SZENT ISTVÁN UNIVERSITY
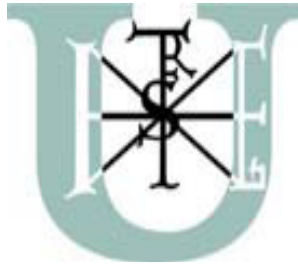## Gödöllő

PHD SCHOOL OF MANAGEMENT AND BUSINESS ADMINISTRATION

EMPLOYMENT, COMPETITIVENESS
IN THE GYÖNGYÖS MICRO REGION

THESES OF THE DOCTORAL (PhD) DISSERTATION

Csaba Szűcs

Gödöllő
2014

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1. INTRODUCTION

After the 2008 economic crisis, the unemployment rate in the countries of the European Union (EU) increased significantly. In the first quarter of 2013 the unemployment rate reached 11.8% in Hungary, which was successfully reduced to 9% by March 2014. Considering unemployment the regional differences are noteworthy, Northern Hungary, together with the Northern Plains region, is in an unfavourable position. The results can be explained in several ways, but from the point of view of the present research it should be noted that the most vulnerable groups in Hungary generally are the low-skilled people, the long-term unemployed, the Roma population and middle-aged or older people. This justifies my choice of subject, as it is essential to improve the employment situation in the Gyöngyös micro region for the sake of development.

1.1. The topicality and importance of the subject

From the point of view of the topic we must consider the European Union, which now consists of 28 member countries, as Hungary has been a member state since 1 May, 2004 and the period from 2007 to 2013 can provide unprecedented opportunities through support provided by the EU, of which Hungary may receive €22,4 billion. It is, therefore, reasonable to say that if these funds are used sensibly, they can greatly contribute to the economic recovery of Hungary.
The 25 settlements of the Gyöngyös micro region is situated at the southern foot of the Mátra mountains in a contiguous area where the ecological and habitat conditions are excellent, and the agricultural areas are also suitable for the production of high-quality region-specific products. The population of the area has not changed significantly in recent years, but the downward trends seem to stabilize and accelerate.

1.2. The objectives of the research

Prior to the actual research activity I formulated a multi-layer set of objectives. I considered the complex analysis of domestic and foreign literature on competitiveness important addressing the relationship between employment and competitiveness because the clarification and understanding of these terms is essential. Another important part of the text is the analysis of the situation of the Gyöngyös micro region, Heves County and North Hungary on the basis of the relevant literature and existing statistical data. Furthermore, I also assessed and presented the current state and the pace of development of the micro region, determined the factors causing structural tensions in a regional and national context on the basis of the literature in order to be able to unveil and introduce possibilities to improve the unemployment situation, taking into consideration their viability in a specific micro region. I also aimed to assess how to strengthen both the R&D&I activities and investments, which are equally indispensable from the point of view of development, considering the status and effects of the town of Gyöngyös and Károly Róbert College. A further objective of the paper is to present the situation

of the micro region on the basis of the assessment of the opinion of the residents by means of a questionnaire survey and also to analyse the strategic directions for the future development of the sub-region so that the important and less important tasks can be determined.

I also focused on the impact of subsidies and the role of the town of Gyöngyös. I analysed strategic directions that may define employment possibilities such as the opportunities presented by the so called green economy. I analysed the effects of industrial parks, clusters opportunities, as well as the mobility and satisfaction of respondents.

1.3. Hypotheses

I formulated the following hypotheses in harmony with the objectives and the research topic:

H1: The green economy can generate significant employment opportunities under appropriate government grants and programs.

H2: Current rural development subsidies have not been able to significantly increase employment in rural areas of the micro region.

H3: The main settlement of the micro region is Gyöngyös and its purposeful engagement fostered the complex development of the micro region.

H4: Károly Róbert College, as the knowledge base required for the development of clusters and a potential player in spin-off enterprises, may be the catalyst in improving competitiveness and the moderate increase of employment.

H5: Women are less mobile during their employment than men, therefore opportunities in the micro region are more decisive for them.

H6: People with higher education are dissatisfied with their position in the micro region, they consider taking up employment in other regions, even working abroad is a realistic option for them.

H7: Industrial parks or other employment possibilities have not been able to replace job lost due to the termination of the former agricultural and agri-food industry therefore it is difficult for all age groups to find employment and the future perception of employment opportunities is negative.

The structure of the dissertation was developed in harmony with the objectives and the hypotheses. In my opinion, unless the currently observed trends take a favourable turn, our country – and with it – the region and its immediate environment will lose competitiveness. I am convinced, however, that if we rationally exploit our opportunities, we will have a chance to improve our position. My real intention is to contribute to the achievement of this objective with this current and my future work.

2. MATERIAL AND METHOD

In the first part of my research the situation of the Gyöngyös micro region is analysed on the basis of statistical data. I present the status of the natural resources and the environment, as well as the results of the examination of the economic and social environment, as this is necessary to achieve my objectives. I also examined the subsidies at regional, national and at micro-region level.

In the second part of my research I carried out a questionnaire survey among the residents of the Gyöngyös micro region. The survey was designed to assess the situation in rural areas and the opinions on the developments implemented with the help of subsidies as well as the strategic rural development concepts. In my view responses to the questionnaire will enable me to confirm or reject my hypotheses and lead to new result and conclusions. In the survey pre-tested questionnaires were used. Of the 1200 questionnaires sent out 909 evaluable questionnaires were returned and examined.

The questionnaire covered the following areas:
– How long have you had your current job?
– How do you evaluate your current job?
– How do you rate the current job market?
– What are the difficulties of finding a suitable job?
– What do you consider important about a job?
– What would you do to find a new/better job?
– How do you search for new job opportunities?

The responses were generally given on a rating scale. The composition of the respondents may be the potential source of differences of opinion during the evaluation, therefore it is duly presented. The structure of the questionnaire, which was created on the basis of the research plan, enabled the thorough examination and classification of residential clusters, and the determination of the connections and relationships as well as the differences of opinion.

2.1. The statistical methods applied during the research

Data recorded in the questionnaire were analysed with the help of scientific statistical methods for the sake of proper evaluation. The SPSS 18:0 software was used for the statistical analysis. The charts and graphs were created using Microsoft Excel.

The following methods were used for the multivariate statistical analysis::

2.1.1. Principal component analysis

The principal component analysis is a frequently used mathematical procedure of multivariate data analysis. The method is used to analyse relationships among the variables. The method allows a summary of the responses in a way that the

inevitable loss of information is reduced to an absolute minimum.

The core of the method is that instead of the original correlated variables fictitious independent background variables are defined and with their help original features of the observation units are substituted with a lower number of artificial coordinates. By omitting less important information, the number of variables is reduced, so the cause-and- effect relationships can be better highlighted. After the varimax rotation of the principal component analysis the correlation coefficients expressing the relationship between the original variables and hypothetical background variables are presented in tables.

2.1.2. Factor analysis

The factor analysis is used to examine the relationship of multiple correlated variables. Using principal component analysis it is possible to observe which variable has the strongest explanatory power in relation to other variables. Factor analysis describes the behaviour of various variables with the help of artificial variables, thus it may generate four artificial variables, or factors, out of a set of ten variables.

During my research of the multivariate analysis methods primarily non-parametric tests were used. These methods can be used when the distribution of the sample differs from normal distribution and the data is not suitable for parametric tests. Non-parametric tests are preferred in many cases:

– in case of non-normally distributed sample or when data was recorded on an ordinal or a ratio scale;
– they can also be used to examine hypotheses that do not contain parameters that characterise the sample.

The relationship between the variables measured on an ordinal scale was analysed using rank correlation. This can be used if the values of the given variables are not known, only their order by certain aspects. In case of two-variable grouping criteria Mann-Whitney test can be used while with multi-variables Kruskal-Wallis test may be used. After rank transformation the hypotheses may be accepted or rejected on the basis of the average of the rankings.

The essence of rank transform is that the two samples to be compared - in this case, for example, men and women's opinion – are not separated from each other, but ranked together. The ranks therefore are not ranks within the groups but are independent of the groups. If the same rank data is obtained in the calculations, the rank average can be used for adjustment. Then the adjusted average ranks are separated according to the original groups. If the median rank data of the two groups are identical then the H0, i.e., the null hypothesis is true.

If the rank data medians differ from each other, then the two measured sample data show significant difference.

2.1.3. Regression analysis

Linear regression analysis was used for the examination of the correlations between regional capital and unemployment. In this method one variable is estimated with the help of another (or more) variables. The coefficients of the empirical linear regression can be obtained with the linear regression method of least squares.

