

The entrepreneurial perceptions and motivations of Hungarian students: an empirical study

Szilveszter Farkas – Judit Koltai – Lívia Lukovszki

Budapest Business School – Széchenyi István University – University of Pécs

AIMS OF THE STUDY

Small businesses and entrepreneurship are one of the main engines of the modern economy. Most recently university based start-ups have come very much to the fore because of the increasing difficulties of the young generation to find an employee position. This study attempts to evaluate the entrepreneurial intentions and ambitions of students by means of a survey carried out within the student body at two Hungarian universities.

METHODOLOGY

The key factors – and the scale - of these entrepreneurial ambitions are examined using a complex theoretical model and applying both factor analysis and logistic regression methods. Since regression results proved to provide mixed and hardly interpretable results, a cluster analysis was applied to group students with similar characteristic together.

MOST IMPORTANT FINDINGS

According to our findings, many Hungarian students have either an inaccurate or inadequate knowledge of the critical factors of self-employment, the risks involved in a business start-up and even of sources of information. Some students are deterred from becoming an entrepreneur since there are no appropriate role models in their family – hence their lack of information and experience in risk management. Further, most students – even those with a relatively high level of entrepreneurial ambition have very vague ideas about business start-ups, and their business formation plans are simply immature.

PRACTICAL SUGGESTIONS

This paper presents another piece of evidence that general entrepreneurial intention models can also be applied in Hungary providing a good basis to other comparative studies. A more important implication of our analysis is that university education should focus more on preparing student to entrepreneurial carrier and help them to develop their own business idea during their university studies.

KEYWORDS

entrepreneurial intentions, entrepreneurship education, entrepreneurial traits

INTRODUCTION

Since Schumpeter's seminal book there has been numerous studies emphasizing the key role of entrepreneurs and entrepreneurship in economic development (Schumpeter, 1934, Wennekers and Thurik 1999, Acs et al 2009). Over the last thirty some years, different directions of entrepreneurship research have emerged (Low and Macmillan 1988, Shane and Ventakamaran 2000). A traditionally important path of this entrepreneurship research is the examination of becoming an entrepreneur. While entrepreneurial traits were believed to play a determining role in the selection of non-employee carrier path the 1960s, the emphasis shifted to examine the sociological context in the 1970 onward (Begley and Boyd 1987, Brockhaus 1980, Chell et al 1991, Aldrich and Martinez 2001, Thornton 1999). Recently, more complex models of entrepreneurship carrier selection are becoming more and more popular (Bandura 1986; Bird 1988; Korunka et al 2003; Kruger and Carsrud 1993, Shapero 1975; Ajzen 2002).

Besides theoretical developments, there have been many empirical studies aiming to explain the different factors of entrepreneurial carrier. Since data collection from the heterogeneous population is proved to be very difficult, many researchers rely on a relatively homogenous group of university students (Autio et al 1997; Ruda et al 2008; Zellweger et al 2011). Another important reason of examining university students entrepreneurial intention is related to the increasing difficulties of the young generation is to find a job (Blanchflower and Oswald 1998, Dallago and Blokker 2012). The significance of this research is underlined by the potential utilization of the results in education (Kuratko 2005; Etzkowitz 2004; Pittaway and Cope 2007).

Research into students' entrepreneurial attitudes and intentions faces several theoretical and empirical problems, such as (1) choosing the most suitable concept amongst competing models, (2) identifying the most

important factors in opting for self-employment, (3) selecting the appropriate sample or (4) implementing the statistical-econometric methodology for investigating the sample. In addition to these well-known difficulties, international research involving many countries with different entrepreneurial cultures and traditions poses a number of interpretation difficulties, which means that a comparative evaluation of the results is likely to be complicated.

The results are likely to be affected by country or region specific historical events. The development of private business and enterprise in Central and Eastern Europe (and, within this region, in Hungary) has a short history of no more than twenty-odd years, and the process is not yet complete (Cieslik and van Stel 2012). This phase of development, which lasted for a century (or at least for several decades) in other countries, mainly occurred in Hungary in a 10-year period, and under circumstances of weak socio-cultural support (Kuczzi 1998). Most businesses set up in the early 1990s were established simply to avoid unemployment (Róbert 1999).

In this study we present both an analysis and an evaluation of a database assembled and created as part of an international research project - the "Gründung und Entrepreneurship bei Studierenden" (GEST-Studie). This research offers an excellent opportunity to undertake a country analysis and international comparisons of the determinants of self-employment selection. Using a sample of 650, we examined the most important factors involved in the choice of self-employment by Hungarian students, and this examination was based on the responses from two Hungarian universities, the University of Pécs and the Széchenyi István University of Győr. Whilst, statistically, the database cannot be considered as representative of the whole of Hungarian Higher Education, the results of our cluster analysis correspond closely to those of other, similar research projects (GUESSS Workshop in Győr 2012).

