

OLDER PEOPLE IN THE LABOR MARKET AND THEIR EMPLOYMENT IN SELECTED COUNTRIES OF THE EUROPEAN UNION

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Abstract

The interest of the general public and especially in the interest of scientists is it to monitor the ongoing changes in the demographic structure of the population. The demographic structure of the population is associated with aging populations. Aging is the issue that concerns the current labor market situation in every country in the world. The social trend of population aging suggests that currently the most numerous component of the population is the citizens of the 55+ age group. This article deals with the employment of older people on the labor market in selected countries of the European Union. We consider, in the context of demographic developments, it is necessary to address the issue of employment of an older generation that could pass on its long-term work experience to younger generations. The contribution mainly points to a comparison of the current employment of the 55+ population for full and part-time in selected EU countries. To compare this indicator, we have collected data from the European Statistical Office.

Key words

Part-time employment, Full-time employment, Labor market, Older people. European Union.

JEL Classification: J01, J11, J21

Introduction

It is said that in the last twenty-five years in the demographic development of the population there is the fastest change in the structure of the population. Worldwide, the proportion of older people is growing rapidly in the total population. The aging of the population has a direct link to the labor market. Enterprises and organizations in all countries of the world are struggling with the employment of older people, as disadvantaged jobseekers in the labor market. This article highlights the comparison of employment of the older population in selected countries of the European Union.

The social trend of population aging suggests that currently the most numerous component of the population is the citizens of the 55+ age group. 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, as we have already mentioned, is considered unsure and most at risk of unemployment, even though the older population has stability, long-term work experience, or willingness to work for lower wage rates. (Krajňáková, Vojtovič, 2017, p. 325)

At regional level, aging can have a different impact on the labor market. (Gregory, Patuelli, 2015, p. 1192) It means that countries with a very comparable character may have different developments. An

example is the grouping of the Visegrad Four. Population development in the Visegrad Four has a comparable character. When we compare developments in the long-term since 1960, countries in this group can be divided into two groups. The first group consists of the Czech Republic and Hungary, where the aging of the population started earlier, and the second group is the Slovak Republic and Poland, more conservative countries, where the aging of the population started later. (Káčerová, Ondáčková, 2015, p. 51) There are also some differences in part-time employment in the countries of the Visegrad Four. (Grmanová, 2017, p. 69) In the Czech Republic, Slovak Republic and Hungary the proportion of post-productive population employed part-time from the total number of post-productive population increased from 2009-2016, but in the Poland, the share of post-productive population employed part-time out of the total number of post-productive population decreased in the same time.

Employing older people is in the interest of society as a whole. It is part of an active employment policy on the labor market. Nowadays, with the onset of the fourth industrial revolution, which is characterized by the continuous growth of technological novelties used in manufacturing processes, employing the older population is more demanding, as technological innovations are becoming more complex and require constant education, which poses a particular risk to older workers.

Currently, about 2/3 of people aged between 50 to 64 years participate in paid work in developed

countries. Although cross-national variation is large, mobilizing this untapped pool of older workers is expected to produce multiple and complementary benefits. A greater number of older adults in employment can increase both consumption and labor supply, thus benefiting the economy and increasing the tax base. Greater participation of older workers decreases reliance on state-funded pensions and may improve financial preparedness for retirement. On a social level, the increased participation of older workers, their skills and values can contribute in a meaningful and productive way. (Welsh, et al., 2016, p. 2)

Part-time employment becomes an effective tool for improving employment. In total, over three million in Canada are employed part time, well over 26 million persons in the United States and about 19% of the workforce in the European Union with steady increases observed in several countries. (Haines, Doray-Demers, Martin, 2018, p. 128)

Goal and Methodology

$$\text{Economic dependency ratio} = \frac{\text{Pre-productive age group} + \text{Post-productive age group}}{\text{Productive age group}} * 100 \quad (1)$$

$$\text{Old age dependency ratio} = \frac{\text{Post-productive age group}}{\text{Productive age group}} * 100 \quad (2)$$

Finding and processing data on full-time and part-time employment of older people in selected countries was another important milestone to achieve the goal. We calculated percentages from the absolute numbers and then we added the results to the graphs.

In this paper, we will also address the question whether selected EU countries show convergence or divergence in the proportion of part-time employed older people from total employed older people in age group 55+. We will use the statistical method of beta-convergence.

