FACTORS AFFECTING STUDENTS' ATTITUDE TOWARDS INTRODUCTION OF TUITION FEES FOR HIGHER EDUCATION IN THE CZECH REPUBLIC

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Abstract

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Introduction of tuition fees has been much discussed in the Czech Republic over the recent years. Unfortunately, the current system of non-discriminate higher-education funding is no longer supportable, that is, provided that we do not want all universities to be evenly "mediocre". A well configured tuition-fee system with low payments, suitably complemented by student loans covering not only the tuition fees but also the subsistence costs could be an acceptable vision of the future higher education. The obligation to pay for the study should also prevent from enrolment those applicants that only enter a university to avoid having to cater for themselves in real life. A survey was conducted to find out the views of Czech university students on the introduction of tuition fees and the possible methods of their payment. A subsequent analysis was made to see whether the introduction of tuition fees would aggravate students' financial situation, whether they would be more motivated to complete the studies in due time, and whether they would be more concerned with the quality of teaching. The survey also analysed the relationship between a respondent's view on the introduction of tuition fees and the current methods of financing the studies (accommodation, transport, meals, textbooks, …), the household income, and the gender. It also takes into account the attitude of respondents on the system of student loans proposed. In order to interpret the results correspondence and dependence analysis were used.

marketing research, immediate tuition fees, delayed tuition fees, student loans, university, Czech Republic, correspondence analysis, dependence analysis

Announced intention to introduce tuition at public higher education institutions (HEI) in the Czech Republic has caused very strong reactions among students and we could hardly find a topic that would gain more attention in a highly observed discussion about tertiary education. Students have mainly split into three groups including those, who support the tuition, those who strongly disagree with it and those who don't know what they should think about it and wait, which one of the possible forms of tuition will be chosen eventually and what changes will that bring.

The introduction of tuition is sometimes wrongly connected just with a direct payment for every semester, which must be reimbursed in advance, otherwise student can't even enter the education. However, so-called "direct tuition" represents only one possibility from a various types of tuition at HEIs. This model expects direct payments for every studied semester. It is necessary to mention that this system apart from other ones probably puts the students under the biggest pressure (MEYS, 2013).

The second basic type of tuition is so-called "postponed tuition", which is based on a concept of not paying anything during studies. The

tuition is being repaid after the end of studies. There is a regular payment, which is calculated as a percentage of the graduate's wage and it is being paid till the whole sum is repaid or repaying the tuition starts when the graduate's wage achieves a certain level that is commonly an average wage. The undisputed advantage for the students is that they pay nothing during the studies and they start with it after they reach a certain level of wage. On the other hand, the time lag between gaining the education and repaying the tuition is considered as a problem of this approach, because there is no direct link between the study and paying the tuition. Furthermore, if a graduate chooses a job with a wage that is under the average wage, he or she may under certain conditions avoid paying the tuition, although he has been given a good quality education.

Previous paragraphs have absolutely not mentioned all the possible forms of tuition, their goal was to briefly describe two basic models of it (MEYS, 2013).

If the tuition should not be viewed as an obstacle which would discriminate socially disadvantaged people, it is necessary to accompany it with a well set system of student loans which would not only cover the amount of scholarship, but the cost of living as well. There might be a question, why also the costs of living. The answer is simple. Only if the student is not forced to take care of his costs of living during the time of his studies, he can fully devote himself to study duties.

1 RESEARCH OBJECTIVES

The aim of this paper is to explore student's opinions on introduction of the tuition using a questionnaire. Students from all the faculties of Mendel University, Masaryk University, Brno University of Technology and College of Polytechnics Jihlava were involved. Also, evaluate if the introduction of it would cause a significant aggravation of their economic situation. That is because the partial aim is to assess total expenses which are connected to the studying at public HEI. The next goal is to find out under what conditions students would agree with the introduction of the tuition. Also, the fact, if the students would be in case of introduction of the tuition more motivated to finish their studies in a proper term, should be verified together with their opinions on suggested loan system.

2 METHODOLOGY

In the questionnaire survey analysis we usually obtain categorical data and easy way to illustrate the data relations are *contingency tables*. With respect to the character of the data we use suitable tests of the independence. According to (Řezanková, 1997)

in the case of contingency table of the type $r \times c$ (r is the number of rows, c is the number of columns) we usually use statistics:

$$\chi^2 = \sum_i \sum_j \frac{(n_{ij} - e_{ij})^2}{e_{ij}}.$$

Alternatively

$$G^2 = \sum_i \sum_j n_{ij} \ln \frac{n_{ij}}{e_{ij}},$$

e_{ij} is an expected and n_{ij} real frequency. We use the statistic χ^2 in Pearson's chi-square test, G^2 in likelihood-ratio test. These two statistics have asymptotically $\chi^2_{(r-1)(c-1)}$ distribution with the presumption of the independence[1].

Previous tests can be used in the case of high expected frequencies in the contingency table (more than 5 for each field), see (Hendl, 2006). In some studies this rule is not so strict, it is enough to have at most 20% of frequencies less than 5 but all of them more than 1, see (Agresti, 1990). According to (Anděl, 2005) if frequencies are too small, we can use Fisher's exact test or we can calculate simulated *p*-value of χ^2 statistic.

Correspondence analysis (CA) is a multivariate statistical technique. It is conceptually similar to principal component analysis, but applies to categorical rather than continuous data. In a similar manner to principal component analysis, it provides a means of displaying or summarising a set of data in two-dimensional graphical form.