THEORETICAL BACKGROUND

Identifying the factors decisive in choosing self-employment has been analyzed for a long time and remains a controversial area for entrepreneurship researchers. The aim of research in the '60s was to identify those entrepreneurial characteristics generally regarded as "ideal". However, the entrepreneurial trait theory proved unable to identify features distinguishing entrepreneurs from non-entrepreneurs - or successful from unsuccessful entrepreneurs (Brockhaus, 1980, Gartner 1991, Sexton and Bowman, 1983). From the '80s, a new wave of research emerged focusing on the behaviour, the motivation and the perception of the individuals (Begley and Boyd 1987, Low and MacMillen 1988, Shaver and Scott 1992). It is agreed that opting for self-employment as a means of becoming an entrepreneur is a complex process, where several subjective factors and external environmental elements as well as behavioural and motivational factors play a role. These factors can be combined in an infinite number of ways, but this serves only to make it still more difficult to identify the most significant factors. If we are to review these factors, we need to structure them carefully, and, to assist in this, three, partly overlapping and compatible, concepts have been used.

Bandura's Social Cognitive Theory (SCT) stresses the dynamic connection of three elements: Entrepreneurial characteristics, behaviour and external environment (Bandura 1986). These elements affect each other. Learning plays an important role in the model, and, through it, behaviour is formed and the entrepreneurial characteristics are influenced by environmental factors.

According to Shapero, the process of becoming an entrepreneur is basically illustrated by impacts on the person and the consequent 'displacement'

(Shapero 1975, Shapero and Sokol 1982). As long as a person has not been impacted, he will not change. The effects triggering the displacement can be both positive and negative. At the same time,

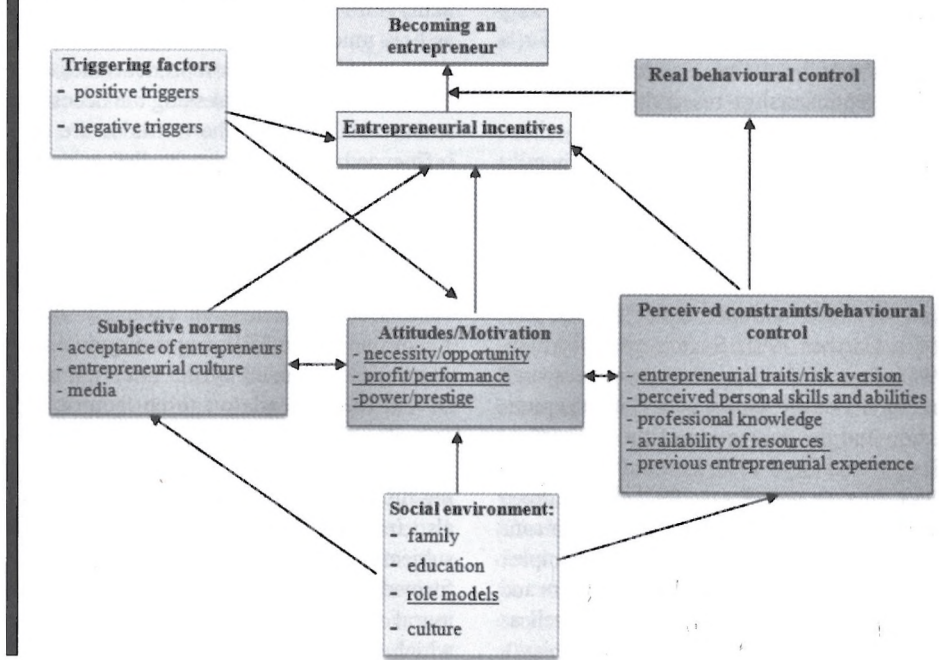
actual realization (becoming an entrepreneur) is influenced by several factors - such as how much the person is attracted by the thought of being an entrepreneur and, also, how aware he is of possessing the necessary resources. However, the attitudes are also influenced indirectly by earlier entrepreneurial experience and by previous fields of work and role models.

Another popular model is the Theory of Planned Behaviour (TPB) by Ajzen (Ajzen 1991, 2001, Ajzen and Fishbein 1980). According to the TPB, becoming an entrepreneur is explained by the intention to do so and this depends on three factors. The attitudes basically reflect the positive or negative behaviour of the person concerning his enterprise. Individual intentions are also influenced by other opinions (termed subjective norms). The third group is formed by the perceived constraints/behavioural control which reflect the extent to which the factors beyond basic motivation can be controlled by the individual. Control factors are associated with the availability (or otherwise) of financial resources or networking.¹ Becoming an actual entrepreneur is influenced not only by perceived, but also by real behaviour control factors. Despite positive entrepreneurial intentions, the fact that some people do not start a business which faces real difficulties is explained by the former statement.

