Innovation System Analysis of the Wood and Furniture SME's in the Region of Thessaly

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Abstract
Development strategies and regional projects of innovative actions, constitute the catalysts of regional and national economic development, according to Lisbon strategy for economic, social and environmental renewal. Under this direction, the region of Thessaly in Greece comes behind far more than the other European or national regions concerning innovation and especially business innovation. Although it is difficult to isolate the nature, the sources and the results of innovation a congruency exists to the opinions concerning the elements of innovation (Gordon and McCann 2005).

Focusing to the branch of wood and furniture enterprises, a first diagnosis is attempting through this study, in order to seek the sources and constrains of innovation in the branch and analyze the innovation wood and furniture system. The study focuses to the registration of innovative performance of wood and furniture SME's of the region, mainly through the economic aspect of business innovation simultaneously to the sector and regional innovation system analysis. Specifically the aims of the study concern:

- *Assessment of wood and furniture SME's innovation factors, sources and constraints.*
- *Ways and measurement of innovation funding in the specific branch*
- *Determination of wood and furniture SME's strategy for economic development*
- *Budget of innovation in the branch*

Keywords: innovation, economics of innovation, innovation systems, wood and furniture enterprises
JEL classifications: O18, O30, O31, L26, P23

1. Introduction

1.1 Specifying innovation

Globalization modulates a new reality concerning markets extension and the share of the consumers that enterprises are targeting to, through the production of specific products. This globalization in combination with technological development indicates the exchange of

know – how and information among the enterprises, whether they belong to the same production branch whether not. The capability of prediction, instant analysis and effective action, constitute fundamental factors for the viability of modern enterprises. Enterprises and furthermore national economies, cannot continue to rely on their traditional products and practices of the past. Products life cycle has been dramatically reduced and firms have to develop new products and services using much more intensive efforts. Classic production factors such as capital, labour and raw materials, are not able to give the competitive advantage to the enterprises.

In this fully competitive environment, innovation comes to enchase creativeness and competitiveness of enterprises and boost regional entrepreneurship and development, by reducing inter-regional inequalities. European Union, in the framework of the efforts for economic and regional development, having understand the importance of innovative actions, has defined innovation, as

> the renewal and expansion of the gamut of products and services and linked markets, the adoption of new production, procurement and distribution methods, the import of changes in management, labor organization and occupation conditions along with the abilities of working force (Green Paper of 1996).

According to Schumpeter (1975) innovation is defined as the process of developing new or improved products, production processes and organization forms, a definition that is acceptable till today, since encloses the meanings of new and development. Drucker (1985), expands this definition and frames it with economic and social terms, aiming mainly to the result of innovative action, accenting the role of innovation into the modern socioeconomic globalized reality, concluding to the result that innovation is mainly social and economic term than technical. He gives two definitions, without altering the meaning of innovation. Specifically:

- Innovation is the action that enchases resources with the ability to create wealth. Thus, innovation creates economic resources.
- Whatever changes the capacity of an existing economic resource constitutes innovation.

Nevertheless, innovation is linked to the process such as to the process results. It concerns the alteration of an idea to a trade able product or process through a new, improved and functional method of production and services (Gordon and McCann 2005). It is obvious that the choice of the definition that is going to be used in a study or in a research, can affect their results (OECD 1995).

Innovation isn’t a univocal liner meaning, but encloses a great number of organizations, proceedings, politics, regional-economic-technological and social relations, having as main target sustainable development in general and specifically the strengthen of the enterprises which constitute the core of innovation process. Innovation is connected, through the technological evolution, to an expanded system of knowledge management processes (Komninos 2001). Scientific research approaches innovation as a system and not with the classic linear way that constrains innovation in specific frames. Enterprises are not innovative by their own but they are in a continuous reaction with the rest members of the system and through these reactions, specify the innovative action of the enterprises

(Komninos et.al. 2001). Although it is difficult to isolate the nature, the sources and the results of innovation, there is congruency among the opinions concerning the variables that constitute innovation (Gordon and McCann 2005).

1.2 Innovation in wood and furniture sector.

The study is focused to the firms of wood and furniture in the region of Thessaly. Developing strategies and regional projects of innovative actions that are applied constitute catalysts for regional and national economic development aiming to sustainable development following Lisbon strategy for economic, social and environmental renewal. According to the annual report for innovation in Thessaly of 2002, it is concluded that Thessaly comes far behind from the rest of Greece and European Union, concerning innovation. Its performance is up to 52% of the mean innovation performance of Greece and up to 24% of Europe, ranking Thessaly at the 10th place among Greek regions and at the 200th place among European regions (Innovation Scoreboard 2006).

Focusing to the branch of wood and furniture, it is attempted a first diagnosis of innovation constrains and sources, along with a quantitative and qualitative registration of innovation in wood and furniture SME's of the region, using mainly economic variables. Simultaneously an analysis of the innovation system of the branch and the relations between the firms and several organizations has been examined. Several studies concerning innovation and innovation systems, registration and modeling innovation in wood and furniture branch, have been conducted during the last years in international level. The results are different among countries, having also as a common verification, the low level of innovative actions and financing by the enterprises of the branch and the fundamental role that innovation can play for producing high-added value products and for economic development (Papadopoulos and Ntalos 2006, Diaz- Balteiro et.al. 2005, Kairi 2005, Brege et. al 2005, Ukrainski and Varblane 2005, Hovgaard et. al. 2005).

2. Methodology

Several techniques and methods for measuring innovation have been developed (Adams et. al. 2006, Flor and Oltra 2003, Danneels and Kleinschmidt 2001, Schroeder et.al. 1989, Archibugi 1988, Richardson and Gordon 1980), each one using different variables and approaching of business innovative action.

