

## EVOLUTION AND PERSPECTIVES OF THE REGIONAL MARKET OF APPLICANTS FOR TERTIARY EDUCATION IN SOUTH BOHEMIAN REGION

L. Skořepa, K. Pícha

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The paper summarizes results of the questionnaire surveys among high schools' students in the Southbohemian Region. These surveys were done in 2008, 2009 and 2011. The aim of this article was to discover attitudes of the students of two terminal years of high schools as well as the students of higher professional schools to the new situation of the services offered by the sphere of tertiary educations. The supply of schools (measured by available capacity to take on students) have recently exceeded over the demand of applicants for tertiary education. This is caused by an increase of the education capacity of universities on one hand and by the birth rate deflation affecting the number of graduates from high schools on the other hand. The number of latest graduates from high school is not adequate to the education capacity of universities where the income based on the education activity represents an important part of their revenues. Universities and their faculties in South Bohemia have abolished the traditional entrance exams and some of them accept even one hundred per cents of applicants. This situation resulted in the development of promotional campaign using all traditional promotional tools. Questionnaire surveys have focused on factors of the selection of a university and faculty to apply, the results of studying at the university, sources of information on existing universities and applicants' expectations from their university studies. The three-year survey allows authors to generalize implications and conclusions for university managers when recruiting graduates. Applicants permanently prefer economic field of study; the main source for them when choosing is Internet and they expect particularly to find better employment and to reach higher remuneration.

higher education market, factors of selection of a higher school, tertiary education, applicants, demographic evolution

With regards to the fact that more and more people consider education to be the best investment, the demand for the tertiary education increases. This increase could be, however, negatively affected by the demographic evolution. This unfavourable truth is so far moderated by the fact that the Czech higher education has not passed through a continuous evolution and there is still some before unsatisfied demand for education.

Since 1989, the Czech higher education has improved from both qualitative and quantitative point of view. Czech Republic has lived a distinct increase of the number of universities as well as

the extension of the spectre of study fields. Also the possibility to respond to the offer to go to study abroad (from both foreign universities and supporting institutions providing fellowships) came hand in hand with general transition of the Czech Republic. The education system of the transiting Czech economy has coped with fundamental challenges of the modern society in far better than in traditional democratic countries. Both the number of educational institutions and the number of students have increased. An important part of research and development activities was moved to universities. Self-governing principles

were introduced into universities, followed by the involvement in the international co-operation, establishment of higher professional schools and structuring of studies (Bologna system) etc.

In spite of the positive impression from the above mentioned facts experts do not think that the nowadays form of tertiary education (structure, way of funding etc.) is operational in long-term and capable to meet requirements for a richly diversified and to the European and global trends opened system that is in the same time able to satisfy needs of the development of the Czech Republic in the context of the knowledge society (File, 2006). The experienced important change of the higher education is its quantitative expansion (so called massification), which was not, however, a one-off (Teichler, 1998; Alexander, 2000; Huang, 2005; Guri-Rosenblit, Šebková and Teichler, 2007). The Czech higher education has switched in a very short time from the elite model to the university model. The part of students registered to study within the tertiary education has equalled for the first time the average values in the most developed countries of the world as it achieved two third of the respective cohort. This part will be very hard to further increase in the future. Higher educated graduates start to have problems to find employment and they work on positions that were formerly destined for high schools graduates. Due to the demographic evolution, many faculties and universities will experience an important lack of applicants. Together with the funding shortage caused particularly by the above mentioned massification it also means that higher education systems and institutions are increasingly responsible for generating larger percentages of their own revenue (Altbach, Reisberg and Rumbley, 2009). A way out of this situation could consist in the diversification of supply and its enlargement towards the lifelong learning. Czech universities should cope with the demographic decrease, limited source of funding and the entrance on the market of services for employers, entrepreneurs as well as the state administration and public service.