Beta-convergence is one of the methods for measuring convergence, respectively region divergences. It is based on the assumption that the observed data in the regions are converging in the given time horizon, we are talking about convergence. If, in a given time horizon, the data in the regions are dissipating, then we are talking about divergence. In our case, the regions are the individual countries of the European Union.

For the calculation of Beta-convergence we must calculate the employment share of the population over 55 for part-time, out of the total number of employed over 55 years. Then, we must calculate the logarithm of the initial values and we must calculate the average growth coefficients also. From the calculated average

The aim of the article is to contribute to a better understanding of the employment divisions of full-time and part-time population in the 55+ age group in selected European Union countries. As the analyzed period, we chose years 2010 and 2016, because at the time of writing this article, the Statistical Office of the European Union (Eurostat) did not have data available for 2017. The primary point was to determine which Member States of the European Union we would compare in this contribution. We were based on the selection of the Polish author Skibiński (2017, p. 358), who in his article selected the countries according to the geographic aspect: Western Europe - Germany, France, United Kingdom; Central Europe - Poland, Czech Republic, Hungary; Southern Europe - Italy, Spain, Greece and Scandinavia - Denmark, Sweden. We have included the Slovak Republic in selected countries of Central Europe.

A very important step to achieve this aim was to collect data about age of population in selected EU countries from Eurostat. Subsequently, we processed these data and calculated the Economic dependency ratio and the Old age dependency ratio. (Jurčová, 2005, p. 54)

growth coefficients we must calculate the logarithm of the average growth coefficients. (Minářík, Borůvková, Vystrčil, 2013, p. 89) The formula for the average growth coefficients is as follows:

$$\bar{k} = \sqrt[n]{\frac{y_n}{y_0}} \quad (3)$$

When: n – in our case is 6, because we compared the time period of six years (2010-2016)

y_n – in our case, the share of employment of the population over 55 year for part-time employment, out of the total number of employed person over 55 years in 2016

y_0 – in our case, the share of employment of the population over 55 year for part-time employment, out of the total number of employed person over 55 years in 2010

Then, by the least squares method, the equation of a regression function with a dependent and independent variable is determined. The dependent variable is the logarithm of the average growth coefficients. An independent variable is the logarithm of the initial values. If the regression function is declining, we are talking about convergence. If the

linear regression function is rising, we are talking about divergence.

An important step is to calculate the value of the coefficient of determination in percent. The coefficient of determination explains how many percent of total variability is explained by the model. If the value of the determination coefficient is close to 100, it is considered significant, if approach 0 is considered insignificant. (Minárik, Borůvková, Vystřčil, 2013, p. 91)

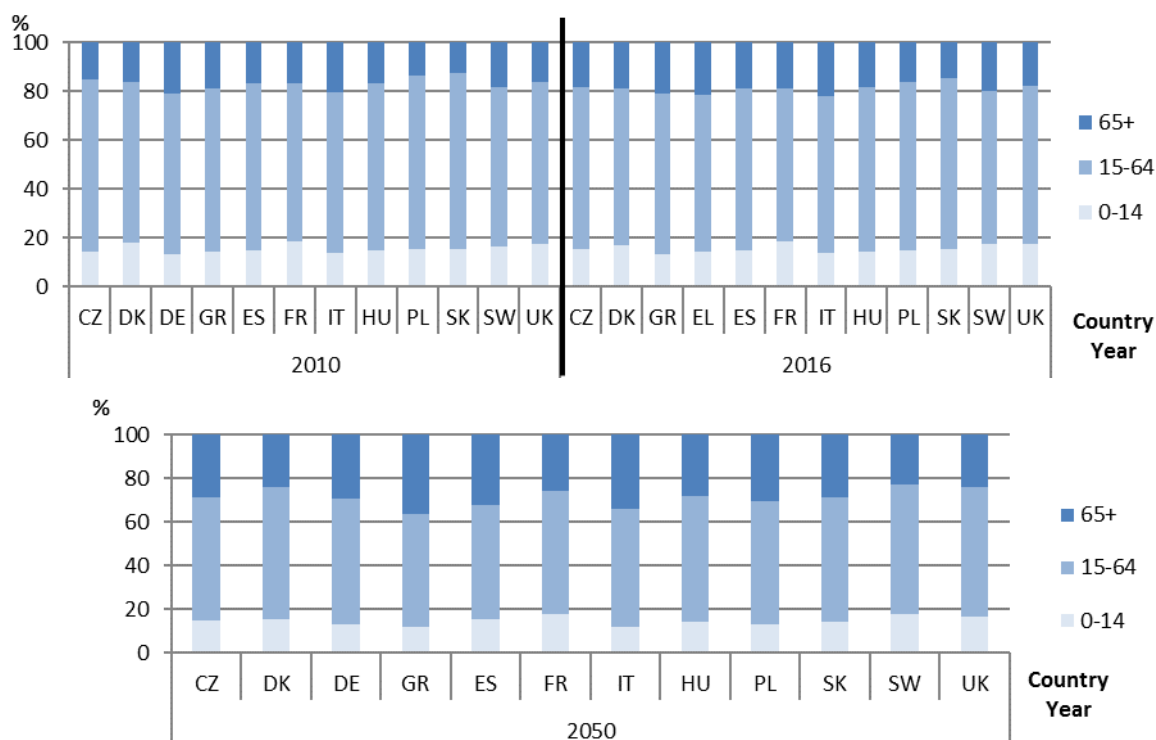
If the convergence results are insignificant, a correlation diagram is used. The correlation diagram divided by two lines monitored regions into four quadrants. The first line, horizontal, goes through to the arithmetic average of the logarithms of the average growth coefficients. The second line, vertical, goes through to the arithmetic average of the logarithms of the initial values. In the first quadrant are regions with above-average of initial value and an above-average

