Impact of social attributes on the propensity for entrepreneurship among university students

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Abstract. The main aim of this article is to quantify the significant indicators of social environment, including the advantages and disadvantages from entrepreneurship determining the entrepreneurial propensity among university students in Czech Republic, Slovak Republic and Poland. 1352 students from 25 Czech, Slovak and Poland universities were involved in the questionnaire survey. Methods of descriptive statistics, Z-score, Chi-Square Goodness of Fit, Multiple linear regression were used for evaluation of the hypotheses. Such attributes as irregularity of income and lack of spending time with the family negatively impact the propensity for entrepreneurship. These disadvantages are significant attributes in all three countries in our research. Financial resources, better career growth and fuller self-realisation are the attributes which positively impact the propensity for entrepreneurship. Attitude of the students from Poland on the

attribute that politicians as well as general public consider businesspersons to be beneficial for society are more positive than the attitude of the students from Czech and Slovak Republic. The achieved results may serve to improve the business environment in the countries where this research took place.

Keywords: student, social environment, advantages of entrepreneurship, disadvantages of entrepreneurship, propensity for entrepreneurship.

JEL Classification: M13, D83.

1. INTRODUCTION

In a rapidly advancing society, career choice of a young person finishing college studies is always tough. Decisions about professional inclusion into the society and in particular propensity for entrepreneurship is influenced by multiple determinants, among which we can mention working occupancy, social status, salary, realisation of own potential. Employability of students graduating college is one of the key challenges nowadays. Their relevance to today's market is directly related to the arrangement of values in their professional life. Since the studied sample is at the pre-productive stage of development, the extent of which tends to be reduced by long-term population trends curves in the EU countries, it has vital importance for the society sustaining its economic development.

Van Stel et al. (2005) in his study compared entrepreneurs´ importance in economic development in 36 countries around the world and concluded that there is a relationship between entrepreneurial activity and economic growth. The aim of the universities focused on teaching economics and management is to educate people who will have not only theoretical knowledge but also experience and propensity for entrepreneurship.

In this article, we are examining statistically significant differences in the statements about social environment, advantages and disadvantages of entrepreneurship among university students in Czech Republic, Slovak Republic and Poland. The uniqueness of this article lies in gradual application of statistical methods, quantitative evaluation of data and objective interpretation of the achievements. The authors formulated the indicators of social environment, dividing them into advantages and disadvantages. The authors also think that these indicators have impact on the propensity for entrepreneurship among university students.

The structure and the composition of the article are as follows. The results of the research on the factors influencing the propensity for entrepreneurship with an emphasis on pros and cons of entrepreneurship are presented in the first part of the article. Consequently, the main aim of the research, methodology and procedures of obtaining the data are formulated. In the third part of the research, the results are evaluated using the methods of mathematical statistics. Also, a brief discussion of the results regarding the issue of beginning entrepreneurs is introduced. The importance of this research and its possible recommendations for organisations that seek to support the business environment in the related countries are formulated in the conclusions to this article.

2. LITERATURE REVIEW

The research and the support schemes for entrepreneurship activity are mostly aimed at the small and medium enterprises due to their perception as exceptionally flexible and of great importance in national economy (Adair, & Adaskou, 2018; Oakey et al., 2002; Bruce et al., 2009; Dobeš et al., 2017; Bilan

et al., 2017; Cepel et al., 2018). The business owners nowadays enter the entrepreneurship either voluntarily or out of necessity (Smékalová et al., 2014).

The author argues that entrepreneurship education may not be adequately designed to meet the demand of the current business environment. Hence, it is not useful for the students to get engaged in entrepreneurship unless they believe they have self-competencies and skills. It is also found that the entrepreneurship education does not help students to get involved in the entrepreneurship (Farhangmehr et al., 2016).

College education creates conditions for the student to become a good entrepreneur. This statement was confirmed by many studies. Lafuente et al. (2013) reported that people with a college degree are more interested in entrepreneurship and owning a business in comparison with people who do not have a college degree. Plotnikova et al. (2016) found that the individuals who had a university degree chose to be entrepreneurs as they believed that they have decent knowledge for business management.

The results of a survey of 400 students at a Spanish university by Lanero et al. (2016) were evaluated by multivariate analysis of variance and Partial Least Squares. The findings indicated that self-efficacy exerted positive effects on outcome expectations, entrepreneurial interests, and career choice, which held for students across disciplines. However, interests were not associated with career choice, whereas the effects of outcome expectations depended on their extrinsic/intrinsic nature and the student's academic orientation (Lanero et al., 2016).

The analysis of different study revealed that on the contrary, the formal entrepreneurial education received from schools specialised in this field has an inhibiting effect on the main determinants of the entrepreneurial intentions (Popescu et al., 2016). The importance of the practical business experience of students was examined by Lee et al. (2016) in his study, where he investigated the strengths and weaknesses of students, who were divided into business groups depending on their experiences with the business. The conclusions showed that there is a need to link early studies education with practical experience.

In the next section, we present the results of the studies of the authors, who were dealing with the key advantages that result from the entrepreneurship.

The statement that the entrepreneurship brings more advantages than disadvantages is also proved by statistics which show us that there is an increasing willingness to do business "on my own" in the countries of EU, and thus to take responsibility for entrepreneurship. In the year 2012, there were around 20 % of entrepreneurs without employees. In contrast, in the US or South Africa, it was under 10% (Barkhatov et al., 2016).

Money is a source of motivation not only for unemployed young people but also for employees in general. Research that was conducted by Kosfled et al. (2017) demonstrated that the factor of money has an impact on job performance generally. On the other hand, increasing wage demands of employees can be a source of financial risk in a small and medium enterprise. The topic of financial risk management is covered by several authors, for example, Kozubíková et al. (2017), Ključnikov and Popesko (2017), Belás et al. (2015), Millian et al. (2014), Bilan et al. (2018) Lee and Rhee (2013).

