

# The Role of Higher Education Institutions in the Entrepreneurship of Hungarian Students<sup>1</sup>

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## SUMMARY

*Entrepreneurial activity is a decisive factor in the dynamics of job creation and economic growth. That is why it is crucial to identify the most important factors influencing the attitudes and the entrepreneurial intentions towards entrepreneurship and to determine the possible fields of intervention targeting the creation of as many new and viable enterprises as possible. Although education may play an important role in entrepreneurship, its direct impact has not yet been revealed. Education may be crucial in awaking of entrepreneurial thinking, in obtaining the basic knowledge about starting and running one's own business and in directly promoting enterprises. The Hungarian database of the GUESSS research project, with almost 6,000 respondents, helps us to evaluate the role of education on entrepreneurship. We compare the course, service and resource supply of Hungarian higher education institutions and the exploitation of them by Hungarian students, than we highlight the positive relationship between the efforts of colleges and universities and the entrepreneurial intentions and activities of students.*

*Keywords: entrepreneurship; role of higher institutions in entrepreneurship; entrepreneurial intentions*

*Journal of Economic Literature (JEL) codes: M13*

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## INTRODUCTION

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Small and medium enterprises (SMEs) are of high importance to economic growth (Blanchflower 2000; Carree et al. 2002; Carree & Thurik, 2010), primarily through their favourable effects on knowledge spillover (Acs et al. 2005). They have a significant role in innovation, too (Papanek et al. 2009). Entrepreneurial activity reduces unemployment and stimulates entrepreneurial activity (Audretsch et al. 2001). The SME sector provided 85% of new jobs in the European Union between 2002 and 2010 (de Kok et al. 2011), while in Hungary its contribution to employment was 70% (HCSO 2011: 26). Among SMEs the role of the high-growth gazelles is of higher importance in the above mentioned fields (Békés & Muraközy 2012), in addition they are more responsive to innovation than SMEs who cannot reach such a fast growth (OECD 2002; Autio et al. 2007; Papanek 2010). Due to these characteristics, becoming an entrepreneur and motivating fast-growing enterprises are of high priority in national economic policy.

## LITERATURE REVIEW

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As promoting entrepreneurship is a core objective of many countries, measuring its actual level and developing

models to understand its contributing factors are crucial. Several methodologies can be found in the literature. The Eurobarometer Survey on Entrepreneurship has been studying the development of entrepreneurship in EU Member States for over a decade in order to explain the setting up of businesses and business growth (EC 2012a).

The Global Entrepreneurship and Development Index (GEDI) of the Global Entrepreneurship Monitor (GEM) regards entrepreneurship as a multidimensional concept where both individual and environmental factors are important and the institutional setup determines the effectiveness of individual (Szerb et al. 2012).

The Social Cognitive Theory of Bandura (1977), the Entrepreneurial Event model of Shapero and Sokol (1982) and the Theory of Planned Behaviour of Ajzen (1991) try also to describe the above-mentioned multidimensional nature. The three models consider the value system, attitudes and impressions of the individual to be crucial, and they include the environment and the reaction of the society into the model and emphasize the interrelationship between them. In evaluating the role of environment, education plays a vital role, since here students' entrepreneurial intention can be influenced in a relatively easy, organised way.

Although education may play an important role in the growth aspiration of enterprises (Storey 1994), its direct effect on business start up is doubtful. It stimulates

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entrepreneurial intention of students to be an entrepreneur (EC 2012b), but there is no consensus as far as the mechanism is concerned. Traditional educational methods (like lectures) develop entrepreneurial traits and attributes to a lesser degree (EC 2008), but still have a significant role on entrepreneurial intention (Gubik & Farkas 2014). Skills crucial to run a successful enterprise are more likely to be acquired in existing businesses (Szirmai & Csapó 2006), however, educational methods that seem to be more effective are very challenging for the institutions. They not only have high resource needs, but also both teachers and students must realise and appreciate their possibilities.