growth coefficient. In the second quadrant are regions with below-average of initial value and an above-average growth coefficient. The third quadrant includes regions with below-average of initial value and a below-average growth coefficient. The last, fourth, quadrant includes regions with above-average of initial value and a below-average growth coefficient.

1. Demographic aging of the population

Demographic changes have a significant impact on almost all areas of life, whether social or economic. (Harper, 2016, p. 183; Schmidt, Vosen, 2013, p. 357; Skibiňsky, Sipa, Gorzeń-Mitka, 2016, p. 413) Therefore, it is also necessary to address the demographic structure of the population that is a closely related to the labor market.

Graph 1. Demographic structure of population by age group in 2010 and 2016 and prognosis for year 2050



Source: own work of authors based on Eurostat data (2018-03-26)

For the calculation of the established ratios in the labor methodology, we first worked out the age structure of the population according to productivity, with the prediction for year 2050 (Graph 1).

The growth of the post-productive population has also been reflected over a six-year period, from 2010 to 2016, in each of the selected countries of the European Union. By comparing the selected years, we came to the conclusion that the post-productive

component of the population in the Czech Republic was the fastest growing - by 3.0 percentage points (p.p.), in real numbers by 9 888 693 inhabitants. The post-productive component of the population in Greece grew the least - by 0.4 p.p.

The calculated forecast for year 2050 predicts, that the trend of a steady increase in the post-productive component and the decreasing of the productive part of the population will be the most important for the

labor market. Although, as we have already mentioned, in the years 2010 and 2016 from the selected countries, the post-productive population in Greece grew most slowly, in 2050 Greece should have the largest percentage of the post-productive population of our chosen countries. Population aged 65+ should account for 36.5% of the total population in Greece. The smallest change in the 2050 forecast compared to the real 2016 figures should be in Sweden - by 2.9 p.p. In real terms it is an increase of 65+ yearly by 931 379 inhabitants.

Productive population in all selected countries in 2050 compared to 2016 should be declining. The biggest drop should be in Spain - by 14.2 p.p.

From the obtained data, we calculated the Economic dependency ratio and the Old age dependency ratio in the selected countries, which are shown in Graph 2. The value of the Economic dependency ratio points to the ratio of the economic burden of the economically active population. In all selected countries, Economic dependency ratio has risen, which means that the burden of the productive population is still rising. France had the highest values in the monitored years (the average for the years under review was 56.85 %), by contrast, Slovakia had the lowest Economic dependency ratio (the average for the monitored years was 40.58 %).

