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THE INFLUENCE OF SELECTED FACTORS ON THE SALARY OF EMPLOYEES IN THE ŽILINA REGION

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Introduction

To be employed is being by a majority of the people taken for granted. Many of them, however, do not even realize that they are actually in a bad position. They sold the most valuable thing they have - their time and often receive inadequate financial reward for it. People with lower education have less choice of the employment. Without work they will progressively find themselves in a bad financial situation, and therefore necessarily have to employ in order to survive. People, who are working every day, have no remaining energy and free time to increase their skills and knowledge. In addition, for many people earned money is insufficient to cover the cost of living, so they use to take a loan to cover the deficit in the family budget. So if they want to become entrepreneurs, they can not, because the lack of money or knowledge.

Employees are obviously needed. They are needed by companies and also by a state and they can buy them. Here, however, there is a problem – for how much? Employees do not know their price on the labor market, and therefore often work under the price at which they could do. Another problem is the supply of labor. Between regions there are economic and thus social differences. There always have been, are, and will be also and are caused by the historic development in different geographical and natural conditions. It is acceptable, that the capital region of the country, which is in Slovakia the region Bratislava, is economically and socially the most advanced region, in contrast to other regions of Slovakia.

The paper deals with the comparison of the average monthly wages of employees in the Žilina region based on various factors and describe the causes of the differences.

1. Valuation of employees

The intention of every employer is to have satisfied and loyal employees who are efficient and take care of their career growth. The priorities of employers currently include employee satisfaction and motivation to increase productivity. Motivation is a major factor affecting the work performance of the employees. There exist various theories of motivation

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used by performance management. They are based on the knowledge, that the human behavior is targeted, conditional and motivated. The cause of human behavior is the motive; it is an effort to satisfy their need. The evaluation of employees is part of their motivation, so it necessary has to be really motivating. Properly adjusted system of evaluation supports employees initiative, stimulates their feedback and put the right person to the right place at the optimal utilization of his abilities. Employee evaluation is the basis for a number of operations. The most important is wage. It depends on the fulfillment of the given criteria. Therefore, if the employees, paid according to the criteria, have to be objectively and positively motivated, the connection between the criteria and the evaluation is necessary. Wages include all forms of valuation of work, both financial and non-financial. The basis is to find the ideal ratio between the quantity of work done, personnel costs and employee satisfaction.[13]

2. Regions of Slovakia

The aim of this paper is to show the differentiation of wages of employees in selected regions of Slovakia, so we have to define the object of our research. We compared the wages of employees in regions of Slovakia. So as observational units, we used the regions that are at the regional level NUTS 3: Bratislava, Trnava, Nitra, Trenčín, Žilina, Banská Bystrica, Košice and Prešov. For the purposes of this paper we choose the region Žilina, where we focused on finding the differences between wages of employees depending on various factors and comparing the salary of employees of the region to the average wage in Slovakia.[12]

2.1. Slovakia

According to the Statistical Office of the Slovak Republic, in the end of year 2011, Slovakia had 5,4 million of people, from which 51,4% were women. In 2011, there were 2,3514 million of workers, where 86,5% of those were in the economically active age. The most employees were in industry (635 000) and lowest in the activities of extraterritorial organizations (1000). The average monthly wage in 2011 was €786, while the highest nominal monthly wage was in the information and communication activities (€ 1692) and the lowest were in the hospitality services (563 €). [11]

2.2. The Žilina region

The region Žilina covers 13,9% of the state and with an area of 6809 km^2 is the third largest region. At the end of 2010, the population was 698 274 people, which represents a 12,8% share of the total population. The region Žilina is one of the most important economic

regions with developed industry. In 2010, there were 47,8% of the population in the region economically active.