The motivation of students and key factors of the entrepreneurship were examined by García-Rodríguez et al. (2016) on a sample of 1,457 students. It was stated that the perception of business opportunities is also a significant antecedent of entrepreneurial motivation. Consequently, entrepreneurial education and policies to foster entrepreneurship in peripheral regions should not attempt to transform individuals' attitudes towards entrepreneurship directly but instead focus on improving motivation using intensive pedagogical strategies in creativity that go beyond mere informative content.

Equally important for the entrepreneur is the improvement associated with their personal and business characteristics. Following authors in their studies found that there are significant differences in

the perceived benefits of various business incubator elements for incubate depending on their personal and entrepreneurial characteristics (Monsson & Jorgensen, 2016).

There is a need to develop self-confidence, enterprise skills and knowledge among the university students, as after mastering these skills, students are assumed to be able to deal with uncertainty, address social and institutional factors and make informed decisions. Students are provided with theory, techniques and tools to take risks and new ways to collect and analyse information (Kriaa, & Bouhari, 2018; Westhead & Solesvik, 2016).

Results published by Bernát et al. (2014) in his study about entrepreneurism of students indicate that higher risk-taking, decisiveness and propensity for entrepreneurship are significant features of future entrepreneurs. The most significant part of the studied respondents, having a high tendency for risk, determined by the economic experiment, perceives starting a business as a decision of a low degree of risk. Birdthistle (2008) shows that around 58% of the students said that being their own boss motivates them to have an entrepreneurial life.

Below are the results of the researches of the authors who were studying the disadvantages resulting from conducting business.

Pruett et al. (2009) studied if the cross-cultural differences among university students in three countries have an impact on their entrepreneurial choice. The result of the paper showed that family support in the US, China and Spain, can enhance the motivation of the students in their entrepreneurial choice regardless of the country differences. It was also found that students are willing to be entrepreneurs to get independence. At the same time, financial freedom is a significant factor for entrepreneurial choice. However, the results also suggest that the lack of social support and training is negatively affecting the students to be entrepreneurs. Similarly, lack of financing possibility and lack of self-skills also negatively affects students´ choice of entrepreneurship.

Schaupp and Belanger (2016) pointed out that the conclusions of the 60 companies show that the social status of a company is one of the most important factors for optimal operation of the small business.

The time required to start entrepreneurship and its activities is also rated as a negative factor. Findings by Thebaud (2015) suggests that women who are active in business activities do not have a deeper family background and it is harder for them to establish new families.

The project addressed 1,141 respondents from all regions of the Czech Republic to answer questions about the business environment. It was found out that SMEs perceive the help of the state more than micro businesses (Virglerová et al., 2016).

3. AIM, METHODOLOGY AND DATA

The main aim of the article is to quantify the significant indicators of the social environment, advantages and disadvantages entrepreneurship which determine the perception of the entrepreneurial propensity of students in the Czech Republic, Slovak Republic and Poland. A secondary aim of the article is to compare the evaluation of factors in selected countries. The results presented in this article are a part of extensive research: *„Comparison of the preferences of university students between the Czech Republic and Slovakia in their professional lives and propensity for the entrepreneurship".* Following statistic hypotheses were evaluated to fulfil the main objective of the article:

H1: The country of the student is the statistically significant factor of evaluating the indicators of the social environment (H1A), the advantages of entrepreneurship (H1B) and the disadvantages of entrepreneurship (H1C).

H2: There are statistically significant differences of evaluating (completely agree and agree) the social environment (H2A), the advantages of entrepreneurship (H2B) and the disadvantages of entrepreneurship (H2C) indicators between students of the Czech Republic, Slovak Republic and Poland.

H3: Such factors as the social environment, the advantages of entrepreneurship and the disadvantages of entrepreneurship are statistically significant and determine the entrepreneurial propensity of students in the Czech Republic (H3A), in the Slovak Republic and (H3B) in Poland (H3C).

1352 students were interviewed by the method of random selection. The questionnaire consisting of 43 questions was formulated to investigate the attitudes of students in the Czech Republic, Slovak Republic and Poland. In the first part, the questionnaire asked statistical characteristics such as gender, type of university and country of study. Then they commented on factors such as the social environment (K1), the advantages of entrepreneurship (K2), the disadvantages of entrepreneurship (K3), access to financial resources (K4), the quality of university education (K5), personality traits (K6), the quality of the business environment (K7), the macroeconomic environment (K8) and propensity for entrepreneurship (KY). Students could answer the questions by only one of the given answers. Research factors (F1, F2, F3) and their indicators:

- *F1: Social environment* – F11: There is a businessperson in my family, and I highly respect him/her. F12: Society, in general, appreciates businesspersons. F13: Politicians, as well as, the public consider businesspersons to be beneficial for society. F14: Media provide correct information regarding status and activities of business persons;

- *F2: Advantages of entrepreneurship* – F21: Entrepreneur has more financial resources and a better position in society, F22: Entrepreneurship offers better career growth and interesting job possibilities, F23: Entrepreneurship offers to utilise self-realisation fully;

- F3: *Disadvantages of entrepreneurship* – F31: Entrepreneur does not have a steady income, F32: Entrepreneur has no time for his family, F33: Entrepreneur does not have a positive image in the society.

- *Entrepreneurial propensity (EP):* I am convinced that I will start a business after I graduate from university.

Following statistical tools of descriptive statistics (tables, descriptive characteristics - sum) were used in addressing formulated hypotheses of partial research.

We applied methods as absolute frequency and method of sorting the responses in evaluating statements. The number of variations of each statement was 5 (A – Answer: (A1): completely agree, (A2): agree, (A3): take no position, (A4): disagree, (A5): completely disagree). Method of simple sorting was used to express the relative frequency of positive responses of the statement. Another used method was the relationship between the qualitative variable of statistical characteristics (statement, type of country) utilising contingency table and contingency intensity. Contingency intensity was measured using Pearson coefficient of contingency, which is based on the square contingency. Z-score was used to determine statistically significant differences in the evaluation of statements of students´ answers by country of study.