Graph 2. Economic dependency ratio and Old age dependency ratio



Source: own calculation of authors based on Eurostat data (2018-03-26)

In 2050, the Economic dependency ratio should be much higher than its real value in 2016. This suggests that the productive population will become more and more economically burdened in many countries. In nine of the twelve selected countries, the Economic dependency ratio should be above 70.0%. Even in Spain and Greece, they should reach values above 90%, which represents a very high economic burden on the productive population.

The second calculated index, Old age dependency ratio, also had a rising trend, which means that in all selected countries the productive population is increasingly burdened by the post-productive component of the population. The largest increase in 2016 compared to 2010 was in the Czech Republic - by 5.91 p.p., on the contrary, the smallest increase was in Denmark - by 0.67 p.p. By 2050, compared to 2016, the Old age

dependency ratio should increase most in Greece - by 37,95 p.p. and at least in Sweden - by 6.49 p.p.

2. Employment of older people on the labor market in selected EU countries

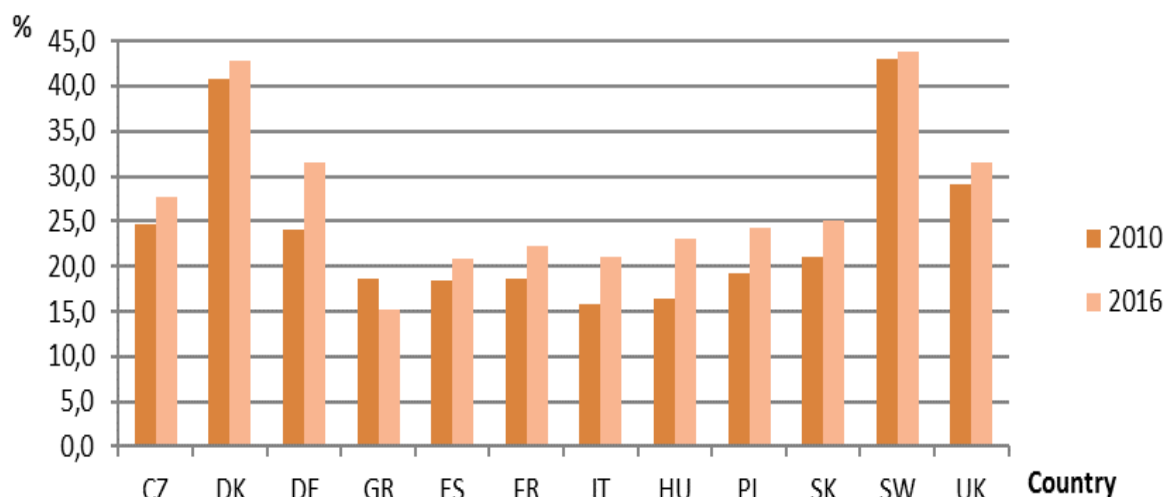
Of the total population in the age category 55+ we calculated the percentage composition of the employed population (Graph 2) within each selected state. In all selected countries, the share of people employed out of the total population aged 55+ in 2016 was higher than in 2010. The exception is Greece, where the share fell by 3.3 p.p., which in real numbers represents a decrease of 79.1 thousand inhabitants at the age of 55+. The highest increase in 2016 compared to 2010 was in Germany - by 7.6 p.p., in real terms by 2 707.9 thousand inhabitants. The countries with the smallest share in 2010 were Italy (where the share of the total population in the 55+ age

group was 15.9 %) and Hungary (16.5 %). In 2016, they were Greece (15.3 %) and Spain (20.8 %).

Chart 5 clearly shows that Scandinavia - Denmark (average of years 2010 and 2016 - 41.7%) and Sweden (average of years 2010 and 2016 - 43.2%) have a much higher share of employed in the two

monitored years of the observed age category compared to other countries surveyed. As we have already mentioned, the smallest share is in the Southern Europe countries- in Italy, Spain and Greece.

Graph 3 Proportion of employed person from total population in age group 55+



Source: own calculation of authors based on Eurostat data (2018-03-26)

In the 28 countries of European union, the share of employed in the 55+ age group out of the total population in 2010 was 22.3 %. Above this limit, 5 countries have a share of employment – Czech Republic, Denmark, Germany, Sweden and United Kingdom. In 2016, the share of employed persons from the total population in the 55+ age group in the EU28 was 26.0 %. Above the value of the EU countries 28 are the same countries as in 2010.