The empirical linear regression coefficients differ from that of theoretical linear regression in that the formulas contain the corresponding empirical moments computed from the sample. Multivariate regression analysis was also applied by means of SPSS CATREG.

2.2. SWOT analysis

In my examination SWOT analysis was also applied, which is a reliably method to determine current situations and strategic directions. SWOT analysis (Strength, Weaknesses, Opportunities, Threats) is a working method used in strategic planning. This analysis is a means of problem definition and exploration.

2.3. Qualitative method

In order to support the findings of my research in-depth interviews were carried out. The interviews were conducted in 19 cases during 2013-2014. The interviewees, professionals and businessmen, work in different business fields, for whom the rural situation is not indifferent. During the interviews on the one hand, the survey questions were studied through with the interviewees, on the other hand I tried to explore the causal factors in the framework of free conversation. The duration of the interviews was approximately one hour. This method is much more casual than the questionnaire, so the motivations and motives can be better explored.

3. RESULTS

3.1. Heves County

The county can be proud of outstanding tourism (major thermal and mineral water resources, wine regions) and agriculture (vineyards, vegetable and fruit production, forestry, wildlife and fisheries management) potentials. One major problem – which affects not only the county, but essentially the whole country – is the ever increasing pace of population decline and aging.

Considering GDP per capita the region of North Hungary is the weakest region in our country. Within the region, Heves is in the best position in terms of economic performance, however, it cannot achieve 70% of the national average!

From the point of view of competitiveness it is a determining factor that the county is in an advantageous position within the region of Northern Hungary, but compared to the domestic level it is relatively underdeveloped. Unfortunately the situation is similar in terms of participation rate, employment rate, and unemployment rate as well. Table 1 unquestionably reveals that both the employment rate and the participation rate in the county are below the national average, while the unemployment rate is above the national level. As a reminder, the average participation rate in the EU is around 67%, which means that we are lagging behind in this respect.

Table 1: **The employment situation**

	Employment rate	**Unemployment rate**	**Participation rate**
BAZ	42,4	17,8	51,9
Heves	46,1	13,0	54,3
Nógrád	39,6	18,7	51,5
North Hungary	42,9	16,7	52,5
Country	49,7	10,9	58,0

Source: KSH 2012.

The income levels among settlements in Heves County shows relatively large deviations, they vary widely. The better off settlements can be found at the Eger-Gyöngyös-Hatvan line, while settlements producing less favourable data are located in the southern and northern parts of the county.

It is important to point out that the number of agricultural businesses has risen sharply, but the number of industrial and construction companies have not changed significantly. This is due to the fact that it became compulsory for primary producers to register their businesses in 2008 (Figure 1).
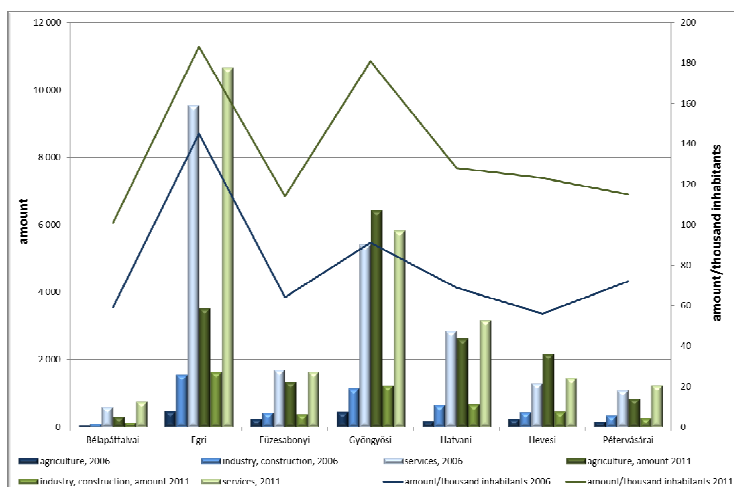
Figure 1: Changes in the number and ratio of registered businesses in Heves County between 2006 and 2011 by micro regions
Source: own edition on the basis of data from KSH Regional Statistical Yearbook 2011

The data for Figure 1 reveals that in 2011 the proportion of businesses in actual operation averaged at 32% in Heves County, compared to 42% in Northern Hungary and 43% of the national average, unfortunately. What is more on the basis of the size scale of businesses we can say that most of the enterprises are small-sized businesses with poor capital resources.

Considering the above mentioned facts it can be declared that of the constituent counties of Northern Hungary Heves County is in an advantageous position regarding most indicators, but when national comparisons are concerned, the county is not above average.

3.2. Presentation of the Gyöngyös micro region

One of the defining aspects of the Gyöngyös micro region is that it is favourably positioned amongst the so called development sub-centres of Miskolc, Eger and Salgótarján and these regions are characterized by growth in North Hungary. In the micro region Gyöngyös functions as the urban centre and among other reasons this is why the Gyöngyös micro region was listed together with Miskolc and Eger in the category of urban areas of medium competitiveness.

Based on Figure 2 it can be said that the rate of registered unemployment differs by settlements comparing the years 2006 and 2012. In most settlements the rate shows an unfavourable trend, albeit to a different extent, mostly in the immediate vicinity of the central town. In case of two settlements, Gyöngyöspata and Nagyfüged, the rate of the registered unemployed declined considering the two given years.
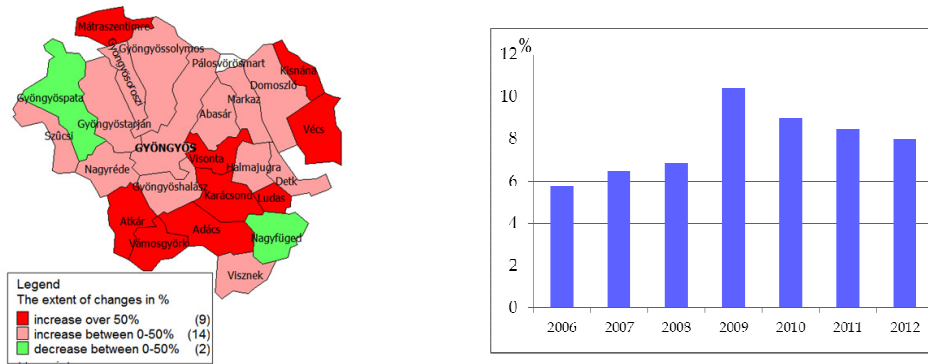
Figure 2: **Changes in the proportion of the registered unemployed in 2012 as a percentage of 2006**
Source: own edition

The rate of registered unemployed for more than 180 days in the same period shows a similar trend (Fig. 3). Their ratio increased significantly in 17 settlements of the micro region including the city of Gyöngyös, while the ratio decreased in only two settlements, namely in Gyöngyöspata and Mátraszentimre.
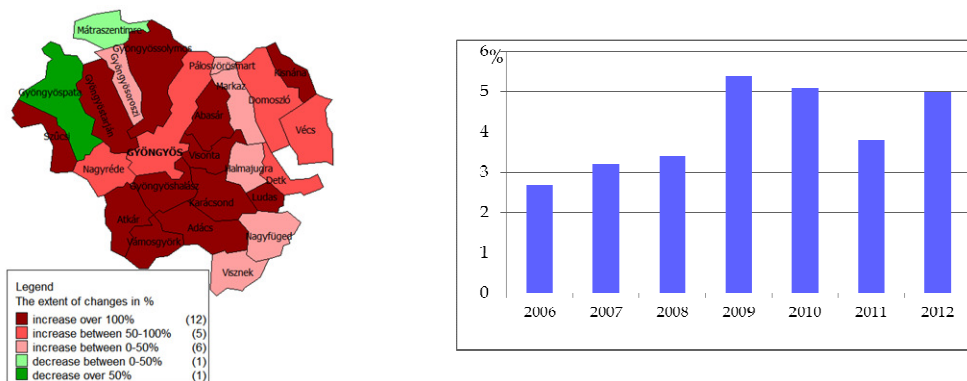
Figure 3: **Changes in the rate of registered unemployed for more than 180 days in 2012 as a percentage of 2006**
Source: own edition

As far as income per full-time employee is concerned in 2012 as a percentage of 2006 it can be said that its value dropped below 25% only in Halmajugra, in other places increase was experienced. It should be pointed out that the most significant increase in the micro region was recorded in Visonta.

The industry and the service sector, as well as the non-productive infrastructure have a crucial role in the Gyöngyös micro region. Employment is greatest in the electricity generation sector, nearly 2.5 thousand people, but the weight of the engineering industry and trade is also outstanding. Grape and fruit production is significant in the agricultural sector. The district has a developed educational network.

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3.3. Analysis of the questionnaire survey

The primary data collection of the questionnaire survey forms a substantial proportion of my dissertation as it enables me to analyse the experience of the respondents and to draw evaluable conclusions and suggestions. In accordance with the objectives the questionnaire was edited to present the employment situation with the involvement of people living in the micro region.