The aim of this paper is to identify the type of courses and services of a particular institution which really contribute to the students' intentions to set up a business of their own, and to determine how efficient these courses and services are in creating a business-friendly atmosphere that promotes entrepreneurship intentions.

## METHODS

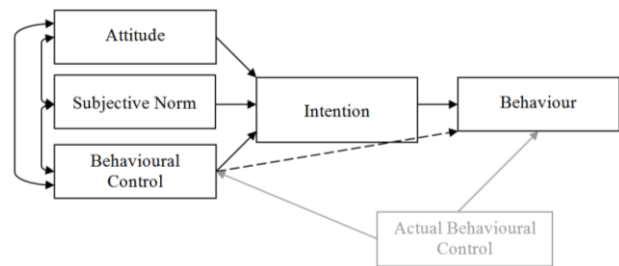
The paper uses the database of the international research project GUESSS (Global University Entrepreneurial Spirit Students' Survey). This project is coordinated by the Swiss Research Institute of Small Business and Entrepreneurship at the University of St. Gallen (KMU-HSG) and it investigates entrepreneurial intentions and activities of students, basically with four groups of questions, namely the willingness to start a venture traceable in the students' career plans, the influence of university/college environment, the entrepreneurial intention of students and the role of family businesses influencing this attitude.

The survey is conducted every second year. The first survey was conducted in 2003 with the participation of two countries. The last questionnaire was published in 2011, when 26 countries joined the project.<sup>2</sup> In the fifth survey in 2011, 93,265 students took part in the survey from 502 higher education institutions. In Hungary, 5,677 students filled in the electronic questionnaire (the average response rate was 8%, and only institutions where over 1,000 students studied were selected for the survey). Table 1 shows the distribution of Hungarian respondents by institution.

## THE CONCEPT OF THE RESEARCH

The research concept of GUESSS relies on Ajzen's Theory of Planned Behaviour (1991). According to this theory, attitude, subjective norms and the degree of behavioural control together influence the individual's

willingness to become an entrepreneur who can eventually manifest in actions. Figure 1 illustrates Ajzen's Theory of Planned Behaviour (TPB).



Source: Ajzen, 2006

Figure 1 Factors Shaping Entrepreneurial Intentions

One of the main ideas of Ajzen's Theory is the difference between intentions and behaviours. If there is a serious entrepreneurial intention, it does not necessarily mean that the entrepreneurial activity will be pursued and an enterprise will be set up. Intentions depend on the attitudes towards behaviour, subjective norms and the perceived behavioural control. Actual pursued activities cannot be expected without serious intentions. Objective factors such as available financial resources and opened-up opportunities (money, time, etc.) that are required for carrying out intentions also influence business activities. This factor is termed actual control in the revised model of Ajzen's Theory (Ajzen, 2006).

According to this model, there is a direct positive relationship between the entrepreneurial attitude and the willingness to start up a business. The more favourable a person's attitude toward entrepreneurship is, the stronger his intention to run an enterprise. A supportive social environment is also nourishing for entrepreneurship intentions. Thus, the more positively the individual's environment reacts to his entrepreneurial intention, the more likely he will show a willingness to start up his own business.

The third factor, the perceived control over events, has also a direct influence on the individual's intention to start up an enterprise, and can have a significant effect on the behaviour as well. The impact of the perceived behavioural control on intentions and actions is twofold. Firstly, the more an individual feels that he is in control of his surroundings, the more likely he is to be in favour of starting up his own venture. Secondly, self-efficacy also has a positive effect on entrepreneurial intention. The more the person feels that he has acquired the appropriate skills and knowledge to start up an enterprise, the more likely he is to think his own business can be launched (Ajzen 2002).

The factors influencing intention are interlinked as well. The twofold nature of the perceived behavioural control consisting of susceptibility to control and self-

<sup>2</sup> For the details of the survey see Farkas & Gubik 2013, or the homepage of the survey: <http://www.guesssurvey.org/>.

efficacy are also positively related. The latter can be interpreted as an individual who feels he has the required skills and experience and thinks that he is in control of the events.

