

BARRIERS TO INNOVATION IN AP VOJVODINA: ANALYSIS OF DATA AND RESEARCH FINDINGS FROM THE ASPECT OF AGE AND GENDER

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Abstract

The purpose of this paper is to explore the barriers that inhibit the development of innovation and innovative culture within enterprises in AP Vojvodina as a north part of Republic of Serbia. A study was conducted to explore and define the barriers to innovation perceived by entrepreneurs with special direction on three groups of barriers: organizational, formal and informal. The questionnaire that was created for the purpose of this analysis and research consists of 24 questions covering up three groups of barriers to innovation. The survey was designed to capture information on the perceived barriers from the aspect of age and gender of entrepreneurs. Data collected are processed using the software package for statistical analysis -SPSS. Specifically, independent samples T-test were used to explore differences between these two groups of entrepreneurs.

JEL Classification: L53, O31

Keywords: Barriers, Entrepreneurship, SME's, Innovation

1. INTRODUCTION

This research is focused on barriers to innovation: organizational, formal and informal, influencing innovation development in enterprises in the region of Autonomous Province of Vojvodina (Republic of Serbia). Organizational barriers refer to the availability of financial assets, marketing, networking, cooperation and quality of the human resources. Formal barriers refer to protection and merchantability of

intellectual property, unpredictable fiscal policy, high rates of inflation etc. Informal barriers include corruption, national attitude toward bribery and lack of transparency. As researches of this kind on barriers to innovation haven't been done yet in Autonomous province of Vojvodina, this study in its own way contributes to the theory and praxis of entrepreneurship and innovation in this region. During this research authors of this study informed themselves well about the entrepreneurship, innovation and barriers to it, using all available scientific papers and literature in connection with this research area.

In the first part of this study, the authors give a theoretical review on entrepreneurship, innovation, barriers to innovation, and also authors gave a short review on previously conducted researches which were related to this subject. In the second part of this study, the authors give a wide explanation of the methodology used in this research in order to make it more familiar and comprehensive. This part was consisted of detail explain of questionnaire, collected data, data sample and explanation of statistical analysis which were used in this research. In the third part of this study, authors represent the results from statistical analysis. This part also contains result discussion and remarks of authors in order to point out significance of the research taken from the aspect of age and gender.

2. THEORETICAL BACKGROUND

There is no single, unambiguous, universal agreed definition as to what an entrepreneur is (Bobera, 2008, p.65). From an etymological point-of-view, the word entrepreneur ("go-between") applies to someone who mediates between individuals and groups (Bobera, 2010, p.7). In order to adapt to environmental changes, entrepreneur endeavours to satisfy the identified market needs, on one hand, by using the identified resources on the other hand. Situation analysis is a method entrepreneurs use to analyze economic environment and it contributes to their business success. Some authors consider that entrepreneurship is essential for the continued dynamism of the modern market economy (Klapper, Laeven, and Rajan 2006, p.592). Larger number of startup ventures, entrepreneurial base is expanding, which should result in a larger number of active enterprises. Other group of authors defined entrepreneurship through the relations between following dimensions of entrepreneurial orientation: innovativeness, risk taking and proactiveness (Zahra, 1993). This point of view was confirmed by the research done by *Tang et al.* (2009.), which showed that the entrepreneur's behavior is what manages to combine innovation, risk-taking and proactivity.

The basis for the development of entrepreneurial business, among other things, lies in innovation. Some authors define innovation as a specific function of entrepreneurship, it is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth (Drucker, 2002, p.5). Many authors investigated importance and impact of innovation on the development of entrepreneurial businesses. According to Mahemba and De Bruijn (2003) innovation can be perceived as a key factor in stimulating small firm development. Fostering innovative culture and creating an environment to effective innovation meet the conditions for strengthening the competitive power of the enterprise. Therefore it has become essential for an organisation to adapt, develop and innovate to achieve a competitive advantage and become successful (Hasanian and Dale, 2012, p.76). Innovation could be considered as a result of a common effort of several participants. If the approach aimed at the innovation environment is considered, not only the entrepreneur is responsible for the innovativeness of a firm but also of a system of institutions that can support them (Salka et al 2008, p.394). Responsibility of system of institutions lies in creating a stimulating business environment for innovation. On the other hand role of the entrepreneur is to identify the business environment as well as adapting to it.