The evaluation with the help of the SPSS 18.0 program provides a detailed analysis though most of the resulting figures and tables may not be presented because of the scope of the dissertation, thus only the figures and tables which support the most important findings can be included.

The data is not characterised by normal distribution, therefore nonparametric methods were used to examine the relationships and differences. Normal distribution is not a precondition for these procedures (Kruskal-Wallis test).

3.3.1. Introduction of participants in the questionnaire survey

The proportion of women respondents is approximately 58%, and 42% of them are male. The rate cannot be given more accurately because not everyone answered every question.

The study was aimed at employment thus presenting the type of employment is important, which is shown in Figure 4, where 657 responses were processed.
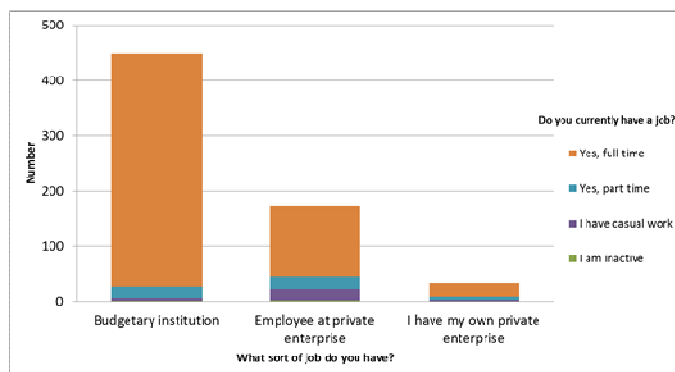
Figure 4: **What kind of a job do you currently have?**
Source: own research, 2013.

The vast majority of respondents are employed by governmental institutions while 17.2% of them are employees of private or corporate businesses and only a mere 0.5% have their own private enterprise. The proportion of casual employees is also very low.

The majority of the respondents have more than 20 years of work experience, their rate is 30.96%. The proportion of those with 11-20 years of work experience is also high at 29.67%. The low rate of respondents with little work experience proves that

questionnaires were filled out by experienced people whose opinion should be taken seriously.

The average income in the Gyöngyös micro region may be inferred from the answers: 54.01% of the respondents have a net salary of HUF 50-150 thousand, while only 2.86% of the respondents earn over HUF 300 thousand. These payments are far behind the available salaries in Budapest, not to mention the Western European wages. This finding is illustrated in Figure 5.
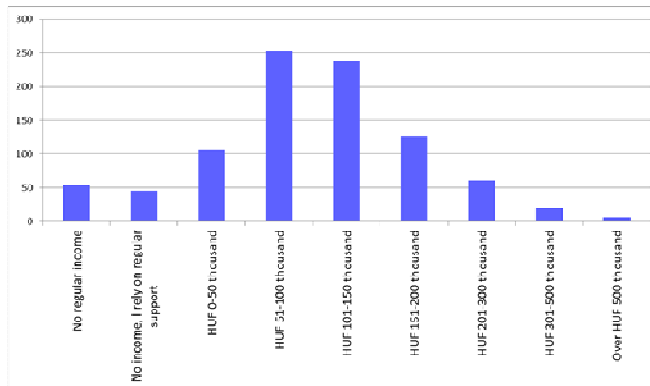
Figure 5: **Average net incomes of the respondents**
Source: own research, 2013.

3.3.2. Kruskal-Wallis test

I have examined the general opinion concerning the labour market on the basis of the qualification of those questioned. I have assessed the answers on a 1 to 5 scale. I have examined the differences between the average rankings of more than two groups with the Kruskal – Wallis method.

Depending on the qualifications, there are remarkable differences between the average rankings (analysis of question group 10). There is significant difference in the case of question groups 'b' (there is no chance for higher income) and 'e' (I am not qualified enough to plan my future). Predominantly, those with primary education consider income to be unchangeable, while people with higher education regard their knowledge unsatisfactory to plan the future.

Question group 12 deals with the important features of employment from the respondents' point of view. According to people who received primary education, providing opportunity for employment is the most important.

In other cases, there is no significant difference between the answers of the respondents of different educational background. Question group 13 examines the efforts made for a better job. There are remarkable differences in two cases between the two groups: concerning questions 'a' (I would be willing to commute) and 'f' (I would enter employment even abroad).

Every respondent group would be willing to commute, but people with secondary education in the largest number. The analysis of this question group is a proof of one of my hypotheses, namely the gradual emigration of professionals, the serious problem of 'brain-drain' in the future. It seems that the intelligentsia cannot find its place in micro region, the limited possibilities of Károly Róbert College are far from the facilities of the knowledge applying, not to mention knowledge creating regions.

It is a threat that this process is getting self-impulsive (the micro region performs poorly, thus the situation of professionals decays, the performance gets weaker, the only option left is emigration). It would not be a problem, if the employment abroad were only temporary, but the salaries that are three-five times higher abroad than in Hungary make homecoming doubtful.

Question group 7 examines the aspects of changing workplaces. There is a significant difference (1.2%) in one case: people with higher education prefer to work in a new scope of activities when changing jobs.

When analysing question group 9, a number of remarkable differences can be registered. These differences can be mainly traced back on the opinion of people with higher education. Seemingly, in the micro region, the intelligentsia cannot find its place, would like to have a different scope of activities, would like to retire from another workplace, and would change jobs in case of a better offer. The answers follow the tendencies of the answers given in question groups 13 and 7 (other scope of activities, employment abroad).

In the case of question group 10, six significant differences can be seen. These are as follows:
-   there is no chance for higher income;
-   there is no perspective for a better position in the nearby area;
-   I am not qualified enough to plan my future;
-   it is difficult to find employment in the Eastern part of the country;
-   salaries are higher in the capital city;
-   there is no real chance for a positive change of my workplace in the near future.

The chance for a higher income is given up mostly by those who have been employed for more than twenty years, but most of those employees who have been working for less than a year share this opinion. Similarly, those who have been employed for more than 20 years and have a lot of work experience think that there is no chance for a better position in the nearby area. It can also mean that there are only a few advantageous and well-paid job opportunities in the micro region. The young do not realise it that much. The beginners admit that they do not have enough qualification for planning their future, which raises their uncertainty. On the contrary, they do not realise properly that it is difficult to find employment in the Eastern part of the country.

The large gap between the capital city and the micro region is realised mainly by the older, more experienced employees (11-20 years and more than 20 years in employment). Both the beginners and those who have been employed for more than 20 years agree that no real chance exists for a positive switch in workplaces in the near future. The middle-aged are far more optimistic in this respect.

In question group 9, there are significant differences in four cases between the groups with various work experience. These are the following:
- I found my job through my relationships;
- I would like to work in a different scope of activities;
- I would not like to retire from my present job;
- In case of a better offer, I would change my job.

Regarding the young, good relationships seem to have an important role in job seeking, but people with longer work experience see it differently. This refers mainly to the high unemployment rate among the young, as well as the malfunction of job application systems. In many cases, there is an application process, but it is already decided who the winner is.

Those with less than 10 years of work experience would switch scope of activities easily, while it is not typical among those with 11-20 or more than 20 years of work experience. New employees are not satisfied with their situation; they would not like to retire from their present workplace, and would change their jobs in case of a better offer.

3.3.3. Graphical evaluation

Many consider a good salary and a secure job very important when changing jobs (Figure 6).
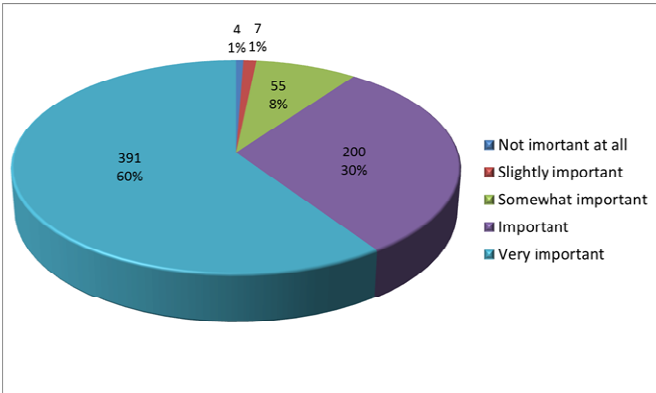
Figure 6: **Important aspects of changing workplaces:
better salary**
Source: own research, 2013.

