

CHANGES ON THE LABOUR MARKET IN SLOVAK REPUBLIC IN CONTEXT OF POPULATION AGEING

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Abstract

Population ageing along with migration belong to the most serious problems that contemporary demography is concerned with. Labour market of every country is influenced by economic, social and demographic trends. Various demographic changes, such as change in population age structure have a significant impact on a labour market of every country. The aim of the article is to analyze and identify changes on the labour market in the context of population ageing in the sectors of national economy in Slovak Republic. This article deals with demographic trend such as a population ageing and its impact on the labour market in individual sectors of national economy in the Slovak Republic. We consider, that systematic analysis and research in this field can contribute to the solution of unemployment problems, but also to the ability to prepare for the future changes in the sectors of the nation economy and also the ability to exploit population 65+ and migration as the primary source of the labour shortage.

Key words

population ageing, migration, labour market

JEL Classification: H55, J11

Introduction

Aging of the population is becoming an increasingly frequent subject of discussion in today's society, not just among experts. The aging of the population is perceived as a gradual increase in the part of post-productive element of the population of entire population. This phenomenon begins to be realized not only by scientists from field of science and research, but also by representatives of governments or by other inhabitants. Changes in the age structure of the population are currently not a threat to the labour market, but the prognoses are critical and therefore it is necessary to solve this issue today. Many experts from different areas solve this issue mainly because of its immediate impact on the economic level of the landscape or the quality of life of its inhabitants. They stress out the necessity to monitor this phenomenon, focusing on monitoring the correlation between demographic population development and the development of the economic situation. The Slovak Republic, like most countries, is currently experiencing significant demographic changes (Skibiński, 2017). Dynamic transformation of these processes also leads to significant reversals in the labour market. Therefore, labour market indicators are one of the main indicators of the country's economic performance, but also a prerequisite for its own development. The aging of the population is undoubtedly one of the current demographic trends in population development in Slovakia, which is closely

related to the decrease in labour productivity, but also with the growing shortage of labour force in the various sectors of the national economy. The Slovak Republic is experiencing significant economic growth today, but it is threatened by an unfavorable demographic situation at the same time. Given that the aging process is not a short-term process, its effects can be affected by effective short-term measures, which however require long-term, complex solutions with an impact on different aspects of life in society (Káčerová, Ondačková 2015).

Goal and Methodology

The main goal of the contribution is to analyze and evaluate the impact of population aging on employment in individual sectors of the national economy in the Slovak Republic. The paper focuses on reviewing the effects of demographic aging on the labour market in order to propose effective measures to address the emerging labour shortage. The benefits of exploring this issue can be the proposal of effective incentive tools to involve the aging population in the work process in order to achieve higher economic activity, address labor shortages, improve the quality of life of the population, or eliminate the poverty risk of this population.

In order to reach our primary goal, we also set a number of partial goals that will help us to:

- a) analyze demographic and socio - economic situation in individual regions of the Slovak Republic,
- b) elaborate documents for the assessment of the correlation between the influence of demographic indicators on the development of the situation in the individual sectors of the national economy,
- c) subjectively evaluate the identified problems and the proposal of effective measures for their solution.

In order to reach the main goal and the partial goals of the contribution, it will be desirable to proceed in accordance with a predetermined and developed methodological approach that involves the application of different statistical methods and techniques for efficient data processing and the obtaining the results.

- a) analysis of the theoretical and empirical surveys, scientific articles and monographs focusing on issues of population aging and its impact on the labor market,
- b) analysis, acquisition and processing of statistical data from demography and the labor market,
- c) processing of statistical data by means of mathematical - statistical methods such as regression analysis, index methods:
Index of population aging:

$$I_s = \frac{P(65+)}{P(0-14)} * 100 \quad (1)$$
- d) comparison of processed data with the application of graphical methods,
- e) summary of the results obtained.