To verify the hypotheses H3, we will use regression analysis to quantify the relationship between entrepreneurial propensity and factor´s indicators, not with the aim of its forecasting. The dependent variable (EP) and independent variables (F1, F2 and F3) are metrics, so the regression analysis is one of the appropriate statistical methods. Independent variables must satisfy the assumptions of linearity, homoscedasticity and normal distribution of data to be statistically sound regression model parameters. We have verified the assumption of linearity by graphical analysis of data using scatter plot. Homoscedasticity assumption has been verified using Bartlett's test, in which

the p-value must be greater than the level of significance to meet the requirements. We verified the assumption of the normal distribution of the number of students´ evaluations of statements by graphical analysis (comparing the histogram with normal distribution curve) testing and descriptive characteristics (skewness and kurtosis) using a z-score. If the value of the skewness or kurtosis of z-test was greater than the significance level, then we rejected the premise. We used a correlation matrix to verify the relationship between dependent and independent variables. We used T-test to verify the significance of the parameters in the regression model.

The basic linear multiple regression model, which defines the relationship between the dependent and independent variables, has for the Czech Republic, Slovak Republic and Poland following general form:

$$EP = \beta_0 + \beta_{F11} \times F11 + \beta_{F12} \times F12 + \dots \beta_{F33} F33 + \varepsilon_t, \tag{1}$$

where *EP* – dependent variable (EP = propensity of the student for entrepreneurship; β_0 – constant, $\beta_{F11;\dots;}\beta_{F33}$ – parameters of independent variables X_i; F11, …, F33 – independent variables(indicators of selected factors: F1 – social environment, F2 – the advantages of entrepreneurship, F3 – the disadvantages of entrepreneurship); ε_t – error term.

The coefficient of determination indicates the percentage of variability of the propensity for entrepreneurship of students that is explained by the chosen regression model. Then we compared the coefficient of determination with the adjusted coefficient of determination. We used F – test to verify the significance of the entire regression model. We verified the presumption of multicollinearity by using the variance inflation factor (VIF – test). If the value of the VIF test for the independent variable is less than 5, then we state that the parameter is not affected by multicollinearity (Betáková et al., 2014). The desired p-value of the F – test must be lower than the level of significance. Level of significance is 0.05. We conducted the calculations using sophisticated statistic software SPSS Statistics.

In this research, we addressed 409 students from 14 universities in the Czech Republic, 568 students from 8 universities in the Slovak Republic and 375 students from 3 universities in Poland. Structure of students by gender studying at universities:

- in the Slovak Republic: 216 males (38.03%), 352 females (61.97%). Students from the Slovak Republic are studying at universities in the following cities: Bratislava, Trenčín, Žilina, Prešov, Banská Bystrica, Zvolen, Košice.
- in Czech Republic: 156 males (38.14%), 253 females (61.86%). Students from the Czech Republic are studying at universities in the following cities: Liberec, Brno, Praha, Olomouc, Pardubice, Ostrava, Zlín.
- in Poland: 145 males (38.7%), 230 females (61.3%). Students from Poland are studying at universities in the following cities: Toruń, Gdańsk, Szczecin.

University students were contacted to complete a questionnaire regarding the site of their studies and their applicability in praxis. Regarding the geographical location of universities, it is evident that the distribution of locations is chosen proportionally throughout the whole countries.

4. EMPIRICAL RESULTS

4.1. Results of the social environment of entrepreneurship

In the following section, we present the absolute values of evaluation of social environment of entrepreneurship among students Czech Republic, Slovak Republic and Poland.

The structure of the students´ answers (F11) was (number of students: SR/CR/PL): A1 – 199/173/234; A2 – 191/105/0; A3 – 90/70/2; A4 – 63/35/0 and A5 – 25/26/139. The country of the student is the statistically significant factor of evaluating the indicator „F11: There is a businessperson in my family, and I highly respect him/her." (Chi-square = 239.397; P-value = 0.000). The structure of the students´ answers (F12) was (SR/CR/PL): A1 –31/17/24; A2 – 234/161/149; A3 – 138/93/55; A4 – 154/129/129 and A5 – 11/9/18. The country of the student is the statistically significant factor of evaluating the indicator „F12: Society, in general, appreciates businesspersons" (Chi-square = 24.229; P-value = 0.002). The structure of the students´ answers (F13) was (SR/CR/PL): A1 –7/7/38; A2 – 106/70/138; A3 – 154/116/113; A4 – 248/183/70 and A5 – 53/33/16. The country of the student is the statistically significant factor of evaluating the indicator „F13: Politicians, as well as, the public consider businesspersons to be beneficial for society" (Chi-square = 15.950; P-value = 0.000). The structure of the students´ answers (F14) was (SR/CR/PL): A1 –7/2/9; A2 – 75/27/35; A3 – 173/121/109; A4 – 274/208/155 and A5 – 39/51/67. The country of the student is the statistically significant factor of evaluating the indicator „F14: Media provide correct information regarding status and activities of businesspersons" (Chi-square = 44.08; P-value = 0.000). The hypothesis H1A is accepted.

The following Table 1 summarises the results of the assessment of the social environment´ indicators (F11, F12, F13, F14) of students according to the selected countries.

Table 1

The evaluation of indicators of social environment by students

F11	Selected countries			F12	Selected countries		
	SR	CR	PL		SR	CR	PL
A1+A2	390	278	234	A1+A2	265	178	173
[%]	68.7	67.9	62.4	[%]	46.6	43.5	46.1
Comparison	SR/CR	PL/CR	SR/PL	Comparison	SR/CR	PL/CR	SR/PL
Z-score	0.229	-1.63	*1.989*	Z-score	0.970	0.734	0.157
(P-value)	0.818	0.101	*0.046*	(P-value)	0.332	0.465	0.872
F13	Selected countries			F14	Selected countries		
	SR	CR	PL		SR	CR	PL
A1+A2	113	77	176	A1+A2	82	29	44
[%]	19.9	18.8	46.9	[%]	14.4	7.1	11.7
Comparison	SR/CR	PL/CR	SR/PL	Comparison	SR/CR	PL/CR	SR/PL
Z-score	0.416	*8.408*	*-8.81*	Z-score	*3.569*	*2.234*	1.194
(P-value)	0.674	*0.000*	*0.000*	(P-value)	*0.001*	*0.026*	0.234

Source: Authors' results. Notes: A1 - completely agree, A2: agree.