The data on the average monthly wages according to the criteria of education and age are processed in the following table.[13]

Table 1: The average monthly salary in the Žilina region for the year 2010 according to the Statistical Office of the Slovak Republic

The average salary in Žilina region in 2010 / €			
According to the education		***According to the age***	
Elementary school	510	19 years and less	430
Training school	602	20 to 24 years	563
Grammar school without graduation	600	25 to 29 years	709
Training school with graduation	731	30 to 34 years	801
Grammar school with graduation general	728	35 to 39 years	799
Grammar school with graduation technical	739	40 to 44 years	783
Higher school technical	798	45 to 49 years	760
University 1. Level	793	50 to 54 years	748
University 2. Level	1079	55 to 59 years	746
University 3. Level	1191	60 years and more	758

Source: own processing of data from the Statistical Office of the Slovak Republic

In the structure of registered employees in 2010, depending on the level of education, the highest wage has workers with a university degree of 3rd level, the average was €1191. Conversely, the lowest wage reached workers with basic education, the average was €510. According to the age, the salary increased with increasing age and reached the top among workers aged 30 to 34 years with the average wage €801. Then, with additional increasing of the age, the average wage was decreasing. Therefore, we can conclude, that in Žilina in 2010 the highest average monthly salary had employees with a university degree of 3rd level at the age of 30 to 34 years. [11]

3. The purpose of research

Before starting the research, we set out the aim of the research: to analyze the average wage of workers among the regions of Slovakia. The next purpose of research was to compare the wages of employees according to the age, gender and education. We compared the monthly wages of employees who were in the sample, among regions by averages. Then we compared each region to the average wage of whole Slovakia according to the selected

criteria of age, gender and education. In this paper we describe the results obtained of research on the average monthly wage of people in region Žilina. We set the following hypotheses.[13]

Hypothesis A1. *Employees age affect on their average gross monthly salary*. Because of the given data do not satisfy the assumption of normal distribution; we used the nonparametric equivalent of Analysis of Variance (ANOVA) for independent selections, which is the Kruskal - Wallis test. Using this test we verified if the mean wages depend or do not depend on the age. For testing purposes, we have set the following hypotheses:

H_0: There is no difference between the average values of the wages of employees according to their age. Mean values of wages therefore *do not depend* on the age of the employees.

H_1: There is a difference between the average values of the wages of employees according to their age. Average values of wages therefore *depend* on the age of the employee.

Hypothesis A2. *There is a significant difference between the wages of employees in the Žilina region and nation-wide average salary of employees, divided into age groups.*

For comparison of the average monthly salaries to the national average according to the age groups, we define the following hypothesis, which we then tested by the t-test as follows:

H_0: Average gross monthly wages for employees in the region Žilina according to the age groups *are equal* to the average monthly gross wages in Slovakia according to the age groups.

H_1: Average gross monthly wages for employees in the region Žilina according to the age group *is not equal* to the average monthly gross wages in Slovakia according to the age groups.

Hypothesis B1. *The degree of education of employees in the region Žilina affects their average gross monthly wages.*

Using the above-mentioned non-parametric Analysis of Variance analogy we verify, whether the average salary is dependent or independent on the educational level. For testing purposes, we have set the following hypotheses:

H_0: There is no difference between the average values of the wages of employees according to the level of their education. Mean values of wages therefore *do not depend* on education of employees.

H_1: There is a difference between the mean values of the wages of employees according to the level of their education. Mean values of wages therefore *depend* on education of employees.

Hypothesis B2. There is a significant difference between the wages of employees in the Žilina region and nation-wide average salary of employees divided into categories according to their level of education.

For comparison of the average monthly salaries to the national average according to educational levels, we define hypotheses, we then tested as follows:

H_0: Average gross monthly wages for employees in the region Žilina according to their level of education *are equal* to the average monthly gross wages in Slovakia according to educational level.

H_1: Average gross monthly wages for employees in the region Žilina according to their level of education *are not equal* to the average monthly gross wages in Slovakia according to educational level.

