NET MIGRATIONS AND LABOUR MARKET IN THE EUROPEAN UNION

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ABSTRACT
Demographic change and large migration flows are seen as greatest social and economic challenges facing EU, issues which particularly affect the labour market. Therefore, in this article we analyze movements of selected labour market indicators, the number of working-age, active, employed and unemployed foreign and national citizens in four largest EU-economies according to the number of working-age foreign citizens, Germany, United Kingdom, Italy and Spain, in the period from 2007 to 2016. In addition, recent migration trends in EU are explored, where special attention is given to net migrations, regarding to which time trends models for each of the EU countries are estimated.

Keywords: Net Migrations, European Union, Trend Models

Introduction
According to Eurostat, around 7.2 % of EU-28 population in 2016 were foreign citizens, which amounts to 36.9 million. Only in 2015 4.7 million immigrants entered EU-28, of which 30% or 1.4 million were citizens of a different EU country from the one to which they migrated and 18% or 860 thousand were citizens of the same country to which they migrated. Consequently, more than 50% were citizens of countries outside EU. On the other hand, EU is facing demographic change. Low fertility rates, improved life expectancy, increased share of persons aged 65 or above in the working age population cause ageing European population. There is no doubt therefore about the crucial role migration will play in shaping European age structure and economic outcomes in the future (Cuaresma et al., 2015). Both of these issues, population ageing and large migration flows in EU, have a considerable impact on the labour market. Our interest was therefore devoted to the analysis of movements of selected labour market indicators, the total number of working-age, active, employed and unemployed foreign and national citizens, and consequently their activity, employment and unemployment rates in the period for which we have data, from 2007 to 2016. This period is however interesting from an economic point of view since it includes the period of severe economic crisis in EU and the period of the economic recovery. Our paper is organized as follows. After introduction, the literature overview is given. Afterwards, data sources and methodology are explained. The analysis of recent migration trends in EU follow with the trend analysis and model estimation with respect to net migration. Finally, the analysis of the labour markets in Germany, United Kingdom, Italy and Spain is conducted, after which we conclude.

Literature overview
There are many reasons for population migration and a lot of literature is devoted to analyzing people's incentives to migrate, although much less than addressing characteristics of migrants and influence of migration on the sending and receiving countries, (Hatton and Williamson, 2002). If we think of economic determinants of migration decision, the theory of why people migrate can be seen as an application of the human capital model in the mainstream economics, according to which people are motivated to move due to international differences in the returns to factor supply, controlling for migration costs, skill levels, income inequality and immigration policies (Bodvarsson and Van den Berg, 2013). The mathematical formalization of Roy model on self-selection in immigration by Borjias
is the theoretical model used in the analysis of the determinants of immigration. As the big four economic and demographic factors driving world migration since 1850 Hatton and Williamson (2002) emphasize „gaps between rich high-wage countries and poor low-wage countries, poverty constraints on the move in poor sending countries, the size of the young adult share in sending and receiving country populations and the size of the foreign-born migrant stock from the sending countries currently residing in the receiving countries.“ Among economic determinants of migration flows, Mayda (2008) in her analysis finds that income opportunities in the destination country significantly increase the size of emigration rates. Impact of an increase in the origin country's relative inequality on the size of the emigration rate is estimated to be positive if there is positive selection, and negative if there is negative selection. Among geographic factors, the distance between destination and origin country which affects costs of migration is found to have negative, significant effect on migration. As a demographic determinant of migration flows, Mayda introduces the share of the young population in the total number of population of the origin country and finds that it has a positive and significant impact on emigration rates. Based on Clark, Hatton and Williamson (2002), the potential migrant will have a bigger incentive to migrate the younger he is, due to higher present discounted value of net benefits, caring next to current wage differentials net moving costs also about future ones. Hatton and Williamson (2002) emphasize the importance of immigration policies on the size of migration, coming in the form of quotas that restrict the number of immigrants or selection of immigrants according to certain characteristics. As the two key elements of immigration policies Hatton and Williamson name family reunification and selection by skill. Another factor that affects emigration suggested in the model by Clark, Hatton and Williamson are network effects. Johnson (1980) describes the importance of established communities of immigrants in the host country in providing job information and financial and psychological support to newcomers. Borjas (1987) nicely described two main focuses of most immigration research, and these are: how do immigrants do in the labour market and what do immigrants do to the labour market. There is vast literature on the economic impacts of immigration for receiving country, especially for US and Canada, as traditional destination countries. More and more research papers are emerging in Europe as some European countries, such as Germany and United Kingdom are experiencing very high levels of immigration. Consequently, the main question of these articles concerns the effects the immigration has on the various aspects of the host countries. One of the most interesting economic aspect of such research is the influence the immigration has on the labour market in the receiving country, which helps to shape the immigration policy of the government in the host country.