Enterprise is like a living organism, it cannot be framed nor existed in a vacuum; on the contrary, environment i.e. internal and external factors regulate activities related to innovation. Restrictive factors known as barriers to innovation have negative influence on a process of starting a new project, its implementation and development. Many authors put the barriers to entrepreneurship in focus of their researches. Larsen and Lewis (2007) have done some research on financial issues, marketing skills, management and personal characteristics. In his research Freel (2000) analyzed small manufacturing firms with intention to determine the biggest obstacles to product innovation from the aspect of finance, management, marketing and skill labour. Hadjimanolis (1999) conducted his research over 140 SME's in Cyprus. His research concentrates on the barriers approach to innovation. Demirbas (2011) conducted his research regarding barriers to innovation in Turkey. Two researches, both taken in Turkey on a sample of 197 and 224. All the barriers were classified in four groups: formal, informal, environmental and skill barriers. Blasco *et. al* (2007) conducted their research on a sample of 2,954 Catalan firms identifying three groups of barriers: cost of innovation projects, lack of knowledge and market conditions.

3. METHODOLOGY

The goal of this study is to analyze the entrepreneurial environment in AP Vojvodina related to barriers to innovation in order to identify and specify the barriers that really slow down the development of innovation and entrepreneurship development itself. The research was driven by idea to identify organizational, formal and informal barriers which were perceived by entrepreneurs as barriers to development of innovation within organization. This research includes the questionnaire, specially created for the purpose of this research, consists of 24 questions covering up 3 groups of barriers. Data were collected within the interviews with entrepreneurs. When responding to a Likert's questionnaire item, respondents had to specify their level of agreement or disagreement on a symmetric agrees-disagree scale for a series of questions. Options for each determined barrier, presented in *Table 1*, in business on agree-disagree scale were: 1. *Strong significant negative influence*, 2. *Mostly negative influence*, 3. *Present, but with no significant influence*, 4. *Mostly, doesn't have negative influence*, 5. *Doesn't represent barrier at all*. The purpose of the questionnaire was to get the answers on how the entrepreneurs deal with barriers and find out if there were differences between them based on criteria of:

- a) Age – younger than 40, older than 41
- b) Gender – male and female

Data collected sample was analyzed in two consecutive steps by using the software package for statistical analysis – SPSS 17. In the first step, descriptive analysis of data was done in order to create a hierarchy of barriers. In the second step, Independent sample T-tests was done in order to determine existing differences between younger and older entrepreneurs, and between male and female entrepreneurs, in recognizing the barriers to innovation. Statistical analysis Independent sample T-tests as a parametric test, was chosen as a compatible test in order to get relevant data from the total sample of 33 respondents. Summarizing data collected in the sample Bobera and Lekovic came to the following results and groups based on criteria of:

- | | |
|--------------------------|--------------------------|
| a) Age | b) Gender |
| 20 younger entrepreneurs | 20 males entrepreneurs |
| 13 older entrepreneurs | 13 females entrepreneurs |

Table 1. Barriers to Innovation – Organizational, Formal and Informal barriers

ORGANISATIONAL BARRIERS				FORMAL BARRIERS	INFORMAL BARRIERS
Financial assets	Marketing	The ability of networking and cooperation	HR (skills)		
<ul style="list-style-type: none"> • Lack of funding from its own resources • Unfavorable conditions for obtaining funding from other sources 	<ul style="list-style-type: none"> • Developing innovations for use in the market • Assessment of the market potential for innovation • Testing of marketing readiness for new concepts • Spotting foreign markets for innovation 	<ul style="list-style-type: none"> • Identifying and finding partners for innovation • Cooperation with universities and research centers • Cooperation with competitors • Membership in the Clusters 	<ul style="list-style-type: none"> • Lack of qualified staff • Inadequately trained personnel for use of technology • The lack of specialized training programs • The ability of independent innovation management • The ability to manage “open innovation” 	<ul style="list-style-type: none"> • The possibility of intellectual property rights (patents) • The possibility of selling intellectual property • Lack of government support directed at R & D activities • Instability of tax policy • High inflation and interest rates • High costs of innovation 	<ul style="list-style-type: none"> • Corruption • Cultural attitudes toward bribe • Lack of transparency