> Quantification, registration and benchmarking of business innovation, is a complicated process, having simultaneously fundamental character and interest for academic research (Fenkel et. al. 2000).

It is internationally accepted, that the Frascati manual,

> Constitutes the most advisable tool for constructing studies concerning technological development and innovation and it is used by economists, decision makers and statisticians, without been also and the absolute guide of available registration techniques (Mothe 1992).

The methodology that has been used in this study, in order to register wood and furniture business innovation in the region of Thessaly, is

focused to the economic aspect of innovative actions, through the registration of business innovation expenditures for Technological Innovation of Products and Services actions, simultaneously with the registration of qualitative data with reference to the general field of business action, along with interactions that occur inside and outside of the enterprises. The questionnaire that has been used, was based to the internationally recognized manual of innovation registration which was conducted by OECD in 1995, known as ***Canberra Manual***, in combination with similar questionnaires of Greek Ministry of Development concerning innovation registration studies in Greece. Thus, the questionnaire was specially constructed, based upon international standards and adjusted to the characteristics of the branch.

The study, which follows the ***subject approach***, starts with the analysis of innovative behavior of the firm as a total. The variables that affect innovative behavior of each firm and the range of several innovative actions are analyzed, giving special concern to the results and impacts of innovation (OECD 1995). For the construction of business innovation budget based on ***subject approach***, another technique was used in order to register innovation expenditures, known as ***bottom-up approach***.

Statistic analysis of data was made using SPSS WIN. Ver. 14.0 and all the statistic controls of descriptive, frequencies and cross tabs were made (Norusis 2005, Howitt and Cramer 2001). The analysis was focused to the following main categories of results concerning wood and furniture enterprises:

- General data of enterprises
- basic economic data/transitions of enterprises
- aims of innovation
- information sources concerning innovation
- ingratiatory and inhibitory variables of innovation
- affection of innovative action to the efficiency of the firms
- analysis of innovation system in the branch
- registration of innovation expenditures

3. Results

3.1 Profile of the enterprises – main economic data.

The first category of the results concerns the profile of the firms of the study. As it is presented in figure 1, the major percentage of the participated firms is established in Trikala prefecture. Concerning their legal form (figure 2), the majority (34,21%) are unlimited general companies and corporations follows along with the rest of the legal forms, showing lower percentages.

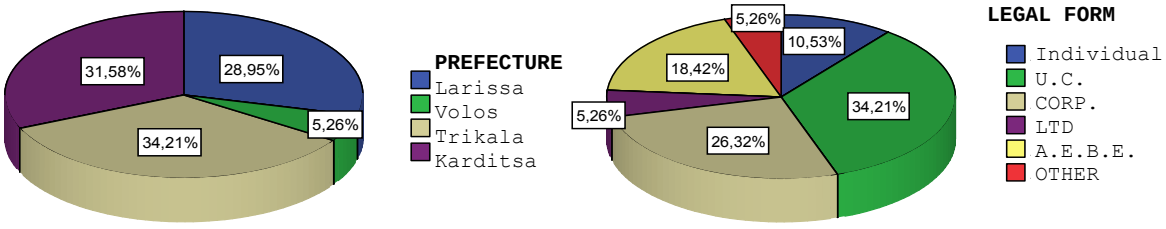

Figure 1: Establishment of the enterprises Figure 2: Legal form

The greater number of the study enterprises (figure 3), states as their main activity furniture manufacturing (42,1%)with wood and wood products trading business following (21,1%), while the rest of the activities, such as wood processing and wood products manufacturing, show lower percentages. This allocation is indicative of the activity which is developed by the enterprises of the branch in the region.

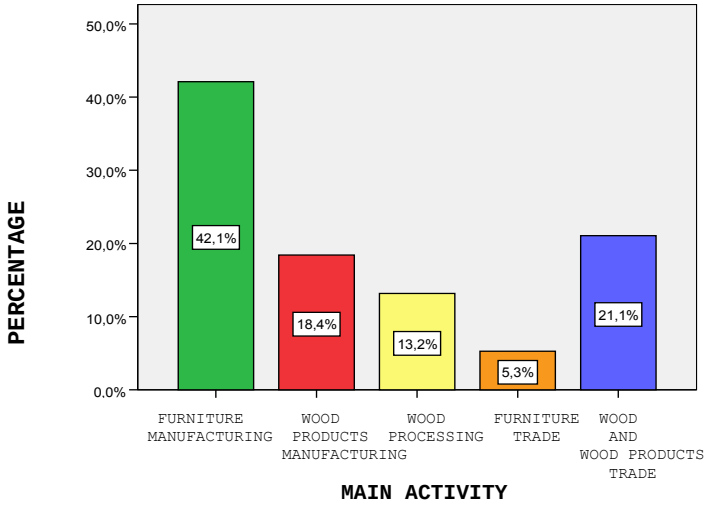

Figure 3: Main activity of the enterprises

Next, the analysis of several economic data and transitions is presented, concerning a three years period, from 2005 – 2007. Innovation constitutes a major factor in forming the basic economic business characteristics. This result is not evident directly but in many cases, a significant period of time is necessary in order to quantitative innovation's result with specific economic terms. Thus, the major percentage (59,46%) of the enterprises has a total invested capital less than 2.000.000€ and these where the invested capital is among 2 and 10 million€ follow(32,44%). Enterprises to which the invested capital overcomes the amount of 10 million€ constitutes only 8,11%. Similar is the distribution of the percentages concerning the total value of fixed capitals, showing some small fluctuations. Concerning annual turnovers, the mean of 2005-2007 is in major percentage (40,54%) between 1.000.000-2.000.000€ and enterprises with mean of annual turnovers less than 1.000.000€ follow with percentage 32,44%.