The value analysis typical for entrepreneurial sector is able to become a tool for conserving the perspective fields of study as well as the other perspective activities of universities (Charles University, 2010). The ability of graduates to assert themselves on the labour market is an important element of the position of the tertiary education establishment. Many graduates stay unemployed or work in another branch or profession than they studied for. An introduction of information mechanisms is needed in order to get a knowledge about needs and recent evolution of the labour market with graduates as well as about the quality of particular universities and so their graduates (Vašíček, 2012). The criterion of employability of the university graduates will be soon an important factor of allocation of funds to the universities. It will be very hard for university management

to improve this indicator without any co-operation with employers or branch association. Clear requirements of employers concerning communication skills, good use of PC as well as language skills of graduates should force universities to revise forms and orientation of teaching (Skořepa and Dušek, 2007). Since the equalizing of supply and demand, students became clients for whom it is necessary to seek face to face the competing education institution that offer the same product. Marketing approach application means proceed from the preferences, attitudes and needs of clients; it is the matter of applicants for higher education in this case. The employment of classic marketing methods and techniques adapted to the concrete situation of particular universities or their faculties represents the crucial precondition for an effective recruitment of applicants (Světlík, 2006; Ballou, 1996).

Czech government debated in January 2009 the White paper on tertiary education that should provide with a conception basis for legislative changes in the tertiary education. Competition among providers of tertiary education increases and the demand is more and more demanding. The budget limitation of public expenditure including funding of education will not change in medium term. At the same time the global struggle for high qualified graduates and academic employees will rather grow stronger. New generation of students will be more interested in the relation between the study and the requirements of the labour market. Estimation of the number of applicants for higher education is approx. 85,500 every year. The development of the offer of study fields and programmes will aim to the situation where approximately one half of graduates enter the labour market after completing their bachelor level of study or the higher professional study. If the mentioned estimation is real, the education capacity will correspond with the number of applicants (within the meaning of global supply and demand for study in tertiary education). However, we cannot suppose that the global satisfaction of demand will eliminate the inequality of fields of study (Matějů, 2010). Demand for high educated society increases in the entire developed world as only such society is able to flexibly react on the changes of the labour market. At the same time, there is an increase of the pressure on the increase of qualification standard in case of certain professions. This is related particularly with the quick technological development. Many countries experienced recently a rapid increase of the number of students registered for tertiary study for the first time. This was followed by the increase of the number of graduates which resulted in the increase of the part of citizens with tertiary education, particularly in the age group 25–34. The average part of tertiary educated citizens in OECD-countries was in the age group 25–34 in 2005 some 32%. At the same time, in the Czech Republic was this part some 14% in 2004. This obvious

difference issued from different tertiary education system in the Czech Republic that was oriented predominantly on the so called long master study programmes (without the structuring on bachelor and master level). Another problem was a very small part of partial study programmes with “incomplete curriculum”. This is obvious when regarding values of the indicator of the middle value of the length of tertiary education (Kleňhová, 2007).

The aim of the article is to assess selected factors of behaviour and attitudes of students of two terminal years of high schools as well as the students of higher professional schools concerning their further study at a higher school. Statistical analysis and further interpretation allowed authors to characterise the emerging education market in the Southbohemian Region.

### MATERIAL AND METHODS

Dependence among qualitative statistical characters is called association or contingency. Association examines the relation between two alternative binary statistical characters. Contingency analyses relation between qualitative statistical characters that may but are not certain to occur and where at least on character is a possible character.

When studying relations among qualitative statistical characters, we usually work with samples, not with all population. That is why we should discover if the characters are dependent and if the obtained results are possible to generalize to a population. The answer on these questions is given by means of statistical testing where the existence of a statistically provable dependence between two qualitative characters is verified. The chi-square test was employed to analyse results of presented surveys. The test issues from the null hypothesis that supposes the independence between both characters. The measurement of the power of the statistical dependence between qualitative statistical characters is done even by means of the chi-square coefficients or using the prediction measures. Both the measures based on the chi-square characteristics and the prediction measures were used in the analysis with regards to the character of presented surveys. Intensity of dependence in contingency tables is assessed by means of the coefficient of mean square contingency C (Pearson's coefficient of contingency). Pearson's coefficient of contingency is equal to 0 in case of the full independence between two qualitative statistical characters. In case of the exact (full dependence), the Pearson's coefficient of contingency is limitedly approaching 1. The power of dependence was also measured by the Cramer's coefficient.

