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**THE STORY OF MISLEADING RATES  
AND OMITTED DEMOGRAPHIC CHANGES.  
THE POST-CRISIS YOUTH EMPLOYMENT  
IN 33 EUROPEAN COUNTRIES<sup>1</sup>**

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**OPOWIEŚĆ O MYLĄCYCH WSKAŹNIKACH  
I POMIĘTYCH ZMIANACH DEMOGRAFICZNYCH.  
ZATRUDNIENIE MŁODYCH PO KRYZYSIE  
EKONOMICZNYM W 33 KRAJACH EUROPEJSKICH**

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**Summary:** Literature review has shown that the demographic dimension of the labour market changes remains generally overlooked. The paper aims at filling the gap. The main question asked in the paper is: what are the long-term consequences of the crisis 2008–2009 for youth labour market in the European countries? In order to answer the question, the changes in youth employment to population ratio in 33 European countries are analysed. Any change in the employment to population ratio is a result of combined demographic and labour market effect. While the demographic changes vary between countries; it is argued that a cross-country comparative analysis that does not take into account the role of demographic shifts is likely to provide a misleading picture of the labour market conditions.

**Keywords:** youth employment, youth labour market, demographic trends, the Great Recession, employment to population ratio.

**Streszczenie:** Przegląd literatury pozwolił zauważyć, że w dyskusji na temat zmian na rynku pracy brakuje uwzględnienia aspektu demograficznego. Celem tego artykułu jest wypełnienie tej luki, poprzez ocenę wpływu zmian demograficznych na rynek pracy osób młodych po kryzysie finansowym (2008–2009) w 33 krajach europejskich. W artykule zadane zostało pytanie: jakie są długoterminowe skutki zmian wskaźnika zatrudnienia do populacji osób młodych w 33 krajach europejskich? Każda zmiana w poziomie wskaźnika zatrudnienie/populacja osób młodych jest efektem zmian w liczbie zatrudnionych i liczebności osób w danej grupie

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wiekowej. Zmiany demograficzne różnią się między krajami, dlatego analiza porównawcza, która nie bierze pod uwagę ich roli, może tworzyć błędny obraz rzeczywistości.

**Słowa kluczowe:** zatrudnienie młodych, rynek pracy młodych, trendy demograficzne, Wielka Recesja, wskaźnik zatrudnienia do populacji.

## 1. Introduction

Since the effects of the recent crisis (2008–2009) have been proved to be felt most strongly by people who are about to start their career, when considering its effects on labour markets young people are of particular interest [Bell, Blanchflower 2011]. The difficulties to find a job may translate into unemployment and/or discouragement. While the young people position on labour market had been worse than adults' already before the crisis, young people became unemployed or discouraged due to the crisis. It may lead to long-term consequences. Early unemployment may be regarded as conflicting with the formation of an occupational identity, harming perceptions of self-worth or self-esteem [Goldsmith, Veum, Darity 1997; Michoń 2015]. The difficulties in education-work transition are likely to result in psychological discouragement. There are evidences that being unemployed when young leads to greater likelihood of mental health problems in individual's 40s or 50s [Strandh et al. 2014]. Additionally, people who experience unemployment in the beginning of their career face difficulties when looking for job, even though they are identical to the other job seekers with regards to other characteristics important and observable to the employers [Nilsen, Reiso 2011]. Scarring effect means that unemployment tends to bring future unemployment and it is followed by lower earning after reemployment [Arulampalam, Gregg, Gregory 2001]. According to the signalling theory unemployment at the start of the career may signal low productivity, thus enhance the likelihood of a person not being hired.

The problem of employment of young people draws the attention of both scholars and policymakers. Literature analysis, however, has shown that the demographic dimension of the labour market changes remains generally overlooked. The paper aims at filling the gap. The paper aims to assess the effect demographic changes had on youth labour market after the crisis (2008–2009) in 33 countries and to discuss the potential consequences of the demographic and labour market changes can have for the countries in future. The main question asked in the paper is: what are the long-term consequences of the crisis 2008–2009 for youth labour market in the European countries? In order to answer the question the changes in youth employment to population ratio in 33 European countries are analysed. Any change in the employment to population ratio is a result of *combined demographic and labour market effect*. Thus, the special focus of the paper is on the effect the demographic changes had for youth (aged 20–29) labour market between 2007 and 2017. The demographic changes

vary between countries; a cross-country comparative analysis that does not take into account the role of demographic shifts, is likely to provide a misleading picture of the labour market conditions. It is argued that neglecting the demographic shifts has significant practical and methodological consequences.