Dustmann, Glitz and Frattini (2008) in their empirical investigation of the effects of immigration on the British labour market give a theoretical overview of the impact immigration has on the labour market. Skilled and unskilled labour are distinguished, and if the immigration changes the skill distribution, disequilibrium for different labour types appears inducing changes in wages and employment levels. Long-run effects depend on the approach authors take in their research concerning flexibility of output mix or openness to international trade. If the economy is open to trade and flexible in the output mix, immigration doesn't affect labour market in the long-run, (Dustmann et al, 2015). They show that „wage effects are a consequence of immigration changing the skill structure of the workforce“. An interesting survey of the economic impacts of immigration can also be found in Kerr and Kerr (2011). An important aspect of immigration is also how the immigrants integrate into the receiving country's labour market. Algan et al. (2010) analyzed performance of first and second-generation of immigrants in France, Germany and UK with respect to education, earnings and employment. As a measure of educational attainment authors use the age left full-time education, and found that second-generation of immigrants have more education than first-generation of immigrants when compared to the natives for almost all groups. Compared to France and Germany, immigrants in the UK are found to be very well educated relative to the natives. Overall when analyzing education, authors conclude that education systems in the chosen countries are not reinforcing inequalities that exist between natives and first-generation of immigrants.

Data sources and methodology

Migration figures are collected from Eurostat database for the period from 2006 to 2015. Selected labour market indicators for national and foreign citizens are calculated on the basis of data collected from Labour Force Survey database on Eurostat for the period from 2007 to 2016. Based on the collected data, we want to estimate the time trend models for each of the EU countries regarding the number of net migrations. Net migrations can be calculated as the difference between the immigration and emigration. The data for these models are yearly data from the 10-year period, from 2006 to 2015.
For each country we have estimated several econometric models:

1. Linear model: \[ y = ax + b \]

2. Logarithmic model: \[ y = a \ln(x) + b \]

3. Polynomial model: 2nd order: \[ y = ax^2 + bx + c \]

   3rd order: \[ y = ax^3 + bx^2 + cx + d \]

4. Exponential model: \[ y = ae^{bx} \]

5. Power model: \[ y = ax^b \]

In each model, \( x \) is the independent variable, which is in fact time, and \( y \) is the dependent variable, which is net migration. We have calculated all these models for each EU country, and based on the value of the coefficient of determination, which shows the proportion of the variance in the dependent variable that is predictable from the independent variable, we have chosen the best model for each country.

An overview of migration in EU-28 from 2005 to 2016

When the migration stock in the EU-28 Member States is concerned, the number of foreign-citizens in the EU-28 Member States has been continuously rising, reaching 36.9 million in 2016. Of the total number of population in the EU-28 in 2016, which was round 510.3 million, around 7.2% were foreign-citizens. On the other hand, the number of foreign-born migrants in the EU-28 Member States reached 54.4 million in 2016. The majority of migrants choose large EU economies. The largest number of foreign-citizens in EU-28 in 2016 was recorded in Germany, round 8.6 million, which was 23% of all foreign-citizens in the EU-28 Member States. The second country was United Kingdom with round 5.6 million foreign-citizens or 15% of all foreign-citizens residing in the EU-28 Member States and the third was Italy with round 5 million or 14% of all foreign-citizens in the EU-28 Member States. Spain and France follow with round 4.1 million foreign citizens or 12%.

Immigration in the EU-28 Member States is continuously growing over the years, experiencing very high levels since 2012. According to Eurostat, the number of immigrants entering EU reached 3.3 million in 2012 and 4.7 million in 2015, of which 1.4 million or 30% were citizens of a different EU Member States and 860 000 or 18% were citizens of the same country to which they migrated. More than 50% immigrants to EU-28 Member States were citizens of countries outside EU. The number of immigrants to EU Member States who are emigrating from different EU countries and the number of immigrants to EU Member States which are citizens of the same EU country to which they migrated is relatively stable in those years. As a result, the source of a considerable increase of immigrants, especially in 2015, to the EU-28 Member States comes from countries outside EU. This is not surprising when we know that the most immigrants to Germany came from Syria in the Middle East region.