There are statistically significant differences in evaluating (A1+A2) the social environment indicator:
- "F12" between students of the Slovak Republic and Poland (P-value of Z-score is 0.046);
- "F13" between students of the Slovak Republic and Poland (P-value of Z-score is 0.000) and students of the Czech Republic and Poland (P-value of Z-score is 0.000);
- "F14" between students of the Slovak Republic and Czech Republic (P-value of Z-score is 0.001) and students of the Slovak Republic and Poland (P-value of Z-score is 0.026).

The hypothesis H2A is partially accepted.

4.2. Results of advantages of entrepreneurship

In the following section, we present the absolute values of evaluation of advantages of entrepreneurship among students Czech Republic, Slovak Republic and Poland.

The structure of the students´ answers (F21) was (number of students: SR/CR/PL): A1 – 25/16/50; A2 – 215/129/138; A3 – 107/83/91; A4 – 206/173/73 and A5 – 15/8/23. The country of the student is the statistically significant factor of evaluating the indicator „F21: Entrepreneur has more financial resources and a better position in society" (Chi-square = 84.377; P-value = 0.000). The structure of the students´ answers (F22) was (SR/CR/PL): A1 –73/39/72; A2 – 369/210/200; A3 – 73/87/48; A4 – 52/69/46 and A5 – 1/4/9. The country of the student is the statistically significant factor of evaluating the indicator „F22: Entrepreneurship offers better career growth and interesting job possibilities" (Chi-square =53.373; P-value = 0.000). The structure of the students´ answers (F23) was (SR/CR/PL): A1 – 123/88/80; A2 – 371/267/205; A3 – 45/23/54; A4 – 25/30/25 and A5 – 4/1/11. The country of the student is the statistically significant factor of evaluating the indicator „F23: Entrepreneurship offers to fully utilise self-realisation" (Chi-square = 40.745; P-value = 0.000). The hypothesis H1B is accepted.

The following Table 2 summarises the results of the assessment of the advantages of entrepreneurship´ indicators (F21, F22, F23) of students according to the selected countries.

Table 2

The evaluation of indicators of advantages of entrepreneurship by students

F21	Selected countries			F22	Selected countries			F23	Selected countries		
	SR	CR	PL		SR	CR	PL		SR	CR	PL
A1+A2	240	145	188	A1+A2	442	249	272	A1+A2	494	355	285
[%]	42.2	35.4	50.1	[%]	77.8	60.9	72.5	[%]	86.9	86.8	0.76
Compa-rison	SR/CR	PL/CR	SR/PL	Compa-rison	SR/CR	PL/CR	SR/PL	Compa-rison	SR/CR	PL/CR	SR/PL
Z-score	*2.14*	*4.15*	*-2.37*	Z-score	*5.73*	*3.45*	1.85	Z-score	0.07	*-3.9*	*4.35*
P-value	*0.03*	*0.00*	*0.02*	P-value	*0.00*	*0.00*	0.06	P-value	0.93	*0.00*	*0.00*

Source: Authors' results. Notes: A1 - completely agree, A2: agree.

There are statistically significant differences of evaluating (A1+A2) the advantages of entrepreneurship indicator:

- "F21" between students of the Slovak Republic and Czech Republic (P-value of Z-score is 0.03), students of the Slovak Republic and Poland (P-value of Z-score is 0.02) and students of the Czech Republic and Poland (P-value of Z-score is 0.00);
- "F22" between students of the Slovak Republic and Czech Republic (P-value of Z-score is 0.00), students of the Czech Republic and Poland (P-value of Z-score is 0.00);
- "F23" between students of the Slovak Republic and Poland (P-value of Z-score is 0.00), students of the Czech Republic and Poland (P-value of Z-score is 0.00).

The hypothesis H2B is partially accepted.

4.3. Results of the social environment of entrepreneurship

In the following section, we present the absolute values of evaluation of disadvantages of entrepreneurship among students Czech Republic, Slovak Republic and Poland.

The structure of the students´ answers (F31) was (number of students: SR/CR/PL): A1 – 47/30/67; A2 – 303/207/170; A3 – 78/55/41; A4 – 134/113/79 and A5 – 6/4/18. The country of the student is the statistically significant factor of evaluating the indicator „ F31: Entrepreneur does not have a steady income" (Chi-square = 52.258; P-value = 0.000). The structure of the students´ answers (F32) was (SR/CR/PL): A1 –58/43/56; A2 – 214/153/138; A3 – 86/64/52; A4 – 191/130/100 and A5 – 19/19/29. The country of the student is the statistically significant factor of evaluating the indicator „F32: Entrepreneur has no time for his family" (Chi-square = 17.919; P-value = 0.0218). The structure of the students´ answers (F33) was (SR/CR/PL): A1 –9/7/26; A2 – 85/42/64; A3 – 144/80/69; A4 – 295/254/136 and A5 – 35/26/80. The country of the student is the statistically significant factor of evaluating the indicator „ F33: Entrepreneur does not have a positive image in the society" (Chi-square = 123.387; P-value = 0.000). The hypothesis H1C is accepted.

The following Table 3 summarises the results of the assessment of the disadvantages of entrepreneurship´ indicators (F31, F32, F33) of students according to the selected countries.

