on the current state of innovation process in the country. The database used contains results of a survey of 310 enterprises which were conducted under the supervision of and using methodology, developed by Dr. Rossitsa Chobanova, Senior Research Fellow. The methodology applied is developed on the base of OECD Oslo manual requirements and approved at the Institute of Economics at the Bulgarian Academy of Sciences.

*The distributions of surveyed enterprises in forestry sector is shown in figure 1.*

The newly established private enterprises have the biggest share – 84%. Concerning the staff number – enterprises with staff number 20-49 are the dominant group (Figure 2). The distribution by R&D intensity shows that the first group has the largest share – almost half of the enterprises allocate below 1% of their budgets in percentage for R&D, 17% of enterprises spend 1 – 4% and 7% of enterprises spend above 7% (Figure 3). The distribution by R&D intensity and size confirms the above conclusion.

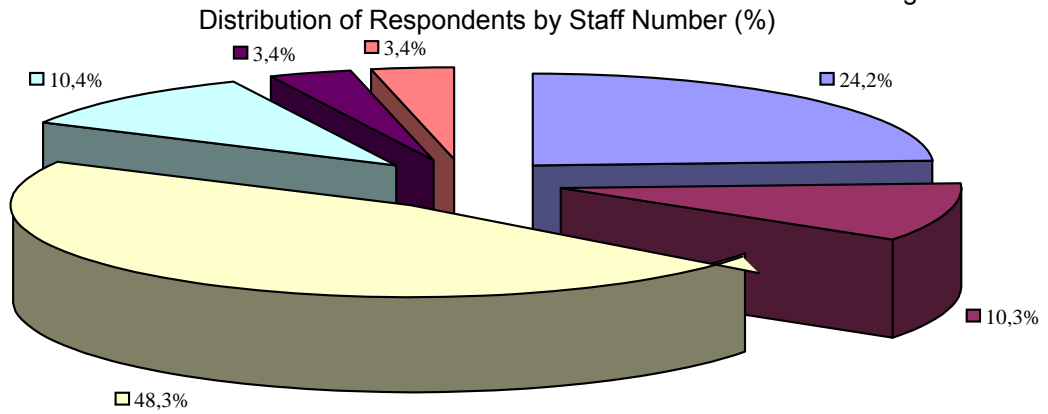
The analysis of R&D and export intensities shows that they are interconnected. The largest share have "1 – 4%" and "above 7%" groups which proves the positive effect of R&D intensity on export intensity of enterprises.

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<sup>1</sup> Rayna Tzaneva is PhD Research fellow in Institute of Economics at BAS, e-mail: r.tzaneva@iki.bas.bg

The empirical data on the observed Bulgarian forest sector enterprises shows that funds allocated to R&D are insufficient which leads to unsatisfactory export intensity.

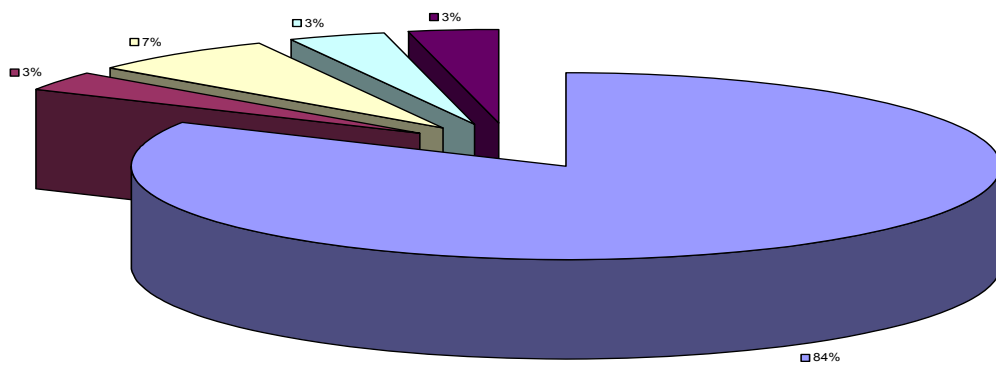
Figure 1



Below 10 From 10 to 19 From 20 to 49 From 50 to 99 From 100 to 499 From 500 to 999