All data should be nonnegative and on the same scale for CA to be applicable, and the method treats rows and columns equivalently. It is traditionally applied to contingency tables- CA decomposes the chi-squared statistic associated with this table into orthogonal factors. Because CA is a descriptive technique, it can be applied to tables whether or not the chi-square statistic is appropriate (Wikipedia, 2013).

According to (Nenadič, Greenacre, 2007), as in principal component analysis, the idea in CA is to reduce the dimensionality of a data matrix and visualize it in a subspace of low-dimensionality, commonly two- or threedimensional. The data of interest in simple CA are usually a two-way contingency table or any other table of nonnegative ratio-scale data for which relative values are of primary interest. The CA solution was shown by (Greenacre, 1984) to be neatly encapsulated in the singular-value decomposition (SVD) of a suitably transformed matrix. To summarize the theory, first divide the $I \times J$ data matrix, denoted by N, by its grand total n to obtain the so-called correspondence matrix $P = N/n$. Let the row and column marginal

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1   For further details see (Hindls, 2003), (Marek, 2007).

totals of P be the vectors r and c respectively, that is the vectors of row and column masses, and D_r and D_c be the diagonal matrices of these matrices. The computational algorithm to obtain coordinates of the row and column profiles with respect to principal axes, using the SVD, is as follows[2]:

1. Calculate the matrix of standarized residuals:

$$S = D_r^{-\frac{1}{2}}\left(P - rc^T\right)D_c^{-\frac{1}{2}}$$

2. Calculate the SVD:

$$S = UD_\alpha V^T \text{ where } U^TU = V^TV = I$$

3. Principal coordinates of rows:

$$F = D_r^{-\frac{1}{2}}UD_\alpha$$

4. Principal coordinates of columns:

$$G = D_c^{-\frac{1}{2}}VD_\alpha$$

5. Standard coordinates of rows:

$$X = D_r^{-\frac{1}{2}}U$$

6. Standard coordinates of columns:

$$Y = D_c^{-\frac{1}{2}}V$$

The total variance of the data matrix is measured by the inertia, see, e.g., (Greenacre, 1984), which ressembles a chi-square statistic but is calculated on relative observed and expected frequencies:

7. Inertia =

$$\phi^2 = \sum_{i=1}^{I}\sum_{j=1}^{J}\frac{\left(p_{ij} - r_ic_j\right)^2}{r_ic_j},$$

where p_{ij} is from matrix P.

The rows of the coordinate matrices in (3)–(6) above refer to the rows or columns, as the case may be, of the original table, while the columns of these matrices refer to the principal axes, or dimensions, of the solution. Notice that the row and column principal coordinates are scaled in such a way that $FD_rF^T = GD_cG^T = D_\alpha^2$, i.e. the weighted sum-of-squares of the coordinates on the k-th dimension (i.e., their inertia in the direction of this dimension) is equal to the principal inertia (or eigenvalue) α_k^2, the square of the k-th singular value, whereas the standard coordinates have weighted sum-of-squares equal to 1: $XD_rX^T = YD_cY^T = I$. The implementation of the algorithm follows (Blasius, Greenacre, 1994).

The graphical representation of results from CA is commonly done with so-called symmetric maps. In that case, the row and column coordinates on each axis are scaled to have inertias equal to the principal inertia along that axis: these are the principal row and column coordinates. Depending on the situation, other types of display are appropriate. This can be set with the scaling option map in the plotting functions for CA.

Software UNISTAT and STATISTICA was used for processing of primary data.

3 RESEARCH RESULTS

The research was conducted using a questionnaire[3]. The questionnaire was given to random sample of students of HEIs. The questionnaire was filled by 1,333 respondents. It was distributed via Umbrela[4] and the respondents filled it electronically. Data collection took place from 26.4.2012 till 31.5.2012. More women (60%) than men (40%) participated in a survey. The range of participant's age was mostly 21–23 years old (52%), next numerous group of participants were people from 18–20 (40%) years old. It is obvious that these people were mostly students of the HEIs, who may be strongly influenced by the discussed changes (Zámková, Blašková, 2013).

Addressed students study mostly at Mendel University in Brno (58%), University of technology in Brno (20%), Masaryk University (14%), and College of Polytechnics Jihlava (7%). 92% of these students are undergraduates and planned changes may have a real impact on them. Studying at HEI students perceive as an increasing of their employability and as a personal investment into themselves.

Students are interested in a reform of Ministry of education, youth and sports (MEYS) just cursorily, more in the Fig. 1.

Expenses of students related to studying

83% of students have answered, that the costs associated with a studying at HEI are paid by their parents. About 12% students has stated that they cover these on their own.
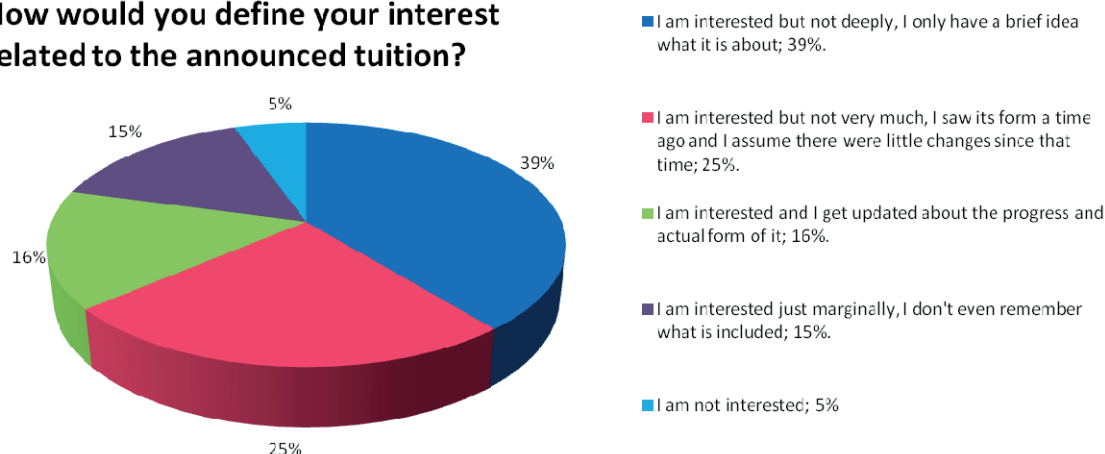
Respondents primarily live in lodgings (34%) or in dormitories (29%). Relatively significant group of students lives with their parents (32%). Students pay monthly about 2,000–4,000 CZK for an accommodation on average or live with their