Source: Author's

In accordance with theoretical background, available literature and questionnaire the authors set up the following hypothesis:

H_0 : *There are barriers to innovation related to organizational, formal and informal factors*

H_1 : *There are differences between younger and older entrepreneurs related to organizational barriers in the field of financial assets.*

H_2 : *There are differences based on gender related to formal barriers.*

4. RESULTS OF ANALYSIS

Results from the descriptive analyses showed that respondents have recognized the barriers with strong, negative influence, in following order: *lack of funding from its own resources* (2.30), *high costs of innovation* (2.39), *corruption* (2.55), and *high inflation and interest rates* (2.64). Barriers such as *the ability to manage “open innovation”* ($M=3,55$), *cooperation with universities* ($M=3,48$) and *membership in the Clusters* are not recognized as a barrier which do not have negative influence.

Table 2. The Hierarchy of barriers to innovation, top 10 (N=33)

Descriptive statistics	Mean	Std. Deviation
Lack of funding from its own resources	2,30	1,262
High costs of innovation	2,39	1,223
Corruption	2,55	1,325
High inflation and interest rates	2,64	1,055
Lack of government support directed at R & D activities	2,70	,951
Lack of qualified staff	2,76	1,146
Lack of transparency	2,79	1,244
Unfavorable conditions for obtaining funding from other sources	2,79	1,244
Instability of tax policy	2,79	1,053
The possibility of selling intellectual property	2,85	1,253

Source: Author's calculation

Results from the independent samples T-test unambiguously showed that differences between male and female as well as younger and older entrepreneurs in recognizing the barriers in business were not just existing but significant. Barrier which is perceived differently by male and female entrepreneurs is *the possibility of intellectual property rights*, while on the basis of age only difference was noticeable in the case of *unfavorable conditions for obtaining funding from other sources*.

Table 3 Independent sample T test (N=33, grouping variable: gender)

Equal variances assumed	Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
The possibility of intellectual property rights	,898	,351	2,425	29,189	,022	,985	,406	,154	1,815

Source: Author's calculation

T-test for independent samples was used to analyze the results of the *the possibility of intellectual property rights* as barriers to innovation. There was found a sig-

nificant difference between male respondents ($M = 3.60$, $SD = 1.273$) and female entrepreneurs ($M = 2.62$, $SD = 1.044$), $t(31) = 2.425$, $p < (0.022)$ two-tailed. The difference between the mean values of the characteristics of the groups (mean difference = 0.985, 95% CI 0.95%: 0.154 to 1.815) was of great influence (eta squared = 0.163).

Table 4 Independent sample T test (N=33, grouping variable: age)

Equal variances assumed	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Unfavorable conditions for obtaining funding from other sources	,040	,842	2,194	31	,036	,919	,419	,065	1,774

Source: Author's analysis

T-test for independent samples was used to analyze the results of the *unfavorable conditions for obtaining funding from other sources* as barriers to innovation. There was found a significant difference between younger respondents ($M = 3.15$, $SD = 1.137$) and older entrepreneurs ($M = 2.23$, $SD = 1.235$), $t(31) = 2.194$, $p < (0.036)$ two-tailed. The difference between the mean values of the characteristics of the groups (mean difference = 0.919, 95% CI 0.95%: 0.065 to 1.774) was of great influence (eta squared = 0.134).

5. DISCUSSION

After analysis made for exploration of entrepreneurial barriers, it is important to discuss findings and the relations with the proposed hypotheses. Results of descriptive analysis show that *main hypothesis H0* is confirmed. The hierarchy of barriers in Table 2 shows that presented 10 barriers, especially top three barriers, come from all of three sections: organisational, formal and informal.