When the word is about migration flows, the largest absolute number of immigrants was recorded in Germany (round 1.5 million or 32%) in 2015. Other Top 5 EU countries recording highest levels of immigrants are United Kingdom receiving 631 432 people (13,4%), France receiving 363 869 immigrants (8%), Spain with 342 114 (7%) and Italy with 280 078 (6%).

When the emigration from the EU-28 Member States is concerned, 2.8 million people emigrated from the EU Member States in 2015. It is important to note that these numbers also include flows between different EU Member States. According to Eurostat, top 5 countries with the highest levels of emigration were Germany with 347 162 emigrants or 13% of all emigrants from the EU, Spain with 343 875 or 12.5%, United Kingdom with 299 183 or 11%, France with 297 969 or round 11% and Poland with 258 837 or 9.4%. Romania with 194 718 or 7% and Italy with 146 955 or around 5% also had high absolute levels of emigrants in 2015.

In 2015 17 EU countries recorded net immigration, an excess of immigrants over emigrants. According to Eurostat, the country with the largest net immigration in 2015 was Germany with 1 196 686. In United Kingdom 332 269 more people entered the country than left the country. Italy had net immigration of 133 123 people. Another country with the high level of net immigration in 2015 was Austria with 109 634. Positive net migration had also the following countries in descending order of
magnitude in 2015, Sweden (78 410), France (65 900), Belgium (56 832), Netherlands (54 542),
Denmark (33 867), Hungary (15 119), Finland (12 441), Luxembourg (11 159), Malta (4 176), Czech
Republic (3 918), Slovakia (3 127), Estonia (2410) and Slovenia (507).

If we analyze the movement of net migration from 2006 to 2015, it can be concluded that the net
migration flows for some countries are relatively stable, such as Czech Republic, Denmark, Estonia, 
France, Luxembourg, Hungary, Malta, Netherlands, Austria, Slovakia, Finland, Sweden and Slovenia.
Italy records steady decline in the net migration from 2007. There was a slight increase in the net
migration in 2010. In Germany, on the other hand, the net migration is growing strongly, especially 
since 2009. The impact of economic crisis is however noticeable. The net migration for almost all 
countries has been steadily decreasing since 2007 and becoming negative for some countries that were 
strongly affected by the economic crisis, such as Spain, Greece, Portugal and Ireland. That the 
economic situation in a country is a major driver of migration flows is especially seen in the countries 
that are recording negative net migration. Romania experienced the highest level of net emigration in 
2015, of round 62 thousand. Other EU-28 Member States with the negative net migration are Greece 
(-44 905), Poland (-40 690), Lithuania (-22 403), Croatia (-17 945), Latvia (-10 640), Portugal (-10 
481), Bulgaria (-4 247), Cyprus (-2 000), Spain (-1 761) and Ireland (-240). These are countries that 
have weaker economies. For some of them the net migration flows are very volatile. Spain for 
example had the highest immigrant flows in the EU in years before the financial crisis in 2006 and 
2007. From 2008 the number of immigrants continuously decreased with the number of emigrants 
continuously increasing until 2014. As a result, Spain transformed from the net immigration country to 
the net emigration country. After the Romanian accession to the EU in 2007, the net emigration rose sharply, reaching 163 867 in 2008. But due to economic and financial crisis in Romanians ’ main 
destination countries, Italy, Spain and Germany, from 2010 the number of emigrants has decreased by 
2013, but then started to rise again.

Trend analysis and model estimation
From the data about immigrations and emigrations, we have calculated the trend models for each EU-
country. These models were calculated as explained in the part of methodology.

Table 1: Estimated trend models and predicted values for net migrations in the EU-countries