Findings

The current trend of population aging is an undeniable reflection of the socio - economic situation in society. Whereas in the past population aging was considered to be a demographic phenomenon for the labor market, natural and desirable, today and especially in the near future it will rather be a barrier to its functioning and balance. Aging is a problem that almost every country encounters today. However, this demographic phenomenon has not occurred suddenly, but its consequences are long-term. An increase in the number of post-productive people in the overall population leads to a decline in the workforce. Lack of labor then exerts pressure on political and economic decisions that already lead to prolongation of retirement age. If, despite unfavorable demographic trends, we want to maintain a balance on the labor market, we should focus our efforts on creating conditions for post - productive labor-saving processes, for example by adapting social and health care services. Of course, the problem of aging cannot be just a negative phenomenon. Many countries, in

their development strategies, focus on creating opportunities how to involve this population in active life even after reaching retirement age. By exploiting the untapped potential, we can not only maintain the economy but also improve the quality of life of this population (Makienko, Panamareva, 2016).

1. Labour market and population ageing

The labor market is the field where two interests - demand and supply for labor meet. While labor demand is represented by employers, job offers are represented by employees themselves who offer their skills and knowledge to the employer. The labor market is considered to be the main component of every economy, characterized by its close links to the capital market and the goods and services market (Dixon, 2003).

Therefore, there is a correlation between demand for labor represented by potential employers and the job offer that jobseekers represent. The composition of jobseekers is largely determined by demographic characteristics such as age or education. On the basis of these and other aspects, candidates get the opportunity to apply for jobs in the various sectors of the national economy (Hong, Sungweh, 2015).

Aging is also generally defined as a change in the age structure of the population, which is characterized by a gradual increase in the number of post-productive populations in society. (Shrestha, 2000).

Aging is a global demographic process, which is the result of the previous economic and social development of the population (Krajňáková, Vojtovič 2017).

Population aging is the result of improving the health of the population along with a decline in mortality rates. Another factor stimulating population aging is the process of long-term reduction of fertility, but also the overall growth of living standards or improvement of the life quality (Grmanová, 2017).

Aging is a social problem which requires a common approach, strategy, but also understanding by the younger generation. (Chomik, McDonald, Piggott 2016).

Continuous deepening of population aging fundamentally changes not only the structure of family composition but also consumption, labor market situation, pensions, or social and health care system (Da Roit, Van Bochove, 2017).

Demographic changes are a natural part of the development of society, but their implications are increasingly reflected in employment policy. It is for this reason that national development strategies should strive to build a working environment adapted to the

educational, professional level or age of the workforce (Strunz, Vojtovič 2014).

The social trend of population aging suggests that currently the major segment of the population in the country is made up of people aged 55+. If this problem arises with the decline in birth rates or migration, there is a question of who will work if the component leaves the labor market. With its dominance and necessity, the aging component of the labor market population is considered to be risky and most endangered by unemployment despite its stability, long-term work experience, or willingness to work for lower wage rates. (Krajňáková, Vojtovič, 2017).

Authors Sobolewska and Niewiadomska (2016) report that population aging negatively affects the labor market and overall economic growth in the country, which can be largely eliminated by the timely government response. Their survey, however, confirmed that population aging will lead to a sharp reduction in the gross domestic product and an increase in the economic burden on the population over the next decade, irrespective of policy decisions in this area.

Lisenkova et al. (2013), on the other hand, takes the view that no political intervention will help to eliminate the employment problems caused by demographic changes in the form of aging population completely, as it is a natural phenomenon in society.

Choi and Shin (2015) in their publications point out that this trend appears as yet a factor that is most likely to jeopardize the structure of the national economy and the decline in the workforce.

The effectiveness of labor market policy, or the provision of professional counseling in finding work

has been and is always a matter of intensive discussion. However, many topics in this area remain unresolved. Authors Card, Kluve, Weber (2010), in their studies, call for the need for progress in the processing of statistical data that would facilitate progress in the allocation and adaptation of employment support instruments in the various areas of the national economy.

The trend of population aging is also directly related to European countries. The main cause of population aging can be seen as the result of significant changes in reproductive behavior. (Sanderson, Scherbow, 2008).