The paper summarizes the results of questionnaire surveys in 2008, 2009 and 2011. The questionnaire tool used for those surveys contained twenty questions. The questionnaire is introduced by general questions on the interest in higher education (intent to study, current state of

the decision process as for the potential further education). Main part of the questionnaire was aimed to the factors influencing the choice of universities to apply for. The set of questions was supplemented by particular questions, such as the sources of getting information on the supply of higher education and also by characteristics of respondents. Respondents were students of two terminal years of high schools and students of higher professional schools in the Southbohemian Region. Correctly fulfilled questionnaires were from 410 respondents in 2008; 1,459 respondents in 2009 and 346 respondents in 2011. Data were processed by means of the statistical software Statistica.

### RESULTS

In 2001, 6,976 students have been studying at the only university in the Southbohemian Region (University of South Bohemia). This number have increased to 17,828 students studying in 2011 at four largest Southbohemian higher schools and smaller higher schools or subsidiaries of universities from other region of the Czech Republic.

Similar evolution of numbers of students is visible all over the Czech Republic. While in 1990 only 89 thousands of students frequented Czech higher schools, they were 190 thousands in 2000 and already 392 thousands in 2012. Czech Republic has thus experienced a quantitative increase from the point of view of the citizens' education. The education capacity of Czech higher schools saturates nowadays the real demand for this service. From the services marketing point of view, a fundamental change is coming concerning the principles of behaviour of participants of this market. The market of demand becomes the market of supply similarly to the experience of the business market at the early 1990s (after the change of social environment). The offer of tertiary education represents services with different rules in comparison with commercial sphere as it is distinctively influenced by political decisions (particularly in the matter of payment of these services).

As for the process of recruitment of applicants, this market has similar characteristic, principles and factors as the classic business markets. Only those entrepreneurial entities are predestined for further existence and development that are successful in attracting clients and holds an important position on the market. This becomes true also for higher schools and universities. The potential market of this social service is represented by those applicants, who graduated successfully a high school or higher schools. The high increase of higher school capacity related to the demographic evolution in the Czech Republic and its particular region further dramatizes this situation. Let's assume that the biggest part of applicants is represented by new graduates in the age of 19 (almost three quarters according to data of the Czech Statistical Office). The high school graduates of this year are born in

1993, in the year when the period of quite stable birth rate has finished (121 thousands of births) and the period of the birth depression was coming. This depression resulted in 90 thousand births in 1996 with no big change till 2003. After that the birth rate returned transiently on the level of 1993. Similar to the all Czech Republic was the evolution in the South Bohemian Region, where the birth rate decreased from 8 thousands to 5 thousands in 1996 (CZSO). The demographic factor of the external environment becomes a very serious circumstance for higher schools when formulating their strategy. The decrease of the birth rate of 36% which means the decrease of the number of new graduates from high schools within next three years will be the touchstone for skills and capabilities of the higher school managers. Already one quarter of higher schools or their faculties takes on by various reasons more than 90% of their applicants. Among 17 institutions taking on 100% of applicants are 13 private schools. The number of students registered in the first year of study reached 67,513 students in the academic year 2010/2011 in all forms and types of study (ÚIV 2012).

The intent of respondents to go to study a higher school surpass two third of all respondents in 2011. There are no significant differences between students of terminal and preterminal year of high school (Table I). According the chi-square test the hypothesis on independence could not be rejected (Table II). We can then state that the high school students' preferences for respective field of study are created already in the preterminal year of study. This information could influence even the communication strategy of higher school when addressing potential applicants. The unfavourable school results are cited among the most serious

I: Preferred field of study among students from two terminal years of high school

| Preferred field of study | Study year           |                      | Total   |
|--------------------------|----------------------|----------------------|---------|
|                          | 3 <sup>rd</sup> year | 4 <sup>th</sup> year |         |
| Economic fields          | 35.0%                | 39.1%                | 38.2%   |
| Humanities               | 35.0%                | 35.8%                | 35.6%   |
| Technical fields         | 12.5%                | 14.6%                | 14.1%   |
| Others                   | 17.5%                | 10.6%                | 12.0%   |
| Total                    | 100.00%              | 100.00%              | 100.00% |