The percentage of how many employees work full-time and how many employees work part-time out of the number of employed person in the age group 55 + in 2010 and 2016 are presented in Graph 4. The highest percentage of full-time employees in 2010 was in Slovakia. (92.9 %), in 2016 it was in Greece (91.5 %). Logically, the employment of part-time it was exactly the opposite.

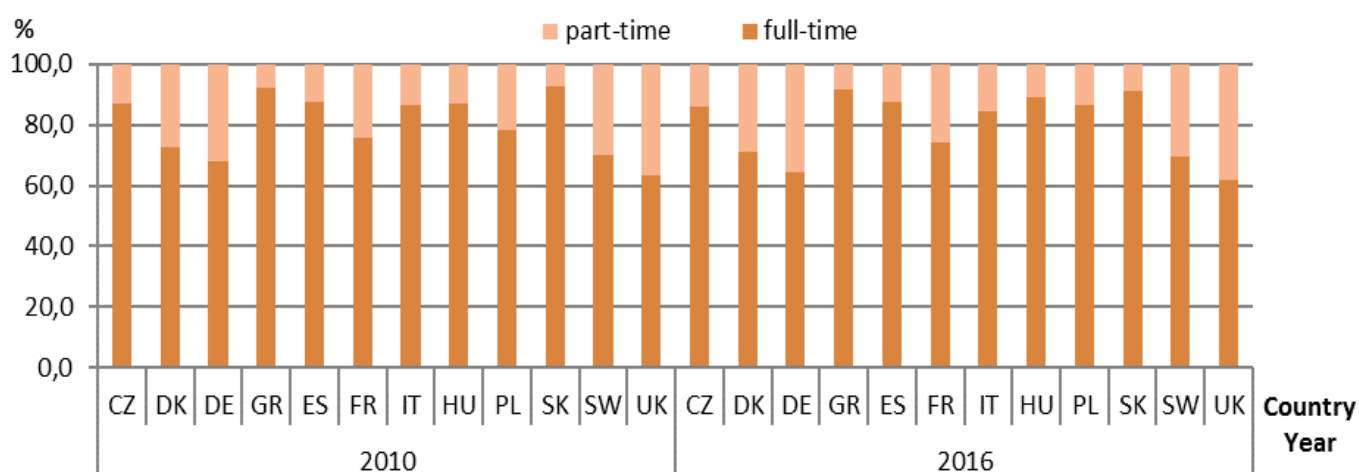
Part-time employment of people has a different percent representation in each of the countries

surveyed. The highest representation in both years is in the Scandinavian countries and in countries of Western Europe. Central Europe and Southern Europe are moving at a much lower level.

Countries by the difference in part-time employment in 2016 compared to 2010 can be divided into two groups. In the first group, the share of part-time employees in 2016 decreased compared to 2010 – in Spain (decrease by -0.1 p.p.), in Hungary (decrease by -2.0 p.p.) and the largest decrease was in Poland – by -8,1 p.p. The second group consists of other countries where the share of part-time employed in 2016 compared to 2010 increased. The highest increase was in Germany, by 3.7 p.p.

At European Union level, the share of part-time employment is rising. The share of employees increased from 26.1 % in 2010 to 26.6 % in 2016, therefore by 0.5 percentage points, in real terms by 2 579.2 thousand part-time employees.

Graph 4. Proportion of employed person working full-time and part-time from employed population in age group 55+