The analysis of question group 11 matches the previous answers. More than half of the respondents agree with that there are few job opportunities (Figure 7).
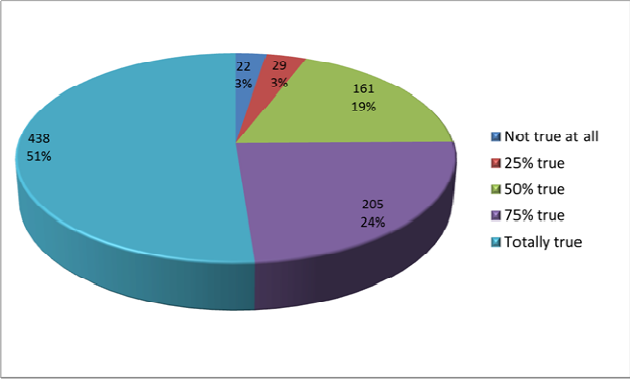
Figure 7: **Problems of finding employment: few workplaces**
Source: own research, 2013.

Family-work-study are difficult to deal with simultaneously (Figure 8).
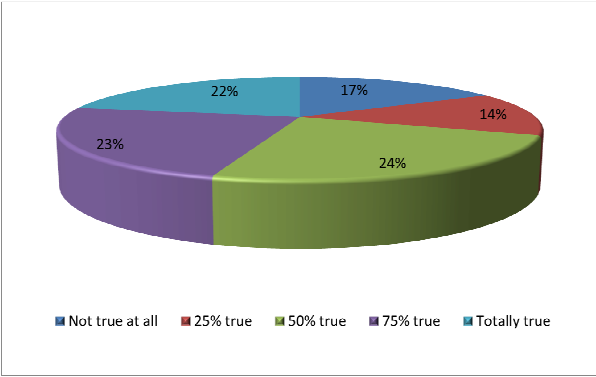
Figure 8: **Problems of finding employment: family-work-study difficult to deal with simultaneously**
Source: own research, 2013.

3.3.4. Mann-Whitney Test

In question group 10 I examine the answers of men and women, and I search for statistically proven alterations. In question 1 (there is an oversupply of work force in my profession) a very significant difference, while in question 2 a weak connection were proved by the estimation. Women consider their situation statistically proven worse concerning the supply of work force than men.

In question group 7, 4 out of 7 questions proved a significant difference between men and women. Women are less mobile and they regard the distance of workplace important. The secure job and better timetable, which are mainly preferred by women, are weakly significant. There is a very significant difference concerning the questions whether the workplace can be in another region or even abroad. Mainly men answered these questions positively. It can also be regarded as the

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women's defencelessness: they have neither opportunity nor will to change their lives connected to the micro region.

In question group 12, the difference is significant concerning the salary options (men think salary more important), the appropriate timetable and the distance of workplace (women regard them more important).

When analysing question group 13, four significant differences can be found between the answers provided by men and women. Commuting, changing of settlement and employment abroad are rather preferred by men, while women are more willing to learn languages.

3.3.5. Principal component analysis

The answers (variables) to questions 7-10-11-12-13 were analysed by a multivariate method served to reduce variables. The important points to be considered are changing a job, the characteristics of the labour market, the factors of the problems of finding a job, factors at the workplace and sacrifices for a better job.

It is practical to examine the above-mentioned points as a whole to know how opinions correlate, justify one another and what system of relations they make up.

The first principal component variable sums up the difficulties, e.g. earning less money in the country than in Budapest, the standard of living will decrease in 5-10 years, it is difficult to find a job above 50.

The second main component variable denotes the needs for changes, e.g. further training, learning languages, going to work abroad.

The third main component variable links the criteria of voluntary job changes that can be explained by the so-called special principal components such as better salary, job safety, better work conditions and more favourable working hours.

The proximity of workplace, the chance of managing one's own time, negative commuting all make up the fourth (main component) variable.

The parts of labour market judgment comprise the fifth principal component variable. The examination is too sensitive to detect tiny differences in a sample of n=909. In this way the questions on labour market that contain 11 original variables (set of questions 10) are divided into two groups: a general and a more specific one such as being overstaffed in certain jobs, limited possibilities of higher salary and a better job.

The same applies to the variables of principal components 6, 7 and 8 which divide the elements of question sets 7-11.

Principal component 9 is unified from all aspects as it is a unique question, criterion: the amount of salary. It expressly reflects the relationship between one principal component and one variable.

3.3.1. Factor analysis

While assessing the present labour market my objective was to reduce the number of variables by means of factor analysis. My intention was to analyse only some generated variables instead of the original ones, which contain information on the original criteria.

Of the original set the following Likert scale criteria were involved in the examination as they justify the questions to be examined in my view. On the Likert scale options ranging from 1 to 5 were used as they serve as a good basis for univariate and multivariate analyses. 1 stood for not true at all while 5 expressed total agreement.

The variables below were examined during the factor analysis:
- „There are higher salaries in the capital."
- „In Gyöngyös and its neighbourhood the chances of finding a job are bad."
- „In East Hungary the chances of finding a job are bad."
- „In my place the labour market situation will not improve for the next 5-10 years."
- „In my place living standards will decrease in the next 5-10 years."
- „I am not skilled enough to plan the future."
- „A favourable job change has no real chance in the near future."

The component matrix generated by the factors was rotated by Varimax method. The main point of Varimax method is that the variance of variables arranged into factors should be the smallest. As a result, two factors could be separated.

Factor 1 has the following criteria:
- „A favourable job change has no real chance in the near future."
- „In my place the labour market situation will not improve for the next 5-10 years."
- „In my place living standards will decrease for the next 5-10 years."
- „I am not skilled enough to plan the future."

We can conclude that the first factor contains such variables that are applicable to the labour market **perspectives** of the region.

Factor 2 has the following criteria:
- „There are higher salaries in the capital."
- „In Gyöngyös and its neighbourhood the chances of finding a job are bad."
- „In East Hungary the chances of finding a job are bad."

The second factor contains such variables that are applicable to the **present** labour market situation of the region.

Respondents (n=909) were illustrated by means of the two factors generated in Descart's Cartesian coordinating system. Furthermore, my objective was to form groups by means of Mathematics with the help of cluster analysis.

In the process of cluster analysis group formation took place by centroid method whose main point is that the distance between the fronts of centres of the generated groups should be the longest. In the case of groups created by FOC method the situation of front of centres also carry information. The formation of six groups was justified mathematically and professionally by cluster analysis. (Figure 9)
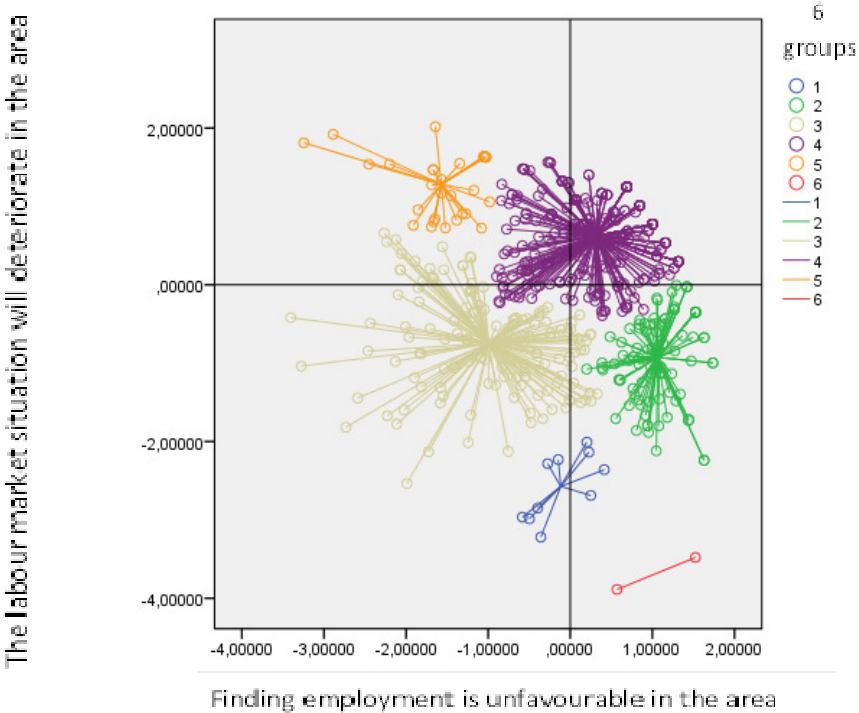
Figure 9: **Cluster analysis for the perception of the labour market**
Source: own research, 2013.

Characterisation of groups:
Group 1 is smaller than 5% of the sample so a slight analysis is necessary. We can say that there are some who regard the future of the labour market is the region to be more promising than the others (like group 1 and 6 who comprise only 2% of the sample.)

Group 2 takes up 15.69% of the examined sample. It is characterised by seeing the future more positive than the average but assess the present more negatively than the average.