Results of independent samples T-test show that hypothesis H1 is confirmed. Even though younger and older respondents find important the influence of certain barriers to their business, they however differ in defining which those exact barriers are. The most obvious differences is in the field of *unfavorable conditions for obtaining funding from other sources*. Older entrepreneurs identify this barrier as a

greater obstacle for their innovation projects than younger entrepreneurs. Entrepreneurs have at their disposal a variety of institutions that provide funding. What distinguishes them is exactly the advantage of funding resources. The attractiveness of these services is reflected in the interest rates and repayment terms of borrowed funds. According to the claims of entrepreneurs, the most unfavorable conditions for financial loans are in commercial banks. However, not necessarily. Conditions of financial loans are influenced by the entrepreneurs themselves. High-quality long-term cooperation between the entrepreneurs and commercial banks may also produce favorable conditions for funding. These are conditions which are below the rates of the bank. These conditions are available on the basis of previous cooperation with commercial banks, based on its balance sheet for the previous period of operations, based on the creditworthiness on the basis of evidence that the company was not blocked etc. Preferential terms are available to entrepreneurs for business domestic and international payments service through short-term and long-term loans and guarantees for the tender procedure in the home country and abroad, advance payment, for a re-export and so on. In addition to commercial banks, entrepreneurs have the opportunity to seek funding at development banks, the Serbian government funds through various funds such as the Fund for the Development of the Republic of Serbia, which is wholly owned by the state, regional agencies for the development of small and medium enterprises which funds are directed to the form of start-up loans, and various pre-accession funds and EU funds intended for development of entrepreneurship (Entrepreneurship Innovation Programme).

Results of independent samples T-test show that *hypothesis H2* is confirmed. Even though male and female respondents find important the influence of certain barriers to their business, they however differ in defining which those exact barriers are. The most obvious differences is in the field of *the possibility of intellectual property rights*. In this case, female entrepreneurs see this barrier as a bigger obstacle than male entrepreneurs. In order to help entrepreneurs, Intellectual Property Office of Republic of Serbia found Education and Information Centre. This centre provides a range of services in the field of intellectual property and helps strengthen the innovation capacity of the Republic of Serbia. Education and Information Centre was established with the aim of raising awareness on the issue of property rights in order to improve knowledge and skills in the field of intellectual property, as well as to increase the competitiveness of the economy in terms of intellectual property rights. The goals are achieved through the organization of numerous seminars, trainings, workshops oriented to business organizations, research institutes, universities and

other stakeholders of innovation environment. The authors of this paper have had the opportunity to organize a workshop on the protection of property rights under the IPA project titled "Cross-border Network for Innovative Development and Knowledge Transfer", which was assigned to entrepreneurs in North Backa district.

6. CONCLUSION

The goal of this study was to determine the barriers to innovation in AP Vojvodina by questioning entrepreneurs on how they perceive the same. Using statistical analysis, the authors Bobera Leković and proved the hypothesis in their research. hypothesis H0 was confirmed by using descriptive statistics which indicated the presence of barriers in all of three research areas. The use of independent samples t-test confirmed the hypothesis H1 and H2, and also there were significant differences based on age and on the issue of barriers to unfavorable conditions for *obtaining funding from other sources*. Differences between entrepreneurs based on gender are significant evident in terms of *the possibility of intellectual property rights*. A limitation of the study was the relatively small sample size and the fact that the group of respondents consists only of entrepreneurs, disregarding the opinion of other stakeholders also affected by barriers to innovation. Identifying specific barriers by entrepreneurs do not necessarily imply the existence of these barriers. This primarily refers to the formal and informal barriers, which impact comes from the external environment. Identifying barriers from the external environment is the perception of the business environment by entrepreneurs, not at all the facts. Quality assessment of the situation analysis of the business environment is largely determined by the level of previously acquired knowledge of relevant importance for the assessment of the economic environment. This is why the possibility of incorrect assessment of the business environment by entrepreneurs is a realistic assumption. Identifying organizational barriers can be seen as a process of identifying internal strengths and weaknesses of the company, both at company and at individual level. The successful implementation of innovation projects primarily depends on creative ability of employees and company support to innovation activities. Identification of obstacles in the field of organizational barriers are primarily a reflection of a lack of competence in the field of business, such as financial management, marketing, human resources and so on. What is the major obstacle to business entrepreneurs is the lack of a clear vision and mission of the company, as well as a lack of ideas and projects aimed at achieving long-term goals of the enterprise.

7. LITERATURE

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