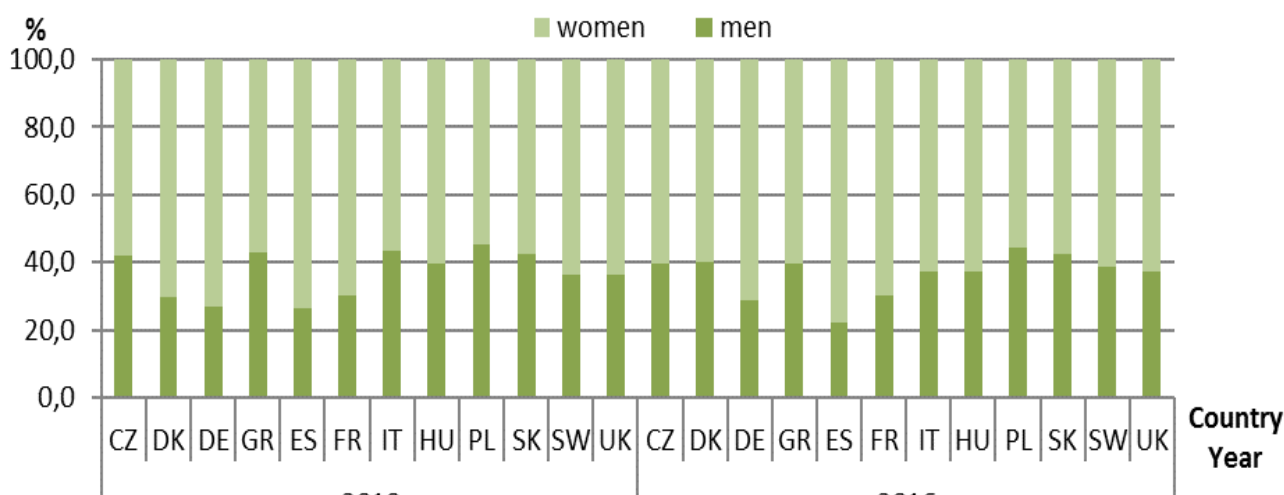


Source: own calculation of authors based on Eurostat data (2018-03-26)

With the constant trend of population aging, it is necessary to think about how to use this group of people and keep them on the labor market for at least shorter working hours. In Chart 5 we present the current situation of how many men and how many women are employed in the 55+ age group for part-time work.

In selected EU countries, the proportion of women employed in part-time is higher than that of men. The difference between the share of female employment and the share of male employment in part-time was the highest in 2010 in Spain (47.6 p.p.), while the smallest in Poland (9.7 p.p.). In 2016 it was the same - the biggest difference was in Spain and the smallest in Poland.

Graph 5. Proportion of employed men and women working part-time from population working part-time in age group 55+



Source: own calculation of authors based on Eurostat data (2018-03-26)

Differences in female employment and men's share of part-time varied in each country. The largest change in 2016 compared to 2010 was in Denmark. While in 2010 the difference between female and male employment in Denmark was 40.3 p.p., in 2016 it was 19.4 p.p. The largest balance between male and

female part-time employment is in Poland. In 2010, the difference between female employment and male employment in part-time in Poland was 9.7 p.p.

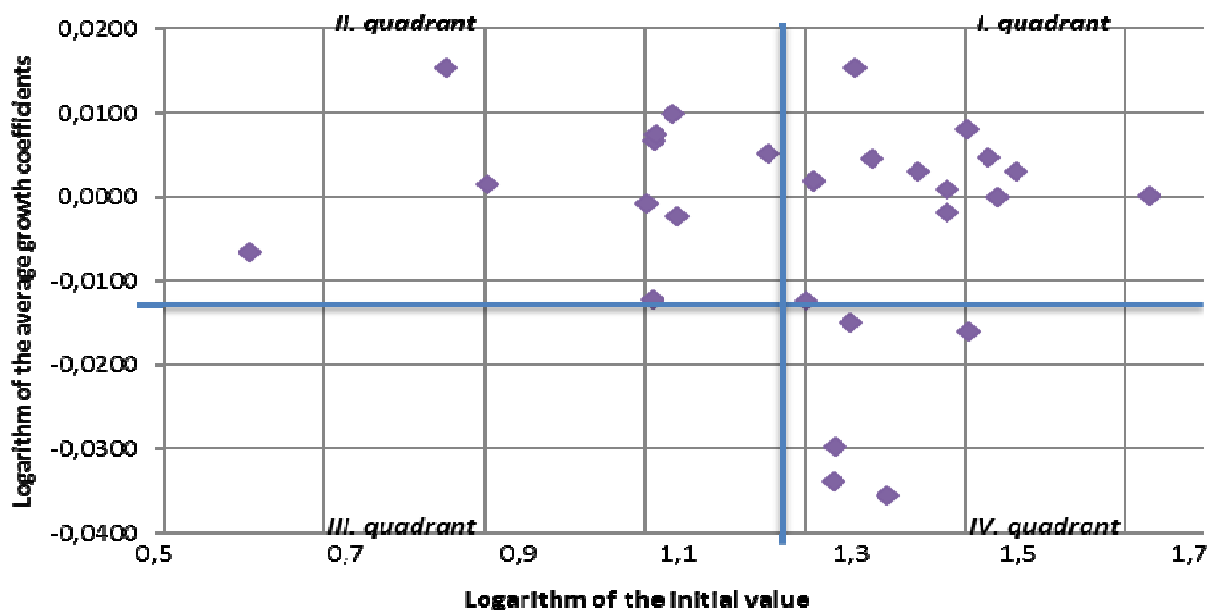
In the last part of our article, we are focusing on finding out whether there is a convergence or divergence in the employment of population aged 55

+ out of the total number of employed people in the same age group in the European Union.