Group 3 contains 25.17% of the sample. We can state that a quarter of the respondents do not see the present chances of finding a job worse and think that this will not worsen in the future, either.

Group 4 is the biggest part of the sample containing 51.90%. We can see that more than half of the respondents have a pessimistic or indifferent opinion about the present and the future alike.

Only 580 respondents are included in the factor and cluster analysis as the remaining 329 replies had some non-applicable parts so the system incorporated them in the „missing" category.

3.3.2. Regression analysis based on statistical data and questionnaires

The linear regression of regional capital and unemployment was analysed between 2004 and 2010 and also by applying SPSS CATREG (category variable regression) method the aggregated and individual impact of factors affecting the average monthly net income of the respondents based on the questionnaire was examined.

3.3.2.1 The regression of the ratio of regional capital and unemployment

In my analysis I was striving to find a correlation between the change of the ratio of regional capital as an indicator of development and unemployment. Regional capital defines the social background criteria of endogenous development. According to **JÓNA (2013)** the sources of regional capital derive from several factors such as
- physical ones: geographical position, supply of production factors, natural resources, climate etc.;
- invisible correlations: secret agreements, customs and informal rules, solidarity, mutual assistance etc. and
- intangible factors: institutions, rules, local politicians, creativity etc.

JÓNA (2013) defined the value of regional capital for the micro regions of Hungary between 2004 and 2010. By using his data I present the changes of the micro regions in Heves County regarding the value of regional capital to assess the situation and development of micro regions (Figure 10).
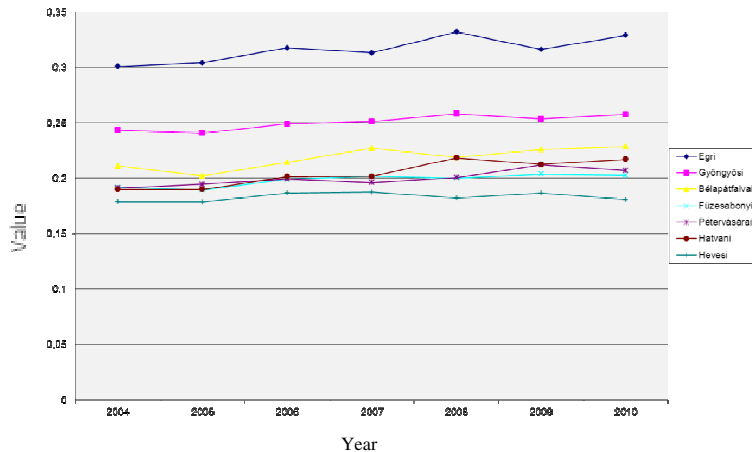
Figure 10: **Changes in the regional capital values of the micro regions in Heves County**
Source: own edition based on Jóna (2013)

Of the components of regional capital I examined the effectiveness of labour force by considering the proportion of the unemployed in seven micro regions of Heves County between 2004 and 2010. Every year during the examined period the relation of regional capital and unemployment is characterised by a negative correlation stronger than the average. The proportion of the unemployed can be described by a trend-like growth in the examined area and period in all micro regions of Heves County.

I present the negative regression of regional capital and unemployment for 2004 and 2010. According to the determinant coefficient (R^2) unemployment contributes to the value of regional capital with a share of 28-37%. Unemployment is an important factor of regional capital and its value is negatively affected. The examination of the other years in the period shows a similar correlation.

A positive change in the trend can be experienced in the value of regional capital despite the bad unemployment tendencies so the other factors of regional capital compensate for the negative effects of unemployment.

Regarding the proportion of unemployment it is the smallest in the micro region of Hatvan, but it as well as the development of the value of regional capital is influenced by the proximity of the micro regions in the neighbourhood of Budapest. Figure11 presents the changes in the regional capital values by proving the unbroken development of the micro region of Eger.

Based on the unchanged situation of the micro region of Heves the marked growth of differences between the micro regions can be noticed. The micro regions regarded to be developed develop rapidly while the underdeveloped ones stagnate.
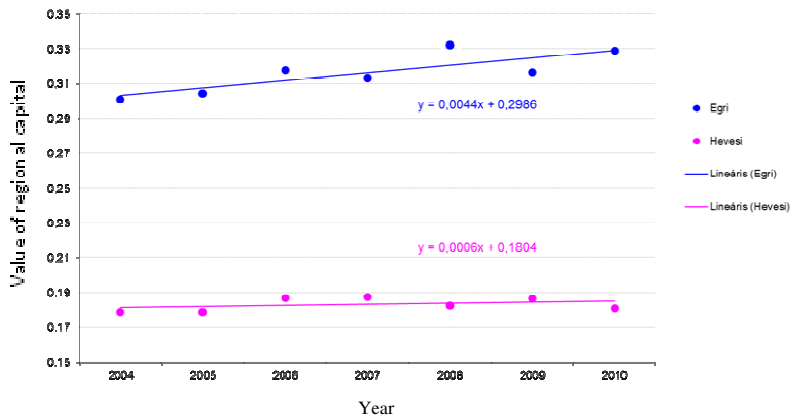
Figure 11: **The linear trend of the micro regions characterized by the largest and smallest territorial capital value in Heves County**
Source: Own research, 2013.

3.4. Multivariate regression analysis of category variables

Examination was carried out by SPSS CATREG subroutine. the examined variables are category variables whose multivariate regression analysis differs from the regression of those with a continuous scale. In the present case the theory of the smallest scares is not recommended, either. Variables were grouped into dependent variables and predictors as follows.

Dependent variables: average monthly net income of the respondent.

Predictors: years of work experience, gender, qualification, position, langiage and IT skills.

After transforming ordinal and nomial variables calculations can be carried out. My objective was to explore the factors of salary and wages by means of predictors so after filtering data could be processed. The unemployed, those employed in part-time job or in more than one jobs, mothers on childcare leave and pensioners were not included.

After filtering data of n=290 wer processes initially. Table 2 illustrating the data has four parts.

Table 2: **Regression analysis**

Table 2/a: **Value of correlation coefficient and the role of predictors**

Model Summary

Multiple R	R Square	Adjusted R Square	Apparent Prediction Error
,724	,524	,482	,476

Dependent variable: average monthly net income of the respondent.

Predictors: years of work experience, gender, qualification, position, language and IT skills.

Table 2/b: **Total variance spread of dependent variables**

ANOVA

Megnevezés	Sum of Squares	df	Mean Square	F	Sig.
Regression	151,824	23	6,601	12,708	0,000
Residual	138,176	266	,519		
Total	290,000	289			

Dependent variable: average monthly net income of the respondent.

Predictors: years of work experience, gender, qualification, position, language and IT skills.

Table 2/c: **Values of ß regression coefficients and their level of significance**

Coefficients

Megnevezés	Standardized Coefficients		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Years of work experience	,130	,048	5	7,214	,000
Language skills	,101	,059	3	2,970	,032
Position	,582	,071	7	66,305	0,000
Gender	,006	,029	1	,048	,826
IT skills	,111	,054	4	4,275	,002
Qualification	,080	,068	3	1,376	,250

Dependent variable: average monthly net income of the respondent.

Table 2/d: **Examination of complex effects**

Correlations and Tolerance

Megnevezés	Correlations			Importance	Tolerance	
	Zero-Order	Partial	Part		After Transformation	Before Transformation
Years of work experience	,245	,182	,128	,061	,964	,902
Language skills	,175	,143	,100	,034	,977	,657
Position	,686	,592	,507	,762	,760	,612
Gender	,067	,009	,006	,001	,984	,971
IT skills	,410	,141	,098	,087	,780	,639
Qualification	,360	,103	,072	,055	,811	,479

Dependent Variable: average monthly net income of the respondent.

Based on Table 2/a we got to know correlation coefficient 0.724 and it turned out that six predictors define 52.4% of avergae monthly net incme.

Table 2/b illustrates the total varience of dependent variables. The ratio of rerssion and the above mentioned total variance is R^2, i.e. predictors define 52.4% of average monthly net income. Regression below 0.1% is significant.

Table 2/c summarise the values of standardised beta regression coefficients and significance levels. Regarding gender there is no significant difference in average monthly net income. The probability of nul hypothesis is 82.6%. Regarding qualification, there is no significant difference so the probability of nul hypothesis is 25.0%. In details, the beta coefficient of qualification and its contribution to correlation is not significant so there are no justified differences between the four different qualification groups. Of course, the picture is more diverse as qualification makes promotion and a better job possible but on its own it is slight. This can explain the dissatisfaction of qualfied people and their willingness to change as reflected by other assessments, too.