Concerning employees there is a slightly rising inclination for the total number in the enterprise during 2005-2007, a fact that is according to the statement of the majority of the enterprises (59,5%) that this inclination will be sustained and for the year 2008, reaching finally at a percentage of 4,1%. Unlikely are the percentages of enterprises (87,9%) which have stated that concerning the total number of university graduated employees, they will not proceed to any change of this category total number. Net profits distribution according to enterprises main activity and legal form is presented in next figure 4. Higher net profits become from corporations that are dealing with wood products manufacturing and wood processing. At very low levels stand profits of individual enterprises for all the categories of main activity.

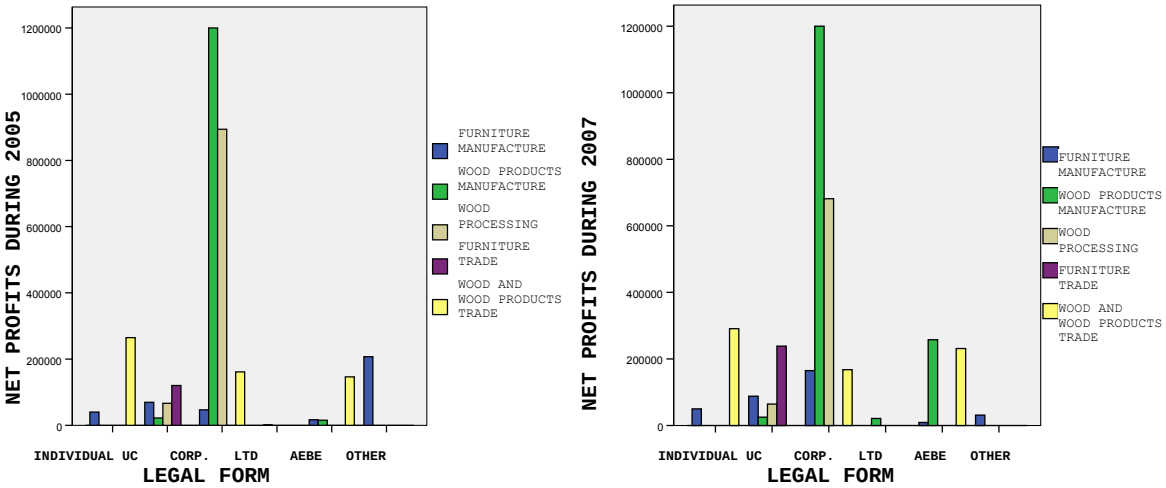

Figure 4: Net profits distribution according to legal form and main activity during 2005 and 2007.

Concerning basic economic data of the enterprises, except net profits, such as, invested capital, mean triennium turnover, costs of raw materials, salaries, number of employees, exports e.t.c., it seems to have stronger positive relation (coefficients kendall's tau-b and kendall's tau-c) with the stated legal form than with main activity or place of establishment.

3.2 Use and targets of innovation

As it is shown in figure 5, the majority of the enterprises stated that they are aware of the meaning of innovation and they are using innovation in their production process. The type of innovation that is used, concerns technological innovation along with innovation in services, with the greater percentage (51,5%)to adopt and improve already existing methods of production and products distribution (table 1). This fact shows the importance of developing new production and products distribution methods, since this way of innovation embedment shows the lowest percentages.

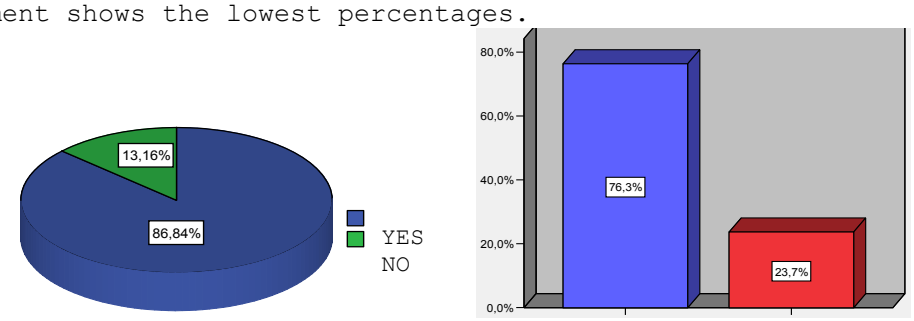

Figure 5: Knowledge and use of innovative products and services

Table 1: Innovation of products and services

INNOVATION EMBEDMENT	NEW PRODUCTS	PRODUCTS IMPROVEMENT	ADOPTION AND IMPROVEMENT OF PRODUCTION/ DISTRIBUTION METHODS	DEVELOPMENT OF NEW PRODUCTION AND DISTRIBUTION METHODS
PERCENTAGE	39,4%	39,4%	51,5%	33,3%

The results that are presented in next figure 6 are quite interesting, since it was asked from the wood and furniture enterprises to rank the most important targets that they have to achieve through the development and application of innovation in products or in services. Ranking contained a list of 13 targets, with less important in the gradation scale, rank 0 and as most important rank 5. As major aims, with total ranking over 4, of innovative actions of the study's firms were accented the next four:

- The expanding of the market share that the firms already own
- lower production cost
- opening of new markets abroad or to markets-targets in Greece
- improvement of products quality.

These results show that innovative action is aiming to new customers based on quality products in combination with as it is possible lower total production cost.