Table 3

The evaluation of indicators of disadvantages of entrepreneurship by students

F31	Selected countries			F32	Selected countries			F33	Selected countries		
	SR	CR	PL		SR	CR	PL		SR	CR	PL
A1+A2	350	237	237	A1+A2	272	196	194	A1+A2	94	49	90
[%]	61.6	57.9	63.2	[%]	47.9	47.9	51.7	[%]	16.5	11.9	24.0
Compa-rison	SR/ CR	PL/ CR	SR/ PL	Compa-rison	SR/ CR	PL/ CR	SR/ PL	Compa rison	SR/ CR	PL/ CR	SR/ PL
Z-score	1.56	1.50	0.48	Z-score	-0.01	1.06	1.15	Z-core	*1.99*	*4.40*	*2.82*
P-value	0.24	0.13	0.62	P-value	0.99	0.28	0.24	P-value	*0.04*	*0.00*	*0.01*

Source: Authors' results. Notes: A1 - completely agree, A2: agree.

There are statistically significant differences of evaluating (A1+A2) the social environment indicator "F31" between students of the Slovak Republic and Czech Republic (P-value of Z-score is 0.04), students of the Slovak Republic and Poland (P-value of Z-score is 0.01) and students of Czech Republic and Poland (P-value of Z-score is 0.00). The hypothesis H2C is accepted.

4.4. Results of regression models of the propensity for entrepreneurship

To test the hypotheses H3 (H3A, H3B, H3C), we used regression analysis of data. Linear trends between the propensity for entrepreneurship of students and each independent variable (F11, F12, F13, F14, F21, F22, F23, F31, F32 and F33) can be seen in results of the graphical analysis (scatter plot). Linearity assumptions are met for all countries (Czech Republic, Slovak Republic and Poland). Minor variations from the shape of the normal distribution occurred in comparison with the histograms (the independent variables F22 and F33 in the Czech Republic, F22, F33 in the Slovak Republic, F12, F13, F23 in Poland) with the normal distribution curve, but in all countries is number of student greater than number 100. Results of testing skewness, kurtosis, and Bartlett's test normality of independent variables confirmed normal assumptions for others independent variables in the Czech Republic, Slovak Republic and Poland. Correlation matrices showed strong dependence (Coefficients of correlation were in the interval from 0.7 to 1) between entrepreneurial propensity and selected factors for each country. We

confirmed all independent variables from the regression models (all countries) because of the proven assumption of linearity and assumption of normal distribution.

In the following tables (Table 4, Table 5 and Table 6), we present the results of the regression modelling impact of selected factors (social environment, advantages and disadvantages of entrepreneurship) on the entrepreneurial propensity separately for each country.

Table 4

Model of the propensity of entrepreneurship of students in the Czech Republic

Least squares multiple regression				
Multiple R	0.4082		Adjusted R Square	0.1458
R square	0.1663		Standard Error	1.0404
ANOVA				
	Df.	*SS*	*MS*	*F*	*Significance F*
Regression	10	85.9003	8.5900	7.9416	1.10076E-11
Residual	398	430.4957	1.0816		
Total	408	516.3961			
Regression equation				
Factors	*Regression Coefficient*	*Standard Error*	*T- Stat*	*P-value*
Intercept	0.5781	0.4554	1.2695	0.2050
F11	0.1646	0.0441	3.7357	0.0002
F12	0.0898	0.0590	1.5216	0.1289
F13	0.1480	0.0603	-2.4559	0.0145
F14	0.0292	0.0701	0.4159	0.6777
F21	0.0293	0.0583	0.5022	0.6158
F22	0.2455	0.0609	4.0296	0.0001
F23	0.2272	0.0696	3.2670	0.0012
F31	-0.0200	0.0541	-0.3698	0.7117
F32	-0.1187	0.0484	-2.4539	0.0146
F33	0.0726	0.0667	1.0887	0.2769

Source: Authors' results. Notes: ANOVA: Analysis of variance, F: F – ratio, T- Stat: Student´s test, R: Coefficient of determination.

Selected linear regression models (see table 4) is statistically significant because the p-value of F-test is greater than the level of significance ($\alpha = 0.05$). The results of the regression model characteristics in the Czech Republic show that independent variables F11, F13, F23, F23 and F33 are statistically significant regression model indicators of the entrepreneurial propensity of the student. The adjusted coefficient of determination is 0.1458. It means that the selected regression model can explain 14.58% of the variability of the propensity of the students for entrepreneurship. Multicollinearity is not present in regression models (VIF factor of all indicators < 5). The multiple linear regression model of the propensity for entrepreneurship of students in the Czech Republic have the following regression function:

$$EP = 0.165 \times F11 + 0.148 \times F13 + 0.246 \times F22 + 0.227 \times F23 - 0.119 \times F32, \qquad (2)$$

where EP – dependent variable (propensity of the student for entrepreneurship), F11 and F13 – social environment´s indicators, F22, F23 – the advantage of entrepreneurship, F32 – the disadvantage of entrepreneurship.

The hypothesis H3A is accepted.

Table 5

Model of the propensity of entrepreneurship of students in the Slovak Republic

Least squares multiple regression				
Multiple R	0.4311		Adjusted R Square	0.1712
R square	0.1858		Standard Error	1.0006
ANOVA				
	Df.	*SS*	*MS*	*F*	*Significance F*
Regression	10	127.2929	12.7135	12.7135	4.49E-20
Residual	557	557.6913	1.0012		
Total	567	684.9842			
Regression equation				
Factors	*Regression Coefficient*	*Standard Error*	*T- Stat*	*P-value*
Intercept	-0.1556	0.4054	-0.3837	0.7013
F11	0.1776	0.0377	4.7058	0.0000
F12	0.1044	0.0467	2.2351	0.0258
F13	0.0405	0.0480	0.8433	0.3994
F14	-0.0504	0.0510	-0.9884	0.3234
F21	0.2014	0.0435	4.6354	0.0000
F22	0.1834	0.0569	3.2226	0.0013
F23	0.2159	0.0601	3.5913	0.0004
F31	-0.0483	0.0445	-1.0844	0.2787
F32	-0.1327	0.0398	-3.3372	0.0009
F33	-0.2002	0.0504	4.4655	0.0000

Source: Authors' results. Notes: ANOVA: Analysis of variance, F: F – ratio, T- Stat: Student´s test, R: Coefficient of determination.