Education seems to be able to support entrepreneurial intentions through subjective norm behavioural control. Subjective norms can be promoted by creating a supportive entrepreneurial environment in higher education institutions in general. Up-to-date information

about how to start and run a business (e.g. courses, seminars) and direct practical entrepreneurial experience (e.g. mentoring, coaching, networking with entrepreneurs) can contribute to the increase of self-efficacy, which is the feeling of the individual that he/she has acquired the appropriate skills and knowledge to start up an enterprise. This positive feeling increases also the perception that the individual is in control of events (controllability).

*Table 1*  
*Participation data for Hungarian institutions in GUESSS 2011*

Name of Institution	No. of students enrolled for 2009/2010	Distribution of enrolled students	No. of sent inquiries (link)*	No. of completed questionnaires	Distribution of completed questionnaires	Response rate
BME – Budapest University of Technology and Economics (Budapesti Műszaki és Gazdaságtudományi Egyetem)	23,219	8.0%	0	5	0.1%	
BCE – Corvinus University of Budapest (Budapesti Corvinus Egyetem)	17,422	6.0%	4,800	201	3.5%	4.2%
SZE – Széchenyi István University (Széchenyi István Egyetem)	10,786	3.7%	8,900	681	12.0%	7.7%
DE – University of Debrecen (Debreceni Tudományegyetem)	30,728	10.6%	n.a.	538	9.5%	
ME – University of Miskolc (Miskolci Egyetem)	13,940	4.8%	14,055	620	10.9%	4.4%
PTE – University of Pécs (Pécsi Tudományegyetem)	29,032	10.0%	8,400	757	13.3%	9.0%
SZTE – University of Szeged (Szegedi Tudományegyetem)	27,436	9.5%	n.a.	254	4.5%	
PE – University of Pannonia (Pannon Egyetem)	10,125	3.5%	0	1	0.0%	
KE – Kaposvár University (Kaposvári Egyetem)	3,244	1.1%	n.a.	38	0.7%	
NYME – University of West Hungary (Nyugat-magyarországi Egyetem)	14,261	4.9%	7,600	291	5.1%	3.8%
ELTE – Eötvös Lóránd University (Eötvös Lóránd Tudományegyetem)	30,767	10.6%	n.a.	175	3.1%	
SZIE – Szent István University (Szent István Egyetem)	10,786	3.7%	n.a.	166	2.9%	
BGF – Budapest Business School (Budapesti Gazdasági Főiskola)	17,911	6.2%	13,622	620	10.9%	4.6%
BMF – Óbuda University (Óbudai Egyetem)	11,438	4.0%	0	5	0.1%	
DF – College of Dunaújváros (Dunaújvárosi Főiskola)	4,312	1.5%	2,460	158	2.8%	6.4%
KRF – Károly Róbert College (Károly Róbert Főiskola)	11,530	4.0%	8,000	97	1.7%	1.2%
ÁVF – Budapest College of Management (Általános Vállalkozási Főiskola)	2,949	1.0%	n.a.	147	2.6%	
GDF – Dennis Gábor College (Gábor Dénes Főiskola)	2,720	0.9%	n.a.	182	3.2%	
EJF – Eötvös József College (Eötvös József Főiskola)	1,634	0.6%	1,350	65	1.1%	4.8%
BKF – University of Applied sciences Budapest (Budapesti Kommunikációs és Üzleti Főiskola)	2,353	0.8%	0	1	0.0%	
KJF – Kodolányi János University of Applied Sciences (Kodolányi János Főiskola)	6,673	2.3%	n.a.	423	7.5%	
MÜTF – College for Modern Business Studies (Modern Üzleti Tudományok Főiskolája)	2,073	0.7%	1,200	145	2.6%	12.1%
SE – Semmelweis University, (Semmelweis Egyetem)	3,173	1.1%	330	65	1.1%	19.7%
Others		0.0%		42	0.7%	
Total	289,336	100.0%	70,717	5,677	100%	8.0% (average)