The average growth coefficient of all EU countries was 0.9943. The linear regression function in our case has the form: $y = 0.0054 - 0.0063x$. It follows that the linear regression function is declining. If the linear regression function is decreasing, convergence occurs.

The coefficient of determination is 1.35%, which means that only 1.35% of the total variability is explained by the model. Because the coefficient of determination value is closer to 0, convergence is considered insignificant. In the case of insignificance, a correlation diagram is used. Correlation diagram divide the countries of European Union to four quadrants (Graph 6).

Graph 6 Beta-convergence and correlation diagram



I. quadrant: Malta, Luxembourg, France, Denmark, Ireland, Sweden, Germany, Belgium, Austria, United Kingdom, Netherlands, Finland, Estonia

II. quadrant: Bulgaria, Slovakia, Greece, Hungary, Spain, Lithuania, Czech Republic, Latvia, Italy, Cyprus

IV. quadrant: Romania, Portugal, Croatia, Poland, Slovenia

Source: own calculation of authors based on Eurostat data

The analyzed countries which we selected in our article are divided in different quadrants. Countries of Western Europe - Germany, France and United Kingdom are all located in the first quadrant. They belong to countries of the European Union that reduce the evidence of the convergence process. Countries of Central Europe - Poland, Czech Republic, Hungary and Slovakia are located in two different quadrants. Czech Republic, Hungary and Slovakia are in the second quadrant. Poland is in the fourth quadrant, where are the countries of European Union with above-average of initial value and a below-average growth coefficient. The countries of Southern Europe - Italy, Spain and Greece are all located in the second quadrant. They have a below-average of initial value and an above-average growth coefficient. The Scandinavian countries - Denmark, Sweden are in the

first quadrant, in countries that tend to delay to other countries.

Conclusion

The aim of the article was to contribute to a better understanding of employment disparities in full-time and part-time employment of the population aged 55+ in selected European Union countries in 2010-2016.

The first step was to compare the demographic structure of the population by age in the selected countries of the European Union. The proportion of the post-productive population has increased in each of the selected countries of the European Union. By comparing the selected years, we came to the conclusion that the post-productive component of the population in the Czech Republic was the fastest, the

slowest in Greece. Calculated forecast for 2050 indicates a trend of continuous increase in post-productive part of population and decrease in the productive part of the population in each selected country.

By collecting and comparing data about part-time and full-time employment, we have achieved our established primary goal. Countries according to the difference in part-time employment in 2016 compared to 2010 can be divided into two groups. In the first group, the share of part-time workers in 2016 decreased compared to 2010. This group included Spain, Hungary and Poland. The second group consisted of countries where the proportion of part-time employed older worker out of total employed older worker (55+) in 2016 compared to 2010 increased. This group included Germany, France, England, Czech Republic, Slovakia, Italy, Greece, Denmark and Sweden.

Using the statistical method Beta-convergence, we investigated whether in the countries of the European Union occurs convergence or divergence in the employment of population in the age group 55 + out

of the total employed population in the same age group. From the correlation diagram, we came to the conclusion that the selected countries in our article are located in three different quadrants. In the first quadrant there are countries that tend to leave the rest of the countries. These include our selected countries from Western Europe and the Scandinavian countries. In the second quadrant there are countries that tend to move to the first quadrant. These include six of our twelve selected countries - Slovakia, Greece, Hungary, Spain, Czech Republic and Italy. The fourth quadrant includes countries that tend to move to the third quadrant, including countries that tend to delay to other countries. From our selected countries, only Poland belongs to this group.

The information found may serve as relevant information for further scientific research. An important issue that needs to be further considered is how to keep older workers on the labor market. Currently, employing part-time with a variety of benefits for older workers, can contribute to improving the situation on the labor market.

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