<table>
<thead>
<tr>
<th>Estimated trend model</th>
<th>R²</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>( y = 61817e^{-0.06x} )</td>
<td>0.17</td>
<td>31.950</td>
<td>30.090</td>
</tr>
<tr>
<td>BG</td>
<td>( y = -90,005x^2 + 628,38x - 2012,9 )</td>
<td>0.56</td>
<td>-5.991</td>
<td>-7.433</td>
</tr>
<tr>
<td>CZ</td>
<td>( y = 1899,8x^2 - 28234x + 96700 )</td>
<td>0.59</td>
<td>16.002</td>
<td>31.463</td>
</tr>
<tr>
<td>DK</td>
<td>( y = 625,25x^2 - 5615,7x + 23970 )</td>
<td>0.60</td>
<td>37.853</td>
<td>46.618</td>
</tr>
<tr>
<td>DE</td>
<td>( y = 20246x^2 - 116078x + 159490 )</td>
<td>0.93</td>
<td>2.609.256</td>
<td>3.074.914</td>
</tr>
<tr>
<td>EE</td>
<td>( y = 77,223x^3 - 1165,7x^2 + 4880,2x - 6828,5 )</td>
<td>0.96</td>
<td>8.588</td>
<td>17.314</td>
</tr>
<tr>
<td>IE</td>
<td>( y = 4162,2x^2 - 56295x + 152792 )</td>
<td>0.97</td>
<td>37.173</td>
<td>76.609</td>
</tr>
<tr>
<td>EL</td>
<td>( y = -42978\ln(x) + 48296 )</td>
<td>0.72</td>
<td>-54.761</td>
<td>-58.500</td>
</tr>
<tr>
<td>ES</td>
<td>( y = 23124x^2 - 347442x + 1E+06 )</td>
<td>0.93</td>
<td>-23.858</td>
<td>160.552</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>FR</td>
<td>$y = 2537.6x^2 - 30441x + 128713$</td>
<td>0.70</td>
<td>100.912</td>
<td>128.835</td>
<td>161.834</td>
</tr>
<tr>
<td>HR</td>
<td>$y = -58361x^3 + 841.78x^2 - 5580.6x + 13140$</td>
<td>0.93</td>
<td>-23.800</td>
<td>-33.189</td>
<td>-45.096</td>
</tr>
<tr>
<td>IT</td>
<td>$y = 499034e^{-0.115x}$</td>
<td>0.57</td>
<td>140.847</td>
<td>125.546</td>
<td>111.908</td>
</tr>
<tr>
<td>CY</td>
<td>$y = 329.43x^3 - 5998.8x^2 + 27916x - 15105$</td>
<td>0.83</td>
<td>4.588</td>
<td>25.315</td>
<td>57.764</td>
</tr>
<tr>
<td>LV</td>
<td>$y = -240.61x^3 + 4911.8x^2 - 28049x + 20474$</td>
<td>0.69</td>
<td>-13.989</td>
<td>-24.589</td>
<td>-42.689</td>
</tr>
<tr>
<td>LT</td>
<td>$y = -162.46x^3 + 3843.7x^2 - 24209x + 5928.7$</td>
<td>0.27</td>
<td>-23.617</td>
<td>-26.217</td>
<td>-33.028</td>
</tr>
<tr>
<td>LU</td>
<td>$y = 4944.3x + 0.3512$</td>
<td>0.86</td>
<td>11.477</td>
<td>11.834</td>
<td>12.171</td>
</tr>
<tr>
<td>HU</td>
<td>$y = 168.58x^3 - 2530.3x^2 + 8567.2x + 14741$</td>
<td>0.78</td>
<td>27.194</td>
<td>44.490</td>
<td>68.864</td>
</tr>
<tr>
<td>MT</td>
<td>$y = 14.903x^3 - 223.54x^2 + 1227.3x - 500.9$</td>
<td>0.64</td>
<td>5.787</td>
<td>7.789</td>
<td>10.418</td>
</tr>
<tr>
<td>NL</td>
<td>$y = 700.29x^3 - 11274x^2 + 51491x - 31598$</td>
<td>0.84</td>
<td>102.735</td>
<td>172.939</td>
<td>271.016</td>
</tr>
<tr>
<td>AT</td>
<td>$y = 245.63x^3 - 2026.2x^2 + 4029.5x + 21105$</td>
<td>0.97</td>
<td>147.193</td>
<td>202.135</td>
<td>270.710</td>
</tr>
<tr>
<td>PL</td>
<td>$y = 1872x^2 - 22699x + 782.02$</td>
<td>0.45</td>
<td>-22.395</td>
<td>-2.038</td>
<td>22.063</td>
</tr>
<tr>
<td>PT</td>
<td>$y = 608.88x^3 - 9295.9x^2 + 31862x - 8631.9$</td>
<td>0.94</td>
<td>27.465</td>
<td>87.247</td>
<td>172.276</td>
</tr>
<tr>
<td>RO</td>
<td>$y = -7771.4x^2 + 84803x - 243492$</td>
<td>0.96</td>
<td>-250.998</td>
<td>-344.938</td>
<td>-454.420</td>
</tr>
<tr>
<td>SI</td>
<td>$y = -6006ln(x) + 14401$</td>
<td>0.40</td>
<td>-1</td>
<td>-523</td>
<td>-1.004</td>
</tr>
<tr>
<td>SK</td>
<td>$y = 6420.8x^{-0.385}$</td>
<td>0.43</td>
<td>2.551</td>
<td>2.467</td>
<td>2.392</td>
</tr>
<tr>
<td>FI</td>
<td>$y = -211.11x^2 + 2689.5x + 8178.1$</td>
<td>0.67</td>
<td>12.218</td>
<td>10.052</td>
<td>7.464</td>
</tr>
<tr>
<td>SE</td>
<td>$y = 184.58x^3 - 2325.5x^2 + 8587.5x + 45430$</td>
<td>0.77</td>
<td>104.183</td>
<td>132.562</td>
<td>169.580</td>
</tr>
<tr>
<td>UK</td>
<td>$y = 1027.9x^3 - 14577x^2 + 66611x + 106711$</td>
<td>0.75</td>
<td>443.750</td>
<td>583.166</td>
<td>767.437</td>
</tr>
</tbody>
</table>