Source: Own questionnaire survey

II: Results of the chi-square test concerning the independence of the student preferences on the current year of study

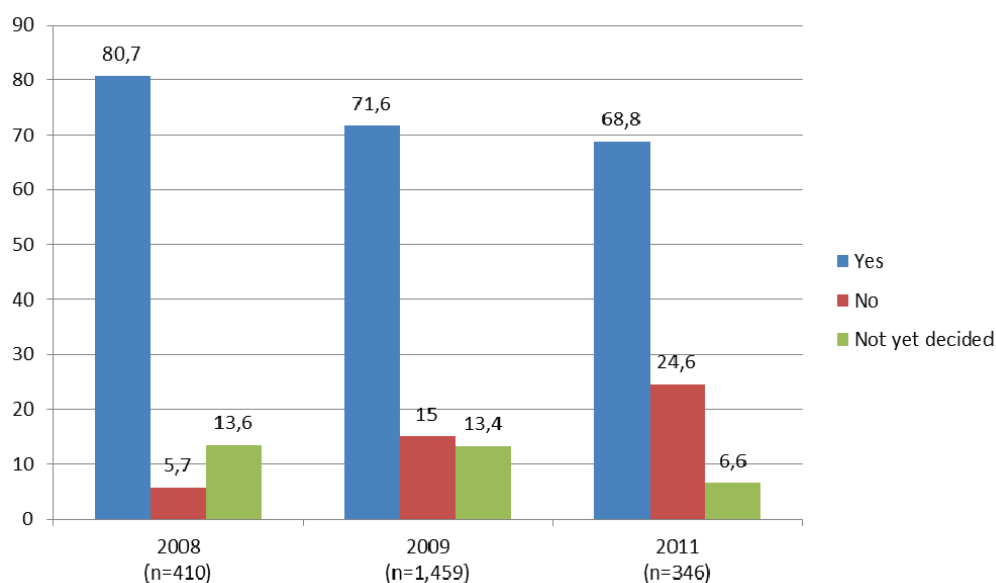
|                    | Value    | df | Asymp. Sig. (2-sided) |
|--------------------|----------|----|-----------------------|
| Pearson Chi-Square | 1.490(a) | 3  | 0.685                 |
| Likelihood Ratio   | 1.384    | 3  | 0.709                 |

Source: Statistical analysis

reasons that students consider to be a barrier for their further study.

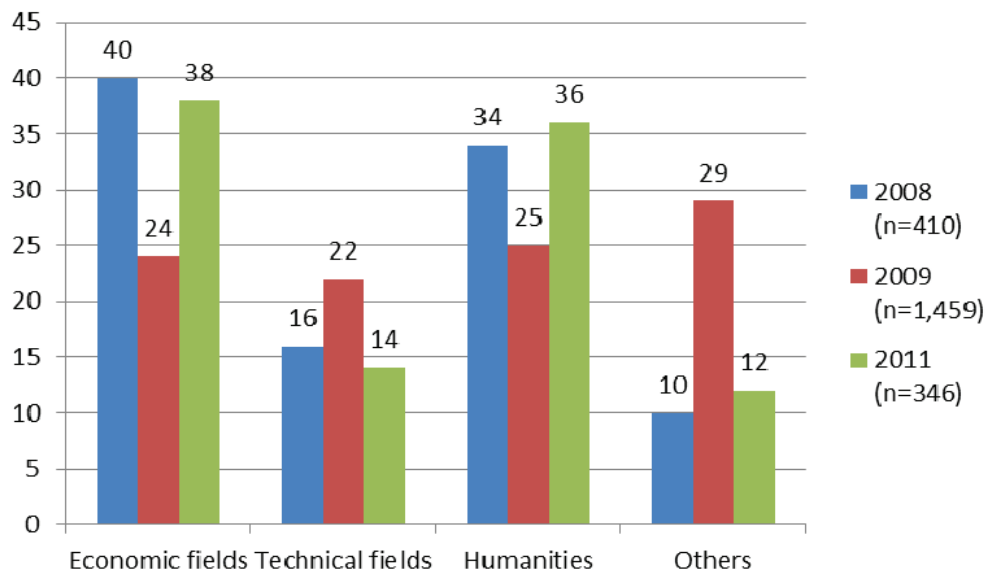
Preference of economic science and humanities is equal and the interest in technical fields of study that are demanded by society is the lowest in all surveyed years. This situation is in contradiction with the cited reason for studying a higher school "better possibility of assertion on the labour market". Anyway, the important role could be played by technically oriented higher schools and faculties.