The linear regression models (see table 5) is statistically significant because of the p-value of F-test equal 4.49E-20. The results of the regression model characteristics in the Slovak Republic show that independent variables F11, F12, F21, F22, F23, F32 and F33 are statistically significant regression model indicators of the entrepreneurial propensity of the student. The adjusted coefficient of determination is 0.1712. It means that the selected regression model can explain 17.12% of the variability of the propensity of students for entrepreneurship. Multicollinearity is not present in regression models (VIF factor of all indicators < 5). The multiple linear regression model of the propensity for entrepreneurship of students in the Slovak Republic have the following regression function:

$$EP = 0.178 \times F11 + 0.104 \times F12 + 0.201 \times F21 + 0.183 \times F22 + 0.216 \times F23 - 0.133 \times F32 - 0.200 \times F33, \qquad (3)$$

where EP – dependent variable (propensity of the student for entrepreneurship), F11, F12 – social environment´s indicators, F21, F22, F23 – the advantages of entrepreneurship, F32, F33 – the disadvantages of entrepreneurship.

The hypothesis H3B is accepted.

Table 6

Model of the propensity of entrepreneurship of students in Poland

Least squares multiple regression					
Multiple R		0.3468	Adjusted R Square		0.0961
R square		0.1203	Standard Error		1.1290
ANOVA					
	Df.	*SS*	*MS*	*F*	*Significance F*
Regression	10	63.4155	6.3415	4.9755	8.89E-07
Residual	364	463.9339	1.2745		
Total	374	527.3493			
Regression equation					
Factors		*Regression coefficient*	*Standard Error*	*T- Stat*	*P-value*
Intercept		3.0872	0.5031	6.1369	0.0000
F11		0.0847	0.0304	2.7839	0.0057
F12		-0.0034	0.0545	-0.0630	0.9498
F13		-0.0018	0.0594	-0.0300	0.9761
F14		-0.0881	0.0622	-1.4169	0.1574
F21		0.1350	0.0549	2.4602	0.0144
F22		0.1642	0.0625	2.6253	0.0090
F23		0.0322	0.0646	-0.4987	0.6183
F31		-0.0794	0.0525	-1.5116	0.1315
F32		-0.1583	0.0498	-3.7839	0.0002
F33		-0.0436	0.0502	-0.8690	0.3854

Source: Authors' results. Notes: ANOVA: Analysis of variance, F: F – ratio, T- Stat: Student´s test, R: Coefficient of determination.

The linear regression models (see table 6) is statistically significant because of the p-value of F-test equal 8.89E-07. The results of the regression model characteristics in Poland show that independent variables F11, F21, F22 and F32 are statistically significant regression model indicators of the entrepreneurial propensity of the student. The adjusted coefficient of determination is 0.0961. It means that the selected regression model can explain 9.61% of the variability of the propensity of the students for entrepreneurship. Multicollinearity is not present in regression models (VIF factor of all indicators < 5). The multiple linear regression model of the propensity for entrepreneurship of students in Poland have the following regression function:

$$EP = 0.085 \times F11 + 0.164 \times F21 + 0.032 \times F22 - 0.158 \times F32, \qquad (4)$$

where EP – dependent variable (propensity of the student for entrepreneurship), F11 – social environment´s indicator, F21, F22 – the advantages of entrepreneurship, F32 – the disadvantage of entrepreneurship.

The hypothesis H3C is accepted.

5. DISCUSSION

Students in the Slovak Republic evaluated the statement that entrepreneurs have more financial resources and a better position in society in the country more positively than students in the Czech Republic, but negatively than students in Poland. Students from the Slovak Republic are more convinced

that the entrepreneurs have more financial resources and a better position in society, compared to students who evaluated those statements in the Czech Republic. 42.3% of surveyed students chose this statement in the Slovak Republic, in the Czech Republic this amount is by 6.8% lower, but in Poland, this amount is by 7.8% higher. Career growth and better jobs are perceived as an advantage in entrepreneurship by 77.8% of students in the Slovak Republic, compared to 60.9% of students in the Czech Republic and compared to 72.5% of students in Poland.

Comparison of the results of the regression functions of the propensity of students for entrepreneurship shows that the entrepreneur has no time for his family negatively determines the propensity of students for entrepreneurship in all countries. This disadvantage is important for students, but the most import for students of Poland. On the other side, the entrepreneur does not have a positive image in the society is not important for students in all countries. The indicator that media provide correct information regarding the status and activities of business persons has no impact on the propensity of entrepreneurship of students. The advantages of entrepreneurship have a positive impact on the propensity of entrepreneurship of student in each country.

Although the decision to start a business is determined by other factors (education quality (Çera et al., 2018); state support (Adamowicz & Machla, 2016; Treshchevsky et al., 2018); personality traits (Johnson et al., 2018) and so on), social attributes plays an important role in this process. It is consistent with the findings of Barreneche García (2014) and Castaño et al. (2015), which show that the social attributes have a significant impact on students in their following business activities (Baron, 2000; Acs et al., 2012; Lanero et al., 2016). In this context, it is important to improve the motivation of students and advantages of entrepreneurship, particularly through the state support and young entrepreneurs association of selected countries as the main attribute of starting own business activities (Jones et al., 2011; Staniewki & Awruk, 2015; Novotny, 2017; Huggins et al., 2017). However, the advantages of entrepreneurship generally have a greater effect on business students (Freytag and Thurik, 2007).

6. CONCLUSION

The main aim of the article is to quantify the significant indicators of the social environment, advantages and disadvantages entrepreneurship which determine the perception of the entrepreneurial propensity of students in the selected countries of Central Europe.

The results confirmed that the perception of the mentioned factors (social environment, advantages and disadvantages of entrepreneurship) that affect the decisions of pre-productive population in the countries are different.