The empirical investigation of the relationship between cohort size and youth labour market was initially motivated by the *baby-boom* cohorts in the labour market. *Generational crowding*, i.e., being born in large cohort is likely to affect labour supply and wages [Bloom, Freeman, Korenman, 1987; Wright 1991; Korenman, Neumark 2000; Brunello, Lauer 2004; Brunello 2009] 1980s and early 1990s, and use this evidence to project the likely effects of future cohort sizes on youth labor markets. We estimate a series of regression models to isolate the effects of exogenous changes in potential youth labor supply on youth employment and unemployment rates using a panel data set on 15 countries over more than 20 years. Our preferred estimates show large youth cohorts lead to increases in the unemployment rate of youths, with elasticities as high as .5 or .6. But the estimates generally indicate little effect of relative cohort size on employment rates of youths. We also find some evidence, though statistically weak, that labor market institutions that decrease flexibility lead to sharper responses of youth unemployment and employment rates to fluctuations in youth cohort size. Finally, due to recent declines in fertility, some European countries will see reductions in the size of youth cohorts over the next 16 years (especially Ireland, Italy, Portugal, and Spain. Broadly, the studies show that individuals born in large cohorts – *ceteris paribus* – face higher competition, which is likely to deteriorate their opportunities in the labour market. Obviously, the lower number of young people that enter labour market, the fewer jobs are needed to accommodate them. According to the previous studies it is justified to expect that if the population of young people changed during the analysed period, it might have affected their position on labour market. Additionally, while the demographic processes may significantly vary between the countries it is crucial to take it into consideration when analysing the youth labour market. In order to assess the demographic effect, the changes in the size of young people population are analysed together with the changes in number of young people in employment.

**Method.** In order to analyse the effect of the financial crisis on youth (20–29) labour market situation in European countries, I compare the changes in employment-to-population ratio between 2007 and 2017. While I intend to stress the demographic effect neglected in literature, I use the employment-to-population ratio instead of such popular labour market indicators as unemployment rate and employment rate. I suggest that in case of young people when analysing labour market situation and change is it justified to concentrate on numbers of jobs and employment-to-population ratio instead of the rates.

## 2. The crisis and its consequences for labour market

Bulk of previous studies aimed at evaluating the consequences of the recent financial crisis on youth labour markets in developed countries. In many countries the recession that started with financial and economic crisis in 2008 fully deserves its name of “The Great Recession”. In terms of falling Gross Domestic Product (GDP) it appeared to be the worst drop since decades. The extent to which the financial crisis affected the national economy in Europe varied among the countries with GDP growth rate in 2009 ranging from: -14.8% in Lithuania and -14.7% in Estonia, to 2.8% in Poland. In the paper the question is asked: How are the young people affected by economic crisis? The crisis affected young people through the effect on their employment opportunities. Despite the fact that no generation has been that educated as that of today [OECD 2016], the youth unemployment rate is close to three times that of the adult unemployment rate [ILO 2015]. The young people are usually last to be hired and the first to be let go (last-in-first-out, LIFO). Economic recession created substantial barriers for a new generation of labour market entrants as it negatively affects their school-to-work transition [Jimeno, Rodriguez-Palenzuela 2002; Carcillo et al., 2015; OECD 2016] labour market institutions and macroeconomic shocks at explaining cross-country differences in youth unemployment rates. We find that the fluctuations of the youth population size caused by the baby boom of the 1950s and 1960s and the subsequent decline of fertility in many European countries are positively associated with fluctuations in youth unemployment rates (relative to the unemployment rate of prime age men. Generally, young people may lack experience and skills to convince employers of their capacity to work. It became even harder during the crisis. Additionally crisis affected the young people already in the labour market by deteriorating their employment conditions and forced them to look for less secure or informal employment [Marcus, Gavrilovic 2010; Bell, Blanchflower 2011; OECD 2016]. As a consequence it may lead to depreciation of their human (skills) and social (network) capital and to delay their transition to economic independence and adulthood [O’Higgins 2010].