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Based on the estimated models from the previous table, we can now predict the future values of net migrations for each EU country. The prediction will be done for next three years, from 2016 to 2018. At the time of writing this paper, the data for 2016 were still not published.

From the Table 1 we expect the largest number of net migrations to continue in Germany, followed by the United Kingdom, Spain, Netherlands and Austria. The largest negative values are expected in Romania, Greece, Croatia, Latvia and Lithuania. Together with these countries, only Bulgaria and Slovenia are expected to have the negative net migrations value in the European Union. The data obtained from the estimated models tell us that the number of net migrations is expected to increase in next three years. We should expect many immigrants from non-EU countries. There are primarily countries from the eastern and south-eastern Europe, as well as the immigrants from the Middle East region and some African countries, which are migrating to Europe, especially the European Union.

Migrants figure in the EU labour market
The total number of foreign citizens migrants of working-age (age group from 15 to 64 years) in EU-28 is growing steadily, reaching round 19.4 million in 2006 and round 28.2 million in the second quarter of 2017 according to the Labour Force Survey. The largest absolute number of foreign citizens migrants of working-age in the second quarter of 2017 was recorded in Germany with 7 285 800, followed by United Kingdom (4 892 900), Italy (3 965 800), Spain (3 514 300) and France (2 970 600). The lowest number was recorded in Croatia with 6 300, Lithuania (9 100), Bulgaria, Romania and Malta (each 10 500). From the absolute number of working-age migrants in EU countries, round 73% were active, i.e. in the labour force.

The analysis of the labour market in Germany
The total number of working-age population in Germany decreased from 54 million in 2007 to 52.3 million 2011. The biggest decrease was in 2010 when it fell by round 3% in comparison to the year before. 2009 was the year for Germany, where the consequences of economic crises felt the most. Since 2011 the number of working-age population is growing steadily, with the biggest increase in 2016, round 2%, compared to the year before. The total number of working-age population in Germany in 2016 was equal to 53.8 million. The number of national working-age population has been steadily declining until 2015, when it has begun to grow, although the growth was very modest, only 0,1%. Consequently, the main source of an increase in the total number of working-age people in Germany from 2011 was an increase in the number of foreign-citizens of working-age. It recorded high rates of growth from 2011 to 2016, with the highest growth of 13% in 2016 compared to 2015. This is the period with very high levels of net immigration for Germany, 279 330 in 2011 and 1,2 million in 2015. The number of foreign-citizens of working-age was equal to 5 million in 2011 and to 7 million in 2016. There was a sharp fall in the total number of foreign-citizens of working-age in 2010 compared to the year before, by round 12% due to the economic crisis. Since 2011 the share of foreign-citizens of working-age in the total number of working-age people is growing from 9,6% to 11,7% in 2016.

The total number of active population in Germany has steadily increased from 41 million in 2007 to 42 million in 2016, with an exception of 2009, when it decreased. The number of national active population in Germany was relatively stable in the observed period, amounting to round 37,2 million in 2016. The movement of the total number of active foreign citizens in Germany is rather volatile, characterized by a sharp fall in 2010 by round 12%. Since then it continues to grow, with the highest growth in 2016 by round 11%. It was equal to 3,8 million in 2007 and 4,8 million in 2016. The share of active foreign-citizens in the total number of active population increased from 9,2% in 2007 to round 11% in 2016. The activity rates of the total working-age population show continuous growth in the observed period from round 76% in 2007 to round 78% in 2016, due to faster growth of the total active population than the total working-age population. The activity rates of national population also show continuous growth from 76,7% in 2007 to 79,4% in 2016. Activity rates of foreign-citizens have risen in the observed period, from 66,8% in 2007 to 69,36% in 2014, when they reached peak, and then started to fall to 68% in 2016.