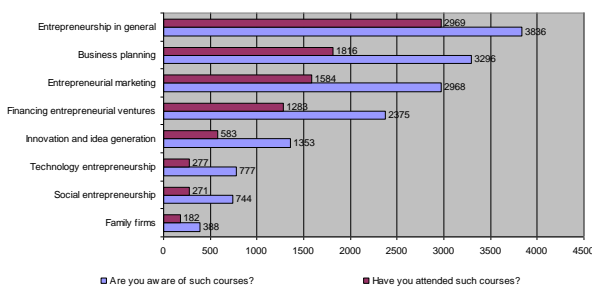
\* Sent inquiry (link) – the number of students that received the internet link for filling in the GUESSS questionnaire. 0 means that the institution has not made the questionnaire available for its students either through its internal system or in any other form.

Source: own calculation according to the GUESSS 2011 database

## RESULTS

The higher education courses, services, infrastructure and resources offered to students differ from institution to institution. Differences in the students' exploitation of the offered courses can also be observed. This paper analyses the institutional differences related to perception of these offerings and investigates whether there is a link between the study profiles of the institutions surveyed and the extent of differences between them.

The first question series is related to the offered courses and seminars by the universities. The students were asked whether they were aware of what was on offer at their institution and whether they attended the offered courses. Figure 2 shows that the students studied the basics of management in the frame of 'Entrepreneurship in general'. Only a few students were aware of specialised courses ('Family firms', 'Innovation and idea generation' etc.). The course 'Entrepreneurship in general' had the highest ratio of attendance (77.3%). This can be explained by the fact that this was a core and probably compulsory course in most fields of study.

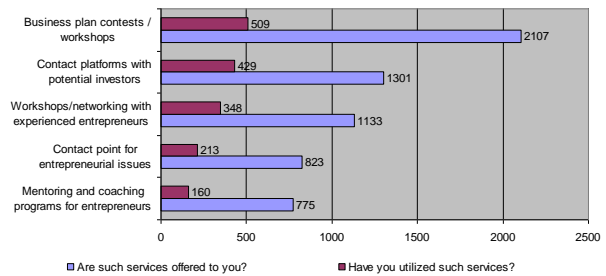


Own calculation, N=5677

Figure 2 Students' awareness of university offerings and their utilisation

The second question was about the networking and coaching offerings (services) and their utilisation. The 'Business plan contests/workshops' were the best-known offerings of networking and coaching. Just over 20 percent of respondents were aware of 'Contact platforms with potential investors' and even fewer of them knew about 'Workshops/networking with experienced entrepreneurs' or 'Contact points for entrepreneurial issues'. It is also noteworthy that the utilisation of these services was extremely low. Only 'Workshops/Networking with experienced entrepreneurs' and 'Contact platforms with potential investors' (e.g. "business angels") amounted to 30%. Without the high exploitation of such services, these programs increase the entrepreneurial environment of the institution but have little direct effect on students' entrepreneurial intention.

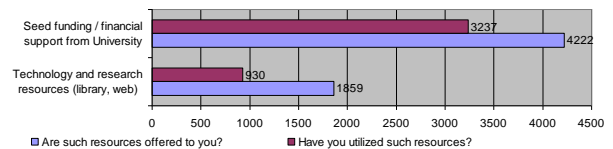
The results related to networking and advisory services are shown in Figure 3.



Own calculation, N=5677

Figure 3 Students' awareness of university's networking and coaching offerings and their utilisation

The third question dealt with the resources institutions offered to students. Figure 4 shows the provision of higher education resources which were available and utilised by founders/entrepreneurs. A high ratio of responding students reported the availability of the resources and a large number of them utilised the resources offered by their institution.