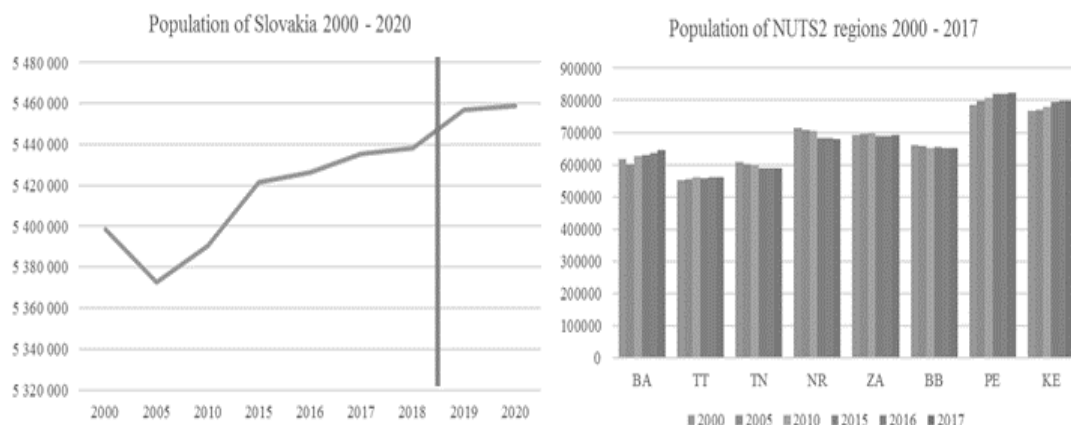
The Slovak Republic has been a proper member of the EU for over a decade. The labor market is among the top priorities in EU strategies, which is in line with the needs of Slovakia. The adoption of the Europe 2020 strategy is therefore confirmed and stresses the need to increase employment and social inclusion, including older people (Lubyová, Štefánik, 2015).

Post – productive population that takes part in work process can be used as the primary source to substitute the absent workforce, but also at the same time using this population segment reduces its risk of poverty threat considering the increase and stability of disposable income (Gautum, Bratt, 2016).

1.1 Demographic development in the Slovak Republic

The Slovak Republic is currently experiencing significant demographic changes in the area of population development. These demographic changes can influence the labor shortage in the future.

Chart 1. Population of Slovakia



Source: Eurostat 2018, DATAcube 2018

The basic demographic indicator associated with other indicators that describes the development on the labor market is the population of the country. In our conditions, there was monitored the population development over the period 2000-2020. While in 2000 there were approximately 5.40 million inhabitants in Slovakia, in 2017 the population grew to 5.44 million. By the year 2020 we expect the

population of SR to reach 5.46 million. At the sight of population development in the Slovak Republic, we are monitoring population growth in the period under review. But there was different situation of population development in individual regions of Slovakia. Population growth was noticed in Košice Region and Prešov Region. On the other hand, population decline was identified in Trenčín Region.

Chart 2. Age structure of Slovakia

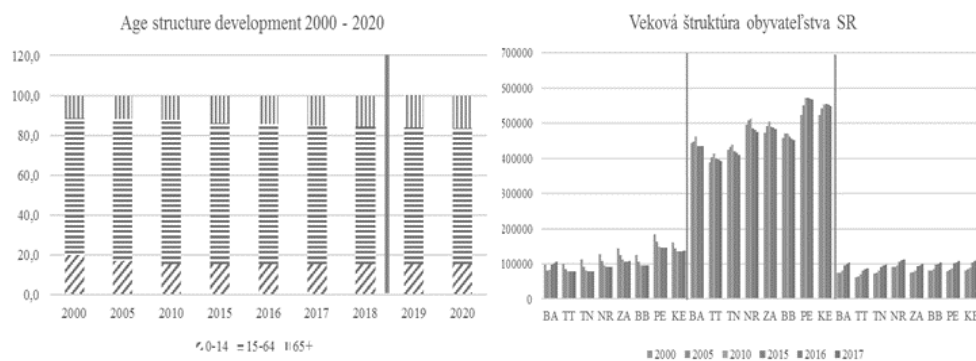


Source: Author's analysis based on data from DATAcube 2018

Chart 2 shows changes in the age structure of the population during the reference period 2000 and 2017. By comparing the years 2000 and 2017, we identify the expansion of the pre-productive but also the post-

productive component of the population. We can say that there has been an increase in population over the period under review.