The total number of employed population in Germany reflects the economic situation in the observed period. It recorded negative growth rates in 2009 and 2010 due to economic crisis. The total number of employed people was equal to 37,3 million in 2007 and 40,2 million in 2016. Their number fell by 1,2% in 2010 compared to the year before. In 2011 it started to grow again with the highest growth in 2016 of round 3%. The growth rates of employed national population in the observed period
were rather modest, taking negative values in 2009 and 2010 and then started to rise by 2% in 2011. They reached their peak in 2016 with round 2%. The number of employed national population was equal to 34.2 million in 2007 and 35.5 million in 2016. The growth rates of employed foreign-citizens show much higher values. The number of employed foreign-citizens fell by round 10% in 2010 and then started to rise. The highest growth of employed foreign-citizens was recorded in 2016 by round 11%. Their number was equal to 3.2 million in 2007 and 4.4 million in 2016. The share of employed foreign-citizens in the total number of employed population shows continuous growth in the observed period, due to its higher growth rates. The exception was 2009. It grew from round 8% in 2010 to round 11% in 2016.

The employment rates of national citizens show continuous growth, from 92% in 2007 to 96.4% in 2016, reflecting the recovery of German economy since 2010. Consequently, there is a growing need for workers. As expected, the employment rates of foreign-citizens showed continuous growth in the observed period, from round 84% in 2007 to round 92% in 2016. Unemployment rates are falling steadily in the observed period, from 8.8% in 2007 to 4.2% in 2016. Unemployment rates of national citizens were lower than those of foreign citizens. They show a steady drop from round 8% in 2007 to 3.7% in 2016. Unemployment rates of foreign-citizens fell from 16.3% in 2007 to round 8.6% in 2016. A slight increase in unemployment rates for both groups was recorded in 2009, as a consequence of economic crises.

The analysis of the labour market in the United Kingdom

The total number of working-age population in the United Kingdom was relatively stable in the observed period. Their number was equal to 40 million in 2007 and 41.4 million in 2016. The main cause of its increase were higher growth rates of the number of foreign-citizens of working age. Their number was equal to 3.2 million in 2007, and 4.8 million in 2016, making 8% of the total working-age population in 2007 and 11% in 2016. The largest increase in the number of foreign citizens of working-age was recorded in 2011, by round 10% compared to the year before, due to recovery of UK economy. The activity rates of national citizens were higher than the activity rates of foreign-citizens, by round 1.5 percentage points in 2016. In 2007 round 76% of working-age national population was active. In 2016 their number increased to 78%. When it comes to foreign-citizens, 73% of working-age foreign population was active in 2007 and 76% in 2016. There were 28.4 million active national citizens and 3.6 million active foreign-citizens in 2016 on the British labour market. The employment rates of national and foreign citizens are very high, over 90% for both groups in the whole observed period. The consequences of UK's recession were felt especially in 2009, by lowering the total employed national population by 2%. The number of employed national population also decreased in 2010 by 0.4% and in 2011 by 0.3%. The number of employed foreign-citizens decreased only in 2009 by round 1%. The total number of employed national citizens was 26.5 million in 2007 and 27 million in 2016, whereas the total number of employed foreign-citizens was equal to 2.1 million in 2007 and 3.4 million in 2016. This has led to the increase if the share of foreign population in the total employed population in the observed period, from 7.5% in 2007 to 11% in 2016. According to the available data from the Eurostat's Labour Force Survey from 2014, the majority of foreign-born first generation of immigrants in the United Kingdom was employed in professionals (26%), service and sales workers (20%) and elementary occupations (14%). The unemployment rates of national citizens were lower than unemployment rates of foreign-citizens. For example, unemployment rate of national citizens was 8.07% in 2011, and 4.83% in 2016, whereas the unemployment rate of foreign-citizens was 9.51% in 2011 and 5.78% in 2016.

The analysis of the labour market in Italy

The number of foreign-citizens of working-age in Italy grew throughout the observed period, with the relatively high, decreasing growth rates. The total number of foreign-citizens of working-age in Italy was equal to 2.2 million in 2007, and 4 million people in 2016. Their biggest growth was recorded in 2008 of round 17%, due to Romania's accession into the EU in 2007, making Romanians the main foreign nationalities in Italy. Italy records steady decline in the net migration since 2007, with the exception of 2010. Even in 2009, when Italian economy recorded GDP fall by 5.5%, total number of foreign-citizens of working-age grew by 10.4% compared to the year before. This large increase stabilized in recent years, taking value of round 1% in 2016 compared to the year before. Italy recorded continuous fall in immigration in the period from 2010 to 2015. The total number of national working-age population decreased slightly from 36.3 million in 2007 to 34.9 million in 2016. The share of foreign-citizens of
working-age in the total number of working-age population in Italy increased from 6% in 2007 to 10% in 2016.