Hypothesis C1. *Average gross monthly wages for employees in the region Žilina are dependent on the gender.*

Using the Kruskal - Wallis test we verify, whether the average salary is dependent or independent of the gender of employees. For testing purposes, we have set the following hypotheses:

H_0: There is no difference between the average values of the wages of employees according to their gender. Average values of wages therefore *do not depend* on the gender of workers.

H_1: There is a difference between the average values of the wages of employees according to their gender. Mean values of wages therefore *depend* on the gender of workers.

Hypothesis C2. There is a significant difference between the wages of employees in the Žilina region and nation-wide average salary of employees, divided into categories by gender.

H_0: Average gross monthly wages for employees in Žilina region by gender *are equal* to average gross monthly wages in Slovakia according to the gender of workers.

H_1: Average gross monthly wages for employees in Žilina region by gender *are not equal* to the average gross monthly wages in Slovakia according to the gender of workers.

3.1. Research methods and research sample

For our research we used a 1% random sample from a statistical set of observed wages in the Slovak Republic. For analyzing the salaries we used the mathematical - statistical methods and comparison. The research sample consisted of 1% random sample of employees in the Slovak Republic. It includes the data of wages, gender, education and regions in which employees work. The total number of respondents was 9900. In the region Žilina there was 1126 respondents. [10]

4. The results of research

From the data of salaries, the nationwide average gross salary was €829, which is in comparison with the nationwide average gross wage according to the Statistical Office of the Slovak Republic €3 less. The average gross wage in the region Žilina for this sample was €763. Next we present the results of statistical hypothesis testing we set out in the previous section.

Hypothesis A1: The average monthly wage of employees in the region Žilina depends on the age of employees.

As mentioned above, this hypothesis was verified using the Kruskal - Wallis test, which is the non-parametric alternative for ANOVA for independent random selections. Test results are given in the following table.

Table 2: Kruskal - Wallis test of dependence of employees' wages on the age

Kruskal-Wallis Test	
Chi-Square	43.8252
DF	9
Pr > Chi-Square	<.0001

Source: own processing of data

Based on the p - value of this test, which is significantly smaller than the selected level of significance 0,05, the null hypothesis was rejected, so, there is a difference between the average values of salaries according to the age categories. The hypothesis H_1 was accepted, so the average wages of employees in the Žilina region depend on the age of the employees.

Hypothesis A2: The average monthly wages of workers divided into age categories in the Žilina region are the same as the average salaries nationwide.

This hypothesis was verified by the t - test. The value of the test statistic is -2,73, critical value of the t - distribution with 9 degrees of freedom is 2,26. Since the inequality $|-2{,}73| \geq 2{,}26$ is valid, we reject the null hypothesis in the significance level 0,05. This means that the average gross monthly salary of workers according to the age in the region Žilina vary from the national average.

Hypothesis B1: The average monthly wage of employees in the ZA region is affected by their degree of education. Test results are in the following table.

Table 3: Kruskal - Wallis test of dependence of employees' wages in the region of ZA on their educations

Kruskal-Wallis Test	
Chi-Square	234.6454
DF	10
Pr > Chi-Square	<.0001

Source: own processing of data

The p - value of the test is very small, therefore we reject the null hypothesis. This means that there is a significant difference between the average values of salaries according to the level of employee´s education. We accept the hypothesis H_1 that the average wage of employees in the Žilina region depends on educational level.

Hypothesis B2: The average monthly salary of employees, according to the level of education, is in Žilina the same as the average salary nationwide.

The value of the test statistic of t - test is -1,70, the critical value of the t - distribution with 10 degrees of freedom is 2,23. Since the inequality $|-1{,}70| \geq 2{,}23$ is not valid at the significance level 0,05, we do not reject the null hypothesis. This means that the average gross monthly wages of employees by educational levels in the Žilina region is different from the national average salary.

Hypothesis C1: Average monthly wages for employees in the Žilina region are dependent on their gender. Test results are in the Table 4.

The p - value of the test is much smaller than the chosen significance level 0,05, therefore we reject the null hypothesis that there is no significant difference between average values of

salaries according to the gender of employees. We accept the hypothesis H_1 that the average wages of employees in the Žilina region depend on the gender.