Own calculation, N=5677

Figure 4 Resources offered by higher education institutions and their utilisation

In order to compare the institutions' supply of courses, services, infrastructure and resources, and to find the relationship between this and entrepreneurial intention, three new variables were created: the three indexes show the number of offered courses and services (the variables have the values 0-8 in case of courses, 0-5 in case of services and 0-2 in case of resources). The utilisation of each service is expressed by the ratio of utilisation measured in percentages. Table 2 summarises the average availability and utilisation of the higher education courses, services and resources offered by universities in Hungary according to the students of our database.

The Hungarian higher education institutions have an average of 2.77 business courses (according to the students). The attended courses have an average of 1.58, which represents an average exploitation of 56.69 percent. The average value of networking and mentoring services is 1.08. The utilised services have a national average of 0.29 and the rate of exploitation is 26.12 percent. The provided resources have a national average of 1.07 percent, the exploited resources have an average of 0.73 percent and the rate of exploitation is 69.97 percent. This shows that students are passive as far as services' exploitation is concerned. Institutes should motivate students so that the exploitation of these services increases and their positive impact on intention can be experienced.

*Table 2*  
*Average number of courses and services provided by the higher education institutions*

	N	Average	Standard deviation
Number of all lectures and seminars	5677	2.77	2.07
Number of all networking and coaching offerings	5677	1.08	1.37
Number of provided resources	5677	1.07	0.75
Number of attended lectures and seminars	5677	1.58	1.70
Number of utilised networking and coaching offerings	5677	0.29	0.74
Number of utilised resources	5677	0.73	0.71
Ratio of attended lectures and seminars	4508	56.69	38.50
Ratio of utilised networking and coaching offerings	2818	26.12	38.62
Ratio of utilised resources	4260	69.98	41.89

Own calculation

### *Relationship between Services of Higher Education Institutions and Entrepreneurial Intention*

Entrepreneurial intention could be measured by the following item on the questionnaire: Please indicate if and how seriously you have been thinking about founding your own company. The possible answers were as follows: 0 Never; 1 Sketchily; 2 Repeatedly; 3 Relatively concrete; 4 I have made an explicit decision to found a company; 5 I have a concrete time plan when to make different steps for founding; 6 I have already started with the realisation; 7 I am already self-employed in my own founded firm; 8 I have already founded more than one company, and am active in at least one of them. Here we use the variation of the variable consisting of three categories: active founder (7-8), intentional founder (2-6), non-founder (0-1). Table 3 shows the average values of the previously generated indexes grouped by the entrepreneurial intention of the students.

*Table 3*  
*Courses and services provided by the higher education institutions by entrepreneurial intention of the students (average)*

	Not founders	Intentional founders	Active founders	Average	Cramer V	Sig.
Number of all lectures and seminars	2.56	3.00	3.07	2.77	.090	.000
Number of all networking and coaching offerings	1.01	1.17	1.04	1.08	.050	.001
Number of provided resources	1.07	1.09	0.77	1.07	.059	.000
Number of attended lectures and seminars	1.37	1.80	2.08	1.58	.101	.000
Number of utilised networking and coaching offerings	0.24	0.35	0.27	0.29	.074	.000
Number of utilised resources	0.72	0.77	0.46	0.73	.057	.000
Ratio of attended lectures and seminars	53.33	59.54	69.80	56.69	.093	.001
Ratio of utilised networking and coaching offerings	22.81	29.31	29.11	26.12	.073	.066
Ratio of utilised resources	68.19	72.30	61.31	69.98	.044	.003

Own calculation, \*p=0.000

The results clearly show that as for the courses and services, the active and intentional founders have a better knowledge about the opportunities provided by their institutions and in the same time they exploited the available services at a higher ratio than the non-founders. Every relationship is significant, but the correlation is stronger for exploitation than for having information about the possibilities.

The correlation between the exploitation of courses – services and the business start-up intentions remained if the field of study – business/economics, natural sciences (including engineering), social sciences (including humanities) – was a control variable.

