EMPLOYMENT OF FOREIGNERS IN THE SLOVAK REPUBLIC

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Abstract: The current demographic development in Slovakia is characterized by the fact that the share of the post-productive component of the population in the population is increasing and thus the economic burden on the productive component of the population by the post-productive population is also increasing. Changing the structure of the population changes the labour market. There is a decrease in the size of the workforce. Its gradual decrease may lead to a shortage of employees in some areas. It can be eliminated by increasing the number of employed foreigners. Their distribution within individual regions of the SR is different and thus the contribution of employed foreigners to national income is also different in individual regions. The aim of this paper is to determine the specifics of the development of the number of employed foreigners in Slovakia at the national level and then at NUTS III level.

Keywords: labour market, immigration, working immigrants, employment of foreigners, regional disparities

1 Introduction

Constant changes in the development of society are a natural phenomenon caused by the influence of several factors. Demographic change is one of the most important factors causing change in society (Kostrová, Škrovánková, Bulko, 2017). It is currently being observed from several aspects. Migration is one of the most important. Migration is not a phenomenon of today, although it has been spoken more often than in the past years. As the economic, social and demographic situation evolves, migration also evolves and changes. In Slovakia, experts and researchers are increasingly focusing on migration issues, mainly due to changing demographic indicators on the labour market and the free movement of labour within the EU group.

According to Skibiński, Rączaszek (2017) demographic processes in recent years have had a significant impact on changes in the labour market, in particular on supply and demand. In accordance with Fraňková (2015) the EU labour market faces several challenges, including an aging population that has an impact on labour supply and rapid technological development linked to the demand for a skilled labour force. For this reason, there is a need to identify and respond to labour shortages that can affect economic growth. The lack of labour caused by the aging of the population is also reported by Krajňáková and Vojtovič (2017).

Considering all the negative and positive effects of international migration, migration can be seen as an important factor affecting the level of socio-economic development of the source and target countries. It is precisely in the current turbulent period that the pressure on countries' ability to adapt their individual components of socio-economic development through flexible migration policy is growing (Ondrušek, 2010).

Slovakia is a country that becomes interesting for immigrants from other countries, but on the other hand it is a country from which residents leave to work abroad (Vojtovič, Tupá, 2016). Significant contribution to labour force immigration is the significant development potential of the economy and society (Tupá, 2016).

The contribution of the National Research Council (1997) is devoted to the economic benefits of emigration. This is closely related to the extent to which natives and immigrants are similar and whether immigrants are replacing or supplementing homeworkers in the workplace. If immigrants have the skills to replace the skills of some domestic workers, these domestic workers lose from immigration. If immigrants have skills that complement the skills of other domestic workers, these home workers will gain from immigration. At the same time according to the National Research Council (1997) can be derived the impact of aggregate domestic economy. As long as immigrants substitute for some natives, the larger the loss to those natives, the greater the benefits of immigration to the aggregate domestic economy.

According to National Research Council (1997), it can be stated that the gains and losses of immigration are closely linked. If immigrants replace some natives, the greater the loss of these natives and the greater the benefits of immigration to the overall domestic economy. If the wage of domestic unskilled workers did not fall, no domestic worker (unqualified or qualified) would not gain or lose, and there would be no net domestic profit from immigration.

According to Borjas (2005), if we want to accurately measure these economic gains from immigration, it is necessary to list all possible channels through which immigration transforms the economy. Immigration changes the prices of goods and services, job opportunities for workers, number of jobs in households and number of jobs in immigrant enterprises.

To what extent are immigrants participating in the country's changes in national income can be estimated by comparing GDP if the state had no immigrants (that is, there would be no changes in their immigration revenues) and GDP, which is also affected by immigration.

Immigration surplus, according to Borjas (2005) expresses the relationship:

$$\frac{immigration\ surplus}{GDP} = -\frac{1}{2} sep^2, \quad (1)$$

where s is labour's share of national income; e is the elasticity of factor price for labour (that is, the percentage change in the wage resulting from a one percent change in the size of the labour force); and p is the immigration share, the fraction of the workforce that is foreign born.

Migration and mobility are closely linked to regional disparities (Zudelova, Urbancikova, 2015; Niraula, Valentin, 2019). The aim of each economy is that the development in the individual regions of the national whole is directed towards convergence, in order words to reduce the differences in individual regions. In the Slovak Republic, several authors have already focused on regional differences from different perspectives (Kostrová, 2018; Kordoš, Krajňáková, 2018; Privara, Rievajova, Dziura, 2018; Masarova, Koisova, 2017).