The most frequently cited reason for studying at a higher school is the better assertion on the labour market together with the potential of higher remuneration (Fig. 3, multiple answers could be chosen). This preference is not, however, in accordance with the current social order as well

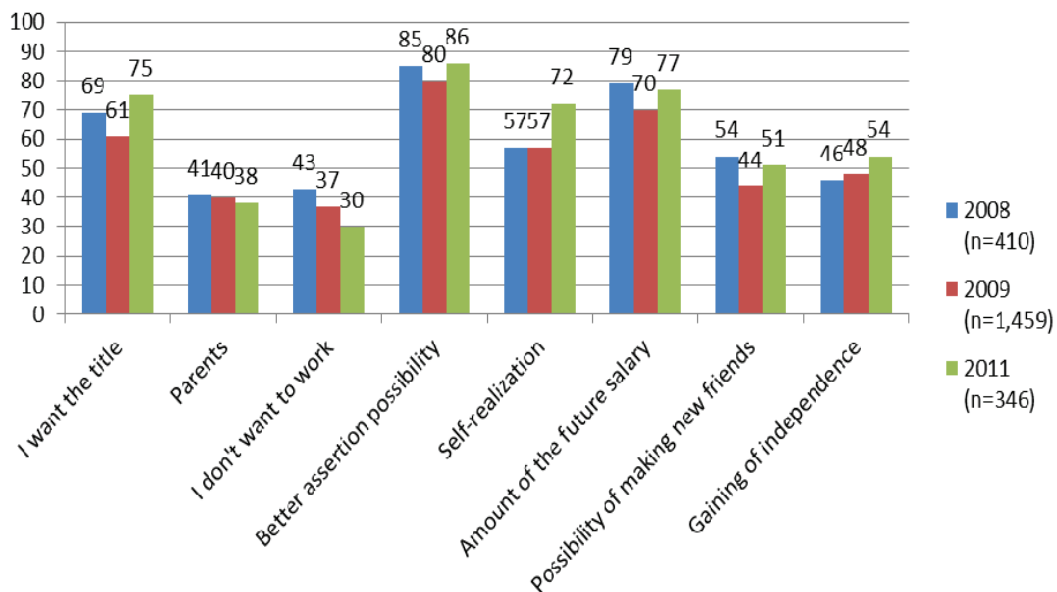


1: Thinking about the study at a higher school (%)

Source: Own questionnaire surveys



2: Preferences for a field of study (%)  
Source: Own questionnaire surveys



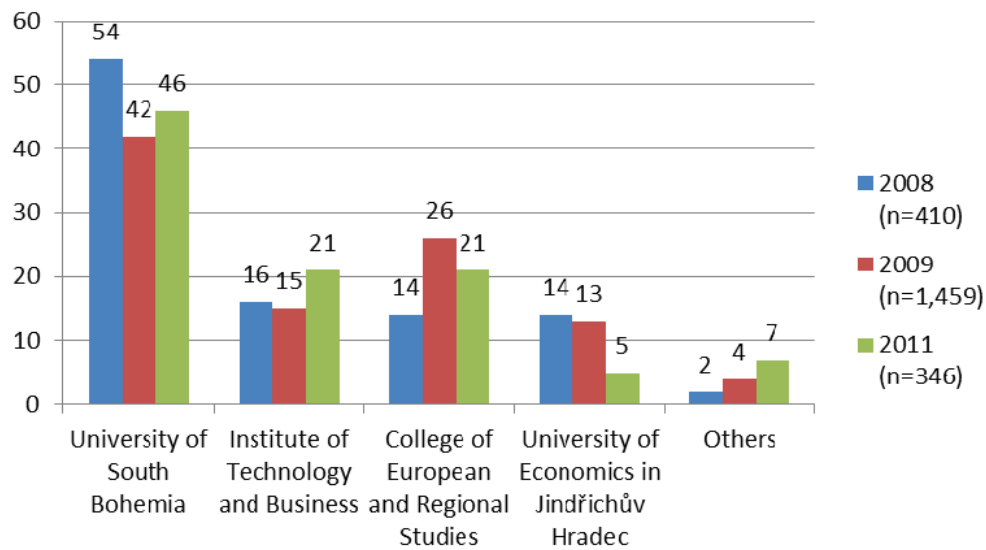
3: Reasons for studying at a higher school (%)  
Source: Own questionnaire surveys