## 3. Employment-to-population ratio

While youth unemployment rates have risen by more percentage points than adults, several studies suggested that young people are relatively more affected by the recession (for review see: [O’Higgins 2010]). However, one has to have in mind that due to being in education, relatively large group of young people do not participate in the labour market. Thus, even a substantial growth in youth unemployment rate only to limited extent shows us the changes in the conditions of young people. It may reflect the situation of relatively small group of people. Additionally, it has been empirically proved that when faced with difficult labour market conditions, young

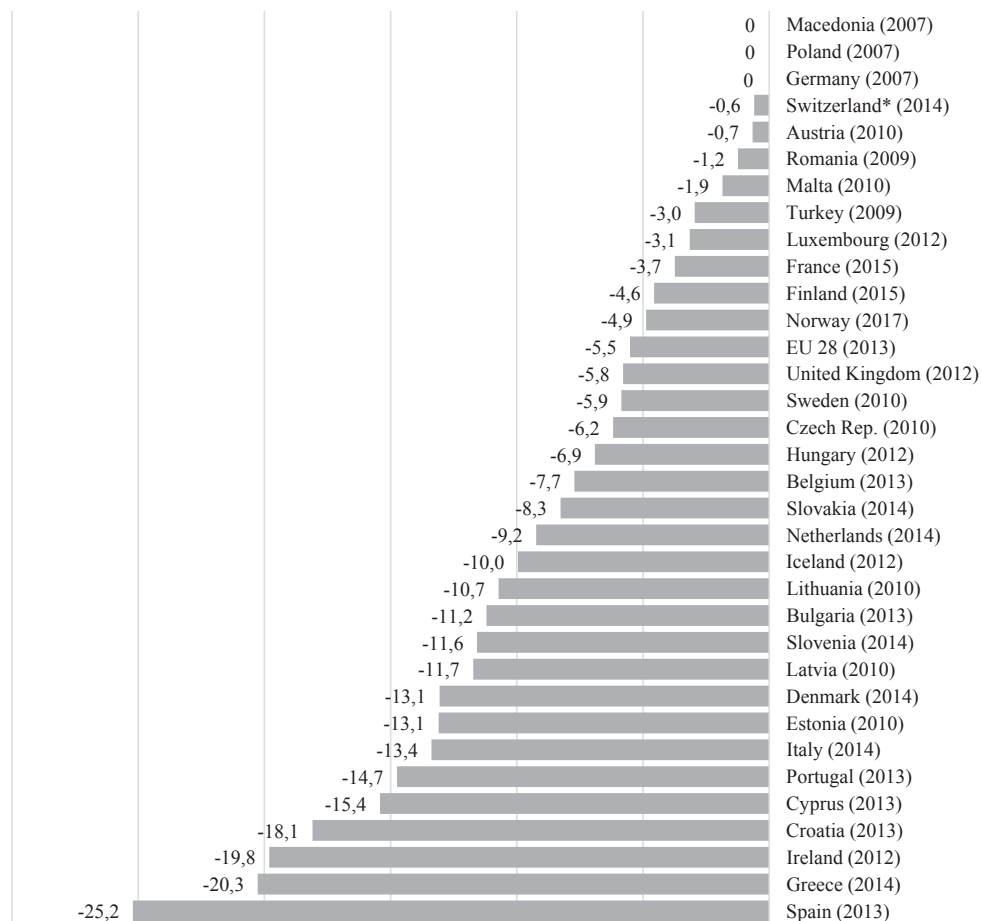
people are likely to return to education. For instance D. Clark [2011] found that youth unemployment plays an important role for the young people's enrolment in post-compulsory education. A weakening youth labour market leads to an increase in the enrolment. That explains why, when analysing the youth labour market, we have decided to look at *employment-to-population ratio* instead of unemployment rates.

Employment rate for a given age group is measured as the number of employed people of given age as a percentage of the total number of people in the same age group in labour force (employed and unemployed). *Youth employment ratio* compares the number of employed with the total population, and not only the labour force. While many young people are exclusively in education, and generally are not considered as available for work, it seems that employment ratio and not employment rate provides a more accurate picture of youth labour market situation. The employment ratio has been calculated by dividing the number of employed young people by the total number of people of the age group. With a comparative perspective in mind, the Eurostat Labour Force Survey database is the most appropriate source to study the changes in number of young people population size and young people participation in employment. In order to eliminate the effect of seasonal variations or short-term fluctuations in the labour market, the youth employment-to-population-ratio was calculated for the first quarter of every year in the period 2007 to 2017.

The usually used definition of youth covers people aged 15–24. This is a broad spectrum, including individuals who are essentially children (15 years old) as well as autonomous adults who have formed their own families [Marcus, Gavrilovic 2010]. While the paper's focus is on young people entering labour market, the young people are defined as individuals aged 20–29, so the youths who graduated from both their low or secondary level education or higher education are included.