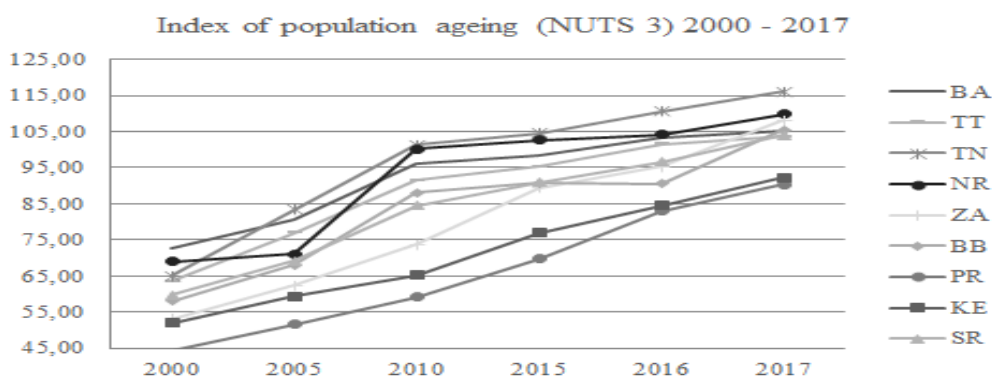
Chart 3. Age structure development of Slovakia



Source: Eurostat 2018, DATAcube 2018

Chart 3 shows the age structure of the population in the Slovak Republic with the forecast until the year 2020 and the age structure of the population at the level of individual regions. The first part of the chart shows the decrease of the productive component of the population by 2020 and on the other hand increase the number of post-productive part of population. In the second part of the chart we identify the situation in

the individual regions of Slovakia. The Prešov Region has the highest share of pre-productive inhabitants from total population and the lowest share has been identified in Trenčín Region. On the contrary, with regard to the post-productive population, the highest share of this population is located in the Trenčín and Nitra regions.

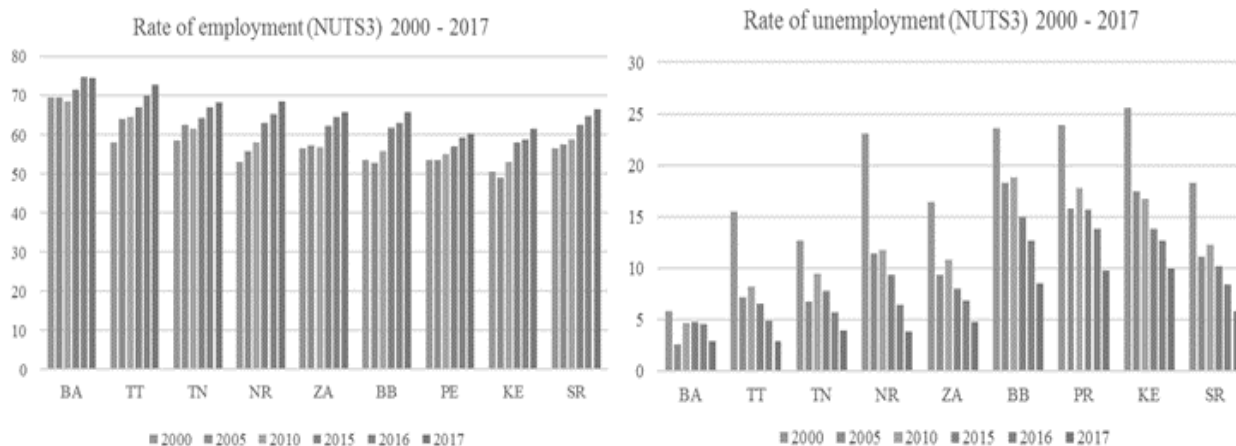
Chart 4. Index of population aging of Slovakia

Source: Author's analysis based on data from DATAcube 2018

Chart 4 The population aging index points to the current situation of the population age composition in the individual regions in the Slovak Republic. While in 2000 there was less than 100 people in post-reproductive age on 100 people in the pre-productive age, significant changes were observed in 2017. We identify only 2 regions (Prešov Region and Košice Region) where there was less than 100 people in post-productive age on 100 people in pre-productive age.