as with the demand for graduates from technically oriented fields of study.

The oldest and biggest higher school in the Southbohemian Region is the University of South Bohemia. It is thus obvious that its spontaneous knowledge is the highest one. However, even other higher schools have entered into respondents' awareness. The oldest private higher school (the College of European and Regional Studies) and the Institute of Technology and Business (the youngest public higher school being at the same time the most dynamic higher school within the South Bohemia) have taken second and third place.

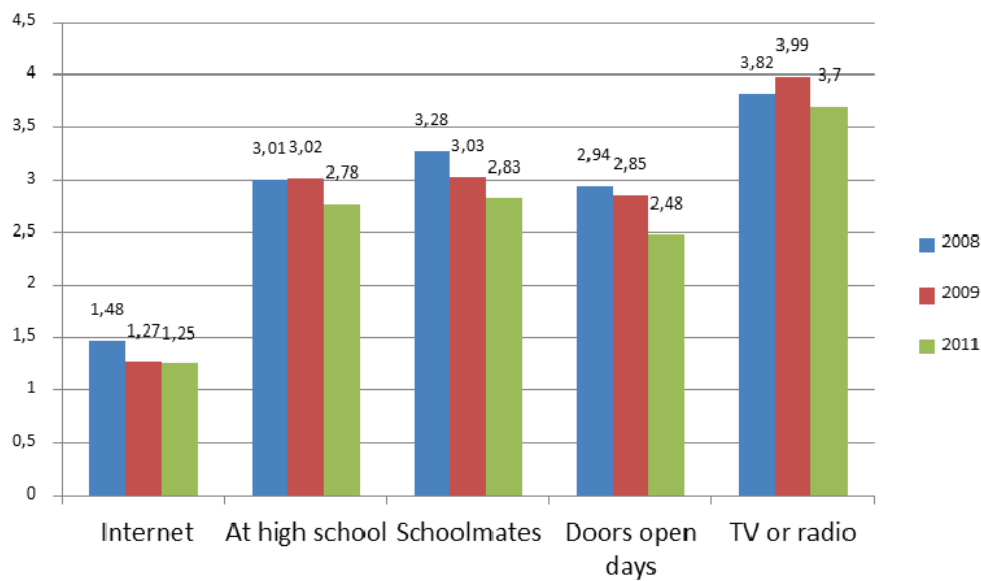
Respondents answered the question on searching information about higher schools on the scale from 1 to 5 (where 1 was the most used source of information and 5 the less used source of information). The most preferred source of information is the Internet. The less used source is represented by mass media – TV or radio. These results are very important and interesting for higher schools managers. Figure 5 clearly shows for instance that the word-of-mouth from their schoolmates is quite important with improving trend.





4: Spontaneous knowledge of higher schools in South Bohemia (%)

Source: Own questionnaire surveys



5: Ways of searching and getting information about your future higher school

Source: Own questionnaire surveys

## DISCUSSION AND CONCLUSION

Higher education is considered more and more to be one of the main tools of the carrier success and one of the best investments in all life (Psacharopoulos and Patrinos, 2004). Therefore it is logic that there is a growing demand for this education within all the society. It is not and it cannot be a privilege of elites but on the contrary, it should a standard. Small countries with the opened economy and without any important wealth of natural resources as in case of the Czech Republic should react on this trend more sensibly than other countries. The wealth of such countries (including the Czech Republic) should be knowledge, capacity