We found out that the factors as the social environment, the advantages and disadvantages of entrepreneurship determine the entrepreneurial propensity of students in all countries. We have identified the most significant indicator that has the greatest positive impact of the propensity for the entrepreneurship for each country. Entrepreneurship offers better career growth, and interesting job possibilities is the most significant indicator according to student´s evaluation in the Czech Republic. Entrepreneurship offers to fully utilise self-realisation is the most significant indicator according to student´s evaluation in the Slovak Republic. An entrepreneur has more financial resources, and a better position in society is the most significant indicator according to students´ evaluation in Poland.

This research has some limitations because it was implemented on a limited but representative sample of respondents (1352 respondents from three countries). Investigated factors were social environment, advantages and disadvantages of entrepreneurship. The results of our research represent a valuable platform for subsequent research as well as for developing concepts within the regional policies to foster entrepreneurship in all countries.

It is worth to concentrate our future research on the comparison of evaluation of the factors as the government support, education or quality of business environment with other countries Central Europe.

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REFERENCES

Adair, P., & Adaskou, M. (2018). The capital structure of mature French SMEs and impact of the great recession: A dynamic panel data analysis (2002-2010). *Economics, Management and Sustainability, 3*(2), 60-75. doi:10.14254/jems.2018.3-2.5

Adamowicz, M., & Machla, A. (2016). Small and Medium Enterprises and the Support Policy of Local Government. *Oeconomia Copernicana*, 7(3), 405-437. doi: 10.12775/OeC.2016.024

Acs, Z. J., Audretsch, D. B., Braunerhjelm, P., & Carlsson, B. (2012). Growth and entrepreneurship. *Small Business Economics,* 39(2), 289-300. doi:10.1007/s11187-010-9307-2

Barkhatov, V., Pletnev, D, & Campa, A. (2016). Key Success Factors and Barriers for Small Businesses: Comparative Analysis. *Procedia - Social and Behavioral Sciences*, 221. doi:10.1016/j.sbspro.2016.05.087

Baron, R. A. (2000). Psychological perspectives on entrepreneurship: Cognitive and social factors in entrepreneurs' success. *Current Directions in Psychological Science,* 9(1), 15-18. doi:10.1111/1467-8721.00050

Barreneche García, A. (2014). Analyzing the determinants of entrepreneurship in european cities. *Small Business Economics,* 42(1), 77-98. doi: 10.1007/s11187-012-9462-8

Belás, J., Ključnikov, A., Vojtovič, S., & Sobeková-Májková, M. (2015). Approach of the SME entrepreneurs to financial risk management in relation to gender and level of education. *Economics & Sociology,* 8(4). doi: 10.14254/2071-789X.2015/8-4/2

Bernát, T., Gasior, A., Korpysa, J., Zinowik-Lakomý, M., Nagaj, R., & Szuklarek, P. (2014) Perception of the risk of starting up business and personal attitude to risk. *Transformations in Business and Economics,* 12(2B), 780-800.

Betáková, J., Lorko, M., & Dvorský, J. (2014). The impact of the potential risks of the implementation of instruments for environmental area management on the development of urban settlement. *Environmental impact II*, Ancona, Italy. doi: 10.2495/EID140081

Bilan, Y., Lyeonov, S., Vasylieva, T., & Samusevych, Y. (2018). Does tax competition for capital define entrepreneurship trends in Eastern Europe?. *On-line Journal Modelling the New Europe*, (27), 34-66.

Bilan, Y., Mishchuk, H., Pylypchuk, R. 2017. Towards sustainable economic development via social entrepreneurship. *Journal of Security and Sustainability Issues,* 6(4), 691-702. doi:10.9770/jssi.2017.6.4(13)

Birdthistle, N. (2008). An examination of tertiary students´ desire to found an enterprise. *Education + Training*, 50 (7). doi: 10.1108/00400910810909027

Bruce, D., Deskins, J. A., Hill, B. C., & Rork, J. C. (2009). (Small) Business Activity and State Economic Growth: Does Size Matter?. *Regional Studies,* 43(2), 229-245. doi: 10.1080/00343400701808915

Castaño, M., Méndez, M., & Galindo, M. (2015). The effect of social, cultural, and economic factors on entrepreneurship. *Journal of Business Research,* 68(7), 1496-1500. doi:10.1016/j.jbusres.2015.01.040

Cepel, M., Stasiukynas, A., Kotaskova, A., & Dvorsky, J. (2018). Business environment quality index in the SME segment. *Journal of Competitiveness*, 10(2), 21-40. doi: 10.7441/joc.2018.02.02

Çera, G., Cepel, M., Zakutna, S., & Rozsa, Z. (2018). Gender differences in perception of the university education quality as applied to entrepreneurial intention. *Journal of International Studies*, 11(3), 147-160. doi: 10.14254/2071- 8330.2018/11-3/13

Dobeš, K., Kot, S., Kramoliš, J., & Sopková, G. (2017). The Perception of Governmental Support in The Context of Competitiveness of SMEs in the Czech Republic. *Journal of Competitiveness,* 9(3), 34-50. DOI: 10.7441/joc.2017.03.03

Farhangmehr, M., Goncalves, P., & Sarmento, M. (2016). Predicting entrepreneurial motivation among university students: The role of entrepreneurship education. *Education + Training*, 58(7/8). doi: 10.1108/ET-01-2016-001

Freytag, A., & Thurik, R. (2007). Entrepreneurship and its determinants in a cross-country setting. *Journal of Evolutionary Economics,* 17(2), 117-131. doi: 10.1007/s00191-006-0044-2

García-Rodríguez, F. J., Gil-Soto, E., & Gutiérrez-Taňo, D. (2016). Entrepreneurial process in peripheral regions: the role of motivation and culture. *European Planning Studies*. doi: 10.1080/09654313.2016.1262827

Huggins, R., Prokop, D., & Thompson, P. (2017). Entrepreneurship and the determinants of firm survival within regions: Human capital, growth motivation and locational conditions. *Entrepreneurship and Regional Development,* 29(3-4), 357-389. doi: 10.1080/08985626.2016.1271830