1.2 Labor market evolution in the Slovak Republic

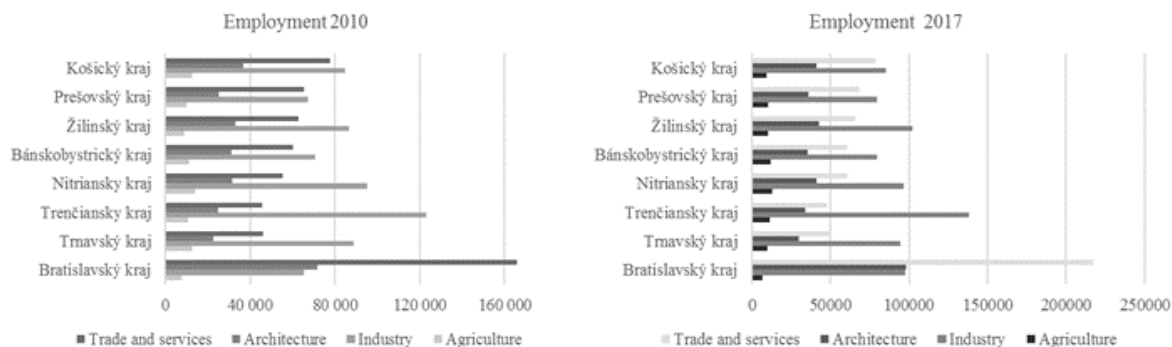
Population aging, as well as many other demographic factors, can be considered as effects that greatly threaten the development of the labor market situation but also the overall condition of the national economy in the country.

Chart 5. Rate of regional employment and unemployment

Source: DATAcube 2018

Chart 5 shows the rate of employment and unemployment in the tracking period 2000-2017. The long-term highest unemployment rate was identified in the Košice, Prešov and Banská Bystrica regions, and contrarily the lowest unemployment rate was noticed in the Bratislava, Trnava and Nitra regions. It

is very positive that the unemployment rate has fallen in each of the regions during the monitored period, which also contributed to decrease of the overall unemployment rate of the SR from more than 15% in 2000 to app. 5,8% in 2017.

Chart 6. Regional employment by sectors of the national economy

Source: DATAcube 2018

Chart 6 interprets the sectoral employment of NUTS 3 regions between 2010 and 2017. We can note that the number of employees in the agricultural sector has decreased gradually throughout the period under review in all regions. When looking at individual regions, it may be noticed that the agricultural sector employs the lowest share of employees, which gradually decreases over the monitored period. The amount of labor in this sector is also dwindling in typically agrarian regions such as the Trnava Region and the Nitra Region. Oppositely, there is a gradual increase in the number of workforce in the trade and services sector. While there is a long-term dominance in the employment of the trade and services sector in the Bratislava Region, the regions of Trnava, Trenčín