In order to show how strong was the effect of crisis for the youth labour market I have considered the changes in employment-to-population ratio of people aged 20–29. It is calculated for the *first quarter* of every year. One can see that the effect of the crisis in terms of youth employment varied significantly between the countries with young people in Southern Europe to be hit hardest, and young Germans, Poles and Macedonians seemed not to be affected at all (see Figure 1). While it is suggested that once economic growth resumes, it takes on average four to five years before employment returns to its pre-crisis levels [O'Higgins 2010], it is important to have in mind the cross-country differences related to the time the lowest ratio has been registered. Whereas almost all countries experienced a decrease in youth employment ratio, the time (year, when the level was the lowest in comparison to 2007 is indicated in the brackets) when the recession most severely hit the youth labour market differed across countries. The first to be hit by the crisis appeared to be the youth in: Romania and Turkey (year: 2009). They were followed by the Baltic states; Latvia, Estonia and Lithuania. Only in two years between 2008 and 2010, the youth employment ratio in the countries declined by: 19, 15 and 11 percentage points (p.p.), respectively. The Southern countries where the employment ratio dropped most dramatically

experienced the lowest level of youth employment in 2013 or 2014. So for example the youth employment ratio in Spain declined from 69% in 2007Q1 to 43% in 2013Q1 and then raised to 49% in 2017Q1.

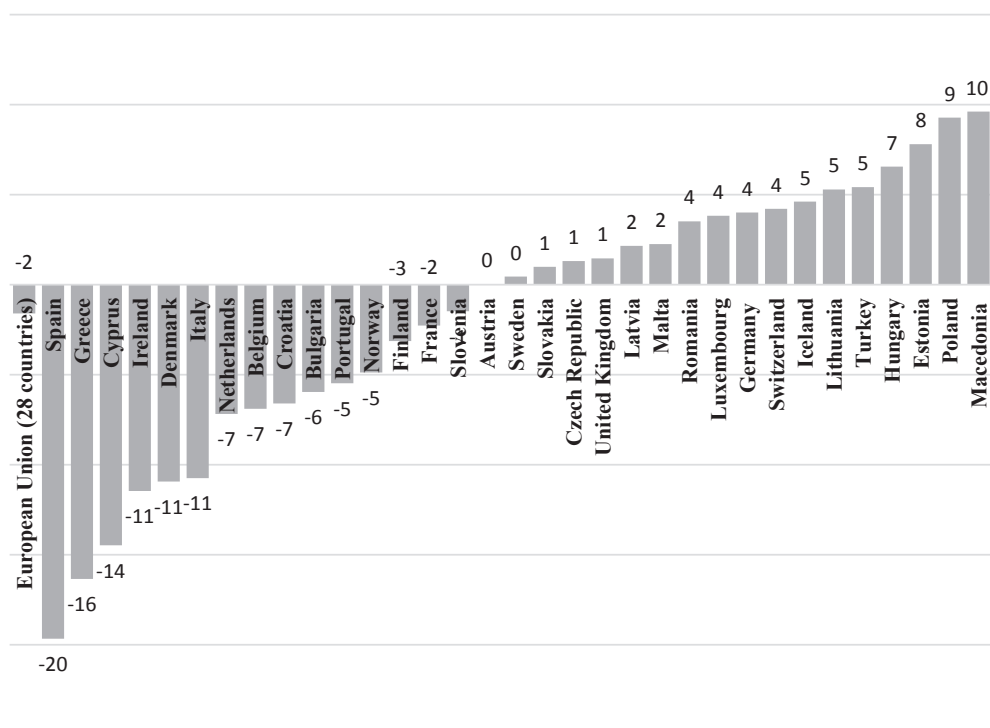


\*Switzerland between 2010 and 2017.

**Figure 1.** The largest drop in youth (20–29) employment-to-population ratio between 2008 and 2017 (percentage points) in comparison to 2007

Source: own calculation based on Eurostat Labour Force Survey.

Figure 2 presents the employment patterns where countries were ranked by the size of the change in youth employment ratio between 2007 and 2017. While the overall employment ratio for the EU-28 in the first quarter of 2017 was 1.6 p.p. below its 2007 level, the European countries performed differently as regards to youth labour market.



**Figure 2.** Change in youth employment ratio between 2007 and 2017 (percentage points)

Source: own calculation based on Eurostat Labour Force Survey.