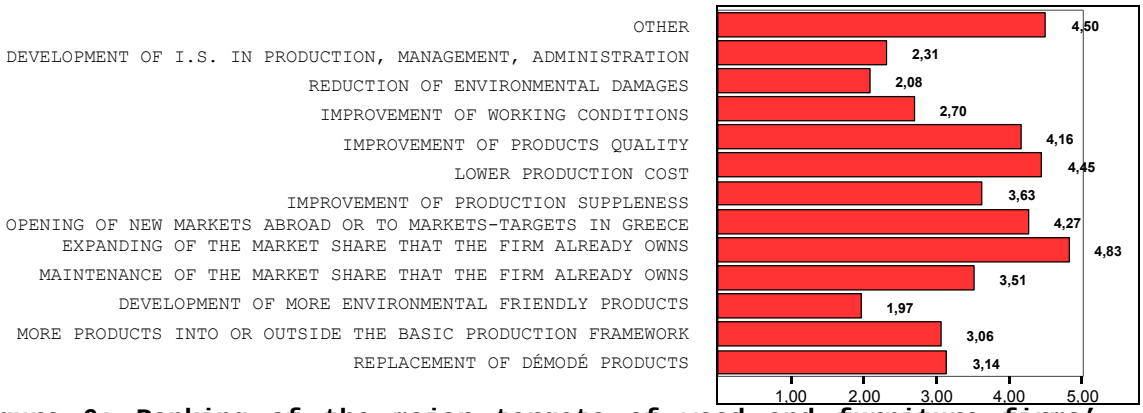

Figure 6: Ranking of the major targets of wood and furniture firms' innovative action.

A quite significant percentage of the firms (47,37%), has stated that during the period 2005-2007 had imported some kind of innovation of production, services or products distribution methods. This percentage is quite positive if we consider the general situation of the branch in issues such as development and application of technological and non technological innovation. In this innovation's development, the firms seem to have primal roles which, through the demands of the market and the characteristics shown separately, in each firm's production framework, are taking over initiatives for this development and application of innovative action. The majority of the firms (83,3%), stated that they have imported and developed innovation by their own. A much smaller contribution seems to have the collaboration with Universities and Research Centers, since only 5,6% of the firms stated that develops some kind of collaboration concerning innovation with these organizations. Similar are the results concerning cooperation with other firms of the branch. Only a 11,1% develops such a cooperation, a fact that shows the weaknesses of innovation system in the Region of Thessaly concerning wood and furniture branch.

The above mentioned results are confirmed by the results shown in next figure 7, concerning the ranking of the major information sources about innovation. This ranking is based to the discrimination of three main categories of business innovation information sources:

- Sources from the business's interior(Figure 7A)
- sources from the exterior business environment (Figure 7B)
- other sources (Figure 7C).

A scale was used with ranking from 1 to 4 with major factor 1.

Concerning sources from the interior business environment as most important were classified business administration and staff along with the production process that is applied. Human resources seem to play the most significant role in business innovation information. Also a fundamental factor is the need for production of quality products. The rest of the interior sources follow.

Concerning exterior sources, the basic role in information about innovative action has to do with technical equipment and software suppliers, along with the customers and the competitors of the firms. This could be interpreted by the fact that the needed technological equipment for production of quality products comes basically from the suppliers. Customers are the factor that can determine the tendency in developing and designing innovative products, capable to serve specific needs. Competitiveness is the next major information source. This confirms the opinion that innovation-competitiveness and entrepreneurship are close related to each other. In very low levels in the ranking, stands the contribution of Universities, Research Centers e.t.c. This means, that there is a significant gap of knowledge in the branch of wood and furniture concerning several organizations, private or public, that develop innovation management techniques or innovative services. Fundamental actions should be undertaken in order to improve the role of innovation infrastructures in the region.