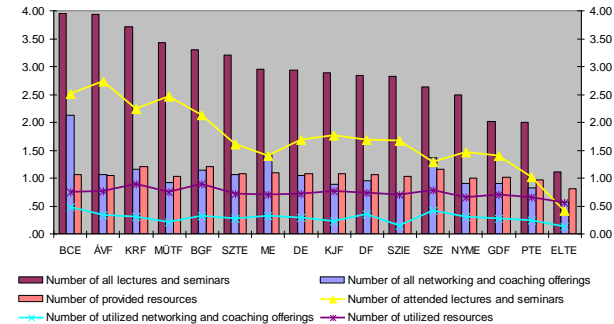
The conclusion to be drawn is that higher education institutions' services play a significant role in students' entrepreneurial intention. Traditional methods (courses, seminars) and new ways (e.g. mentoring, coaching, networking with entrepreneurs) also significantly contribute to the entrepreneurial intention of students, but the effect of traditional methods seems to be higher.

### *Differences by Higher Education Institution*

Significant differences can be observed in the above analysed fields from institution to institution. Figure 5 lists the 16 higher education institutions whose students returned at least 70 completed questionnaires. The vertical axis shows the number of seminars, services and resources.

Corvinus University of Budapest (3.95), the Budapest College of Management (3.94) and Károly Róbert College (3.72) lead the list in terms of the number of offered courses and seminars. The average number of attended courses is 1.58 in Hungary, which represents an average utilisation of 56.69 percent. There are also differences between the institutions in terms of utilisation of the offered courses and seminars. Students at the Dennis Gabor College (72.40 percent utilisation, 1.39 attended courses) and the College for Modern Business Studies (72.10 percent, 2.46 attended courses) were the most active. The highest number of networking and

coaching services were offered by Corvinus University of Budapest (2.13), the University of Miskolc (1.43) and Széchenyi István University (1.37). The utilised networking and coaching offerings accounted for an average of 0.29 in Hungary, the average rate of utilisation amounted to 26.11 percent.



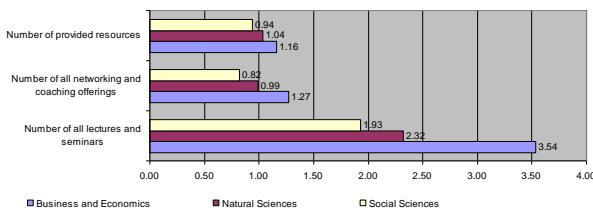
Own calculation

Figure 5 Types of services of higher education institutions and their utilisation

No significant differences could be detected in provided resources and their utilisation at the higher education institutions. This is partly due to the fact that only two response possibilities were offered in the questionnaire, so the new variable could only have three values. The national average in terms of provided resources is 1.07 while the average of utilisation is 0.73.

Differences by Fields of Study

All three groups of questions showed significant differences by field of study. Figure 6 shows the national average for the fields of study considering number of provided courses, services and resources. Figure 7 represents the average national utilisation by fields of study.

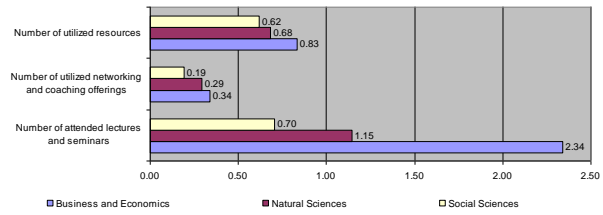


Own calculation, N=5677

Figure 6 The number of courses, services and resources of higher education institutions by fields of study

Students at the field of business/ economics have the widest choice of entrepreneurial lectures and seminars. The exploitation is also high, with an average of 2.34. They were either offered the highest number of networking and coaching services and resources or were the most aware of them. Students of the field business/ economics utilised the offered services at the highest

ratio, as well. Students of the field social sciences utilised the least these services.