The model depicted in Figure 1 is based on combining these three theories - specifically, the elements of SCT (Bandura), the entrepreneurial event (Shapero) and the Theory of Planned Behaviour (TPB).

While the model stresses the indirect effects of becoming an entrepreneur, at the same time the survey questions refer to perception and self-assessment. We can test and examine only a part since (1) we know only the entrepreneurial incentives since most students have been studying and not working; (2) many elements of the model are missing, and those factors are underlined where information is provided from our data set.

Figure 1: The complex model of becoming an entrepreneur



RESEARCH PLAN AND HYPOTHESES

Data bases and variable description

The dataset is based on the questionnaire survey of the ZMG German Centre for Entrepreneurship. The aim of the questionnaire is to determine the influencing factors of entrepreneurial inclination and motivation. Of the 25 questions, seven concern the entrepreneurial intentions of students. The database includes the responses of 297 students from Pécs and 361 students from Győr questioned between February and March 2010. The respondents from Pécs were all Business Administration (major) students. 11.7 percent of the 3,087 full-time students at Széchenyi István University, Győr responded to the questionnaire, 49 percent of whom were Engineering, 21 percent Informatics and 30 percent Business Administration students. Table 1 shows the main characteristics of the analysed sample.

The most interesting questions concerned students' start-up intentions. More than half (51%) of the 652 responding

students were not interested in business foundations at all, 40% were only interested in start-ups but only 3,7 percent were preparing to found a business and 4.9% had already done so. The start-up time for a new business was expected to be a little over 4 years. If the students had founded a business, they would prefer to start alone, and as a part-time job. One can see the lack of potentially high growth potential business that is also underlined by the preferred sectoral selection. The majority of students would prefer to operate in the commercial sector, and in regional and local markets at start-up. The students' estimations are realistic about the seed capital needed. The average figure is 13 million HUF (€48.280), and sectoral differences are reflected by the high value of standard deviations. Hungarian students would prefer to operate from an office rather than from home and are not willing to pay business start-up consultants.

A serious of research question served to identify the most important motivating fac-

Table 1: Descriptive Statistics of Hungarian Students Entrepreneurial Characteristics

Variables	N	M	S. D.
Gender (0: female; 1: male)	657	.56	.497
Age (0: < 20 years; 1: 20-25 years; 2: 26-29 years; 3: 30-35 years; 4: > 35 years)	656	.89	.455
Risk propensity (0: very risk averse; 1: risk averse; 2: willing to take risks; 3: very willing to take risks)	650	1.53	.592
Start-up idea (0: no; 1: yes)	640	.30	.458
Start-up probability (in percent)	614	48.769	23.6378
Start-up time (0: this year; 1: 1 year; 2: 2 years; 3: 3 years; 4: 4 years; 5: > 4 years)	535	4.29	.999

tors for establishing their own business (for being self-employed). Opportunity related motivations like income, realising one's own ideas and self-actualization lead the rank followed by necessity motive of avoiding unemployment. Hungarian students consider outside environmental factors like the lack of capital and of access to outside finance, the politico-economic environment, bureaucracy and an inadequate customer base to be more hindering factors of entrepreneurship than inside, personal features lack of support from the family and of entrepreneurial qualifications. This is a further significant reminder to Higher Education Institutions to improve their Business Studies programmes.

There is no surprise that the internet is found to be the most important source of information in business start-ups, followed by friends, relatives and the university. Other institutions like Chambers of Commerce and Industry, Craftsmen's Corporations and Business Development Centres play only marginal role as sources of information – and this could also be a warning sign.

Broadening and strengthening the connections between education, research and the economy is one factor in the transformation of universities and colleges, and so it is important to define what form of support is required from universities and colleges by students to realize their entrepreneurial ambitions and ideas. Students expect some forms of knowledge transfer beyond the traditional educational framework (contact with enterprises, coaching and consulting) as well as financial support.

The full description of the most important variables can be found in the Appendix.

Hypotheses

Based on the conceptual model depicted in Figure 1, we develop six hypotheses relating to the major factors of entrepreneurial start-up incentives.

An important start-up incentive is related to the motivation. Those who view start-ups as opportunity recognition or a way self-actualization is expected to have higher incentive to initiate a business as opposed to those who consider start-ups as a necessity (Block and Koellinger 2009, Hessels et al 2008).