Johnson, S., Freeman, M., & Madole, J. (2018). Mania risk and entrepreneurship: Overlapping personality traits. *Academy of Management Perspectives,* 32(2), 207-227. doi: 10.5465/amp.2016.0165

Jones, P., Miller, C., Jones, A., Packham, G. & Zbierowski, P. (2011). Attitudes and motivations of Polish students towards entrepreneurial activity. *Education + Training*, 53(5), 416-432. doi: 10.1108/00400911111147721

Ključnikov, A., & Popesko, B. (2017). Export and its Financing in The SME Segment. Case Study From Slovakia. *Journal of Competitiveness,* 9(1), 20-35. DOI: 10.7441/joc.2017.01.02

Kosfeld, M., Neckermann, S., Yang, X. (2017). The Effects of Financial and Recognition Incentives Across Work Contexts: The Role of Meaning: Incentives and the Role of Meaning. *Economic Inquiry*, 55(1). doi: 10.1111/ecin.12350

Kriaa, F., & Bouhari, M. (2018). Characterizing the school-to-work transitions of young men and women in Tunisia. *Economics, Management and Sustainability, 3*(2), 85-106. doi:10.14254/jems.2018.3-2.7

Kozubíková, L., Homolka, L., & Kristalas, D. (2017). The Effect of Business Environment and Entrepreneurs' Gender on Perception of Financial Risk in The SMEs Sector. *Journal of Competitiveness,* 9(1), 36-50. DOI: 10.7441/joc.2017.01.03

Lafuente, E. M. & Vaillant, Y. (2013). Age Driven Influence of Role-Models on Entrepreneurship in a Transition Economy. *Journal of Small Business and Enterprise Development*, 20(1). doi: 10.1108/14626001311298475

Lanero, A., Vázquez, J. L., & Aza, C. L. (2016). Social cognitive determinants of entrepreneurial career choice in university students. *International Small Business Journal,* 34(8). doi: 10.1177/0266242615612882

Lee, J., & Rhee, W. (2013). Financial factors in the Business Cycle of a Small Open Economy: The Case of Korea. *Open economies review,* 24 (5). doi: 10.1007/s11079-013-9272-x

Lee, S.H., Smith, D., & Sergueeva, K. (2016). What do students think about work in business education? An investigation into the benefits, challenges, and student-suggested solutions. *Journal of education for business,* 91(7). doi: 10.1080/08832323.2016.1237933

Millian, J. M., Congregado, E., Roman, C., Van Praag, M. & Van Stel, A. (2014), The Value of an Educated Population for an Individual's Entrepreneurship Success. *Journal of Business Venturing*, 29. doi: 10.1016/j.jbusvent.2013.09.003

Monsson, C. K., & Jorgensen, S. B. (2016). How do entrepreneurs´ characteristics influence the benefits from the various elements of a business incubator?. *Journal of small business and enterprise development,* 23(1). doi: 10.1108/JSBED-10-2013-0158

Novotny, A. (2017). Academic entrepreneurship in Eastern Europe: Motivations and success of university spin-offs in Hungary. *The world scientific reference on entrepreneurship,* (pp. 137-164). doi: 10.1142/9874

Oakey, R., Mukhtar, S., & Kipling, M. (2002). Student perspectives on entrepreneurship: Observations on their propensity for entrepreneurial behaviour. *International Journal of Entrepreneurship and Innovation Management,* 2(4-5).

Plotnikova, M., Romero, I., & Martinez-Roman, J. A. (2016). Process innovation in small business: the self-employed as entrepreneurs. *Small Business Economics*, 47(4). doi: 10.1007/s11187-016-9743-8

Popescu, C. C., Bostan, I., Robu, I. B., Maxim, A., & Diaconu, L. An Analysis of the Determinants of Entrepreneurial Intentions among Students: A Romanian Case Study. *Sustainability*, 8(8). doi: 10.3390/su8080771

Pruett, M., Shinner, R., Toney, B., Llopis, F., & Fox, J. (2009). Explaining entrepreneurial intentions of university students: A cross cultural study. *International Journal of Entrepreneurial behavior and Research*, 15(6). doi: 10.1108/13552550910995443

Schaupp, L.C., & Belanger, F. (2016). Social commerce benefits for Small Businesses: An Organizational Level Study. *Journal of organizational and end user computing,* 28(3). doi: 10.4018/JOEUC.2016070104

Smékalová, L., Hájek, O., Belás, J., & Macháček, J. (2014). Perception of Small and Medium Entrepreneurship in the Czech Republic. *Journals of Competitiveness,* 6(4), 64-76. doi: 10.7441/joc.2014.04.03

Staniewki M. & Awruk, K. (2015). Motivating factors and barriers in the commencement of one´s own business for a potential entrepreneurs. *Economic Research – Ekonomska Istraživanja,* 28(1). doi:10.1080/1331677X.2015.1083876

Thebaud, S. (2015). Business as Plan B: Institutional Foundations of Gender Inequality in Entrepreneurship across 24 Industrialized Countries. *Administrative science quarterly,* 60(4). doi:10.1177/0001839215591627

Treshchevsky, Y. I., Serebryakova, N. A., Golikova, G. V., Volkova, S. A., & Volkova, T. A. (2018). The system of state support for small and medium entrepreneurship and evaluation of its effectiveness. *Espacios,* 39(12).

Van Stel, A., Carreee, M., & Thurik, R. (2005). The Effect of Entrepreneurial Activity on National Economic Growth. *Small Business Economics*, 24(3). doi: 10.1007/s11187-005-1996-6

Virglerová, Z., Dobes, K., & Vojtovic, S. (2016). The perception of the state´s influence on its business environment in the SMEs from Czech Republic. *Administratie si Management Public*, (26), 78-96.

Westhead, P., & Solesvik, M. Z. (2016). Entrepreneurship education and entrepreneurial intention: Do female students benefit?. *International Small Business Journal*, 34(8), 979-1003. doi: 10.1177/0266242615612534