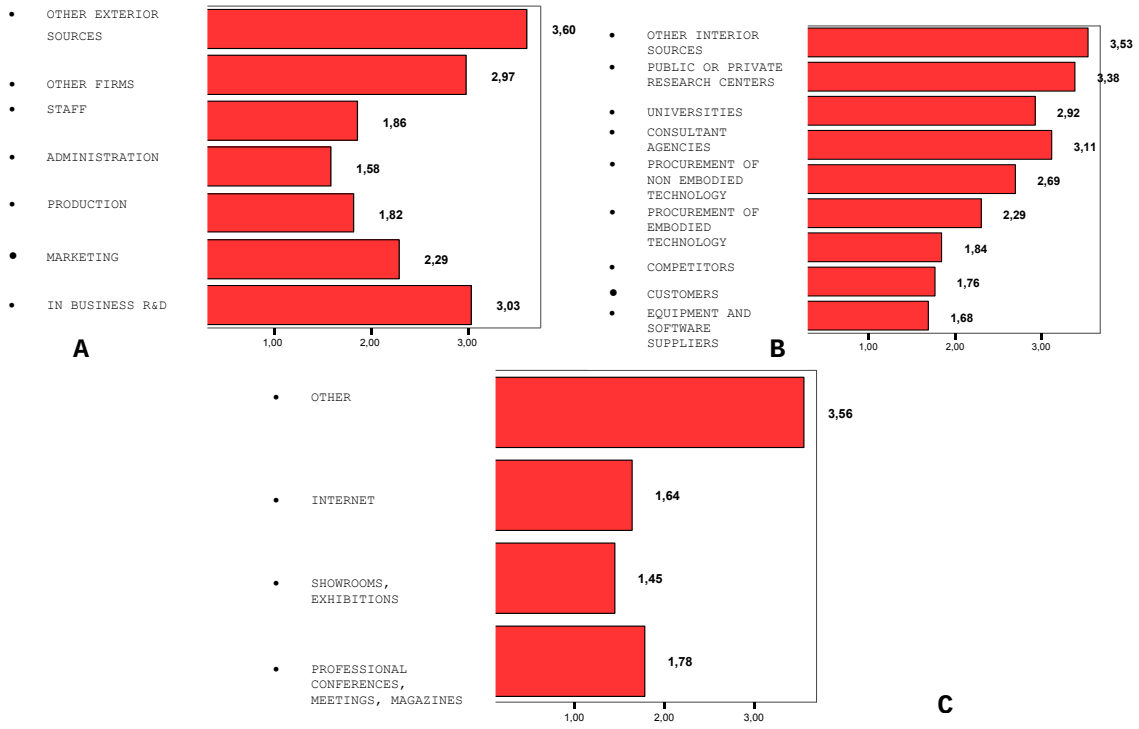

Figure 7: Ranking of major sources of information concerning innovation

As major fields of information, are products and market studies in a percentage 97,4% of the firms, scientific and technological development (65,8%), investment and financing(52,6%), statistics and trade opportunities (28,9%) and finally the role of research and

service organizations with only 7,9%. The most intensive relation exists between use of innovation and the source of administration(kendall's tau-b=0,508 and tau-c=0,460) and between knowledge and information sources of innovation, the relation to the procurement of non embodied technology(kendall's tau-b=0,293 and tau-c=0,225).

3.3 Ingratiatory and inhibitory factors of innovation.

Next figures (8 and 9) show another ranking, concerning ingratiatory and inhibitory variables in innovation development and application, from the firms of wood and furniture in the region. Such the favorable factors as the constraints of innovative action were separated in categories based on the general and special business environment, in order to be able to characterize this environment related to innovation. The same way of ranking, as previous, was also used here. The existence of specialized staff was the major ingratiatory factor from the special business environment and from the general environment, customers and their demands. In low positions again we see the role of Universities, Research Centers e.t.c.

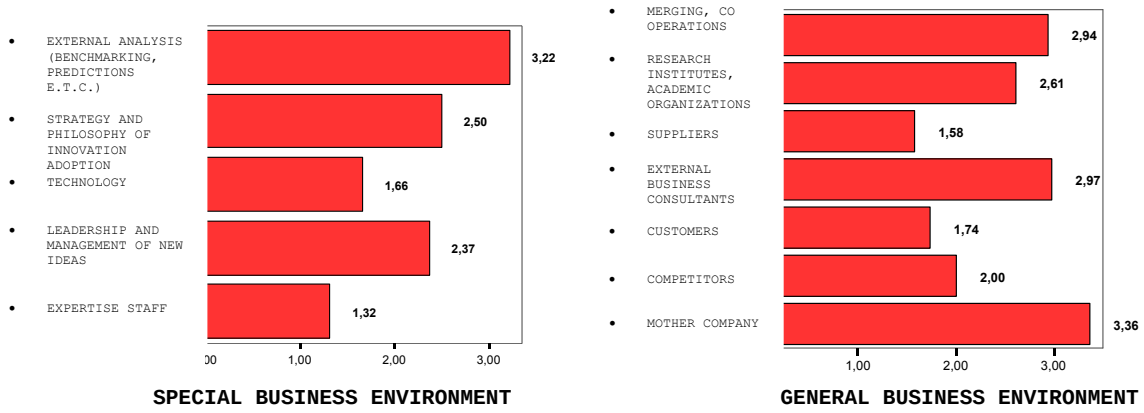

Figure 8: Raking of ingratiatory innovation factors.

In relation to the variables that function inhibitory and raise constraints to business innovative action, they were distinguished in three major categories:

- Economic factors
- business interior factors and
- other factors.

The sum of economic factors was ranked with characterization from high to medium, having as most significant variable the deficiency of suitable funding sources towards the firms of the branch, in order to develop some kind of innovation. Also, a fundamental role seems to have the very high total cost that is embodied in innovative action and generally the economic risks that entrepreneurs have to take over. Central position concerning interior factors, has the absence of specialized staff along with the absence of information about technologies that have been developed and the solutions that they can provide towards the firms of wood and furniture, about production process, services, business management e.t.c. Finally, some other factors such as the deficiency of know how management organizations and the absence of sufficient suppliers of equipment seem to have a fundamental role.