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2   For further details see (Greenacre, 1984).
3   For further details see (Foret, 2003), (Foret, Stávková, 2003), (Kotler, 2007), (Přibová, 1996) or (Zbořil, 1198).
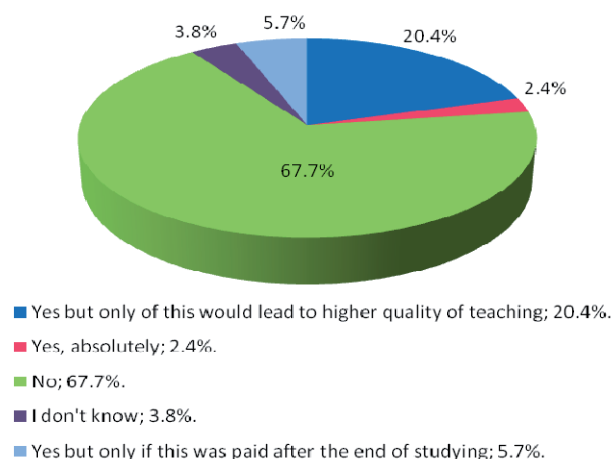4   Umbrela – research virtual laboratory devoted to gathering and evaluation of the primary data from query sets – is a system for support and communication of researchers on the field of e-researches. For further details visit (https://umbrela.mendelu.cz, 2013).

How would you define your interest related to the announced tuition?

- I am interested but not deeply, I only have a brief idea what it is about; 39%.
- I am interested but not very much, I saw its form a time ago and I assume there were little changes since that time; 25%.
- I am interested and I get updated about the progress and actual form of it; 16%.
- I am interested just marginally, I don't even remember what is included; 15%.
- I am not interested; 5%

1: *Interest of respondents in the information about the tuition and reform of MEYS*

Do you agree with introducing the tuition?

- Yes but only of this would lead to higher quality of teaching; 20.4%.
- Yes, absolutely; 2.4%.
- No; 67.7%.
- I don't know; 3.8%.
- Yes but only if this was paid after the end of studying; 5.7%.

2: *Reactions of respondents on the question: Do you agree with the tuition?*

parents, therefore they have no expenses related to accommodation (32%). They pay about 500–1,000 CZK per month for transportation.

It is clear from the questionnaire that students mainly eat in canteen (44%), cook for themselves (38%) or eat home (14%). They pay about 500–1,000 CZK per month for food on average. When the respondents were asked to estimate how much they usually spend for common tools and services related to studying such as textbooks, notebooks, copying and so on, they mostly answered 0–500 CZK (51%) or 500–1,000 CZK (36%).

From their school, they primarily receive an accommodation scholarship, one third of students receive no scholarship at all.

Total month costs related to studying at HEI were estimated between 4,000–6,000 CZK and the next very often answer was 6,000–8,000 CZK.

It is good to realize that the most frequent announced monthly income of households lies between 20,000–40,000 CZK. The respondents mostly live in the four-membered households. Most

of the respondents have only one student of HEI at home (64%), the situation, when there are two students in a household is not exceptional (31%).

Tuition and it's financing

About 68% of addressed students don't agree with the introduction of the tuition, for details, see Fig. 2. If the students admit its introduction, they are willing to pay about 0–5,000 CZK per term. Respondents, who agree with its introduction, would choose payments after the end of studies and achieving the certain wage (17%) or the direct tuition which means payments before the beginning of each term (16%). The question about the possibility of using the student loans in case of introduction of the tuition respondents answered in this manner. They would decide if or when to use due to the conditions of offered loans (32%) or they would never use this option (25%), or they would rather not use this option (24%).
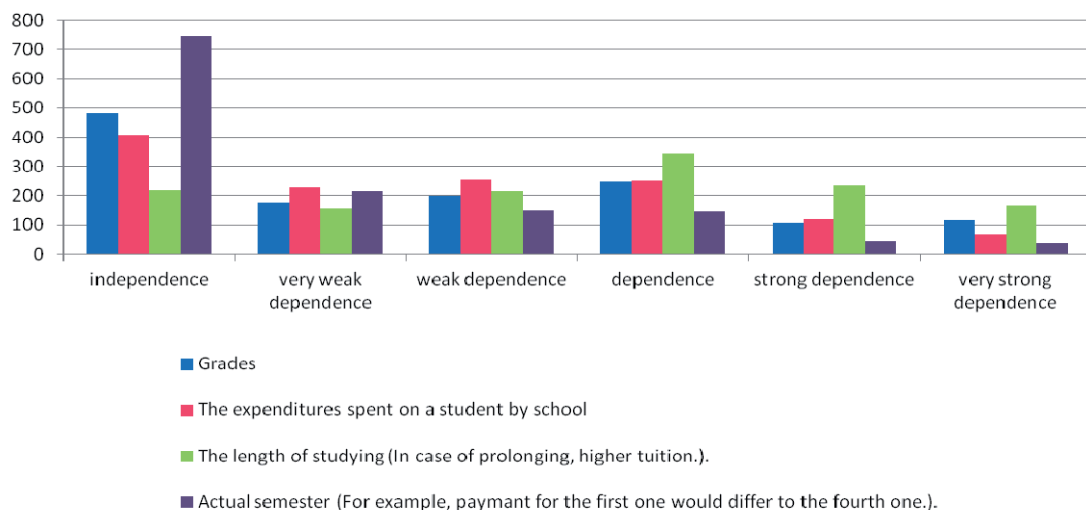
We tried to identify, what level of income would be according to students needed to be achieved in