Looking at the evolution of youth employment ratios over the ten years shows that it increased in 15 and decreased also in 15 countries, while in 3 countries (i.e. Austria, Sweden and Slovakia) it remained unchanged (the change was less than 1 p.p.). Between 2007 and 2017 the highest negative changes in youth employment ratio were recorded in Spain (–20 p.p.), followed by Greece (–16 p.p.), Cyprus (–14 p.p.) and Ireland (–11 p.p.). When analysing the employment ratios in comparison to the pre-crisis period, the situation improved mostly in Eastern European countries: Macedonia, Poland, Estonia, Hungary and Lithuania.

#### 4. Demographic shifts

In the previous paragraphs, the difficulties young people face in the labour market were pointed out: higher level of unemployment, lower level of employment, lower employability, high sensitivity to labour market situation, etc. Most of the researchers and policymakers treat the problems as being *inherently* related to be young. This approach implies that when the young people of today become adults, the difficulties

will simply disappear, and they will affect another group, “new youth”, i.e., today’s children. As a consequence policymakers are expected to focus on specific youth characteristics that make them relatively less employable than adults (experience, skill level, education-labour market mismatch, etc.). However, the same subject might be scrutinised from demographic perspective – the changes of the young people population. Between 2007 and 2017 the population of youth, aged 20–29, in European Union declined by slightly more than 5 million people, which translates into 8% of the population.

The combined effect of constantly low fertility rates and migration led to the decline in the number of young people in many countries. (It is worth stressing that while fertility rates depends on the size of previous population and their procreative behaviour, net migration might be the result of labour market conditions in a country.) Only during the ten years the size of young people population declined by one third in Ireland, and more than one fourth in Romania, Spain, Latvia and Greece, while in Denmark, Sweden, Norway and Luxembourg the number of young individuals rose by 25% or more. The comparative analysis of the changes in absolute number of young people population and absolute number of young people in employment between 2007 and 2017 allows for distinguishing six groups of countries.

**Group 1. A demographic mitigation.** In nine countries: Spain, Greece, Ireland, Portugal, Italy, Slovenia, Croatia, Bulgaria, France, both the number of employed young people and the number of young people in population decreased, but the former decreased relatively more than the latter. As a consequence, despite lowering the supply pressure on youth labour market, the situation of youths has deteriorated. For example: between 2007 and 2017 the youth population in Spain decreased by 27.5%. As a consequence the supply pressure on labour market was significantly lower, and in turn, *ceteris paribus*, should result in increasing the youth employment-to-population ratio. However, as the number of employed individuals has fallen even more, the ratio has decreased (see Figure 2).

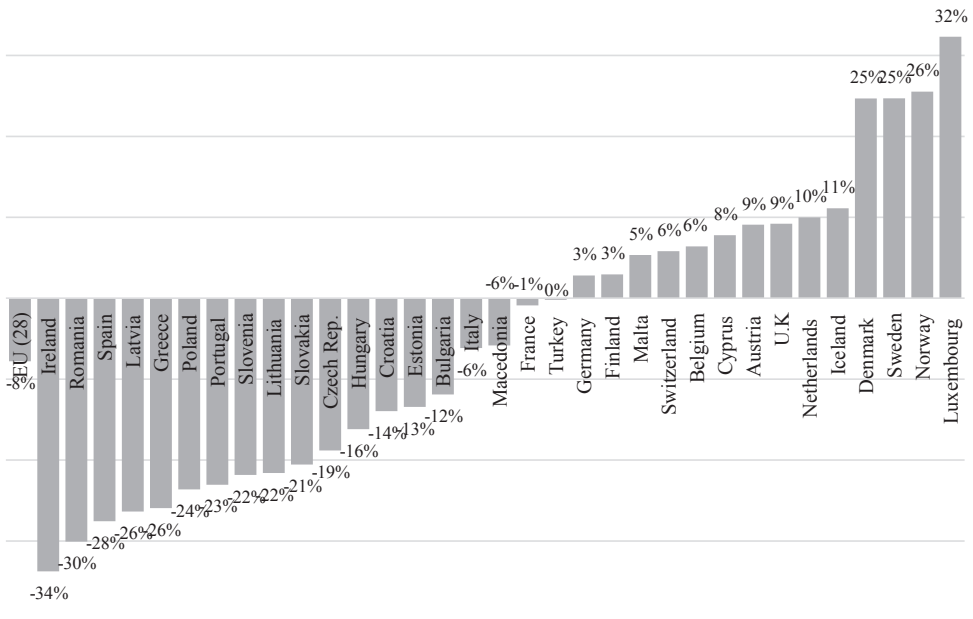
**Group 2. An apparent improvement:** Romania, Latvia, Slovakia, Czech Republic, Lithuania, Poland, Hungary, Estonia. In these countries the number of employed young individuals decreased, but the population of young people decreased even more (see figure 4). In other words, the negative change in the labour market has been attenuated by the decline in population size. This in turn translated into the increase in employment-to-population ratio, and might create a misleading impression that the situation of young people has improved (see Figure 2). However, while the number of jobs taken by young people dropped, it may result in difficulties with finding employment once the number of young people begins to increase. Additionally, one should have in mind that the decrease in number of young people may have been due to emigration, with difficulties in the labour market as the main pushing factor. The Baltic states are good examples. The previous studies show that during and after the crisis the labour emigration of Lithuanians and Latvians almost doubled [Gonser 2011]. And in 2012 the Baltic States were among the EU countries with