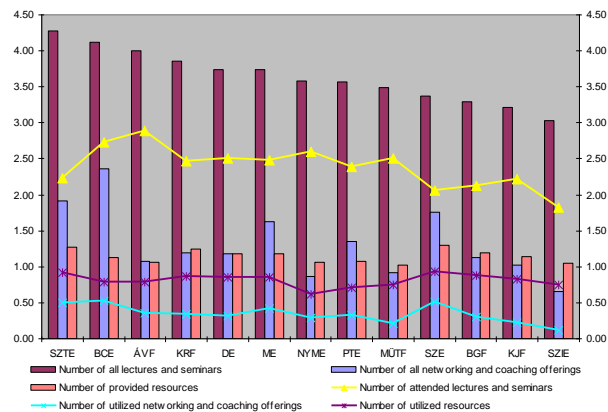


Own calculation, N=5677

Figure 7 Number of attended courses, utilised services and resources by fields of study

Figure 8 shows that the business/economics students had almost the same opportunities in terms of offered courses and available resources. According to the students' responses, the best performing institution offered only one course more than the worst performing one. There is only a slight difference in ranking of institutions between the current and the previous combined results. The best performing institution was the University of Szeged (4.28), followed by Corvinus University of Budapest (4.12), and the Budapest College of Management (4.00). The ranking of the institutions is slightly different if the utilisation of courses was taken into account. The Budapest College of Management (2.89) and Budapest Corvinus University (2.73) remained leaders, but the performance of the University of Szeged (2.24) was lower.

Significant differences can be observed in terms of offered services. The best service providers offered almost four times as many services to its students as the worst performing ones. The three best service providers were the University of Szeged (2.36), Corvinus University of Budapest (1.92) and Széchenyi István University (1.75), and the ratio of utilisation was also the highest in these three institutions. There is no notable difference between the institutions in providing resources considering the reasons described above.



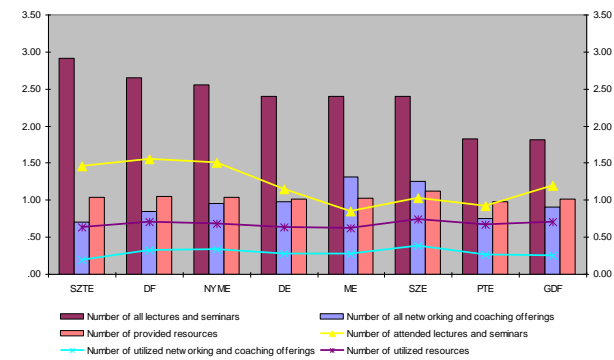
Own calculation

Figure 8 Provided services and their utilisation at the field of business/economics

Figure 9 shows the responses of natural science students. The University of Szeged (2.91), offered the highest number of courses followed by the College of Dunaújváros (2.66), and the University of West Hungary (2.55). Considering the rate of course attendance these three institutions are also leaders. It is clearly seen that the utilisation of offerings is lower in almost all institutions than in the field of business/ economics.

There are striking differences in terms of networking and coaching offerings. The difference between the highest and lowest service providing institutions is nearly twice as much.

The University of Miskolc (1.32) leads the chart. It is followed by Széchenyi István University (1.26) and the University of Debrecen (0.98). All in all, the utilisation is low and shows no significant differences between the institutions. Considering the provision of resources and their utilisation in the surveyed institutions, only a slight difference can be observed.