Do you think, that the introduction of the tuition:
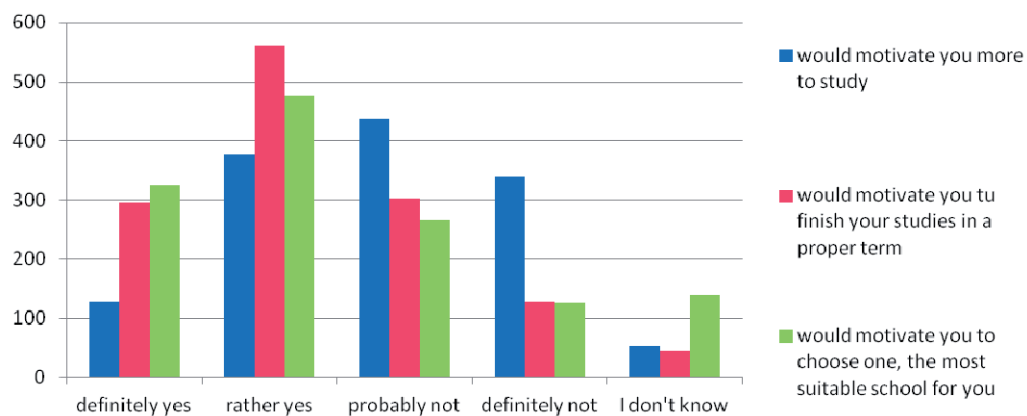
3: *The influence of tuition on studying*

Assume the tuition will be introduced. The amount should be dependent on:

4: *Dependence of amount of the tuition on chosen factors*

order to be able to repay the tuition. The students mostly answered that it should be 1.5 times to 2 times of an average wage.

What will be affected by the tuition and what should the height of it depend on?

In the next part of the questionnaire, it was assumed that the tuition will be introduced soon and we tried to identify if this step would have an influence on students what could be expected. Chosen answers are captured on the chart below, Fig. 3. Students think that the tuition could discriminate socially disadvantaged people, but it would surprisingly not motivate them to study harder in general however it would motivate them to finish their studies in a proper term and they would care more about the good quality of teaching and the choose of the best HEI for them.

We have also offered few criteria to respondents, which could have an influence on an amount of tuition and we tried to determine if students do think about this problem in this manner. The results are clear from Fig. 4. Complete independence on grades, complete independence on the expenditures of the HEI per student, on the other hand these was strong dependence between the amount of tuition and the length of studying (in a case of prolonging the study, higher tuition should be enforced), complete independence on the studied and actual term and on the unsuccessful study at HEI.

Students tend to the option that it is not suitable to pay lower tuition thanks to the progress at school (not to pay higher tuition in the first semester than in the fourth one). Students also think that the student, who was not successful at previous HEI, should pay the same amount as the student has never had an

experience like that. Also, in case of studying at two HEI students should pay only for one of them (49%) or 1.5 times more (22%).

4 CORRESPONDENCE AND DEPENDENCE ANALYSIS

Within the processing of contingency tables, we were at first interested, if there is a significant dependence among the total costs spent by students on studying (accommodation, food, transportation, other, …) and the studied HEI. If there was a proof, that different schools are variously costly, it could be assumed, that also the students of different HEI have various opinions on introduction of tuition thanks to differently high needs for financial means, which are needed to study.

Through Pearson's chi-squared test, we tested a relationship between the total costs of studying and the HEI students currently studying at. During the test of independence, $\chi^2 = 83.9906$ with a significance $p < 0.001$. That means, for the significance level 5%, we reject independence and therefore, we may talk about dependence between the expenditures and the currently studied HEI. From the next analysis, it is obvious that 50% of students College of Polytechnics Jihlava and Mendel University have expenditures lower than 4,000 CZK per month. Apart from that, less expenditure than 4,000 CZK per month at Masaryk University have only 25% of students. This may be caused by the fact that at the Masaryk university, there are students of law and medicine, who are no at the other universities and their cost of studying are overall higher. Also, there are a higher percentage of students among students of medicine and law who don't come from the

region and have their costs increased naturally by accommodation and transportation.

It is then evident from the performed correspondence analysis that the total study costs really depend on the studied high school. The graph Fig. 5 shows that the students of Masaryk University, Brno and University of Technology have the highest costs of around 6,001 to 8,000 CZK (even more). In contrast, students of Mendel University and College of Polytechnics have costs significantly lower (moving around 2,001 to 4,000 CZK). Whereas among students of Mendel University there appear both students who stated that their total monthly costs range up to 2,000 CZK and students who have the monthly costs from 4,001 to 6,000 CZK. This may be caused by the diversity of the students of Mendel University, some seem to come from Brno, and therefore they don't have expenses for housing (living with parents) and others come from Slovakia for example.