largest proportions of emigrating young people to settle in another EU member state [European Commission 2015].

**Group 3. The combined pressures.** As the number of employed young people decreases and at the same time the size of youth population grows, these two shifts add and result in the decline of employment ratio. It was experienced by three countries: Cyprus, Belgium and Finland (see Figure 4). While the demographic changes increased the supply pressures, the difficulties in the labour market resulted in lower demand for youth. The most affected country was Cyprus, where the combination of demographic and labour market shifts caused a 14 p. p. decrease in youth employment-to-population ratio.

**Group 4. Insufficient improvement.** In Norway and Denmark, and much less in the Netherlands, the number of employed young people increased significantly: 17, 7 and 0.5%, respectively. However, this improvement appeared to be insufficient, for the changes in the size of youth population in the countries have been relatively larger (see Figure 3). This in turn resulted in the decrease of youth employment ratio.

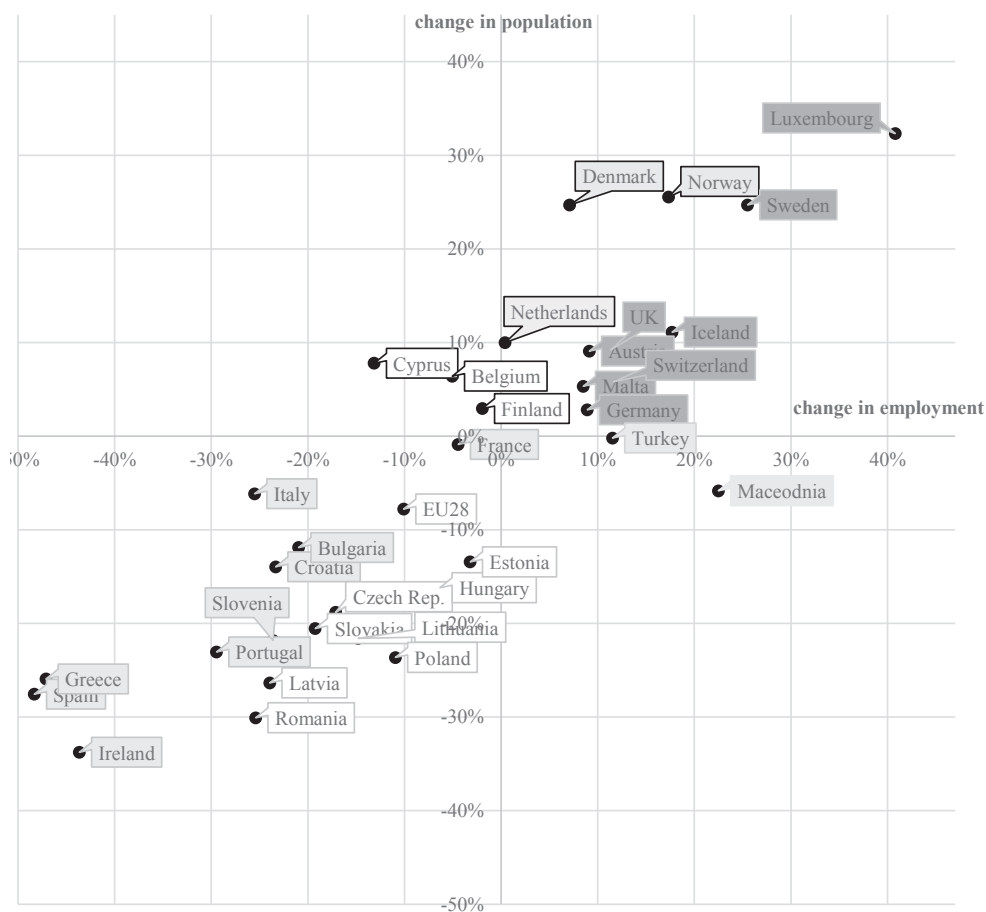


**Figure 3.** Change in the size of youth population between 2007 and 2017

Source: own calculation based on Eurostat Labour Force Survey.