Own calculation

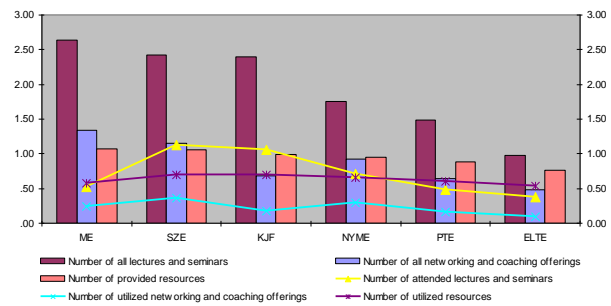
Figure 9 Services offered by higher education institutions of natural sciences and their utilisation

Figure 10 contains the responses of social science and humanities students. There are significant differences in terms of offered courses. The University of Miskolc (2.63) offered the highest number of courses, followed by Széchenyi István University (2.43), and Kodolányi János University of Applied Sciences (2.40). Considering the number of utilised lectures and seminars, the performance of the University of Miskolc (0.52) is less prominent. The students at Széchenyi István University (1.12) and Kodolányi János University of Applied Sciences (1.05) proved to be the most active.

In terms of provided services the University of Miskolc (1.34) is ranked the first again, followed by Szent István University (1.15) and the University of West Hungary (0.92). However, there are no significant differences between the institutions considering the offered resources.

The analyses by field of study show that ranking entire higher education institutions without taking their profile into consideration is impossible, mainly because this would pose the institutions offering programs only in business and economics in a more positive light.

However, it can be stated that these institutions – due to their clear profile – offer better access to business/economics services than the institutions with a wider training profile.



Own calculation

Figure 10 Services offered by higher education institutions of social sciences and their utilisation

At the same time the wide profile of institutions, namely the existence of business programs, helps also students in the fields of natural sciences and social sciences to meet the adequate number of courses and services. As was stated previously, such courses and services are essential in the evolution of entrepreneurial intentions.

## SUMMARY

According to the model of the research (the Ajzen Theory of Planned Behaviour) entrepreneurial intention depends on the attitudes towards behaviour, subjective norms and the perceived behavioural control. Education seems to be able to support intentions through the second and third factors. Subjective norms can be promoted by creating a supportive entrepreneurial environment in institutions of higher education in general. Up-to-date information about how to start and run a business (e.g. courses, seminars) and direct practical entrepreneurial experience (e.g. mentoring, coaching, networking with entrepreneurs) can contribute to the increase of self-efficacy, which is the feeling of the individual that he/she has acquired the appropriate skills and knowledge to start up an enterprise. This positive feeling increases also the perception that he/she is in control of the events (controllability). This is why education may be crucial in awaking entrepreneurial intention, in obtaining basic knowledge about starting and running one's own business, and in directly promoting enterprises.

The higher education courses, services, infrastructure and resources offered to students differ from institution to institution. It is worth mentioning that these numbers show students' perception and not necessarily the real situation. If the communication of the institution toward students is insufficient, the rank of the institution can be weaker than it would be according to objective data.

Differences in the student exploitation of the number of offered courses and networking and coaching services can also be observed. Beside the increase in the availability of services, also an increase in the students' demand for them is needed. In those fields where this demand is extremely low and/or the increase of it is difficult, higher education institutions might want to consider using pressure – for example in form of compulsory subjects – to increase the exploitation.

Informative, opinion-shaping programs would be as important as the professional programs, since they contribute to the creation of an entrepreneurial environment. The social status of entrepreneurs is low and entrepreneurship as a career is less accepted in Hungary than would be desirable (EC 2007). This fact has a negative impact on business start-up. Here again, higher education institutions can play a leading role.

All three groups of questions (courses, resources, services) showed significant differences considering field

of study. Students in the field of business/ economics were either offered the highest number of services and resources or were the most aware of them. Students of business/economics utilised the offered courses and services at the highest ratio, too. The entrepreneurial intention is the highest among them.

The analyses by field of study show that ranking entire higher education institutions without taking their profile into consideration is impossible, mainly because this would pose the institutions offering programs only in business and economics in a more positive light. It can be stated that these institutions – due to their clear profile – offer better access to business/ economics services than institutions with a wide training profile. At the same time students of social sciences and natural sciences in higher education institutions with wider profiles (that also have business programmes) have better access to such services, and therefore have advantages compared to institutions with only a social or natural science profile.

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