Hypothesis 1: Those viewing business start-ups as a way to avoid unemployment have lower incentives to start a business.

Hypothesis 2: Those viewing self-actualization, prestige and the realization of their own ideas as important have greater incentives to start a business.

Future income prospects are also influence start-up incentives. Since employee positions salaries, on the average, are less than entrepreneurial revenues, we hypothesize that those who have higher income expectations have also higher incentive to engage in business start-up. Higher income expectations are also related to risk that is much higher in the case of own business as compared to an employee salary (Cassar 2010, Kuratko et al 1997).

Hypothesis 3: Higher income expectations increase the likelihood of a start-up.

Many entrepreneurs are hard people who oppose formal rules and prefer independence. It can be expected that those student who favour independence and flexible working have a higher incentive to initiate business start-up (Begly and Boyd 1987, Birley and Westhead 1994).

Hypothesis 4: Those for whom independence, power and flexible hours are important have greater incentives to start a business.

An indirect measure of risk aversion is to look at how the individual perceives the difficulties of start-ups. It is logical to expect that those who envisage greater environmental, financial and other constraints view start-up riskier and less appealing as compared to those who perceive fewer constraints (Van Gelden et al 2006, Korunka et al 2003)

Hypothesis 5: Those who envisage greater constraints in generating ideas and

implementing them, greater business and financial risk, sales and profit problems and environment-related difficulties have lower incentives to start a business.

The social-cultural environment has also an important effect on entrepreneurial carrier selection. Out of these social environmental factors, role models of family, friends or adored persons are found to be one of the most important ones (Brochhaus 1980, Bosma et al 2012). While it is more prevailing in developed countries with hundreds of years of market economy and entrepreneurial experience it is also expected to be valid in Hungary.

Hypothesis 6: Existing entrepreneurial role models increase the likelihood of starting a business.

THE ENTREPRENEURIAL MOTIVATIONS OF HUNGARIAN STUDENTS

To test these six hypotheses we apply multinomial regression and cluster analysis techniques. As a prerequisite for these statistical methods, we examined the correlation between the dependent and the independent

Table 2: The factors of motivation and its components

Income components		Component
	Income	0.83
	High income	0.83
Total Variance Explained		69.02
KMO		0.50
Self realization components		
	Self-actualization	0.85
	Prestige	0.68
	Realize ideas of one's own	0.70
Total Variance Explained		55.55
KMO		0.553
Independence components		
	Flexible hours of work	0.53
	Having power	0.87
	Be one's own boss	0.85
Total Variance Explained		58.67
KMO		0.559

variables. Since multi-collinearity is found to be significant we applied the Principal Component Analysis (PCA).² With respect to students' business start-up motivations, we created three factors - as shown in Table 2.

According to PCA, the main motivation for a business start-up is expected income (income and high income), followed by

the independence factor (flexible hours of work, exercising power, being one's own boss) and the third factor is self-realisation (self-realisation, prestige and realising ones own ideas).

These variables were ranged on a four-point Likert scale from "highly non-relevant" (0) to "very relevant" (3). The basic

Table 3: The factors of perceived constraints of start-up and its components

	Component
Idea and execution problems	
Lack of "right" business idea	0.64
Lack of "right" foundation partner	0.51
Lack of entrepreneurial qualification	0.60
Lack of available time	0.55
Know-how deficit	0.55
Support of family and friends	0.59
Total Variance Explained	39.00
KMO	0.72
Risk problems	
Lack of courage	0.54
Own financial risk	0.39
Fear of failure	0.64
Total Variance Explained	52.22
KMO	0.58
Sales and profit problems	
Lack of customer contacts	0.49
Low turnover	0.88
Low profit	0.85
Total Variance Explained	58.05
KMO	0.54
Financial problems	
Lack of equity	0.85
Lack of outside capital	0.85
Total Variance Explained	72.24
KMO	0.50
Environment problems	
Politico-economic environment	0.78
Cyclical state	0.74
Excessive official channels	0.70
Total Variance Explained	54.54
KMO	0.62

statistics of the PCA, included component weights as well as KMO statistics and the preserved information content explained by the variance provided in Table 2. One variable - the proxy of necessity motive - was kept unchanged in relation to the business start-up as the "way out of unemployment".

Similarly, Table 3 provides the PCA results to evaluate the constraints of business start-ups.