Using the Pearson's chi-squared test, we further tested if there is dependence between monthly total costs of studying and the opinion on the introduction of the tuition. The value were $\chi^2 = 40.83$ with a significance $p = 0.0039$. That means for the significance level 5% and 1%, we reject independence and we can speak of a dependence between the total costs and the opinion of students on the introduction of the tuition.

If we analyse the result of the questionnaire more in a detail, it may be stated that these who don't agree with the introduction of the tuition fees must cover higher costs of studying already. If we look at Fig. 6 it is evident indeed that students who have total monthly study costs of around 2,000 to 8,000 CZK disagree with the introduction of tuition fees and
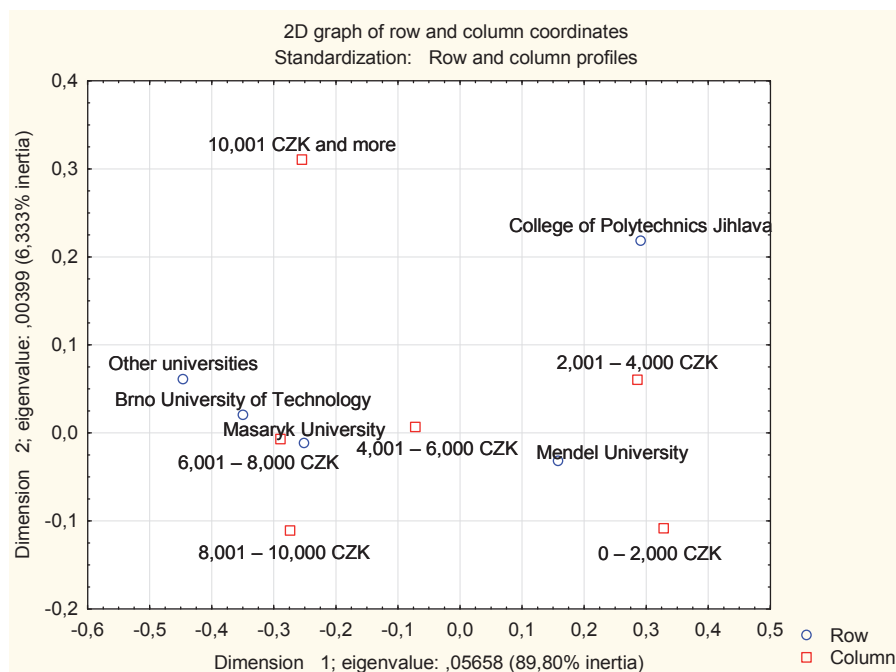
5: _Correspondence analysis: Total monthly study-related costs. and At which university do you study?_
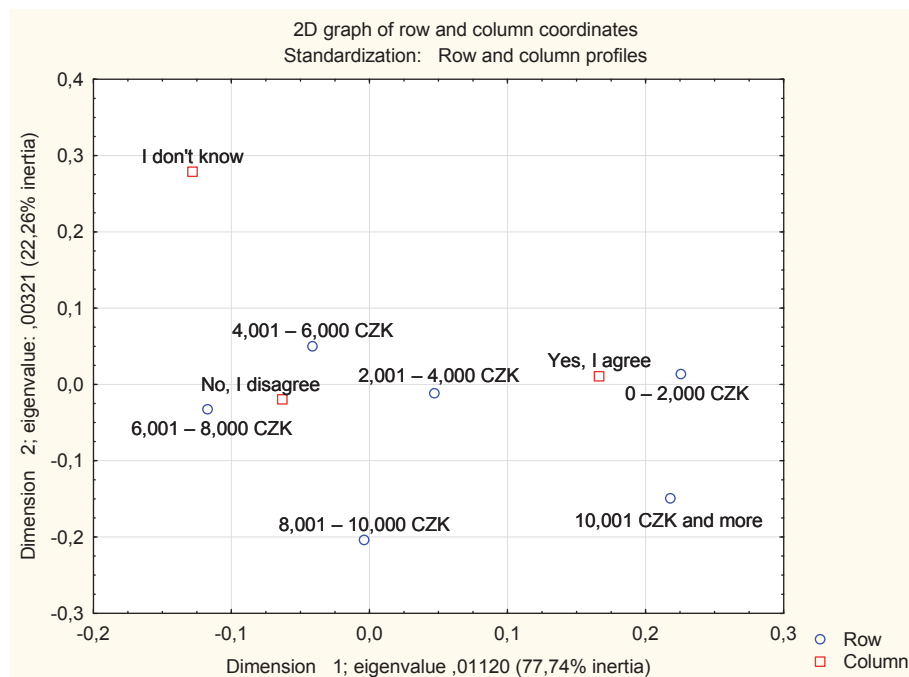
6: *Correspondence analysis: Total monthly study-related costs. and Do you agree with the introduction of the tuition?*

students whose costs range up to 2,000 CZK mainly agree.

We were similarly verifying if there is dependence between sex of the respondents and total costs of studying (accommodation, food, transportation, other expenses, …). Using Pearson's chi-squared test, the link between the sex and the total costs was tested. The values were $\chi^2 = 16.94$ with a significance $p = 0.0046$. We proved there is dependence between the total costs of studying and the sex of respondents. Due to the analysis, women compared to men have lower expenditures. This is probably caused by lower expenditures for food and out-of-school activities.