2. Aim, Data and Research Methodology

The aim of this paper is to determine the specifics of the development of the number of employed foreigners in Slovakia at national and regional level. The regional level is analyzed at the NUTS III level. Sub-goals are:

1) to find out whether the number of employed foreigners is converging in the regions,
2) determine the specifics of employment of foreigners in individual regions,
3) determine the relationship between the number of employed foreigners and GDP based on data in individual regions of the SR,
4) estimate the value of Immigration surplus share in GDP in individual regions of Slovakia.

A beta convergence method was used to analyze the convergence of the number of employed foreigners in individual regions of the SR, including regression analysis and correlation diagram.

Analysis of the employment of foreigners in the SR was based on statistics from the Central Office of Labour, Social Affairs and Family. Central Office of Labour, Social Affairs and Family (2019) pursues employed foreigners in three categories:

- employment of third-country nationals with a work permit,
- employment of EU / EEA citizens with an information card,
- employment of third-country nationals with an information card (without a work permit).

The analyzed period is 2012 to 2018. Thus, the initial values of the indicators are 2012 values. The size of the labour force was ascertained from data from the Statistical Office of the Slovak Republic (2019).

Beta convergence and correlation diagram

To determine the convergence, respectively divergence regions in terms of the analyzed indicator, there are several methods. One frequently used method is the beta convergence method.

According to Minařík, Borůvková and Vystrčil (2013), this method assumes that if regions that showed low values at the beginning of the period show faster growth than regions that showed higher values at the beginning of the period, they converge.

Procedure for beta-convergence is as follows:

- Determination of the period in which is searched for convergence, respectively divergence.
- Find the value of the analyzed indicator in the first year of the period (initial values y_1) and indicator values at the end of the period for all regions (y_T).
- The average growth coefficient is calculated from the obtained data ($\bar{k}$).

The geometric mean is used for its calculation

$$\bar{k} = \sqrt[T-1]{k_2 k_3 \dots k_T} = \sqrt[T-1]{\frac{y_2}{y_1}\frac{y_3}{y_2} \dots \frac{y_T}{y_{T-1}}} = \sqrt[T-1]{\frac{y_T}{y_1}} \quad (2)$$

In the next step, the regression method is used. The linear regression function parameters are determined based on the values obtained. The dependent variable is the logarithm of the average growth coefficients and the independent variable is the logarithm of the initial values.

The evaluation is performed based on the monotony of the linear regression function (based on the regression coefficient) and the determination coefficient. If the linear regression function is decreasing, the tendency towards convergence is predominant. If the linear regression function is increasing, the tendency to divergence is predominant.

In case of high values of the determination coefficient (approaching 100%) we speak of highly proven convergence, respectively divergence. In the case of low values (approaching 0%), the determination coefficient is the result of the convergence analysis respectively divergence is little proven.

To divide the regions into groups according to their tendencies to move away from others, respectively to delay behind others is used a graph called a correlation diagram. It is a point graph where the dependent variable is the logarithm of the average growth coefficients and the independent variable is the logarithm of the initial values.

In the first group, there are regions that have above-average values of both dependent and independent variables. They tend to move away from others. In the second group are the regions with below-average initial values of average and above average growth rates. They show a tendency to move to the first group. In the third group, there are regions that show sub-average values of both dependent and independent variables. They tend to delay behind others. In the fourth group there are regions with above-average initial values and below average growth coefficient. Thus, to a group in which there are regions that tend to delay behind others (Minařík, Borůvková, Vystrčil, 2013).

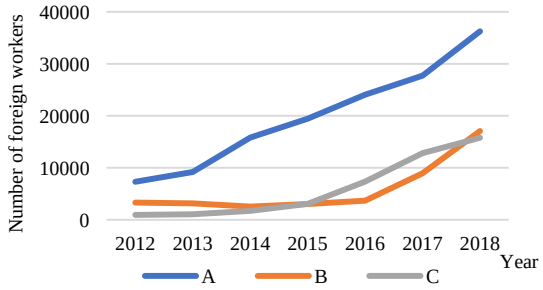
3 Research results and discussion

3.1 Development of the number of employed foreigners in the SR

The current demographic development, especially the development of the number of births and the prolongation of life expectancy, leads to changes in the age structure of the population. These changes affect many areas. Last but not least, they cause changes in the labour market. Nowadays, many employers are aware that their company may be at risk of labour shortages. They are looking for solutions to this problem. Some employers in the Slovak Republic adopted short-term solution with the admission of foreigners into employment. This is evidenced by the growing trend in the number of employed foreigners in Slovakia. In 2012, 11547 foreigners worked in the SR and accounted for approximately 0.5% of all workers. In 2018, 69,116 foreigners worked in the SR and accounted for about 2.7% of all workers. The number of employed foreigners thus increased in the analyzed period by 5.99 times. However, their share in the total number of employed is significantly below the average of employed foreigners in the EU. Since the employed foreigners are monitored by the Central Office of Labour, Social Affairs and Family in the three categories, it is possible to follow developments and changes in the structure based on these three categories.