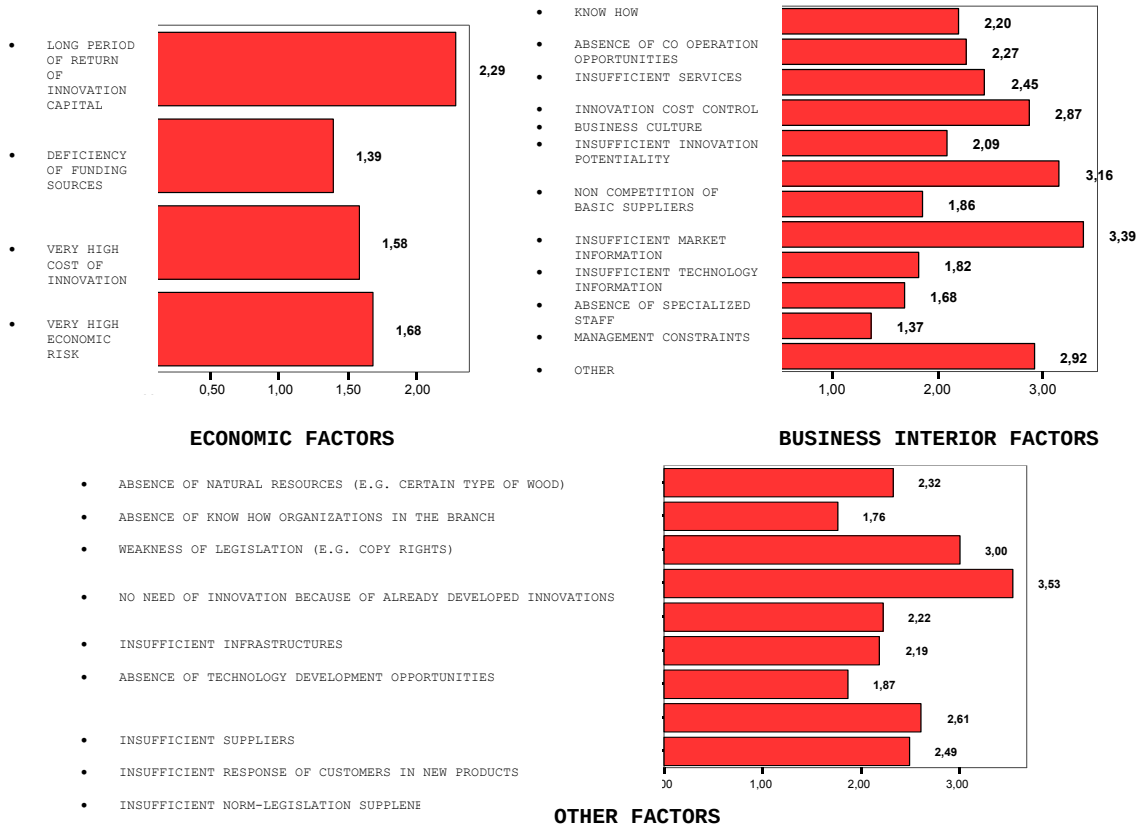

Figure 9: Raking of inhibitory innovation factors.

3.4 Effects of innovative action in business economic data.

The major percentage (60,53%) of the wood and furniture firms, didn't show any variations of the R&D expenditures during the period 2005-2007. From those that did show variations, the major percentage had to do with increment of these specific expenditures in a percentage up to 10% (table2). A small percent of 4% of the firms stated that their R&D expenditures were decreased in a significant percentage more than 20%.

Table 2: Variations of wood and furniture firms R&D expenditures during 2005-2007.

	Increment 0-5%	Increment 6-10%	Increment 11-15%	Increment 16-20%	Increment >20%
			PERCENTAGE %		
YES	15,4	19,2	3,8	7,7	7,7
NO	84,6	80,8	96,2	92,3	92,3
TOTAL	100,00	100,00	100,00	100,00	100,00
	REDUCTION 0-5%	REDUCTION 6-10%	REDUCTION 11-15%	REDUCTION 16-20%	REDUCTION >20%
			PERCENTAGE %		
YES	-	-	-	-	3,8
NO	100,0	100,0	100,0	100,0	96,2
TOTAL	100,00	100,00	100,00	100,00	100,00

The contribution of innovative action in firms' sales is presented to the next table 3, where we can see the percentage arising from sales innovative products and process of the firms during the period 2005-2007. Sales of technical improved products that have been commercialized by the firms during these three years were ranked first concerning their percentage of total sales. These results show the efforts of wood and furniture firms in order to seek new markets in

national and international level, a characteristic of the extraversion that the firms of the branch are trying to show during this last period. Furthermore, most of the enterprises are applying projects of already existed products and processes improvements, without entering to fundamental innovative action of really new products and services. Nevertheless, it is quite encouraging the fact that the major percentage is trying to import some kind of innovation in their production process, since only 8,27% of the sales concern products that remain the same.

Table 3: Percentage % of wood and furniture firms' sales, concerning innovative products or processes during 2005-2007

WOOD AND FURNITURE PRODUCTS SALES CONCERNING	PERCENTAGE % OF SALES
Technological new products commercialized during 2005-2007	7,78
Technological improved products commercialized during 2005-2007	16,43
Sales of new or technological improved products concerning firms operation market	12,78
Sales of new or technological improved products exclusively for the firm	10,96
Products technological unchanged or simply altered, made with existed production methods commercialized during 2005-2007	12,31
Products technological unchanged or simply altered, made with existed production methods	8,27
Processes technological unchanged or simply altered applied during 2005-2007	10,69

A relatively low percentage (32,43%) of the firms stated that technological innovations have reduced total production costs during 2005-2007. This fact can be interpreted based to the opinion of relatively high cost of modern technological equipment, but also of several production elements and factors that are demanded for the manufacturing of new, innovative and qualitative products, a cost that is embedded into the total production cost. Furthermore, the quantification of positive impacts of innovation, demands a rather logical period of time in order to be presented to the economic data of the enterprises. Analyzing more deeply this, we can see that from the firms that have answered positively about reduction of average total production costs, the major percentage (58,3%) had a reduction in a scale from 5-10% and a percentage of 16,7% a reduction in a scale from 10-15%.

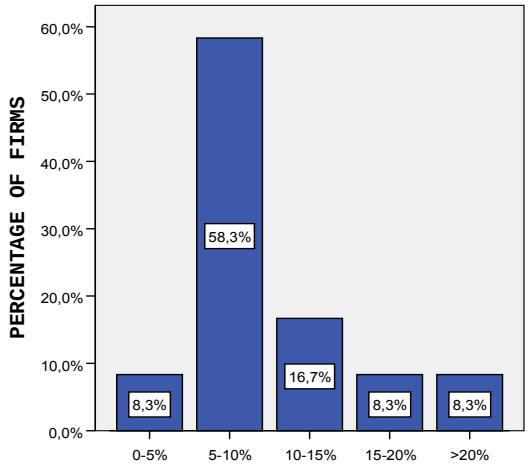

Figure 10: Reduction of the average total production cost.