Growth rates of total and national active population are more volatile than growth rates for working-age population, showing short periods of rise in the active population, and short periods of its decline. The largest increase in the number of active national population was recorded in 2012, by 2%. It was the year when inactive population decreased.

The activity rates of foreign-citizens were higher than the activity rates of national citizens in the observed period. The average activity rate of foreign-citizens was round 71,3%, and the average activity rate of domestic citizens was 62%. The activity rates of foreign-citizens decreased from 73% in 2007 to 70% in 2016, whereas the activity rates of national citizens increased from 62% in 2007 to round 64% in 2016.

The movement of active population, total, domestic and foreign, followed the movement of working-age population. Under the conditions of a severe economic crisis in Spain, followed by the recovery of the Spanish economy since 2014, the decrease of foreign-citizens of working-age has slowed down. Consequently, the share of employed foreign-citizens in the total employed population rose from 6,4% in 2007 to round 11%. The large inflow of foreign citizens also influenced the employment rate of domestic population that decreased from round 94% in 2007 to round 88% in 2014. In 2016 89% of active national citizens were employed. According to the available data from the Eurostat’s Labour Force Survey from 2014, the majority of foreign-born first generation of immigrants was employed in elementary occupation (34%). Service and sales workers follow with 22% and craft and related trades workers with 18%. The number of unemployed population in Italy increased from round 1,5 million in 2007 to round 3,2 million people in 2014. From 2014 it started to fall to round 3 million in 2016. The unemployment rates of foreign-citizens in the observed period were larger than unemployment rates of national citizens. Due to severe economic crisis in Italy, 2014 was the year with the highest unemployment rate in the observed period, of round 12 for the national citizens and 17% for the foreign-citizens.

The analysis of the labour market in Spain

The total number of working-age people has risen in Spain from 31,1 million in 2007 to 31,6 million people in 2009. Then it started to fall and that decline continued until 2016. The period of its rise coincided with the period of high net immigration for Spain, especially in 2007 when net immigration reached its peak of 731 201 in the observed period. This is best seen high rates of growth of foreign-citizens of working age of round 10% in 2008, when their number was 4,3 million people, compared to the year before. The number of national working-age population grew very modestly in the observed period, by 0,2% in 2008, when their number was equal to 27,2 million, and then turned negative in 2009. Later periods are characterized by very modest fluctuations in the number of national working-age population. Under the conditions of a severe economic crisis in Spain, followed by the sharp fall in GDP by 3,6% in 2009, for the first time in the observed period the total number of working-age population fell and continued to fall until 2016. The main cause of this fall was a steady decline in the number of foreign-citizens in the remaining period from 2009 to 2016. Due to unfavorable economic situation in Spain, net emigration reached 42 672 people in 2010, which continued until 2016. The number of foreign-citizens of working age decreased from 4,5 million in 2009 to 3,5 million in 2016, with the largest drop of 7% in 2014. With the recovery of the Spanish economy since 2014, the decrease of foreign-citizens of working-age has slowed down. Consequently, the share of foreign-citizens of working age decreased from 14% in 2009 to 11% in 2016.

The movement of active population, total, domestic and foreign, followed the movement of working-age population in the observed period, with the average activity rate of the total working-age population of round 74%. The activity rate of foreign-citizens is higher than the activity rate of domestic citizens in the whole observed period, with the average activity rate of domestic citizens of round 73% and the average activity rate of foreign-citizens of round 79%. As we will see later in the analysis, this is also the case in Italy.
If we analyze employment in Spain from 2007 to 2016, with the start of European economic crisis, the total number of employed population decreased from 20.4 million in 2007 to round 17 million in 2013, which coincides with the Spanish recession. The biggest drop was recorded in 2009 of round 7%. This was the year when Spanish economy was experiencing economic downturn by round 4%. Next big drop in the total number of employed population in Spain was recorded in 2012 of 4.4%. That was the year when GDP fell by round 3%. With the recovery of Spanish economy since 2013, the total number of employed population started to rise. The highest growth of 3% was in 2015, when Spanish economy recorded GDP growth by 3.4%. The total number of employed population was equal to 17.7 million in 2015. The movement of national employed population followed the movement of total employed population in the observed period, with similar, but a bit lower growth rates. The total number of employed national population was equal to 17.7 million in 2007 and finished at 16.2 million in 2016. On the other hand, the movement of the number of employed foreign-citizens shows higher volatility. It recorded a dramatic decrease of employed foreign-citizens of round 11% in 2009 compared to the year before, from 2.8 million in 2008 to 2.5 million in 2009, round 9% in 2012 and 8% in 2013. In the periods of the recovery of Spanish economy, the number of employed foreign-citizens showed a stronger reaction with an increase of round 4% in 2014 compared to the year before. The total number of employed foreign-citizens was equal to round 2 million people.