Figure 2

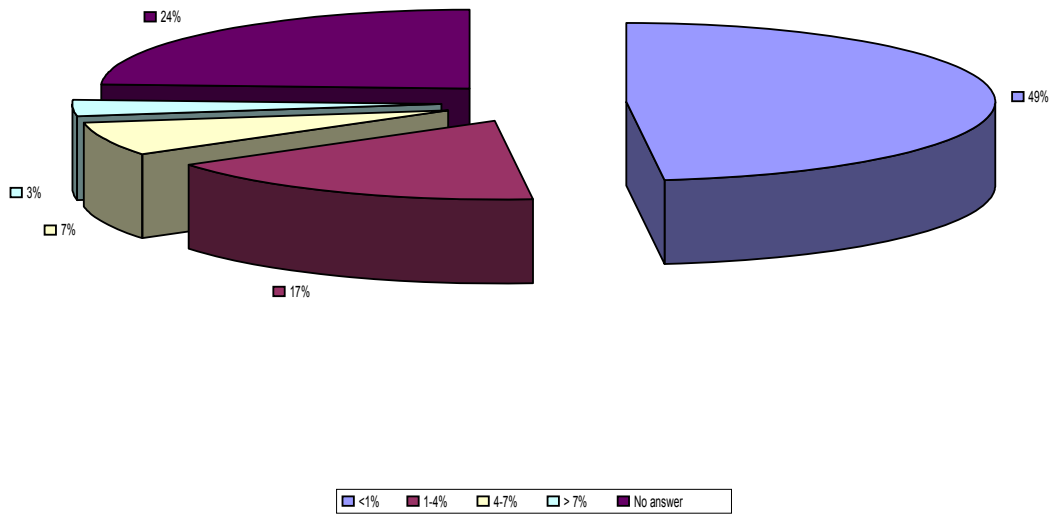
Distribution of Respondents by Ownership (%)



Newly established Cooperative Privatised - cash privatisation Privatised - mass privatisation No answer

Distribution of Respondents by R&D Intensity (%)

Figure 3



Distribution of Respondents by Export Intensity (%)

Figure 4

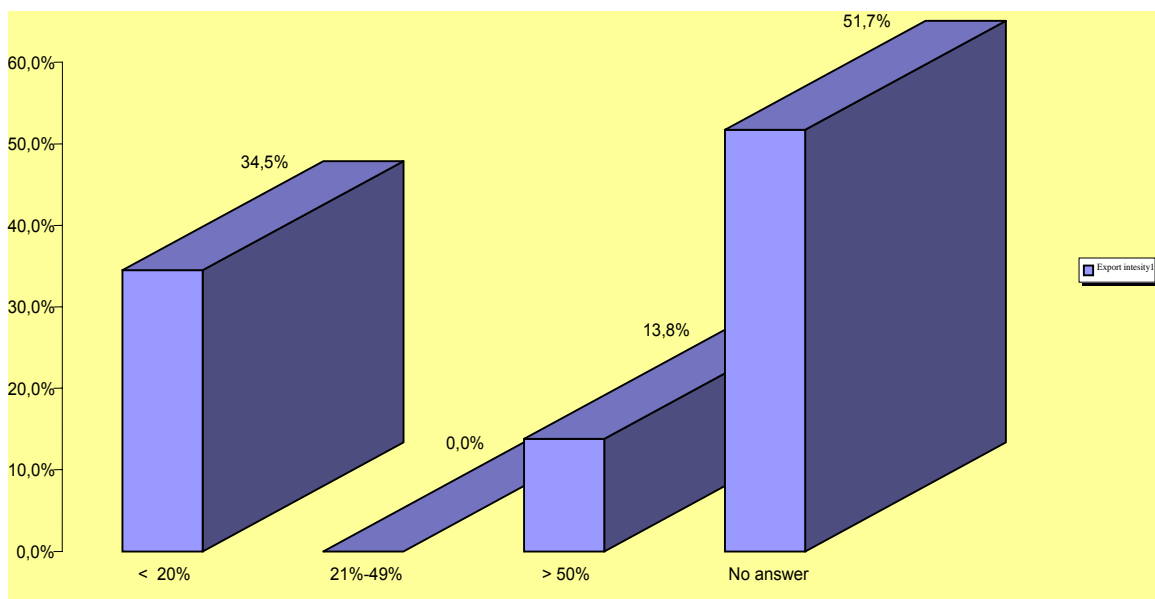


Table 1

	0%	< 1 %	1-4%	4-7%	> 7%	No answer	TOTAL
Below 10	-	17,24	-	-	-	3,45	21
10 - 19	-	10,34	-	-	-	-	10
20 - 49	17,24	17,24	6,90	3,45	-	3,45	48
50 - 99	3,45	-	-	-	-	10,34	14
100 -499	-	-	-	-	-	3,45	3
500 -999	-	3,45	-	-	-	-	3
No answer	-	-	-	-	-	-	-
TOTAL	20,69	48,28	6,90	3,45	-	20,69	100

