

Microentrepreneurs' Innovation

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Abstract

Innovation is considered as one of the factors of business success, as well as a generator of economic growth and development. Micro-enterprises in the Republic of Croatia have a growing contribution to economic development and it is important to monitor the level of innovative activities and in line with the available data, investigate the link between innovation and business performance. Despite the great importance of innovation activities for business success and business growth, microentrepreneurs innovation activities have still not been sufficiently explored in the Republic of Croatia. There are regional developmental disparities in the Republic of Croatia, and for this reason, this paper focuses on the Slavonia and Baranja regions (there are five counties) whose macroeconomic indicators are below the average of the Republic of Croatia. The sample in this survey were successful and unsuccessful micro entrepreneurs from manufacturing industry, construction industry and agriculture, forestry and fisheries. The results of earlier inquiries conducted in 104 micro enterprises in the Slavonia and Baranja region have shown that the assessment of the importance of innovation is linked to the business success achieved by micro enterprises and that there is a correlation between the number of new or improved services from micro enterprise performance. The aim of this paper is, based on the same research, ranking the counties of the Slavonia and Baranja regions according to perception and the actual performance of the business and calculate the correlation (Spearman's rho) between the ranks of the perception of the importance of innovation for business success and the ranking of really achieved results EBITDA Margin, ROE, growth rates of operating revenues, number of years of positive business in the last three year and level of success of micro enterprises measured with values 0-12. The results showed that none of the calculated correlations was statistically significant.

Keywords: innovation, micro-entrepreneurs, Spearman's rank correlation

JEL classification: C40, D22, E00, M20

Introduction

In the past decade, the Republic of Croatia has been increasingly active in stimulating and strengthening competitiveness based on innovative business. In addition to the stimulating entrepreneurial environment, it is necessary to create an effective innovation system that

stimulates Research & Development (R&D), creating new or improved products and services, production processes, organizational methods and registered patents. According to Higgins (1995) the secret of competitive advantage is in innovations. The innovation system is based on various legislative and institutional frameworks. The legislative and institutional framework for research, development and innovation in the Republic of Croatia is largely in line with the systems of other European countries, and therefore, the concept of Regional Innovation Systems (RIS) is applicable to Croatian regions (Bačić, Aralica, 2016).

According to the analysed data on total investments in R & D, the volume of investment in R & D, and the number of patents in the Republic of Croatia (Štavlić, 2016), the Republic of Croatia is still in the process of strengthening investment policy in R & D and strengthening of competitiveness. Bačić and Aralica (2016) found that there are differences in innovation systems in three Croatian regions: Northwestern Croatia which contributes to the expansion of innovation activities; Central and eastern Croatia, which has lower innovation activities, low technology development and innovation, is supported by public financing, and Adriatic region of Croatia diminishes in innovation activity. In accordance with the aforementioned, it can be concluded that Croatia is still insufficiently innovative country and tries to keep up with the degree of innovation achieved in developed countries with higher intensity of R & D investment. Low degree of innovation has an impact on competitiveness and ultimately on business success and it is necessary to increase investment in all dimensions of the economy and of society in general. Results, reflected in the Report from the Observatory of Small and Medium Enterprises in the Republic of Croatia (2013: 9) are in line with the aforementioned. According to that Report, investment in Croatia in microenterprise research and development represents only 1.1% of total R & D investment in the business sector, while investments in small businesses account for another 6.6%. These values are among the lowest figures recorded for European countries and are talking for themselves how important innovation research in micro-enterprises is.

The innovation of micro-entrepreneurs is still insufficiently explored field. Previous scientific research and professional analysis in the Republic of Croatia on the innovativeness of Croatian micro enterprises have not completely identified the level of innovation of micro-entrepreneurs and the connection of innovations with the success of micro-entrepreneurs. Apart from the results of the research conducted by Štavlić (2016, 2017) and Štavlić et al. (2016) there is no empirical data on the level and importance of innovations for micro-entrepreneurs on the county or region levels of the Republic of Croatia. Considering that innovation is considered to be a key factor in the performance of micro, small and medium-sized enterprises (Porter, 1998; Joyce et al., 1996; Daraboš, 2015; Štavlić et al. 2016), there is a need to conduct a more detailed analysis of connection between the importance of innovation and performance in micro-enterprises.

Since Štavlić (2016) presented that in the Slavonia and Baranja region of the Republic of Croatia there is a statistically significant positive correlation estimates of the importance of innovation and micro enterprise performance, there was a need for further analysis of collected data on this topic. This paper analyses the connection between the perception of the importance of innovation and performance indicators of micro-enterprises on the county level in Slavonia and Baranja region. The value of the micro enterprise's business results is summed up and divided by the number of micro-enterprises analysed within a particular county, so each county is viewed as one entrepreneurial unit which is then compared to another county. After the obtained results, the results for the counties were ranked and the rank correlation was calculated.