Position is the most typical for the income level regarding both beta coefficient and significance level and nul hypothesis is not verified (the probability of no difference is below 0.1%). Based on the results the next income determinant is work experience where there are significant income differences between the catogiries. Language and IT skills are also significant, statistically important income factors.

Table 2/d shows a complex analysis. Zero order correlations show the corrlation of transformed predictors with the transformed dependent variables. Here also the connectin between position and income is the strongest. Income does not depend on gender while it skills are essential regarding income. Qualification also affcts income as good position can only be gained with suitable qualifications.

3.5. SWOT analysis of the micro region

The micro region is an important scene of regional self-organisation. It is important to note that creating regional programmes are not always refer to the statistic micro region as the beneficiaries can be participants of flexible regional initiatives (voluntary associations, civil and entrepreneurial networks etc.) who use funds by project applications. SWOT analysis was carried out to explore the situation of the micro region as well as to define the directions for future developments. SWOT analysis is the method of strategic planning in order to explore the internal specialities of the micro region and the changes of the external environment. After the situation analysis situations supporting certain strategic ideas were defined (Table 3).

Table 3 **The strategic analysis of the Gyöngyös micro region**

OPPORTUNITIES	
Situations supporting change oriented strategy	**Situations supporting offensive strategy**
- Assisting retraining and further training - Creating new jobs to stop population reduction - Spreading alternative production methods - Producing more for export - Developing vegetable and fruit production - Supporting R&D, encouraging investments - Lobbying to attract developed industries in the region	- Developing health, rural and wine tourism - Capital injection by developing infrastructure - Human resources training and retraining - Developing enterprising zones and industrial parks - Organising clusters in agriculture - Lobbying to develop KRF - Organising green economy, renewable energy production - Expanding the mine and the power station
Weaknesses	**Strengths**
Situations supporting defensive strategy	**Situations supporting diversified strategy**
- Curbing on environmentally polluting production - developing traffic and infrastructure - Prevalence of the principles of sustainable development - Attracting foreign capital to „green" industries - Improving the situation of the Roma by EU applications	- Making use of the market in Budapest by selling new products - Opportunities of cultural heritage in tourism - Making use of the innovation potential of KRF - participation in EU applications - Raising funds to utilise existing resources - Implementing the opportunities of agricultural production
THREATS	

4. NEW AND NOVEL SCIENTIFIC RESULTS

1.)   Green economy can bring along significant development in certain areas and can also generate jobs with proper state subsidies and project applications. Its opportunities mainly in renewable energy production, local energy use, home insulation, energy storage and waste management are significant even today, grow rapidly and its developments can mean the new industries helping employment in the future. Its spread can assist in improving the environment. The implementation of all opportunities can be viable gradually through project applications.

As of national average in the micro region of Gyöngyös counting for 20% of flats and houses and for the period of 5 years the insulation of 1300 homes can be planned annually. This programme would create 600 direct and 60 indirect jobs per year but unfortunately the present projects do not make it viable.

Since the National Energy Saving Programme (NEP) and Green Investment System (GIS) a support of even 30% can be applicable in such business areas. On the basis of the feedback it can be stated that the interest of the population in these energy rationalising investments is significantly increasing.

Solar energy is the most important of renewable energy resources but today it is only economical by support. The detached houses of the micro region are suitable for installing solar panels but the intensity of growth is defined by project application opportunities and subsidies. The specific job creation of solar panel technologies is the greatest. (Figure 12)
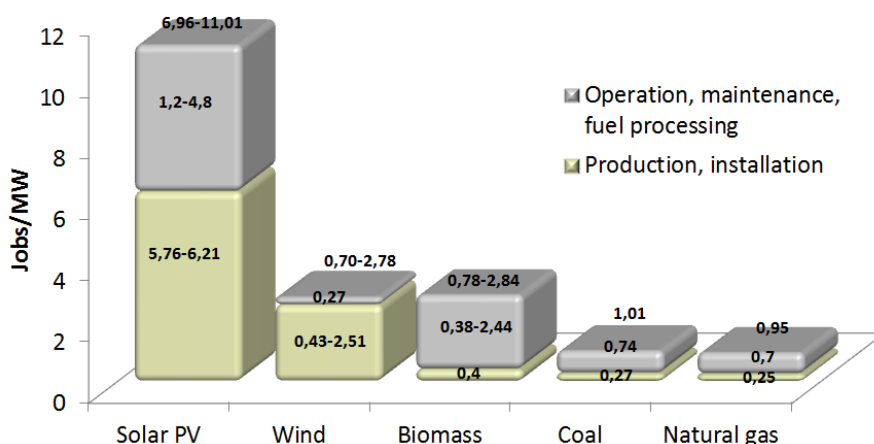

Figure 12: **Estimated employment impacts of different energy technologies**
Source: UNEP/b, 2008.

The industry of environmental protection has a promising future and its impact on employment is improving. Especially the job creation of such investments is significant. However, maintenance cannot be neglected, either. As a form of

investment in environmental protection the re-cultivation of old landfills is ongoing and eleven local authorities together with Gyöngyös can use HUF1 billion for this purpose.

Such activities can create several hundred jobs in the micro region today. Thirty seven percent of investment in environmental protection concerns waste management and 18% is clean air safety, respectively. The role of this cluster in job creation in the micro region can be significant in developing green economy.

The job creating role of green economy is justified by both the SWOT analysis and the Integrated Municipal Development Strategy of the town of Gyöngyös with a condition that „renovating blocks of flats must continue to maintain the buildings and its flats more economically and in an energy conscious way by considering that *the central budget contributes to the implementation of the programme with significant funds*".

2.)   Rural development funds in employment did not reach the expected level partly due to the crisis and the situation of employment became much worse till the end of 2012 in the micro region as one of the symptoms of general crisis.

The town applied successfully for national and union support whose implementation cost exceeds 33 billion HUF between 2004 and 2011 with a subsidy of 60%. Agricultural food production has significant traditions in the town but unfortunately, most of these activities stopped in the town. The meat producing factory with many of its employees was closed together with the mill and dairy and also the pig fattening plant alongside Road 3 was wound up. In addition, abolishing the fruit and vegetable processing plant is also expected. The year 2008 brought an economic decline for the town, as well as a lot of people lost their jobs. The changes in the rate of unemployment in the town show that new jobs could partly replace the former agri-food industrial jobs. (Table 4)

Table 4: **Rate of unemployment for the age group between 15 and 74 in the Gyöngyös micro region**

Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Unemployment rate	4, 82	5,29	6,03	7,78	7,61	8,54	8,12	9,36	9,23	8,5	8,0

Source: www.munka.hu/

Regarding the number of those employed their number decreased by 9481 from 2008 to 2011 in the private sector while in the public sector there were not changes in the county. The private sector had a share of 76% in employment in 2011 (KSH, Heves County Statistical Yearbook, 2012).

3.)   Károly Róbert College, as the knowledge base required for the development of the planned and already implemented clusters and a potential player in spin-off enterprises, may be the catalyst in improving

competitiveness and the moderate increase of employment. To achieve this goal the knowledge base must be widened and applications on local developments must be won. Both the literature and the fact that clusters can operate successfully in the micro region (Bioenergetics Innovation Cluster, Zöld Utak – i.e. "Green Ways" – Tourism Clusters, Machinery Industry Cluster, etc.) prove their positive effects on employment. It is possible and advisable to develop a wine cluster. The already existing clusters provide employment for hundreds of people.

Small and medium-sized enterprises which were previously believed to be non-viable can be directed into the mainstream of the economy by means of cluster organization. In our country cluster organization is not without problems. The country does not have an elaborate system of regulation on the establishment and specific operational phases of cluster development nor does it have a strategic cluster development concept, so the support tools assigned to them are inadequate.

In my opinion, it would be possible to develop clusters in the Mátra wine region since grape is grown on 7630 hectares and there are nearly 10,000 producers in the area. The export opportunities of Gyöngyös wines – for their quality – are believed to be favourable.

Another cluster possibility arises in the field of tourism though I am not convinced that the situation at present is ripe yet for it. Cooperation among service providers is an important factor through the establishment of clusters and networking, and the further development of Tourism Destination Management (TDM) organizations.

Despite the current modest results the development of the Mátra region could be largely based on tourism, which used to more dynamic owing to holidays organised by trade unions. The facilities are good, since the number of tourists in the county continues to increase, the number of guests increased by 17% in the first nine months of 2013 compared to the previous year.

The professional staff at Károly Róbert College has the appropriate knowledge base and experience in cluster development, while the institution itself has the excellent infrastructure with well-equipped laboratories and grape processing facilities, furthermore a three-star superior hotel is also available.

4.)   The evaluation confirmed the differences between the opinions of the female and male respondents. Taking into account the acquired data it can be said that employment opportunities in the micro region are more decisive for the female respondents.