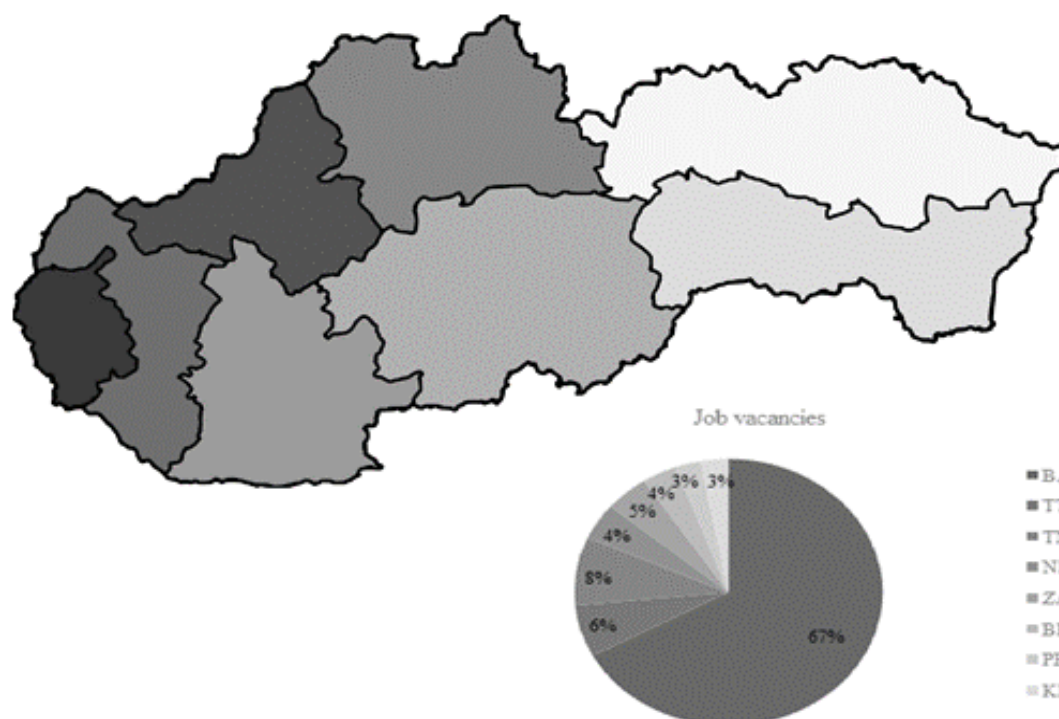
and Žilina dominate the industrial sector, which we can naturally justify from the localization of the automotive industry. On the other hand, the most significant increase in the labor force was recorded in the comparison of regions in the industrial and commercial sector. Despite the dominance of industrial production, there is a slight decrease in the number of industrial workers in typical industrial regions. This workforce is probably going through work in the trade and services sector, as we are seeing an increase in the number of workers in this sector. The architecture sector does not generally predominate in the amount of labor, but it can still be identified as significant in the regions, such as Košice Region, Žilina Region or Nitra Region.

Chart 7. Labor force development of Slovakia

Source: Author's analysis based on data from the Eurostat 2018

Chart 7 shows the number of labor forces in the various sectors of the national economy of the Slovak Republic by 2020. With the exception of agriculture, we expect an increase in the number of labor in all of these sectors. Linking the sectoral employment indicator, which reflects the shift of labor among various sectors of the national economy, with indicators of population growth, including the age

structure, we can assume that in the coming period we will experience labor shortages in the agriculture sector and not only due to the changes in the population age structure and the shift of the labor force the various sectors of the national economy, we can expect a considerable shortage of workers in the industrial and trade sectors and services in the future.

Figure 1. The number of unemployed persons and job vacancies

Source: Author's analysis based on data from the DATAcube 2018

Figure 1 shows the ratio of the number of jobs in relation to the number of unemployed in the individual regions of the Slovak Republic. When comparing data, we identify the increase in the number of jobs in the monitored period, together with a decrease in the number of unemployed in each of the regions of Slovakia. At present, we identify approximately 70,000 vacancies on the labor market, with the most favorable conditions for the unemployed being identified in the Bratislava Region

(62% of the total number of vacancies); on the other hand, the least favorable situation in relation to the number of jobs and the number of unemployed is in Kosice and Prešov Region (3% of the total number of vacancies). Therefore it can be expected that by 2020 the situation will continue to improve due to the increasing number of job opportunities, and already on the basis of previous indicators, we can count on a possible shortage of workers from the council of unemployed who are actively looking for work.