The respondents considering the difficulties of the start-up phase are made up of five groups. Financial problems (lack of share capital and of access to outside funding) are the largest, with sales and profitability problems in second place. Environmental problems are included in the third group, together with the politico-economic environment, the business cycle and excessive officialdom. The fourth contains risk factors: the fear of failure, a lack of courage and the personal financial risk. The fifth group of problems can best be described as 'idea and implementation problems' since it contains variables such as the lack of the "right" business idea, of the "right" partner and of business qualifications or experience. The Hungarian students'

evaluation of start-up difficulties is similar to that of the others, but some elements are specifically Hungarian, such as the emphasis on environmental problems and the low risk propensity. Additionally, one variable is used to test the effect of the role models on entrepreneurial incentives. The Role variable has four possible values: (0) no role model; (1) existing role model excluding parents; (2) one or both parents' (3) one or both parents plus other role model.

Risk aversion measures the attitude of students towards risk on a four point Likert scale from (0) 'very risk averse' to (3) 'very willing to take risks'

Entrepreneurial incentives are measured by two variables: Foundation ambition and Start-up probability. The latter is a continuous variable reflecting the respondent's view of the likelihood of a start-up. Foundation ambitions are ordinal variables with the following values: (0) Foundation-layman, (1) Foundation-sensitized, (2) Foundation-interested, (3) Foundation-preparer, (4) Founder.

Since our dependent variable Foundation ambition is an ordinal variable, 'least

Table 4: The influential factors of foundation ambitions (reference group: Foundation-layman)

Foundation ambition	Foundation-sensitized		Foundation interested, preparer and founder	
	B	Sig.	B	Sig.
Intercept	-1.76	0.001	-1.24	0.002
Necessity motive	0.11	0.495	-0.28	0.022
Income motive	0.04	0.771	0.17	<i>0.093</i>
Self realization motive	0.28	0.033	0.14	0.168
Independence motive	-0.09	0.499	-0.18	<i>0.075</i>
Idea execution problems	-0.15	0.281	-0.14	0.202
Risk problems	0.24	<i>0.095</i>	-0.31	0.007
Sales profit problems	-0.15	0.248	0.03	0.761
Financial problems	-0.07	0.601	0.01	0.949
Environment problems	0.05	0.699	0.04	0.660
Risk aversion	0.18	0.382	0.59	0.000
Role	0.00	0.991	0.28	0.006
Gender	-0.07	0.752	0.39	0.041

Key: B: parameter values, Sig.: level of significance **bold: significance is below 5%**, *italic: significance is below 10%*; Exp(B)

squares regression' cannot be applied. To overcome the bias estimation of the parameters we relied on the multinomial regression technique (MLR). We modified the Foundation ambition variable to Foundation ambition². This variable has three values, (0) Foundation-layman, (1) Foundation-sensitized, (2) Foundation-interested and Foundation preparer and Founder. It is also assumed that the independent variables influence the dependent variables in a different way in the three groups. Our reference group is the Foundation-layman. The regression results are shown in Table 4:

Entrepreneurial skills, business problems and opportunities, risk aversion and role model were used in the regression model as independent variables whilst gender was used as a control variable.

The self-realization motive is especially important for Foundation-sensitized students' this variable is significant at 5 % and has a positive value (0.28). Characteristically, members of this group are more sensitive towards risk (only at 10% significance level): lacking courage, rejecting personal financial risk and fear of failure (Risk problems variable).

The entrepreneurial inclination is influenced by several factors in the case of the entrepreneur students (Foundation-interested and Foundation preparer and Founder). The risk aversion variable is significant in the model (5%) and its parameter shows the largest positive value (0.59), role model and perception of risk are also determining. The role model's importance is as expected in respect of the entrepreneur group (5% significance), showing that having entrepreneurs in the family or among relatives has a positive influence on becoming an entrepreneur. In fact, role model is found to be the most determining factor of entrepreneurship carrier choice underlying the importance of learning in the family context.

The impact of the necessity motive (Necessity motive = Way out of unemployment) is also significant (5%), the

negative value of this parameter indicates that entrepreneur students are more interested in opportunity entrepreneurship than in avoiding unemployment. There is a marginal effect between independence and income variables (10% significance level), having power, flexible working hours and being one's boss itself do not motivate students to start-up a business. Surprisingly independence proved to be contrary to our expectations with a negative value (-0,18), but it is still marginally significant (10%) in respect of the entrepreneur group. It could also show that students know that entrepreneurial carrier is involved greater independence and more flexibility but, in fact, it may mean significantly more working hours or being the business own slave situation.

Most remarkably, the self-realization possibility (Self-realization motive) loses its significant role in relation to the entrepreneur group (Foundation-interested and Foundation preparer and Founder). Taking into account which variables have become significant in the entrepreneur group, the change can be explained by the experience and the more realistic view of the existing entrepreneurs and serious start-up planners.