During the evaluation of question group 11 it turned out that the respondents unanimously believe that it is difficult to find employment in older age as this answer scored a 4.60 average on a 5-point scale. Significant differences between male and female responses were detected at question "c" according to which it is

difficult to manage family, work, and study simultaneously. It is mainly women who believe so, thus greater responsibility is statistically proven. (Table 5)

Table 5: **Difficulties of finding a suitable workplace**

	Problems of finding a workplace:				
	Lack of work	**No support for further education**	**Family-work-study is difficult simultaneously**	**Difficult to find employment in older age**	**Employment depends on good health**
Mann-Whitney U	86549,000	69541,000	74242,000	85113,500	83611,000
Wilcoxon W	148325,000	119944,000	130187,000	143766,500	211376,000
Z	-,583	-1,191	-2,824	-1,172	-,157
Asymp. Sig. (2-tailed)	,560	,233	,005	,241	,875
a. Grouping variable: Sex of respondent					

Source: own research, 2013.

There are significant differences between male and female responses in four cases concerning question group 13. Commuting, changes of residence and work abroad are more preferred by men while learning a foreign language was chosen by women. Thus it is statistically proven that the female respondents are less mobile as they would not commute or change residence. This means that opportunities in the micro region are more decisive for them. (Table 6)

Table 6: **What would you do for a new/better job?**

	What would you do for a new/better job?					
	Commute	**Further education**	**New profession**	**Language course**	**Changing residence**	**Work abroad**
Mann-Whitney U	75094,500	92141,500	90813,500	87018,000	85045,000	75836,500
Wilcoxon W	211597,500	232326,500	154359,500	152359,000	219985,000	204107,500
Z	-4,706	-,712	-,828	-2,173	-2,069	-3,795
Asymp. Sig. (2-tailed)	,000	,476	,408	,030	,039	,000
a. Grouping variable: Sex of respondent						

Source: own research, 2013.

In case of question group 7 4 out of 7 questions showed significant differences between male and female responses. Women are less mobile and consider the close proximity of the workplace important. There is weak significance in case of a more secure job and better working hours both of which are preferred by female respondents. However, the difference shows strong significance about whether the job should be in a different region or abroad to which positive answers were given by male respondents. This also indicates that the female respondents want to take advantage of opportunities in the micro region (Table 7).

Table 7: **Important aspects of workplace change**

	Important aspects:						
	Close proximity of workplace	**Better pay**	**More secure job**	**Better circumstances**	**More favourable working hours**	**Job in other region or abroad**	**Work in a different position**
Mann-Whitney U	42325,500	52051,000	47600,000	49804,500	47143,500	46803,500	50683,000
Wilcoxon W	78640,500	127517,000	84185,000	85582,500	83189,500	120723,500	124219,000
Z	-4,404	-,065	-2,022	-,833	-1,962	-2,297	-,281
Asymp. Sig. (2-tailed)	,000	,948	,043	,405	,050	,022	,779
a. Grouping variable: Sex of respondent							

Source: own research, 2013.

5.) According to the questionnaire survey the intelligentsia (degree holders) is dissatisfied with their circumstances in the micro region and they consider changing their job and taking up employment abroad. The stagnating state of the micro region may take a negative turn if the situation with Károly Róbert College continues to deteriorate and the innovative young workforce still decides to leave the area; it is in the fundamental interest of the micro region to change these negative trends possibly through the implementation of the suggestions given in the dissertation.

Analysis of the perception of the labour market has already been presented in detail (page 18-20). The factor analysis clearly showed that more than half of the respondents in the sample are pessimistic about the present and expected developments in the labour market as well.

The multivariate regression analysis confirmed that in the case of qualification the ß coefficient and thus its contribution to the correlation does not prove significance therefore there is no verified difference among the four groups of qualification. In Hungary it is the position that is recognised not the qualification itself, which explains the dissatisfaction and the willingness to migrate expressed by degree holders.

The dangers concerning the position of the intellectuals revealed by SWOT analysis situation are as follows:
1. The migration of skilled people may generate the deterioration of the micro region
2. Effective businesses may decide to relocate as the result of the gloomy economic situation.
3. In parallel with the marginalization of Károly Róbert College innovation activities and the knowledge applying ability of the micro region decline.

Furthermore, question group 10 uniformly received pessimistic responses on a 1 to 5 scale. Deterioration in the living standard and that the employment situation does

not improve were marked high by respondents of a variety of work experience (5 = completely true).

Similarly, the respondents mostly agreed that employment opportunities are unfavourable in the eastern part of the country. It is unanimously held that higher salaries can be obtained in the capital city, which is irritating considering the difficult situation of the area and its proximity to the capital. The growing differences between the capital and the countryside result in dissatisfaction and pessimism. Finally, it should be pointed out that degree holders would prefer different positions when changing a job. The calculation is shown in Table 8.

Table 8: **Important aspects of job change**

	Important aspects of job change:						
	Close proximity of workplace	**Better pay**	**More secure job**	**Better circumstances**	**More favourable working hours**	**Job in other region or abroad**	**Work in a different position**
Chi-Square	4,092	2,663	,590	2,362	4,732	1,039	10,969
df	3	3	3	3	3	3	3
Asymp. Sig.	,252	,447	,899	,501	,192	,792	,012

a. Kruskal Wallis Test
b. Grouping variable: Qualification of respondent
Source: own research, 2013.

A number of significant differences can be registered in connection with the question group 9. The significant differences are rooted in the different opinions of degree holders. It seems that the degree holders cannot realise their objectives in the micro region, they intend to change their jobs, they want to retire from a different job, and if the right opportunity arises they will change jobs. The answers are in harmony with the results obtained from question groups 13 and 7 (working in different position, working abroad). The specific data can be examined on the basis of Table 9.

Table 9: **The perception of the workplace**

	Perception of my workplace:				
	I found my job though my connections	**I'd like to work in a different position**	**I want to retire from a different job**	**If opportunity arises I'll change my job**	**It will soon close down**
Chi-Square	3,351	9,684	11,386	13,250	3,028
df	3	3	3	3	3
Asymp. Sig.	,341	,021	,010	,004	,387

a. Kruskal Wallis Test
b. Grouping variable: Qualification of respondent
Source: own research, 2013.

It is highly likely that the respondents were influenced by the proximity of Budapest as it is only one hour drive away and the job opportunities, the available

salaries, and working conditions are more favourable there. The responses reflect the growing regional, county, and micro regional differences as well.

6.)   Industrial parks or other employment possibilities have not been able to replace jobs lost due to the termination of the former agricultural and agri-food industry therefore it is difficult for all age groups to find employment and the future perception of employment opportunities is negative.

The perception of the current labour market situation is dealt with in question group 10. One of the highest value was achieved by the perception of job opportunities as it scored 4.05 on a 5-grade scale, which indicate that respondents agree with the statement that "employment opportunities are poor in Gyöngyös and in the region". What is really remarkable is that the labour situation is not believed to improve within the next 5-10 years. The average valuation of the statement that livelihood problems force people to have foreign employment is also relatively high (3.11 on a 5-grade scale). (Figure 13)
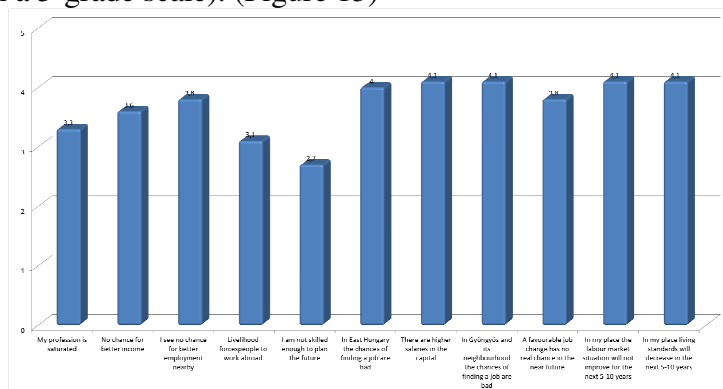
Figure 13: **The perception of the current labour market**
Source: own research, 2013.

The examination of question group 11 produced results that harmonise with the earlier presented data. More than half of all the respondents totally agree that there are not enough workplaces. (Figure 14)
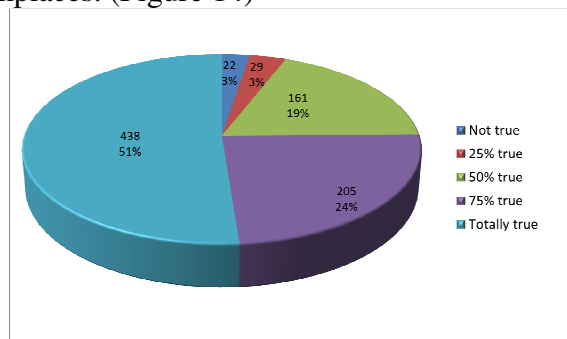
Figure 14: **Problems of finding appropriate employment:
lack of jobs**
Source: own research, 2013.