Table 1. Total employment vs. employment 65+

Employment	2000	2005	2010	2015	2020
Total	64,4	64,5	64,6	67,7	70,3
65+	0,27	0,37	0,44	0,78	0,84

Source: Author's analysis based on data from the DATAcube 2018

Table 1 shows the total employment rate in Slovakia, along with the employment rate of the post-productive population, that has decided to remain in employment. As a part of this issue, we decided to bring the 2020 forecast to the linear model. This figure will help us subsequently identify the correlation between these indicators. Looking at the data we obtained, we have identified within the 2000 to 2015 reference period a rapid increase in the

employment rate of the population aged 65+ that has decided to remain in employment. For this reason, it can be assumed that the situation will not change until 2020, and the persistence of the post-productive labor market will become a necessity to provide the necessary amount of labor. It may be expected that the retirement age will be prolonged. It will be necessary to create adequate conditions to keep this workforce active.

Table 2. Regression Analysis

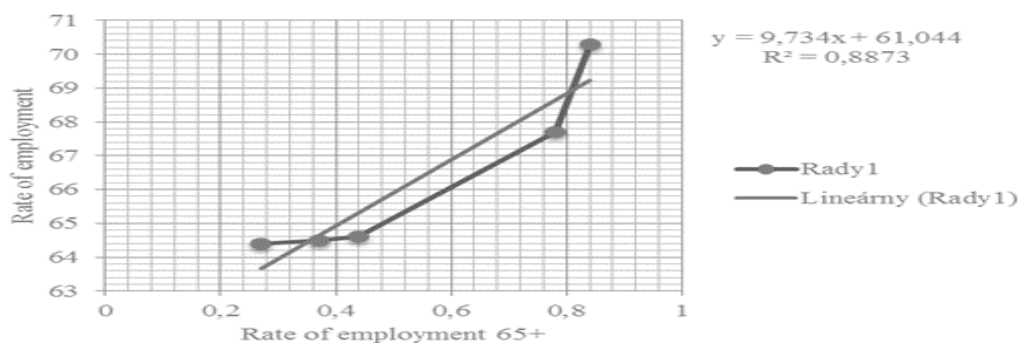
Regression Statistics					
Multiple R	0,941968786				
R Square	0,887305195				
Adjusted R Square	0,84974026				
Standard Error	1,020072891				
Observations	5				

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	24,578354	24,578354	23,62057042	0,016634487
Residual	3	3,1216461	1,0405487		
Total	4	27,7			

Source: Author's analysis based on data from the DATAcube 2018

The regression function is in the form of $y = 61,043 + 9,734 x$ (the independent variable is the population aged 65+ and the dependent variable is the overall employment rate), $b_0 = 61,043$, meaning that in the case of zero participation of the post-productive population in the working process, the total employment rate in the country would reach 61%. X Variable $b_1 = 9.743$ explains that if the number of

workers at the age of 65+ increases by one unit, there will be an increase of 9.73% in the overall employment rate. Correlation coefficient (Multiple R) = 0.94. This value is significantly close to 1, representing very strong correlation of the indicators. The value of the Determination Coefficient (R Square) indicates that the selected regression line explains the variability between the data to 88%.

Chart 8. Regression Analysis

Source: Author's analysis based on data from the DATAcube 2018

Chart 8 summarizes the overall conclusion of the regression analysis. Any increase in the number of post-productive workers on the labor market will also raise the overall employment rate by 94%.

Conclusion

Every employer puts a question about the employment of post-productive workers. While in the past the company has stealthily avoided older employees from restricting young people's employability, today we see post-productive labor processes as a reliable source. The number of companies struggling with the shortage of workers is

steadily rising, qualified graduates are leaving for better working conditions, and that is why job seekers are increasingly responding to fewer and fewer candidates. With regard to the working environment, the conditions and the nature of the labor market, the greatest shortage of the workforce, predominantly in the branches of industry (engineering and automotive), as a sector of our economy, can be expected. When we look at these factors, the starting point for addressing the future labor shortage in the labor market can really be seen in the use of the post-productive component of the population, especially in the soft sectors of industry. Of course, for the employment of this specific population group, it will be necessary to create adequate working conditions, as

well as conditions related to health and social care. The emerging trend of aging population can not be perceived only as a negative demographic phenomenon. By exploiting the potential of the post-productive component of the population available for

work, it is possible not only to increase the economic productivity of the landscape but also to increase the overall economic growth and the level of income achieved.

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