Our next working hypothesis was a thought if student's opinion on the introduction of the tuition is influenced by their expectations about the benefits of their studying. Based on the calculation of the coefficient of, the dependence between their opinion on the introduction of the tuition and their opinion that studying at HEI will help them to increase their capital (p-value = 0.0021) and their view of studying as a personal investment (p-value < 0.001) was found. Based on these tests, there may be stated an implication that students do see their studies as a benefit, so that the considerate introduction of the tuition would be acceptable in the end.

Additionally, we were curious if the introduction of the tuition would more motivate students to finish their studies in a proper term. Significant dependence (p-value < 0.001) between the approval of tuition and the opinion that it would motivate students to finish their studies in a proper term was proved. Students have also expressed an opinion

that if there was tuition, it would be desirable to introduce higher quality teaching ($\chi^2 = 46.09$ with a significance $p < 0.001$).

At the moment when we assumed that the tuition will be put into reality, we asked students if they think that the tuition should be higher, the same or lower in case of previous unsuccessful studying at HEI. Based on their answers, the existence of dependence between their reactions and their age was tested. The test proved there is no dependence between these two variables. ($\chi^2 = 8.48$ and p-value = 0.582). According to next analysis it is obvious that in every age group, there are about 70% of students who would not take into account these "bad experiences" for the calculation of the tuition. Only 30% of students would even solve this situation. 6% of students till the age of 23 were even for decreasing the tuition if the previous study was not successful. On the other hand, no one from the group of students older than 27 years shared this opinion.

Furthermore, we tried to recognize dependence between questions: *Do you agree with the introduction of the tuition?* and *Total monthly income of household.* Using Pearson's chi-squared test, the connection between the approval of the tuition and the level of income was tested. The values were $\chi^2 = 105.14$ with significance $p < 0.001$. That means, for the significance level 5% and 1%, we reject independence. Therefore, it may be stated – opinion on the introduction of the tuition depends on the income of household whereas there was not proved dependence between the income of household and views of students on various amount of tuition related to the previous unsuccessful studies

I: *Sorting: Do you agree with the introduction of the tuition? and Total monthly income of your household.*

	Yes, I agree with the introduction of the tuition	No, I disagree with the introduction of the tuition	I don't know
(0; 10,000>	19.1%	78.7%	2.2%
(10,000; 20,000>	15.1%	80.7%	4.2%
(20,000; 30,000>	24.0%	72.1%	3.8%
(30,000; 40,000>	33.4%	63.6%	3.0%
(40,000; 50,000>	41.7%	51.7%	6.6%
50,001 CZK and more	53.2%	45.0%	1.8%
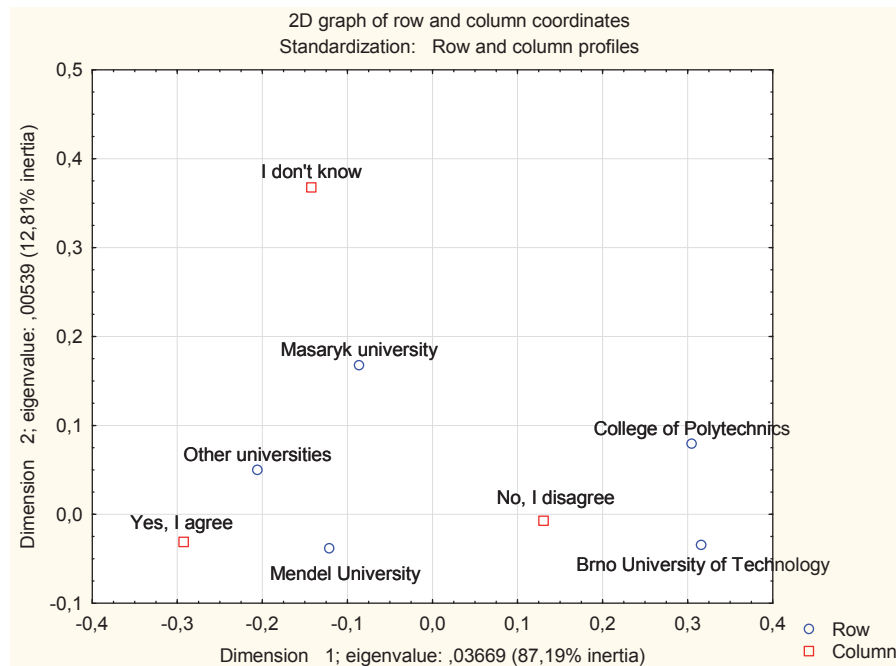
7: *Correspondence analysis: At which university do you study? and Do you agree with the introduction of tuition fees?*

(χ^2 = 17.033 and p-value = 0.74). When we look at the Tab. I, it is obvious that only 19% of people with monthly income till 10,000 CZK approve the tuition and within the category of 50,000 and more CZK per month, 53% of students approve it.

Using correspondence analysis, we then assessed the attitude of students of different universities to tuition fees introduction.

The graph Fig. 7 shows that most students who agree with the introduction of tuition fees are at Mendel University. Most opponents can then be found at Brno University of Technology and College of Polytechnics Jihlava. At Masaryk University there are both students who agree and those who disagree and those who don't know, which is caused by the diversity and large number of faculties of the university.

In the next working hypothesis, we expected people who are more informed about the reform of the MEYS to approve the tuition a little bit more than the others. Reasons for this implication are simple. Well informed people should possess better understanding of motives of MEYS and should

rather agree with it. Based on the testing processed in the contingency tables, the dependency between the approval of the tuition and the interest in the information from the Ministry was proved. (χ^2 = 60.105 and p-value < 0.001).