Micro-entrepreneurship and innovativeness

Micro enterprises and micro-entrepreneurs in the last five years have an increasingly important role in the Croatian economy, and core features of micro-enterprises are defined by the Small Business Development Promotion Act, which is in accordance with the recommendation of European Commission (2003).

In the previous volume of scholarly articles, there are several different definitions of the concept of innovations that describe innovation as transforming new ideas into a commercial product. According to the European Commission (2015: 7), innovation occurs when a company introduces a new or significantly improved product, service, process, marketing strategy or organizational method. Innovation can be developed by the company itself or originally developed by another company or society. According to Eurostat (2015), innovation is the introduction of a new or significantly improved product or service, or the introduction of a new or significantly improved manufacturing process within a company. The above definitions point to the fact that a new product or service is not considered innovation unless it is introduced into the market. As the literature has different definitions of the term innovation, the European Commission's (2015: 7) definition of the term innovation has been used for this work.

Innovations as a success factor have been the subject of many recent types of research. Some authors (Kay, 1996; Hamel & Prahalad, 1990; Porter, 1998; Joyce et al., 1996; Drucker, 1992; Daraboš, 2015; Štavlić, 2016) highlighted innovations as one of the key business success factors.

Most of the research was conducted on a sample of small, medium and large enterprises (Lima & da Silva Muller, 2017, De Massis, Frattini, & Lichtenthaler, 2013; Block, J. H., 2012; Joyce et al., 1996; Higgins, 1995), while only Štavlić (2016) conducted research on the innovativeness of micro-entrepreneurs. The relevance of the innovation and success of the company was explored by Berkham et al. (1996). They noted that companies that undertake innovative activities are not necessarily successful. On the other hand, Joyce et al. (2016) claim that businesses who offer new products to the market generate more revenue during the period when the product is still new and has no strong competitor. In addition to production innovations, process innovations are also present in manufacturing companies. Research has shown that companies introducing process innovations achieve higher productivity, improved product quality and lower average production costs (Berkham et al., 1996; Joyce et al., 1996).

According to Daraboš (2015: 179), the link between innovation and business success exists and the results present that membership engagement resulted in a higher level of strategic innovation of the company and had a positive impact on the business performance of companies in the Republic of Croatia. According to the same research, apart from the entrepreneurial spirit, the competitiveness and cohesiveness of the members of the management team are affected by the higher level of strategic innovation, and thus the positive impact on business performance. There are no management teams in micro companies, so in micro-enterprises, the expression competitiveness, entrepreneurship and cohesion of all employees is applicable, since micro enterprises in the Republic of Croatia have a maximum of nine employees and each of them performs managerial functions through the business activities of their workplace and every member behaves like a 'manager'. However, some scholars believe that innovations are not essential to the success of small and medium enterprises (Aulet, 2015). Aulet (2015: 7) believes that the business success, growth

and competitive advantage of small and medium enterprises, especially small businesses, are not necessary in need of innovation.

Hisrich & Peters (1998) point out the entrepreneurial skills essential for successful business: internal control, risk taking, innovation, orientation to change, and visionary leadership, while Drucker (1992) emphasizes strategic decisions aimed at innovative business because he believes that the purchasing power is an act of entrepreneurship, and believes that the economy is based on systematic innovation, entrepreneurial management and entrepreneurial strategies.

According to Štavlić (2016) entrepreneurs/managers perceive the quality of products and services as the most important factor influencing the company's business. As another important factor influencing business, entrepreneurs point out human resources and employee satisfaction while innovation is the third important factor on which business success depends.

The first two ranked factors show no statistically significant correlation with the success of the business. Although, according to the rank of the perception of the importance of innovation ranging third factor affecting the company's business, there is a statistically significant albeit weak positive correlation between the perception of how important innovation is, and micro-enterprise performance, measured by 0-12 (Somers' $D = 0.20$, $p = 0.03$). Hence, it can be said that the perception of the importance of innovation as a business factor is greater in the case of successful than in unsuccessful micro-entrepreneurs but is not statistically significant. Established correlation is statistically significant, but not strong, positive correlation between the perception of the importance of innovation and the Before Interest Taxes Depreciation Amortization Margin (EBITDA Margin) (Somers' $D = 0.22$, $p < 0.05$). Also, there is a statistically significant relationship between the perceived importance of innovation and Return on Equity (ROE) in 2015 (Somers' $D = 0.21$, $p < 0.05$). It has also been found that there is no statistically significant correlation between the average level of investment in innovation and the financial indicators presented and the actual performance of micro enterprise operations. The discovery of statistically significant correlation is the result of the study discussed in the next chapter and has prompted further statistical analysis within the Slavonia and Baranja region by the counties that are in its composition.