and skills. Our society and higher education face to the new challenge created by the demographic evolution as well as by the need of the fast transfer of scientific findings into practice. Higher schools dispose with a variety of possibilities of how to proceed in this situation. Starting from the abolition of the inefficient administrative departments and finishing by the creation of the multisource financing cited by authors of White paper. Bauman (2004) points out that the life time of acquired skills and knowledge decreases in relation to the technological progress, which means that they keep losing their value even in shorter time, than lasted their acquisition. Another Bauman's idea is the loss of the university monopoly on the latest

experience and finding as well as the uniqueness of the research and education. The new position of higher schools and universities should not result in the massive commercial service or in the creation of isolated elite of scientists. Universities are offered with another possibility of an important product mentioned in the document of Charles University (Charles University, 2010). Demographic evolution caused that a number of faculties and universities face already now to the lack of applicants. Next years will even deepen this disproportion. The way out is possible to find in diversification of the offer and its enlargement towards the lifelong learning. Czech higher schools should enter the market of services for employers, entrepreneurs as well as the state administration and public service. The marketing

theory forecasts after the exhaustion of sources concerning the product and customers a rapid increase of the competition with all accompanying events and this is true also for higher education (Vavrečková, 2009). After this stage, the viable entities switch to the stage of the advantageous integration (Meffert, 1996). The value analysis, which allow institutions to find internal reserves and then assert them in the competitive environment, become the vital tool for preservation universities or their parts. Marketing analysis is indispensable for creating successful strategies. The importance of knowledge of potential clients is strengthened in the partial analysis of the regional market of higher schools in the South Bohemia. It was not possible to put all data and their interpretation into this paper.

### SUMMARY

The aim of the article is to assess selected factors of behaviour and attitudes of student of two terminal years of high schools concerning their further study at a higher school. Statistical analysis and further interpretation allowed authors to characterise the emerging education market in the South Bohemian Region. The paper summarizes results of the questionnaire surveys among high schools' students in the South Bohemian Region. These surveys were done in 2008, 2009 and 2011. Respondents were students of two terminal years of high schools and students of higher professional schools in the South Bohemian Region. Data were processed by means of the statistical software Statistica. The chi-square test was employed to analyse results of presented surveys. The demographic factor of the external environment becomes a very serious circumstance for higher schools when formulating their strategy. The decrease of the birth rate of 36% which means the decrease of the number of new graduates from high schools within next three years will be the touchstone for skills and capabilities of the higher school managers. Already one quarter of higher schools or their faculties takes on by various reasons more than 90% of their applicants. Among 17 institutions taking on 100% of applicants are 13 private schools. The intent of respondents to go to study a higher school surpass two third of all respondents in 2011. There are no significant differences between students of terminal and preterminal year of high school. The unfavourable school results are cited among the most serious reasons that students consider to be a barrier for their further study. Preference of economic science (38%) and humanities (36%) is equal and the interest in technical fields of study that are demanded by society is the lowest in all surveyed years (14%). This situation is in contradiction with the cited reason for studying a higher school "better possibility of assertion on the labour market" (86 points). Anyway, the important role could be played by technically oriented higher schools and faculties as the strongest demand for employees in South Bohemia is in the field of technically oriented professions. The highest spontaneous knowledge has the oldest and biggest higher school in the South Bohemian Region (University of South Bohemia – 46%). However, even other higher schools have entered into respondents' awareness. The oldest private higher school (the College of European and Regional Studies) and the Institute of Technology and Business (the youngest public higher school being at the same time the most dynamic higher school within the South Bohemia) have taken second and third place (21% for both of them). The most preferred source for high school students when searching information about higher schools is the Internet. The less used source is represented by mass media – TV or radio. For instance the word-of-mouth from their schoolmates is quite important with improving trend.

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#### Address

doc. Ing. Ladislav Skořepa, Ph.D., Ing. Kamil Pícha, Ph.D., Katedra krajinného managementu, Zemědělská fakulta, Katedra obchodu a cestovního ruchu, Ekonomická fakulta, Jihočeská univerzita v Českých Budějovicích, Studentská 13, 370 05 České Budějovice, Česká republika, e-mail: [lskorepa@zf.jcu.cz](mailto:lskorepa@zf.jcu.cz), [kpicha@ef.jcu.cz](mailto:kpicha@ef.jcu.cz)