**Group 5. Progress despite pressures.** The growth of the number of young people increases the supply pressure on youth labour market and as such may contribute to deterioration of employment chances, unless the number of jobs for young people rises even faster. This was the case of eight countries (Malta, Germany, Iceland,

Switzerland, United Kingdom, Luxembourg and to less extent Austria and Sweden) (see: figure 4). Iceland represents the best example. It is a good example of a country that, despite growing number of young people, has managed not to reduce, but even to increase youth employment ratio. Despite the facts that due to the crisis between 2007 and 2012 the young people employment ratio dropped by 10 p.p. (see Figure 1) and between 2007 and 2017 the population of young Icelanders increased by 11% (see Figure 3) at the end of the period the country reported rise in youth employment ratio by 5 p.p.



**Figure 4.** The changes in absolute numbers in the size of youth population and the size of employed population

Source: own calculation based on Eurostat Labour Force Survey.

**Group 6. Starting from the bottom.** In two countries: Turkey and Macedonia, the registered changes appear to be counterintuitive. It is reasonable to expect that as the

size of the young people population decreases, so does the number of employed youths, but it was not the case, particularly not in Macedonia. While the number of young Macedonians declined by 6% between 2007 and 2017 (see Figure 3), their number in employment rose by 22.5%. The combined effect of the two shifts resulted in the increase of employment ratio by 10 p.p. However, it must be stressed that comparing to the other countries, the youth employment-to-population ratio in Macedonia was very low. In 2007 it was merely 32%, which equals half of the average level for all the countries in the study. In 2017 only in Italy and Greece the employment ratio was lower than in Macedonia.

In contrast to the groups 1 to 3, the countries in the groups 4 to 6 experienced an increase in the number of employed young people. However, due to various demographic changes, the improvement has not always led to an increase in youth employment-to-population ratio.

## 5. Discussion

The youth labour market performance varies widely between the European countries, and so do the demographic trends. The changes in employment ratio reflect the combined effect of the changes in employment and the population size. When comparing the youth employment-to-population ratio in Macedonia, Poland and Germany, the countries turn out to be very similar. In the ten years after 2007, in any of the countries, the employment ratio has fallen below the 2007 level and in 2017 the youth employment ratio was significantly higher than in the pre-crisis period. However, when taking into account the demographic dimension, it is clear that each of the countries reached the employment level in different way: Germany represents the group 5 (progress despite pressures), Poland is in group 2 (the apparent improvement), while Macedonia is in group 6 (starting from the bottom). In Germany the number of employed young people has risen significantly (especially in the group of people aged 25–29) by almost 570 thousands, and it was more than enough to cope with the increased labour supply due to increasing size of young people population. In Poland, on the other hand, between 2007 and 2017 the number of young people in employment significantly decreased (by 370 thousands), but their population decreased even more. The combination of demographic and labour market trends in Macedonia appeared to vary from the ones in Poland and Germany. When comparing to 2007 in 2017 the number of young people in employment was higher while the size of youth population decreased. However it must be stressed that in 2007 the employment-to-population ratio of Macedonian youth aged 20–29 was relatively very low: 32% which is less than half of the level in Germany. The comparison of the three countries reveals how different the labour market trends can be when taking into consideration the demographic dimension. There are more examples of countries which experienced similar changes in the labour market, but significantly different in respect to population size: Greece and Cyprus, Ireland

and Denmark, the Netherlands and Belgium, Norway and Portugal, Lithuania and Iceland, Romania and Luxembourg.

*Shrinking and ageing labour force.* The population of working age is projected to decline in the coming decades. Large cohorts of post-war baby boomers and their children retire and they are replaced by smaller cohorts of young people [European Commission 2014]. Majority of EU countries (20) are expected to record a decline in labour supply between 2023 and 2060. The projected annual growth rate of labour supply (20–64) for the period 2023–2060 is:  $-1.1\%$  in Lithuania,  $-1.0\%$  in Latvia,  $-0.9\%$  in Poland,  $-0.7\%$  in Estonia and total labour supply in EU is projected to decline by  $8.2\%$  between 2023 and 2060, equivalent to about 19 million people [European Commission 2014].