Table 4: Kruskal - Wallis test of dependence of employees' wages in the region of ZA on the gender

Kruskal-Wallis Test	
Chi-Square	121.1614
DF	1
Pr > Chi-Square	<.0001

Source: own processing of data

Hypothesis C2: The average monthly salary of employees, divided into groups according to the gender, in the Žilina region is the same as the average salary nationwide.

The value of the test statistic of two sided t - test is -10,39, the critical value of the t - distribution with 1 degree of freedom is 12,71. Since the inequality $|-10{,}39| \geq 12{,}71$ is not valid at the significance level 0,05, we do not reject the null hypothesis. This means that the average gross monthly wages of employees in the Žilina region according to the gender of the employees are different from the national average wages.

5. Conclusion

As we found out above, age affects the employee's gross monthly salary. This may be caused by several reasons. For young workers the average wages are lower, because young people do not have work experiences and skills. Wages, however, with rising age have rising character. Older workers, despite a collection of experience, look for a job more difficult. Employers think that older people are less flexible and less productive, and have problems with new trends. Therefore, the wages of employees from a certain age have decreasing character. In addition, we found that in the Žilina region, employees categorized by age have average wages significantly different from to the national average wages.

The analysis of the influence of the education on the salary shows, that employees with higher educational level have higher wages than workers with lower education. According to our research there is no significant difference between the wages of workers in the Žilina region and nationwide wages of employees, categorized by their level of education.

The random representative set of salaries that we have available, shows that there are still wage gap between the genders. Men used to work in different sectors of the economy as women. The sectors pay by the state, such as police and army, who can be called as a typical male sector are better paid than the sectors of education and health, where mainly in lower positions are working women. Another reason why women have lower wages than men could be a career break due to motherhood and parenthood. Therefore, it is difficult for women to move up the career hierarchy to the higher positions in management, and make higher wages.

Literature:

[1] Horváthová, M. : *Mzdová problematika od 1.1.2011*, Košice, 2011, ISBN 978-80-969572-5-5

[2] Ochotnícky, P. Autner, R.: *Základné makroekonomické proporcie vývoja ekonomiky Slovenska v roku 2010*, Bratislava, 2010, ISBN 978-80-89105-40-3

[3] Jurga, R. : *Kvantitatívna makroekonómia*, EKONÓM, 2005, ISBN 80-225-2080-2

[4] Vokorokosová, R. : *Minimálna mzda a konkurencieschopnosť*, Košice, 2008, ISBN 978-80-8086-093-6

[5] Sojka, L.: *Regionálny rozvoj v kontexte vzdelanostných faktorov*, Prešov, 2006, ISBN 80-8068-574-6

[6] Štatistický úrad Slovenskej republiky : *Regióny Slovenska*, Bratislava, 2004, ISBN 80-224-0817-4

[7] Rimarčík, M. : *Štatistika pre prax*, Košice, 2007, ISBN 978-80-969813-1-1

[8] Belajová, A. Fáziková, M. : *Regionálna ekonomika.* Nitra, 2005, ISBN 80-8069-513-X

[9] Kachaňáková, A. : *Riadenie ľudských zdrojov.* Bratislava, 2003, ISBN 80-89085-2-2-9

[10] Trexima. [online]. [citované 2012-04-15]. Dostupné na internete: http://www.trexima.sk/new/

[11] Štatistický úrad Slovenskej republiky. [online]. [citované 2012-04-15]. Dostupné na internete : http://portal.statistics.sk/showdoc.do?docid=1477

[12] Regióny. [online]. [citované 2012-04-15]. Dostupné na internete: http://regiony.szm.com/kraje.htm

[13] SMIEŠKOVÁ, M.: Diferenciácia miezd zamestnancov v regiónoch Slovenska: diplomová práca. Bratislava: Univerzita Komenského v Bratislave, Fakulta managementu, 2012.

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