Table 2

	0%	< 1%	1-4%	4-7%	> 7%	No answer	TOTAL
< 20%	3,45	-	13,79	-	6,90	24,14	48,28
21-49%	-	-	6,90	-	6,90	6,90	20,69
> 50%	-	-	6,90	3,45	-	-	10,34
No answer	-	-	3,45	-	3,45	13,79	20,69
TOTAL	3,45	-	31,03	3,45	17,24	44,83	100,00

## 2. Internal<sup>2</sup> and External Sources of Innovation Ideas

Table 3 presents the average values of answers (columns distribution) and factors (row distribution). Row 52 has the highest value (0.37). This means that the most important internal source of innovation ideas for forest sector enterprises in Bulgaria are **inter-company stimulation schemes**. Initiatives by managers and managing bodies are on second place. Control on the technological process, specialised personnel and marketing researches are of relatively limited importance.

There could be two groups of external sources of innovations – local and foreign. Empirical data on external sources show that factor 89 – business connections – is the most important – 65.5% of enterprises list it on first place. Another important factors are environmental regulations, health and labour safety regulations, quality standards and local customers and suppliers.

<sup>2</sup> Seven internal for enterprises sources of innovation ideas are listed in the questionnaire. Respondents are asked to mark 1 out of 4 alternatives for using these sources – never, seldom, often, always.

Table 3

Distribution of Respondents by Strength of Internal Sources of Innovation Ideas

# Internal idea	0	1	2	3	No answer	Average value
48	13,79	27,59	20,69	27,59	10,34	0,34
49	6,90	10,34	31,03	44,83	6,90	0,27
50	3,45	27,59	27,59	37,93	3,45	0,23
51	-	10,34	55,17	27,59	6,90	0,25
52	17,24	24,14	13,79	13,79	31,03	0,37
53	-	3,45	58,62	27,59	10,34	0,25
54	-	17,24	24,14	48,28	10,34	0,25
Average value	5,91	17,24	33,00	32,51	11,33	