The employment rates of national population were higher than the ones of foreign-citizens in the observed period, taking a value of round 92% in 2007 and 81% in 2016. The lowest share of employed national population in the total number of active national population was recorded in 2013, of round 75%. The employment rates of foreign-citizens followed movement of the employment rates of national population, taking values of round 88% in 2007 and round 73% in 2016. The lowest value was recorded in 2013 with round 63%. According to the available data from the Eurostat’s Labour Force Survey from 2014, the majority of foreign-born first generation of immigrants was employed in elementary occupation (38%). Service and sales workers follow with 23% and skilled agricultural, forestry and fishery workers with 11%.

Unemployment rates for all three groups of population, total, national and foreign, show similar movement, with the unemployment rates of foreign-citizen reacting more to the economic situation in Spain. The unemployment rate in Spain started to grow in 2007, from 8.3% in 2007 to 26.2% in 2013, which was its highest value. Unemployment rates of national population were lower than the unemployment rates of foreign-citizens in the whole observed period. The share of unemployed foreign-citizens in the total number of active foreign-citizens in Spain increased from 12.2% in 2007 to 37% in 2013. After that period, due to recovery of Spanish economy, unemployment rates of all three types started to fall, reaching round 20% for the total population, round 19% for national population and round 27% for the foreign-citizens in 2016.

Conclusion

Due to demographic change and large migration flows in EU, we were interested in analyzing recent migration trends in EU. We were especially interested in net migrations and movement of selected labour market indicators for foreign and national citizens in four largest EU economies according to the number of foreign-citizens of working age in the second quarter of 2017, in Germany, the United Kingdom, Italy and Spain. Based on the collected data, we estimate the time trend models for each EU country and predict net migration for the next 3 years. Net migration figures for EU-28 countries show that large economies are attracting the largest number of migrants. The German labour market is characterized by decreasing working-age national population in the observed period. From 2011, due to inflow of foreign-citizens on the German labour market, the total working-age population started to rise, increasing the share of foreign-citizens of working age in the total number of working-age population in Germany. The rising activity rates of both groups were noticed in the observed period. The total number of employed national and foreign-citizens rose in the observed period, except in 2009 and 2010, due to severe economic crisis, but the employment of foreign-citizens increased faster, making the share of employed foreign-citizens in the total number of employed population rising from 2010 to 2016. Employment rates of national and foreign citizens were increasing, making unemployment rates decreasing in the observed period for both groups. The share of working-age foreign-citizens in the total number of working-age population in the United Kingdom rose in the observed period, due to increase of foreign-citizens of working-age and decrease of national citizens of working age. Activity rates of national citizens were higher than the activity rates of foreign-citizens. The employment of foreign-citizens rose in the observed period, while the employment of national
citizens showed periods of decrease, especially during the economic crisis, increasing the share of employed foreign-citizens in the total number of employed population. In Italy the total number of national citizens of working-age steadily decreased and the total number of foreign-citizens of working-age increased at very high annual growth rates. The activity rates of foreign-citizens were higher than activity rates of national citizens, with the activity rates of domestic-citizens increasing and activity rates of foreign-citizens decreasing. The total number of employed national citizens fell and the total number of employed foreign-citizens rose, increasing the share of employed foreign-citizens in the total number of employed population. Employment rates of both groups decreased, making unemployment rates increasing, with the exception of 2016.

Spanish labour market is characterized by a significant decrease in the number of foreign-citizens of working-age due to severe Spanish economic crisis. Activity rates of foreign-citizens were higher than activity rates of national citizens with activity rates of national citizens increasing and activity rates of foreign-citizens decreasing. The number of employed national and foreign citizens decreased in the observed period, employed foreign-citizens showing stronger reaction and making the share of employed foreign-citizens in the total number of employed people falling. Both, employment rates for domestic and foreign citizens continuously decreased, making unemployment rates continuously increasing, with the exception of 2016. Unemployment rates of foreign-citizens were higher than unemployment rates of national citizens.

REFERENCES