Data, model and methods

The survey questionnaire surveyed micro-enterprise owners or managers in micro-companies in the five Croatian counties of the Slavonia and Baranja region: Brod-Posavina County, Osijek-Baranja County, Požega-Slavonia County, Virovitica-Podravina County and Vukovar-Srijem County. The selected sample includes all micro-enterprises whose core business is one of the followings: manufacturing (C), agriculture, forestry and fisheries (A), construction (F) (NKD, 2007). The samples are micro-enterprises that are active, who submitted their annual financial report for 2015. 1,773 companies, out of a total of 2,534 registered micro companies in Slavonia and Baranja regions met the criteria. Based on the available contact data, we attempted a contact with approximately 1,100 micro enterprises and 104 (9,5%) respondents were successfully surveyed, conducted by telephone during June and July 2016. The sample frame is comprised of 43.3% of unsuccessful companies (negative financial result (loss), the decline in business income, negative EBITDA and negative ROE for a minimum of two years in 2013, 2014 and 2015. Also, we found that 56.7% of successful businesses incurred a positive result, business income growth, and had a positive EBITDA margin and positive

ROE for at least two to three years according to financial information on business operations available via Fininfo Financial agencies. The ratio of successful and unsuccessful enterprises in the County of Brod-Posavina is 56%:44%, in Osijek-Baranja 39%:61%, in Požega-Slavonia 100%:0%, in Virovitica-Podravina 47%:53% and in Vukovar-Srijem 70%:30%.

The questionnaire was drawn up in accordance with the parts of the questionnaire used by the European Commission (2015). The survey questionnaire assessed the importance and impact of the factors affecting the company's current business. The perception of the importance of the factor was tested on Linkert's scale of 1 to 5, with 1 being the lowest impact on performance and 5 being the greatest impact on business performance.

The results of micro-enterprise surveys are compared with the financial indicators: 1st EBITDA Margin 2015 (taking into account its shortcomings); 2nd Return on Equity 2015 (ROE); 3rd Growth / Decline Rate of Business Income 2015; 4th year of positive business, analysed in the last three years; 5th Success index of 0-12, compiled from the number of positive indicators in 2013, 2014 and 2015. Level 0 refers to micro-enterprises that have had negative indicators throughout the years, and level 12 to micro companies that had all four years positive for all four indicators.

This paper investigated correlation between the perception of the importance of innovation in achieving success and the real success of companies (Table 1). In Table 1, results are presented as rank-variable pairs - in other words - numeric variables transformed into rank variables. For this purpose, Spearman's rank correlation coefficient r_s was used (Spearman's rho). The reason for using this indicator is that at least one of the sets of data follows the ordinal scale, does not set the condition of linearity, symmetry and sample size (Horvat and Mijoč, 2012) and the distribution of data significantly deviates from the normal distribution. Despite the benefits (Rice, 2007: 406), the lack of this test is just five pairs ($n = 5$)! of possible combinations. Two of them have the correlation strength equal to 1 and we consider correlation 1 to be statistically significant at $p < 0.05$ (Petz, 1985: 198). Since the ranks are among the tied ranks, the corrected Spearman's rho is calculated using the correction factor *cf*. Results Spearman's rho and corrected Spearman's rho are shown in Table 2.

Results and discussion

Out of 104 surveyed micro-companies in the region of Slavonia and Baranja 82.9% of participants graded the importance of an innovation for success in business as 4 and 5, with an average grade of 4.39. It has been established that micro enterprises have introduced 245 innovations over the past three years. Although the results show a strong innovative activity in some micro enterprises, the results show that on average more than 50% of surveyed micro enterprises did not have any innovations in the past three years.

Estimates of the importance of innovation for the success of micro enterprise operations for each county of Slavonia and Baranja have been established. The value of the micro enterprise's business results is summed up and divided by the number of micro-enterprises analysed within the county, so each county is viewed as one entrepreneurial unit. Then, we compared it to another county. After the obtained values, the results for the counties were ranked and the rank correlation was calculated (Table 1).

Table 1: The rank of perceptions of the importance of innovation and business results of microenterprises

County	Perception of the Importance of Innovation	EBITDA Margin 2015	ROE 2015	Business Revenue Growth Rate 2015	The number of positive results in the last three years	Performance Index scaled 0-12
Brod-Posavina	3,5	5	4	1	3	3
Osijek-Baranja	2	2	1	2	5	5
Pozega-Slavonia	3,5	3	2	3	1	1
Virovitica-Podravina	1	4	5	5	4	4
Vukovar-Srijem	5	1	3	4	2	2