Most variables proved to be insignificant during analysis: environmental problems, financial problems, sales and profit problems, idea and execution problems. These findings lead to two implications. On the one hand, even bad environmental conditions do not significantly reduce entrepreneurial intention. However, it probably influence actual start-up or postpone business establishment plans. On the other hand, the in-matured ideas may show a sign of unrealistic and unprepared start-up plans, which are not really favourable.

To summarise, not much difference exists between the Foundation-layman and the Foundation-sensitized group. Basically only the Self-realization factor is significant, and the Foundation-sensitized group members are more sensitive towards risk (only 10% significance).

Altogether, the above regression analysis results are inconclusive in many ways and the results are difficult to interpret. To make entrepreneurship motivations/inclinations more characteristic and to overcome these problems we conducted a cluster analysis.

STUDENT GROUPS BASED ON ENTREPRENEURIAL MOTIVATIONS – RESULTS OF CLUSTER ANALYSIS

The regression analysis assumes a linear relationship between the variables and basically presumes that there is no significant multicollinearity in the model (in other words the independent variables are independent from each other). However, these conditions were not met completely, since these factors are not independent of each other, but can strengthen or weaken each other’s effect according to the theories explaining self-employment selection. The other problem is that the regression methodology assumes a linear relationship between the dependent and independent

variables. This is not absolutely true; in fact it is possible that the individuals with various entrepreneurial attitudes perceive and evaluate the factors affecting the enterprise differently. In consequence, it was necessary to complete the research using another method, which is more consistent with the data set characteristics.

Using cluster analysis, groups (clusters) are created among students with similar characteristics. According to the analysis, the group members can be considered more homogenous than the members outside the group. And so the differences in factors determining the entrepreneurial intentions of students can be identified between the groups. Since cluster analysis is sensitive to absolute magnitude, the variables were normalized in the (0-1) interval. Gender had to be left out of the study as being a variable with binomial distribution. After several tries, the most ideal structure was established with seven clusters (see Table 5).

Table 5: The cluster group of the Hungarian students

		1	2	3	4	5	6	7	Mean/sum
Incentives	Foundation ambition	0.12	0.04	0.58	0.59	0.16	0.43	0.06	0.24
	Start-up probability	0.31	0.39	0.48	0.67	0.56	0.64	0.26	0.46
Attitudes /motivation	Necessity_motive	0.73	0.75	0.41	0.84	0.87	0.71	0.83	0.76
	Income_motive	0.40	0.68	0.67	0.79	0.89	0.74	0.75	0.73
	Self_realization_motive	0.71	0.75	0.76	0.76	0.81	0.77	0.67	0.74
	Independence_motive	0.36	0.41	0.4	0.44	0.62	0.45	0.37	0.44
Perceived constraints	Idea_exec_problems	0.55	0.57	0.52	0.52	0.55	0.24	0.55	0.53
	Risk_problems	0.53	0.62	0.55	0.47	0.54	0.19	0.66	0.55
	Sales_profit_problems	0.66	0.73	0.7	0.76	0.73	0.36	0.73	0.70
	Financial_problems	0.59	0.77	0.74	0.76	0.77	0.58	0.81	0.74
	Environment_problems	0.62	0.68	0.66	0.68	0.67	0.42	0.69	0.66
Perceived behavioural control	Risk_aversion	0.51	0.46	0.49	0.62	0.56	0.62	0.37	0.50
Social environment	Role	0.16	0.66	0.22	0.54	0.14	0.55	0.08	0.32
Number of cases:		63	125	65	103	120	42	139	657

Key: 1: 1st cluster – “Employees”; 2: 2nd cluster – “Risk-averse”; 3: 3rd cluster – “Fearless & ignorant”; 4: 4th cluster – “Conscious wish to become entrepreneur”; 5: 5th cluster – “Independence seekers”; 6: 6th cluster – “Fearless wish to become entrepreneur” 7: 7th cluster – “Afraid of the unknown”

According to the ANOVA table, all the variables in the model are significant at 0.001 level.

Table 5 clearly shows that the developed cluster structure contains clusters with quite uneven case numbers ranging from 42 to 139. However, increasing the cluster numbers did not lead to a more even distribution as the clusters with smaller – not higher – case numbers are further divided during this process. Obviously each cluster has rather different entrepreneurial configurations confirming that the regression-based analysis tools have to be used very carefully during such analyses.

The clusters of Table 5 are analysed in relation to the factors determining the groups and the differences between the clusters:

Cluster 1: “The employees”

The members of this cluster do not plan to start a business; they cannot see the benefits. They have no role model in the family making entrepreneurship attractive for them. Employee status seems to be the obvious choice for the group members.