Figure 5

Distribution of Respondents by Factor N 87 – Business Relation

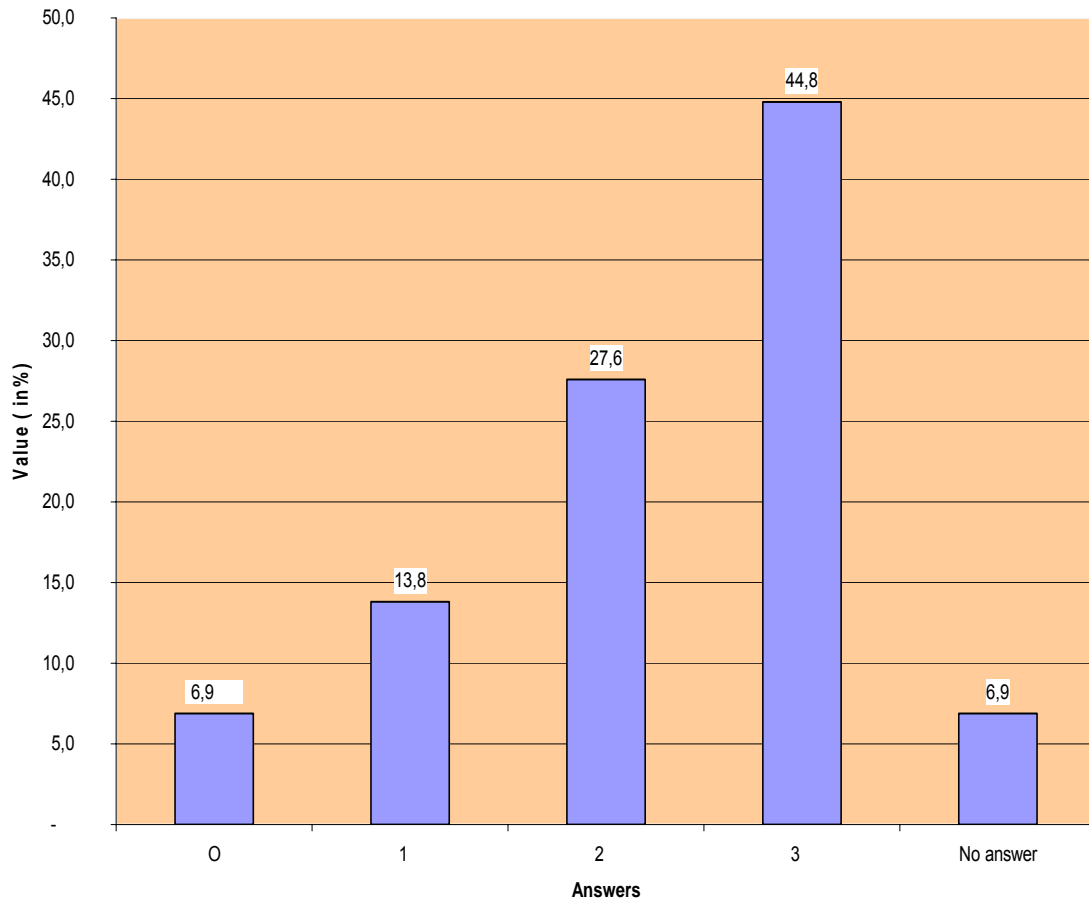
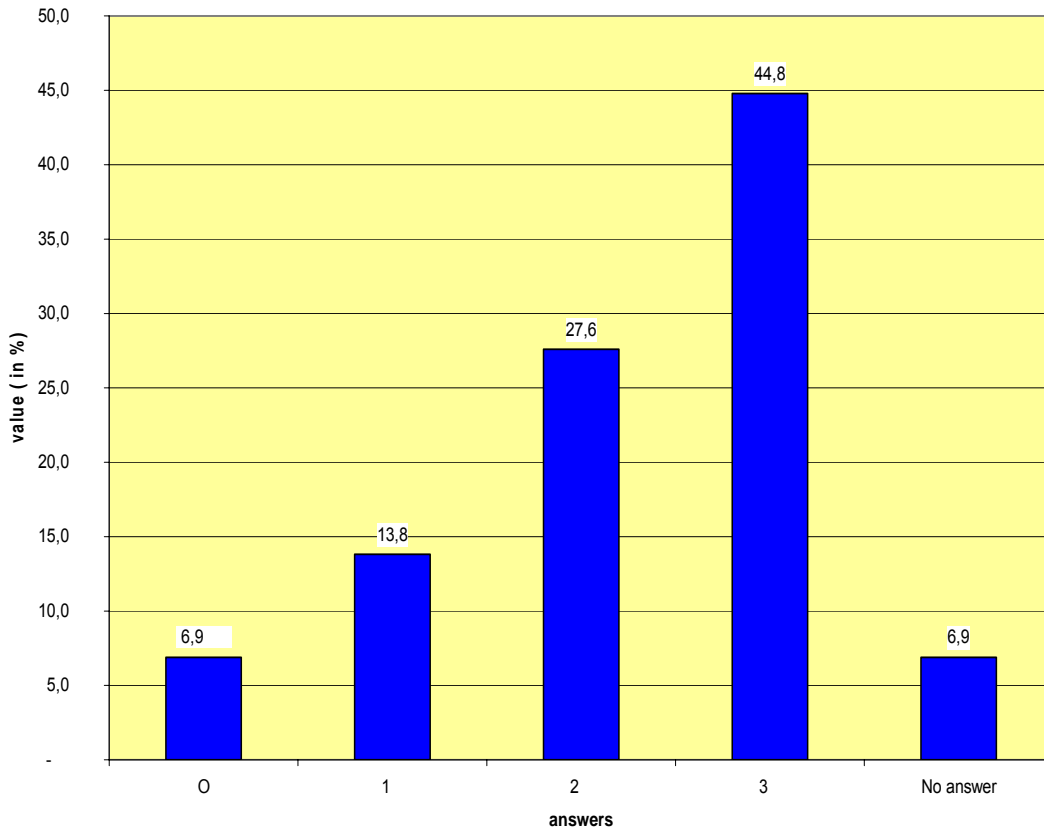


Figure 6

Distribution of Respondents by Factor N 69 – Local Customers and Suppliers



### 3. Factors Affecting Innovation Activity of Enterprises

Factors	1	2	3	No answer
104	6,9	20,7	13,8	58,6
105	17,2	13,8	13,8	55,2
106	6,9	17,2	10,3	65,5
107	6,9	3,4	0,0	89,7
108	6,9	6,9	0,0	86,2
109	3,4	3,4	6,9	86,2
110	6,9	0,0	6,9	86,2
111	13,8	0,0	0,0	82,8
112	3,4	10,3	0,0	86,2
113	3,4	3,4	6,9	86,2
114	3,4	3,4	3,4	89,7
115	3,4	3,4	6,9	86,2
116	3,4	3,4	0,0	93,1
117	0,0	0,0	0,0	100,0

Insufficiency of financial resources and significant economic risk are the main barrier to the innovation activity of forest sector enterprises in Bulgaria. 13.8% of enterprises have marked "insufficiency of market information" as an obstruct factor. Lack of information about innovation trends in different product fields have a negative impact too. A large part of respondents have not answered the questions 104-117 of the questionnaire (Table 4, column 5) which also indicates the respondent's lack of interest in innovation process. This conclusion corresponds also to lower R&D activity – see Section 2, Figure 3.