However if we look in detail at the Tab. II, it is noticeable that people, who show their interest in getting more information about the reform mostly disagree with the tuition (81.3%). It is interesting that more information from the Ministry they have, more discouraged from the tuition.

It is obvious from Tab. III that with an increasing age, there is a higher percentage of students, who agree with the tuition (χ^2 = 85.083 and p-value < 0.001). There is lot of diversity in the rate approval in different age groups. In a group of people of age 18–20, only 17.5% students agree with it, on the other hand 66.7% of students in the age group of 30 and more years approve the tuition. Older students probably more understand reasons for putting tuition in reality and that the studying is an essential factor in their professional life. Also, with increasing age, students start to realize how

II: *Sorting: Do you agree with the introduction of the tuition? and Are you interested in a reform related to the tuition?*

	I am interested in the reform a lot	I am not interested in the reform that much	I am not interested in the reform at all
Yes, I agree with the introduction of the tuition	18.3%	30.4%	30.6%
No, I disagree with the introduction of the tuition	81.3%	65.2%	65.3%
I don't know	0.5%	4.4%	4.2%

III: *Sorting: Do you agree with the introduction of the tuition? and How old are you?*

	18–20 years old	21–23 years old	24–26 years old	27–29 yeas old	30 and more years old
Yes, I agree with the introduction of the tuition	17.5%	34.2%	46.2%	64.3%	66.7%
No, I disagree with the introduction of the tuition	78.3%	62.3%	50.0%	35.7%	33.3%
I don't know	4.1%	3.6%	3.9%	0.0%	0.0%

much these payments could contribute to the whole system as a motivation to proper and focused studying for example, which they later found very useful.

5 DISCUSSION AND CONCLUSION

The aim of this paper was to identify factors which influence opinions of students on the introduction of the tuition at HEI in Czech Republic using questionnaire, analysis of contingency table and tests of hypotheses.

At first, we would like to point out there is a relatively high percentage of students who don't agree with the tuition, it is about 68% of respondents. From the conducted testing of hypotheses is apparent that students, who are very interested in information about the reform of Ministry of education, youth and sports, are surprisingly negative towards the tuition. Therefore it is noteworthy that the information given by the Ministry discourage the students. In every way, the strategy taken by the Ministry is wrong. It is a must to provide the information to students using a different approach, which would be more understandable, perhaps, using of different communication channels so that students would better understand the intentions of the Ministry. Maybe, emphasizing possible benefits such as improve in quality of teaching could be a good strategy, because according to this paper, it is obvious, that the form of communication, which is currently in action is no appropriate and even discourages the people.

It is also necessary to focus on younger students. It is evident from the above, that the young students around the age of 18–20 are deeply against the introduction of the tuition. Students at these age are potential adepts for studying at HEI or students in the first year of their studies. It would be beneficial if primarily this group would understand why the introduction of the tuition is so important. The older students at the age about 30 mostly agree with the tuition. They probably more understand the importance of this step and all the necessities of its introduction.

According to the received answers, it is visible, that students are afraid of discriminating students with lower income. We can see in contingency tables and correspondence analysis strong opposition to the tuition among the students with lower monthly income. It is needed to really think through all the details of the planned system of student loans so that these could cover not only the tuition but the part of the living costs as well. Students would be able to fully devote themselves to studies and wouldn't be forced to make extra money at the expense of proper preparation for studying.

We realized that the introduction of the tuition would make students more think about the HEI they would like to study at. It is clear from correspondence analysis that different HEI have various total costs of studying such as accommodation, food, transportation or study materials at the moment. Our research was oriented on the HEI in the South Moravian region and Highlands region. It is therefore possible that the costs at HEI in Prague might be significantly higher. However, we are convinced that it is beneficial for the students to consider in advance what they really want and what HEI will be the most suitable institution for them. We don't like the approach of many students, who study only because of the delaying of commencement of employment.

The introduction of the tuition would also motivate students to finish their studies in a proper term, which means studying for a standard length. Contemporary trend is a prolonging of studies for common reasons such as failing to fulfill study duties or taking more time for writing the thesis. If more students follow the pattern described above, this is a significant burden for a school. The majority of HEI doesn't even charge prolonging the studies by one term.

Very interesting is finding, which shows that the vast majority of students (70%) would not during the calculation of the tuition take into account previous unsuccessful studies at HEI. Only about 30% of students would solve this situation. Actually 6% of students would want to decrease the tuition despite the fact that they were not successful in the previous study. Among older students, no one had such a utopian opinion. Therefore it is crucial to focus on young students till the age of 23 and explain them thoroughly all the aspects and thoughts of the planned reform.

At this point let us briefly indicate what the situation abroad is. According to a report published by the European Commission, the costs of students for higher education in Europe are very different. The highest tuition fees are in England, students pay up to 9,000 GBP (approximately 11,500 EUR) for the academic year. The other extremes are countries such as Denmark, Finland, Cyprus, Malta, Norway, Austria, Greece, and Sweden, where students do not pay any tuition fees. For further details see (European Commission, 2012).

SUMMARY

The primary aim of this paper was to gather knowledge of planned introduction of tuition and using a questionnaire to find out the opinions of students mostly from HEI from Brno on the tuition and its forms of payments. 1,333 respondents participated in from 18–23 years old, which is a particular category of students, which would be directly affected by the planned changes.