Cluster 2: “The risk-averse”

The plans of the cluster members do not include business foundation intentions. The members are aware of the entrepreneurial dangers since this cluster has the highest rate of role models in the family. Not wanting to take risks and their low risk propensity discourage them from becoming entrepreneur.

Cluster 3: “The fearless but ignorant”

The cluster members have high entrepreneurial intentions. While they are keen on grabbing the opportunities, the motivation factors do not seem to play a determinant role. These students are not fully aware of the problematic factors; their level of risk assumption is moderate, and only a few have a role model in the family.

Cluster 4: “The conscious wish to become entrepreneurs”

The cluster members have the highest positive entrepreneurial attitudes, planning their business start-ups consciously. They are highly motivated, although aware of the problems. The members are willing to take the risk with the help of the positive entrepreneurial role models from their families and acquaintances.

Cluster 5: “The independence seekers”

Similarly to the previous cluster, the motivation factors play an important role. The cluster members long for the advantages of entrepreneurship, but at the same time they are aware of and able to take the risks. The start-up intention, however, is significantly lower than in Cluster 4 caused by the lacking a positive role model. They would like to start a business and enjoy the benefits of the independence, but the role model, which the members of Cluster 4 have, is lacking in their case

Cluster 6: “The fearless wishing to become entrepreneurs”

The members of this cluster have one of the highest probabilities of becoming an entrepreneur. The high entrepreneurial inclination is associated with the risk-taking propensity. They do not credit importance to the risks but concentrate on the motivation factors - primarily on self-actualization. The role models found in their families also strengthen their entrepreneurial intentions.

Cluster 7: “The afraid of the unknown”

This cluster is similar to Cluster 2 in several ways. The cluster members' plans do not include a business start-up; motivation factors are not significant, and necessity is the only factor which can drive them to make them start a business. The cluster members see clearly the dangers and problems of a start-up reinforced by a low risk propensity. Cluster 7 differs from Cluster 2 in the lack of entrepreneurs among family members and acquaintances. The fear of

the unknown strengthens their rejection of self-employment. 21 percent of the students in the sample belong to Cluster 7.

The above clusters show the differences in entrepreneurial inclination of the students surveyed. The clusters' structure shows that the entrepreneurial inclination of university students is strengthened by different degrees and by combinations of influencing factors. Considering entrepreneurial inclinations the effect of the influencing factors can differ as a consequence of personality, environment and experience. Finally, the student's choice of whether or not to become an entrepreneur depends on the person's character, preferences and potential.

CONCLUSIONS

The objective of the study was to identify the factors influencing the entrepreneurial intentions of Hungarian university students. We developed a conceptual model by combining the three major theories of entrepreneurial intentions and inclinations. While available variables did not enable us to test the whole model, we could examine the motivation factors, the emerging problems, the individual's willingness to take risks and family background on becoming an entrepreneur. The results show that half of university students do not want to start a business in the future due to a low level of willingness to take risks and a lack of role models in the family. However, the question arises as to whether the lack of family role models can be made good by supportive, information-providing university education, by means of which students may be encouraged to become entrepreneurs.

The research results indirectly support the importance of the entrepreneurial education of students. According to our analyses, many Hungarian students have inappropriate knowledge about the determinants of self-employment, the dangers of business start-up, and sources of information. Many students are deterred from becoming an entrepreneur by a lack of family role models, resulting in a lack of information and,

hence, inexperience in risk management. Most students with higher entrepreneurial attitudes have very vague ideas about business start-up and their business formation plans are not mature. Whilst students with a positive entrepreneurial inclination are aware of the risks, they cannot identify the sources of risk derived from executing a business idea, or a lack of financial resources. This is an alarming sign, since most students are majoring in Business Administration and should have more knowledge of business life as compared to students in different fields. These results reinforce previous findings based on the Global University Entrepreneurship Students Survey (GUESS) (Szerb and Márkus 2007a, 2007b).

All university students should be provided with - irrespective of their field of study - the opportunity to attend business courses. These courses would increase the entrepreneurial mood among students and the future company's chances of survival could be considerably improved. It could be also helpful if someone could face the fact that such a career was not meant for him while he is only student. The curriculum of business courses should emphasise the development of entrepreneurial skills, the practical learning of business processes and operation, together with the possible ways of handling problems. The effective preparation of students for entrepreneurship may have a positive impact on the business sector and, through this, on the state of the Hungarian economy as well.