Source: authors' calculations

The results have shown that the established rank of perceived importance of innovation for the current business, as the entrepreneurs/managers see in each county, is not the same as the established ranking of the business result of the county. According to the achieved results, the Osijek-Baranja County is the best-ranked, which is the most successful by ROE, and is the second-ranked in EBITDA Margin and the Growth Rate of Business Revenues in 2015. However, it has the worst results in the number of positive results in the last three years (2013, 2014 and 2015) and a performance index measured on a scale of 0-12 is very low. Since both indicators cover business in the last three years, unlike the first three indicators, showing business results only in 2015, the fact is that the business of micro-entrepreneurs is significantly better in 2015 than in previous years and indicates a positive and significant improvement on a county level. The Brod-Posavina County has the best results at the growth rate of business income, but the smallest EBITDA Margin, and compared to other counties by rank is only better than the Virovitica-Podravina County. The Vukovar-Srijem County is the most successful in EBITDA Margin the importance of innovation in the business results achieved is perceived as least important. The Pozega-Slavonia County is neither the last nor the next to the last on the list ranked by any performance indicator. However, it is first ranked by the number of positive business activity in the past three years and the success index. Both indicators are ranked on the same level, partly because they measure the performance of the business over the last three years.

Table 2: Spearman's rank correlation coefficient of perception of the importance of innovation and business results of microenterprises

	Perception of the Importance of Innovation	EBITDA Margin 2015	ROE 2015	Business Revenue Growth Rate 2015	The number of positive results in the last three years	Performance Index scaled 0-12
i	$r(x_i)$	$r(y_i)$	$r(y_i)$	$r(y_i)$	$r(y_i)$	$r(y_i)$
Spearman's rho r	1	-0,375	-0,175	-0,175	-0,675	-0,675
t value		-0,70065	0,30786	-0,30786	-1,58458	-1,58458
corrected		-0,410	-0,205	-0,205	-0,718	-0,718

Spearman's rho						
t value		-0,77948	0,36314	-0,36314	-1,78764	-1,78764

Source: authors' calculations

The results show a negative correlation between the perception of the importance of innovation in achieving success and the real success of microenterprises. The strongest negative correlation is with the number of positive results in the last three years and performance index. But, as explained above, none of the computed correlations is statistically significant (if $n = 5$ only correlation 1 can be statistically significant). In order to verify the significance of the results, although $n < 10$ the t values are calculated, and the significance level is 0.05. All absolute values of the calculated t values $|t| < 3,182 = t_{crit} = TINV (.05,3)$, again lead to conclusion that there is no significant negative correlation between the perception of the importance of innovations and the real accomplished business results. After using the correction factor cf when calculating the correlation rank, Spearman's rho is more accurately calculated, but the results have not changed.

The results obtained are in line with the results of Berkham et al. (1996), according to which companies that undertake innovative activities are not necessarily successful.

The results obtained by the counties (NUTS III region) were in contrast to the results of Štavlić (2016), which found that there is a positive correlation between the perception of the importance of innovation and achieved business results in region of Slavonia and Baranja (NUTS II region). The model depicted could be useful in expanding research and determining the relevance of innovation links to the actual business results of micro-enterprises in the Republic of Croatia. This would increase the number of rank pairs to 21 (21 counties) and it would yield the ability to accurately calculate the statistical significance of the results.

Conclusion

Innovation and innovation activities, regardless of the size of an enterprise, are today considered key factors of business performance. Just as entrepreneurs are often considered main drivers of economic growth and development, innovations also strongly influence the overall economic growth. The system of incentivising and innovation growth in micro-enterprises in the Republic of Croatia, and thus in Slavonia and Baranja, is still insufficient compared to the volume of investments and incentives for innovations in European countries, and it is necessary to encourage supporting institutions and the state to invest further in this area in order to provide a more stimulating and effective innovation system.

The results of the conducted empirical research found that in Slavonia and Baranja there was an attempt of an innovative activity on average in more than 50% of surveyed microenterprises, while the other nearly 50% of microenterprises did not innovate in the last three years of business. The surveyed entrepreneurs/managers perceived the importance of innovation as one of the main things for the company's business success. The established rank of perceived importance of innovation as seen by entrepreneurs/managers in each county is not the same as the established rank of business success of the affiliated county.

The rankings of business successes enabled the analysis of the success of a particular county in relation to other counties. According to these results, Osijek-Baranja County is ranked first on the list. The results of the calculated correlation between the perception of the importance of innovation in achieving success and the actual success is shown by the pair of numeric variables transformed into rank variables (Spearman's rho) showed that none of the computed correlations was statistically significant. Although not statistically significant, there is a negative correlation between the perception of the importance of innovation in achieving success and the actual success of microenterprises in the last three years, which is not in accordance with our expectations.

Further recommendations for future research arise from the limitations of this research. The limitations of this study are a small sample for the application of other statistical tests and the determination of statistical significance with some other variables as well. Recommendations for future research are in the direction of conducting research on a sample of micro-entrepreneurs from all over Croatia and in all industries.

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