It is clear from the paper that total costs related to study are 4,000–6,000 CZK per month already, but it makes often 6,000–8,000 per month. These costs cover in 83% for their children parents. Also, it is appropriate to point out that the most frequent monthly income is in a range 20,000 CZK–40,000 CZK and the respondents mostly live in the four-membered households. The majority of them have only one student of HEI however it is not rare if they are two in a household.

Most of the students don't agree with the introduction of the tuition (68%). Students, who agree with it, would choose paying of it after the end of their studies and after achieving the certain level of wage or so-called direct tuition, which means payments before the beginning of the semester. Students have not deeply considered using the system of student loans yet; their decision would rely on the conditions of the loans.

Also, the students think that the tuition could discriminate socially disadvantaged students; however it would motivate them to finish their studies in a proper term and if the tuition was introduced, according to students, its amount should be dependent only on the length of the studies.

It is clear from the analysis of the contingency tables and the tests of hypotheses that there is a strong dependence between the costs of studying and the studied HEI. Performed correspondence analysis confirmed this fact. It can be also claimed from the correspondence analysis that students who don't agree with the tuition fees must cover higher costs of studying than the others. It is evident from the next analysis that on average women have smaller total costs including accommodation, food, transportation, study materials etc. than men.

There was dependence between the opinion on the introduction of tuition and the attitude of respondents that studying at HEI will help them to increase their capital and that they understand their studying at HEI as a personal investment found based on the calculation of the coefficient of contingency.

Using further tests of independence, significant dependence between the approval of the tuition and the opinion that it would motivate them more to finish their studies in a proper term was proved. It is also possible to state that the attitude towards the introduction of the tuition depends on the level of household income and the number of students, who agree with the introduction of the tuition, goes up with increasing age.

In a moment, when we admitted the introduction of the tuition, students mostly reacted that previous unsuccessful studies should not be reflected when calculating the amount of tuition. Very interesting is a particular finding that people who are deeply interested in the reform of Ministry of education, youth and sports tend to disagree with the introduction of the tuition.

REFERENCES

AGRESTI, A., 1990: *Categorical Data Analysis.* New York: John Wiley a Sons, 734 p., ISBN 0471-36-093-7.

ANDĚL, J., 2005: *Základy matematické statistiky.* Praha: Matfyzpress, 358 p., ISBN 978-807-378-1620.

BLASIUS, J., GREENACRE, M. J., 1994: *Computation of Correspondence Analysis.* In Greenacre, M. J.,

Blasius, J. (eds.): Correspondence Analysis in the Social Sciences, London: Academic Press, 53–75 p. ISBN 0-12-104570-6.

FORET, M., 2003: *Marketingová komunikace.* 1st. ed. Brno: Computer Press, 275 p. ISBN 80-7226-811-2.

FORET, M., STÁVKOVÁ, J., 2003: *Marketingový výzkum – Jak poznávat své zákazníky.* 1st ed. Praha:

Grada Publishing, a. s., 160 p. ISBN 80-247-0385-8.3.

GREENACRE, M. J., 1984: *Theory and Applications of Correspondence Analysis.* London: Academic Press, 364 p. ISBN 0-12-299050-1.

HINDLS, R., 2003: *Statistika pro ekonomy.* 3rd compl. ed. Praha: Professional Publishing, 415 p. ISBN 80-86419-34-7.

HENDL, J., 2006: *Přehled statistických metod: analýza a metaanalýza dat.* Praha: Portal, 695 p. ISBN 978-80-7367-482-3.

KOTLER, P., 2007: *Moderní marketing.* Praha: Grada Publishing, a. s., 1048 p. ISBN 978-80-247-1545-2.

MAREK, L. et al., 2007: *Statistika pro ekonomy – aplikace.* 2nd ed. Praha: Professional Publishing, 485 p. ISBN 978-80-86946-40-5.

NENADIČ, O., GREENACRE, M., J., 2007: Correspondence Analysis in R, with Two- and Three-dimensional Graphics: The ca Package. *Journal of Statistical Software.* 20, 3: 1–13. ISSN 1548-7660.

PŘIBOVÁ, M., 1996: *Marketingový výzkum v praxi.* Praha: Grada Publishing, 238 p. ISBN 80-7169-299-9.

ŘEZANKOVÁ, H., 1997: *Analýza kategoriálních dat pomocí SPSS.* Praha: VŠE, 78 p. ISBN 807-079-7282.

ZÁMKOVÁ, M., BLAŠKOVÁ, V., 2013: Comparing the views on tuition fee introduction of Brno university students. *Proceedings of the 10th International Conference – Efficiency and Responsibility in Education.* 671–679 p. ISBN 978-80-213-2378-0.

ZBOŘIL, K., 1998: *Marketingový výzkum.* 1st ed. Praha: VŠE, 107 p. ISBN 80-7079-389-9.

European Commission. *National student fee and support systems 2011/2012.* [online]. Last revision 2013 [cit. 19. 7. 2013]. <http://eacea.ec.europa.eu/education/eurydice/facts_and_figures_en.php#fees>.

The Ministry of Education, Youth and Sports, 2013: *Information and articles on tuition fees.* [online]. Last revision 2012 [cit. 19. 6. 2013]. <http://www.msmt.cz> (MEYS, 2013).

Umbrela. *Virtual Laboratory for the collection and evaluation of primary data.* [online]. Last revision 2013 [cit. 10. 6. 2013]. <https://umbrela.mendelu.cz>.

Wikipedia, the Free Encyclopedia 2013: *Correspondence analysis.* [online]. Last revision 2013 [cit. 15. 6. 2013]. <http://en.wikipedia.org/wiki/Correspondence_analysis>.

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