A further consideration of this analysis shows that, furniture manufacturing companies, individual companies, corporations and

limited companies present the grater percentage of turnover based on innovative products and processes, having similar numbers, as it is shown in figure 11.

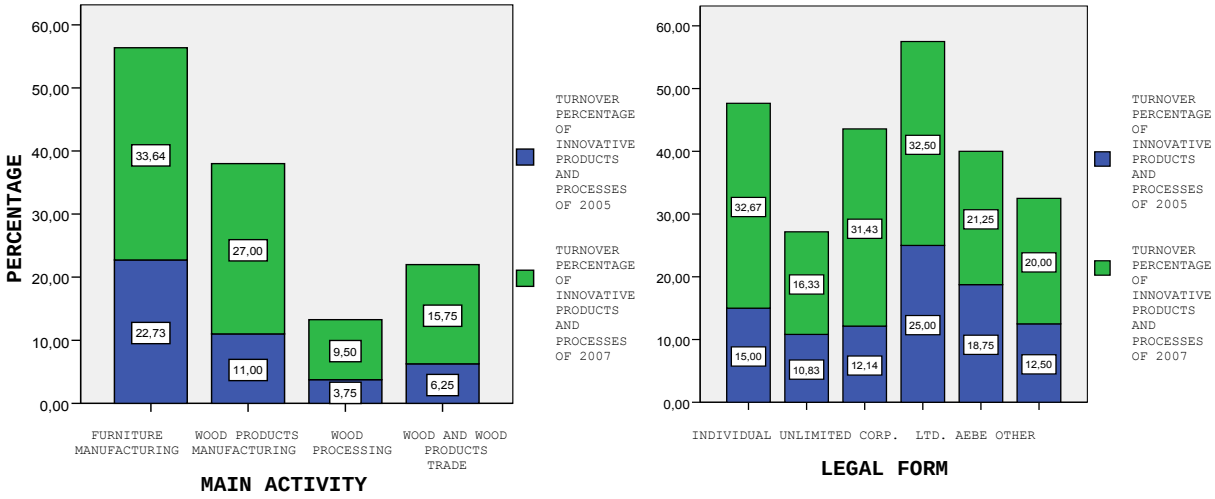

Figure 11: Turnover percentage of innovative products and processes according to main activity and legal form of 2005 and 2007.

Correlation of wood and furniture enterprises innovation level to the percentage of sales increment, shows that there is a strong relation between these two variables (coefficients Kendall's tau-b=0,620 and Kendall's tau-c=0,582). The form of this correlation is approximately linear (coefficient Pearson's R=0,683), presenting strong intension (coefficient Spearman=0,747). The strongest relation exists for the firms that have stated that, applying innovation at a level lower than 5% led to a sales increment at a level from 6-10%. As the level of innovation increases the percentage of sales increment shows fluctuations. This may be due to the fact that, high level of business innovative action surcharges significantly average total production cost. Generally, it can be told that increment of innovation level, leads to increment of wood and furniture sales, since this relation is positive.

Other effects of innovative action have to do with the products or the processes of wood and furniture enterprises. Thus, ranking these effects was found that the major effect has to do with the improvement of products and services quality. The increment of products and market range follows. Effects concerning production cost were rated rather low, confirming the findings that were previous presented.

3.5 Innovation budget

For the preparation of wood and furniture business innovation budget the bottom-up approach was followed. In next figure 12 we can see that, the greater percentage of the firms had innovation expenditures, more than 50.000€ during the last year, while those with expenditures less than 10.000€ follows. Firms with expenditures between 20.000-30.000€ take the last position. These results confirm the fact that, fundamental innovative action demands quite high levels of funding.

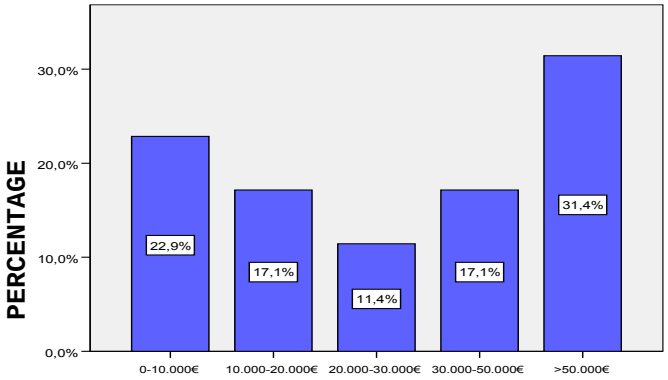

Figure 12: Distribution of business innovation expenditures during last financial year

The analysis of wood and furniture branch in the region unified innovation budget follows, concerning the last closed financial period[1]. The results have to do with the average expenditures for each one of the innovative actions that are stated. Furthermore, the percentage of the firms that have developed or participated to these specific actions is presented. The major percentage (85,7%) has acquired technical equipment and the average expenditure was approximately 56.000€. Participation in innovation dissemination (45,7%), innovation import to the market (31,4%) and R&D acquisition (25,7%) follows, with average expenditures approximately 4.000€, 3.000€ and 9.500€ respectively. From the sum of innovation expenditures, the majority (95,32%) has to do with innovation transfer towards the firms. This indicates the significant innovation gap that occurs to the enterprises of the branch compared with the rest business branches.

Table 4. Unified innovation budget of wood and furniture branch in the region of Thessaly during 2007.