Statistical data indicate that employment has grown in the past years but it is mainly due to public employment. Unfortunately the trends in the business sector are unsatisfactory.

4.1. Verification of hypotheses

Table 10: **Verification of hypotheses**

Hypotheses		Verification
H1:	The green economy can generate significant employment opportunities under appropriate government grants and programs.	**YES**
H2:	Current rural development subsidies have not been able to significantly increase employment in rural areas of the micro region.	**YES**
H3:	The main settlement of the micro region is Gyöngyös and its purposeful engagement fostered the complex development of the micro region.	**PARTIALLY**
H4:	Károly Róbert College, as the knowledge base required for the development of clusters and a potential player in spin-off enterprises, may be the catalyst in improving competitiveness and the moderate increase of employment.	**YES**
H5:	Women are less mobile during their employment than men, therefore opportunities in the micro region are more decisive for them.	**YES**
H6:	People with higher education are dissatisfied with their position in the micro region, they consider taking up employment in other regions, even working abroad is a realistic option for them.	**YES**
H7:	Industrial parks or other employment possibilities have not been able to replace job lost due to the termination of the former agricultural and agri-food industry therefore it is difficult for all age groups to find employment and the future perception of employment opportunities is negative.	**YES**

Source: own edition

4.2. The main areas of research underlying the hypotheses

H1: Details are explained in the literature part of the thesis, in chapter 4.1 "The role of green economy in job creation" and the SWOT analysis also supports the hypothesis.

H2: Statistical data proves that despite significant subsidies employment stagnated or deteriorated. Only recently has the trend of the employment changed owing to increased public employment.

H3 : Gyöngyös is the dominant city in the micro region, however it only partially takes advantage of its opportunities. Without meaningful intervention it allowed the overall narrowing of the traditional agro-food industries even though these activities in the city have centuries-old traditions.

H4: In the case of the proposed grapes and wine clusters Károly Róbert College may provide the knowledge base. The vineyards and the processing facilities of the College may play a key role in the cluster. The development of the cluster may be facilitated by the significant vineyards of the micro region, the nearly ten thousand skilled producers, and the researchers of the research institute in Eger. It is important to cooperate with the Mátra Power Plant, and to organize the tourism cluster (Chapter 4.3. of the dissertation). The SWOT analysis also confirms the idea in addition to the statistical data.

H5: The statistical analysis of the responses significantly confirmed the hypothesis. (Evaluation of the questionnaire section.)

H6: Degree holders – in accordance with national trends – find it difficult to bear the living problems, they want to get into a reasonable position (Evaluation of the questionnaire section.) The multivariate regression analysis also confirms this, it is the position that is appreciated, while expertise is poorly recognized financially.

H7: Both the statistical analysis and the cluster analysis confirms this sequence (chapter assessment questionnaire), and KSH data clearly support the hypothesis.

5. CONCLUSIONS AND RECOMMENDATIONS

The conclusions and my recommendations are in connection with the objectives formulated in the introduction. In the literature review I analysed in detail the relevant Hungarian and foreign literature on competitiveness. The analysis shows that the Gyöngyös micro region is a moderately developed urban region whose development can be considered stagnant.

Currently the main trends of improving competitiveness emphasize the development of knowledge and human resources. That is why the development of education, health care, and the R & D sector is necessary, improvement shoup be triggered in these areas. This includes improving the situation of social capital, as the advanced network economy is based on trust.

Factors directly influencing regional competitiveness in the micro region is acceptable, but further strengthening is desirable. The infrastructure is continuously improving, the qualification of the residents of the micro region is appropriate to the national average. Research and technological development is expanding rapidly through Károly Róbert College , the Mátra Power Plant and the industrial parks.

The workshops at Károly Róbert College do much for the development of the micro region, but withdrawals affecting the higher education narrowed the possibilities, which has resulted in a reduced energizing role. Infrastructure of the area is acceptable, but the side roads badly need repairing. The application opportunities by the town and Károly Róbert College have increased employment, but have so far been unable to create permanent jobs.

The dominant economic sector is the industry, and the role of the business sector in creating employment is indisputable (76%), but the performance of the agriculture and the service sector is also acceptable. The concepts of the Europe 2020 strategy must be implemented at the local level.

The population is decreasing in the micro region (by 476 people in 2012) and the number of registered job seekers is substantial (4040 people in 2012). Income from employment is growing except for in Halmajugra where there is a significant proportion of Roma population. A strengthened agricultural production in the villages and alternative production options could improve the employment situation in the micro region. The industry can be considered advanced in Gyöngyös, but the "green economy" and the development of clusters could improve the competitiveness of the micro region.

Knowledge employing urban micro regions (such as the Gyöngyös micro region) have the "critical mass", but the lack of other conditions prevent successful clustering. These areas are characterised by the availability of the necessary infrastructure, sufficient manpower, and a significant number of businesses.

Conditions for transportation are good in the Gyöngyös micro region. The main problem is the low level of trust capital.

Within the county the income position of the small region is favourable, but in many other aspects the situation is not good. The proportion of over-60 population is growing continuously, currently standing at 25.1% in the micro region. The proportion of the Roma population is also growing, but at the moment it is still less than 10%.

Employment is increased albeit modestly by:
- 'Funding for Growth Scheme' by the National Bank of Hungary;
- EU tender opportunities;
- increasing domestic demand;
- more favourable loans for investment;
- public works programs.

The effects of EU projects – partly because of the crisis – have not generated an appreciable increase in employment. However, research tenders by Károly Róbert College help shift towards the "green economy" and alternative production. The main employer in the area is the Mátra Power Plant Ltd., its possibilities are still only partially used but its role in employment is decisive.

I examined the following in the micro region:
- the role of green economy in enhancing employment;
- the role of Gyöngyös in development;
- opportunities for cluster organization.

The green economy can increase employment in many areas, such as:
- alternative-energy production;
- water, wind, solar, geothermal energy;
- energy storage, thermal insulation;
- incineration and recycling;
- reducing energy use in vehicles.

The insulation of the housing stock – assuming governmental support – may create 6-700 jobs annually in the micro region. Waste processing and utilisation could have a serious and growing role. Investment in the environmental industry can create jobs as well.

Domestic and EU tenders of Gyöngyös generated approximately HUF 20 billion from 2004 to 2011 and new companies settle down in the industrial park. Despite this employment – owing to the loss of previous jobs – has not reached the desired level.

Opportunities arising in the field of tourism are not fully taken advantage of. Cluster organization is conceivable in the Mátra region in the wine and tourism

sectors. The vineyards and the nearly 10,000 producers would allow successful organization of clusters, if there was trust amongst the producers.

A questionnaire-based assessment shows the main problems. 60% of the respondents consider better pay extremely important, which is in line with the national data. The desire of migration to other areas or even abroad – and especially among educated people – is significant. The opinion is unanimous that there are few jobs, so it is important to attract businesses to the industrial in order to create more jobs. Female respondents expressed their feelings about the family-work-learning responsibilities, their mobility seems to be significantly lower than that of men.

Support by companies for further education fell significantly, multinationals are more ready to employ fully-trained people. The government should consider this fact and should make an attempt to change this negative situation. The older generation can hardly find employment, which I think is a national problem, and also needs attention. Many people would commute, attend training, learning languages, or even take up a new profession for a better job.

Relocation to other regions is a serious problem, which mainly affects the qualified people. In order to keep them in the countryside national programs for working professionals should be launched and the salaries and allowances of professionals working in deprived areas should be increased so that it would be worth staying in the area. If there are no changes in this area, the rural situation will become untenable.

Agricultural production will have to be, the number of animals should be increased, and rural life should be made more attractive. The problems of rural areas cannot be solved solely by agriculture, but without better off agricultural producers other ideas will not be viable either.

The strategic leverage points of the micro region can be determined on the bases of the SWOT analysis. The main ideas are as follows:
- development of health, rural and wine tourism;
- human resource training, retraining;
- the organization of clusters in industrial and agricultural areas as well, creation of village cooperatives;
- stabilization of the role of KRC and the Mátra Power Plant;
- realising the role of employment of the "green economy";
- using grants to improve the situation of the Roma population;
- reduction of polluting production;
- taking advantage of market opportunities in Budapest.

In my opinion, the situation could be greatly improved in the Gyöngyös micro region with the implementation of the above mentioned proposals.

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