NOTES

- 1 Bird's Theory of Entrepreneurial Intentions (Bird 1988) differs from the TPB in not containing the subjective norms.
- 2 SPSS statistical program package version 19 was applied

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Szilveszter Farkas, Associate Professor

farkas.szilveszter@pszfb.bgf.hu
College of Finance and Accountancy,
Budapest Business School

Judit Koltai, Assistant Professor

koltajj@sze.hu
Kautz Gyula Faculty of Economics,
Széchenyi István University

Livia Lukovszki, PhD student

lukovszki@ktk.pte.hu
Faculty of Business and Economics,
University of Pécs

Appendix

Variables	N	M	S. D.
Importance concerning start-up (0: very non-relevant; 1: non-relevant; 2: relevant; 3: very relevant)			
Way out of unemployment	656	2.29	.759
Income	657	2.63	.506
Self-actualization	657	2.33	.665
Prestige	653	1.96	.741
High income	656	2.23	.645
Flexible hours of work	657	2.02	.771
Having power	655	1.25	.870
Be ones own boss	654	.96	.828
Realize ideas of ones own	654	2.34	.627
Miscellaneous	32	1.84	1.322
Difficulties concerning start-up (0: none; 1:			
Lack of "right" business idea	648	3.66	2.510
Lack of "right" foundation partner	647	3.78	2.131
Lack of entrepreneurial qualification	644	4.27	2.074
Lack of courage	647	3.26	2.243
Lack of available time	646	3.16	2.175
Lack of customer contacts	649	4.74	1.779
Lack of equity (share capital)	650	5.54	1.665
Lack of outside capital	642	4.84	1.761
Know-how deficit	647	3.98	1.830
Own financial risk	645	4.79	1.833
Low turnover	647	4.91	1.708
Low profit	650	4.99	1.705
Support of family and friends	644	2.21	2.126
Politico-economic environment	647	4.78	1.834
Cyclical state	634	4.31	1.785
Fear of failure	648	3.42	2.214
Excessive official channels	642	4.67	1.926
Time dealt with entrepreneurship (0: < 1 year; 1: 1-3 years; 2: > 3 years)	535	.40	.600
Collected information (0: no; 1: yes)			
Nowhere	658	.21	.406
Chamber of Commerce and Industry	658	.03	.172
Chamber of Handicrafts	658	.01	.095
Business development	658	.01	.095
Organizations	658	.01	.103
Tax consultant	658	.04	.199
Notary	658	.01	.110
Corporate consultant	658	.05	.212
Lawyer	658	.05	.209
Bank	658	.05	.222
Friends	658	.45	.498
Relatives	658	.41	.493
Literature	658	.21	.409
Internet	658	.55	.498
College/university	658	.44	.496
Job information centre	658	.05	.215

Variables	N	M	S. D.
Enterpriser network	658	.05	.215
Business angel network	658	.01	.116
Other	658	.02	.134
Self-employed person(s) in private environment (0: no; 1: yes)			
No	658	.40	.490
Mother	658	.11	.309
Father	658	.27	.445
Other person(s)	658	.31	.462
Experience in personnel management (leadership) (0: no; 1: < 2 years; 2: 2-5 years; 3: > 5 years)	650	.19	.556
Intended start-up form (0: alone; 0,5: alone and/or team; 1: team)	607	.574	.4920
Extent of self-employed work (0: sideline basis; 0.5 sideline and/or regular basis; 1: regular basis)	617	.469	.4982
Preferential sector (0: no; 1: yes)			
Commerce	658	.50	.500
Consulting	658	.15	.361
Information Technology	658	.18	.381
Other	658	.12	.322
Market to operate (0: no; 1: yes)			
Local	658	.19	.391
Regional	658	.33	.470
National	658	.33	.470
International	658	.14	.342
Established on the market (in years)	589		2.9894
Needed seed capital (in EUR)	532		184,668
Prefer to practice activity (0: no; 1: yes)			
At home	658	.28	.447
In office	658	.61	.488
Direct customer's	658	.09	.290
Willing to pay for business start-up consultation (0: no; 1: yes)	621	.45	.498
Desired college support 0: very non-relevant; 1: non-relevant; 2: relevant; 3: very relevant ()			
Courses	655	1.89	.655
Business game	656	1.82	.837
Business plan workshop	653	1.80	.742
Contact hours with entrepreneurs	658	2.22	.698
Meetings and discussions with professors	657	1.95	.743
Coaching and consulting	658	2.28	.640
Impulsion financing	655	2.05	.859
Specific contact point	653	1.97	.707
Incubator	654	1.78	.784
Miscellaneous	17	1.53	1.231
Living situation (0: no; 1: yes)			
Alone	658	.12	.329
Together with other adults	658	.80	.400
With partner/spouse without child(ren)	658	.07	.247
With partner/spouse with child(ren)	658	.01	.095