INNOVATION ACTIONS	ACTION INVOLVEMENT (PERCENTAGE % OF FIRMS)		EXPENDITURES (€)
	YES	NO	
R&D	20,0	80,0	5.142,86
R&D ACQUISITION	25,7	74,3	9.558,82
MACHINERY & TECHNOLOGICAL EQUIPMENT	85,7	14,3	55.728,57
ACQUISITION OF EXTERNAL KNOW - HOW	11,4	88,6	3.228,57
STAFF TRAINING	14,3	85,7	1.571,43
MARKET INNOVATION IMPORT	31,4	68,6	2.868,57
DESIGNING	17,1	82,9	3.657,14
TOTAL INNOVATION TRANSFER EXPENDITURES			**81.482,86**
INNOVATION DISSEMINATION	**45,7**	**54,3**	4.000,00
OTHER			0
TOTAL INNOVATION EXPENDITURES			**85.397,14**

Next table 5, distinguishes these expenditures in current expenditures and capital expenditures. Thus, the major percentage (73,22%) of the firms and innovation expenditures, concerns capital ones, which are at an average value of 61.000€, while current expenditures have an average value of 22.000€ and concern the 26,78% of the total innovation expenditures. In relation to the expenditures allocation in several posts of the enterprises economic activity, the greater amount

[1] The reference period is 2007

has to do with land and buildings acquisition that are related to innovative actions, procurement and establishment of technological equipment e.t.c. Interpreting these results we can conclude that it obvious, the need of the branch for basic innovation infrastructures more than the need that covers already existing innovative actions.

Table 5: Distribution of current and capital innovation expenditures

EXPENDITURES POSTS	AVERAGE IN €
Day wages	156,67
Annual salaries	3.056,67
Wale fare benefits	280,00
Employees expenditures that are not involved in TIPP actions	666,67
Materials purchase	8.466,67
Procurements purchase	766,67
Marketing of innovative products	3.658,06
Expenditures of services and equipment that support innovative actions	5.645,16
TOTAL OF CURRENT INNOVATION EXPENDITURES	**22.219,35**
Acquisition of land and buildings for use in innovative actions	28.870,97
Acquisition of basic instruments and equipment	7.000,00
Software and hardware for supporting innovative actions	1.766,67
Technological equipment establishment for improving production process	23.140,63
Technological equipment establishment for production of new products	3.533,33
TOTAL OF CAPITAL INNOVATION EXPENDITURES	**60.742,42**

3.6 Mid and Macro lever analysis

Finally, analyzing the wood and furniture branch system of innovation, in mid and macro (regional and national – international cooperation) level with the contribution of several innovation organizations to this system, we can conclude that major percentage of the firms, develops some form of cooperation with specific organizations. A 70,27% develops cooperation with organizations in the region and 57,89% with organizations outside the region, national or international. The majority of the enterprises cooperate with equipment suppliers and other firms. Ranking the contribution of innovation organizations in each firm's innovative action, we see that the role of Research Centers and institutes stands at the lowest point, a fact that constitutes a major weakness of the innovation system in the region.

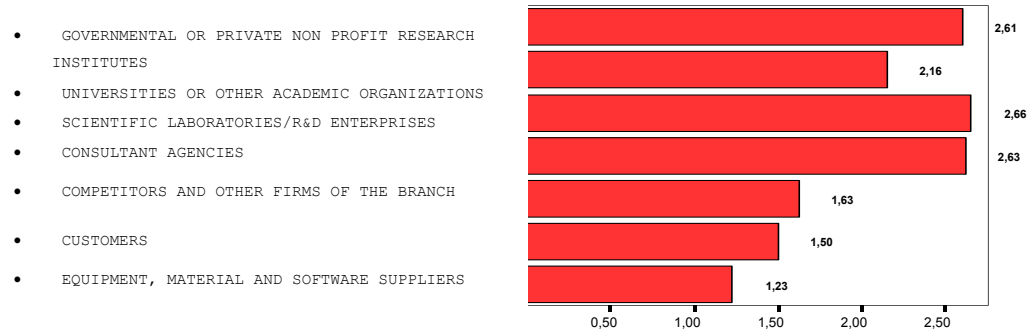

Figure 13: Ranking of importance of cooperating organizations (1 the major factor)

4. Discussion

The majority of the enterprises are aware of the meaning of innovation and they are using innovation in their production process, mainly technological innovation along with innovation in services. This fact shows the importance of developing new production and products

distribution methods. Innovative action is aiming to new customers based on quality products in combination with lower total production cost. In this innovation's development, the firms seem to have primal roles which, through the demands of the market and the characteristics shown separately, in each firm's production framework, are taking over initiatives for this development and application of innovative action. The majority of the firms have imported and developed innovation by their own. A much smaller contribution seems to have the collaboration with Universities and Research Centers. Similar are the results concerning cooperation with other firms of the branch, a fact that shows the weaknesses of innovation system in the Region of Thessaly concerning wood and furniture branch.

Concerning sources for innovation information, human resources seem to play the most significant role. Also a fundamental factor is the need for production of quality products along with technical equipment and software suppliers, customers and the competitors of the firms. Innovation-competitiveness and entrepreneurship are close related to each other. There is a significant gap of knowledge in the branch concerning organizations that develop innovation management techniques or innovative services. Specific actions should be undertaken in order to improve the role of innovation infrastructures in the region.

There is a lack of funding sources towards the firms of the branch, in order to develop some kind of innovation. The efforts of wood and furniture firms are aiming to expansion towards new markets. Furthermore, most of the enterprises are applying projects of already existed products and processes improvements, without entering to fundamental innovative action. Nevertheless, it is quite encouraging the fact that the major percentage is trying to import some kind of innovation in their production process. Quantification of positive impacts of innovation, demands a rather logical period of time in order to be presented to the economic data of the enterprises. The majority of innovation expenditures have to do with innovation transfer towards the firms. This indicates the significant innovation gap that occurs to the enterprises of the branch. The major percentage of innovation expenditures, concerns capital ones, while current expenditures follow.

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