In some countries the population of young people has been increasing. The analysis of historical data reveals that entering the labour markets by the “baby boom” cohorts appeared to produce a demographic dividend [Bloom, Canning 2004]. However, in order to enjoy the positive outcomes of demographic changes, working-age population has to be employed. But some youth in the European countries face a reality in which job creation does not keep pace with the vast number of labour market entrants emerging year after year. In their cross-country analysis S. Korenman and D. Neumark [2000] showed that a rise in relative cohort size by 10% lead to an increase of youth unemployment by around 5%. Additionally, the unmet labour supply of young people (as it was observed in *insufficient improvement* group: Denmark, Norway and the Netherlands) may translate into political instability, drug abuse, elevated rates of crimes, etc. [O’Higgins 2001; ILO 2010; Urdal 2006].

*Temporary improvements.* In the past “baby bust” appeared to have significantly improved, i.e. led to lower unemployment rates; the position of young workers in European countries [Biagi, Lucifora 2008] and in the U.S. [Bertola, Blau, Kahn 2002]. The lower (higher) the number of young people who compete for the same number of jobs, the lower (higher) the risk of unemployment (Gangl 2002). However, in *demographic mitigation* and *apparent improvement* countries the window of opportunity created by the declining number of young people entering labour market is temporary, and it will be replaced by increased old age dependency as the cohort of today adults ages.

It must be stressed that the decline in labour supply may lead to workforce scarcities, skill and occupational mismatch, and it does not necessary lead to full employment. As the share of young people in the working age population is low (and decreasing) the high educated workers crowd-out low educated ones from their jobs. On the one hand, it harms the labour market situation of the lower educated, on the other, it leads to over-education. Over-education and crowding-out of unskilled and less educated leads to a loss of potential productivity and creates barriers for unskilled workers to enter the labour market.

It is worth keeping in mind that at some point the population of young people will cease to decrease, and then it will be necessary to create jobs for young people. Labour

market integration of young people remains a significant, and in many European countries perhaps even growing, challenge. The structural changes in the labour markets may make the creating jobs for youth more difficult. Many scholars argue that the developed countries face a fundamental shifts in the structure of labour demand. In recent decades the proportion of jobs for skilled, high educated, experienced workers has increased, while the demand for unskilled, low educated and unexperienced workers has dropped [Heylen, Goubert, Omey 1996]. As such, the structural change contributes to labour markets difficulties experienced by those who begin their careers [Gangl 2002]. Thus, the problems faced by youths in many countries today seem to be only postponed in “apparent improvement”. Alternatively, the difficulties are faced by Poles, Estonians, Lithuanians, etc., and as a consequence they migrate to other countries.

Persistently low fertility levels and increasing rates of survival to older ages, in conjunction with the ageing of the baby boom generation, are the key determinants of the changing age structures in many European countries. As a consequence, natural population growth is negative, and the stability or growth in population in many of the European countries can only be sustained through positive net migration which is a complex, multidimensional phenomenon, with its costs and benefits that need to be acknowledged. In the short and medium term migration contribute to lessening the labour supply pressure in the source countries. Thus, migration reduces, temporarily, the need to create jobs and at the same time as providing additional income for household it increases demand in economy. However, in the long run, it may reduce economic growth [ILO 2012]. If we assume that companies find the economies with young labour force as more attractive, it is justified to expect that regions and countries from which young people migrate to lose their ability to attract investments. Thus, youth emigration is likely to worsen the labour market conditions of remaining workers.

*The lower growth potential.* Population growth, fertility, sex structure of the population, migration, as well as the age-based dependency ratio cannot be easily influenced or controlled by state in the short or medium term [ILO 2012]. While the economy growth depends on: changes in productivity, capital inputs and labour supply, all else being equal, the changes in labour supply result in differences in the economy growth potential. Young people provide talents, creativity, energy to economies and create the foundations for future development (ILO 2008). The analysis of historical data reveals that entering the labour markets by the “baby boom” cohorts appeared to produce a demographic dividend. As the large cohorts entered labour market the labour supply per capita rose and while the large working age cohort saved for retirement it improved the potential resources for investment [Bloom, Canning 2004]. Between 2013 and 2060 out of the 8 largest EU countries Poland and Romania are projected to have the most negative average annual labour force growth (−0.8%) and it is expected to negatively impact the potential output growth (−0.4%) [European Commission 2014, p. 61]). For comparison France is expected to increase the labour force with an

average annual growth rate of 0.2% which in turns translates into positive effect on potential output growth: 0.2%.

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