The number of employed foreigners from 2012 to 2018 is shown in Graph 1. In the whole analyzed period, the most employed were EU / EEA citizens with an information card. In 2012, employed EU / EEA citizens with an information card accounted for about 63.3% of all employed foreigners. The second largest group of employed foreigners were third-country nationals with a work permit. Third-country nationals with an information card (without a work permit) were employed least. In 2012, foreigners from third countries with works permits formed approximately 28.7% and employed foreigners from third-country with an information card (without a work permit) formed approximately 8.0%.

Graph 1 Number of foreign workers in the Slovak Republic



Note: A - employment of EU / EEA citizens with an information card; B - employment of third-country nationals with a work permit; C - employment of third-country nationals with an information card (without a work permit)

Source: Central Office of Labour, Social Affairs and Family – statistics (data are from December of the relevant year)

The growth rate of the number of employed foreigners in the three categories was different. The biggest growth rates were achieved by foreigners from third countries with an information card (without a work permit). Their number increased by 17.10 times. The least increased the number of employed foreigners from the EU/EEA with an information card. Their number increased by 4.96 times. Differences in growth rates in these three categories led to a significant change in structure. In 2018, the proportion of employed foreigners from the EU / EEA with an information card was lower than in 2012 and accounted for about 52.5% of all employed foreigners. Thus, although the number of foreigners from the EU grew, its relative share of the

total number of foreigners employed declined. Nevertheless, in 2018, the share of EU / EEA employed foreigners was greater than the share of employed foreigners from third-countries together. The largest number of employed foreigners from the EU was from Romania. One reason is the fact that foreigners from Romania are willing to work for lower wages. In 2018, employed foreigners from third countries with a work permits accounted for around 24.7%.

We can conclude from this that in 2018, compared to 2012, the share of employed third-country nationals with a work permit was slightly reduced. The largest number of employed third-country nationals with work permits was from Ukraine and from Serbia. Employed of third-country nationals with an information card (without a work permit) accounted for approximately 22.8% in 2018. Thus, the relative share of employed foreigners in the SR increased only for foreigners from third countries with an information card (without a work permit). This may be because foreigners from third countries have lower wage requirements than EU staff. Table 1 shows the proportion of employed foreigners in the individual categories in 2012 to 2018 in the total number of employed foreigners.

Table 1 Share of employed foreigners in % of the total number of employed foreigners in the Slovak Republic

	2012	2013	2014	2015	2016	2017	2018
A	63.34	68.51	78.79	76.08	68.55	56.04	52.47
B	28.67	23.58	12.71	11.88	10.50	18.06	24.69
C	7.99	7.90	8.50	12.05	20.95	25.90	22.84

Note: A - employment of EU / EEA citizens with an information card; B - employment of third-country nationals with a work permit; C - employment of third-country nationals with an information card (without a work permit)

Source: own processing based on Central Office of Labour, Social Affairs and Family – statistics (data are from December of the relevant year)

From the above, we can conclude that the trend in the number of employed foreigners and the trend in the number of employed foreigners in the individual analyzed categories is growing. In the analyzed period, the fastest growth was in the category of employed foreigners from third countries with an information card (without a work permit). Their share in the total number of employed foreigners increased. In the other two categories, the share of employed foreigners has fallen. Despite the fact that the share of employed foreigners in the EU has decreased, it is still greater than 50%.

3.2 Convergence of the number of employed foreigners in the regions of Slovakia

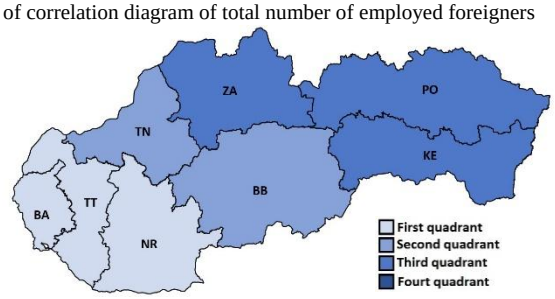
Regions in Slovakia differ significantly in the number of employed foreigners. The most job opportunities are in the Bratislava region and therefore the most foreigners are employed in this region. In 2012, 39.41% of all employed foreigners were employed in the Bratislava region. By 2018 their share had not changed significantly. It was 40.89%. The structure of employed foreigners in the Bratislava region in individual categories has changed significantly.

The share of employed foreigners from the EU / EEA in the Bratislava region in the total number of employed foreigners in Slovakia increased significantly from 2012 to 2018. While in 2012 their share in the total number of employed foreigners from the EU / EEA in the whole SR was 37.2%, in 2018 it was already 47.4%. The share of employed foreigners from third countries in the Bratislava region decreased. Thus, we can conclude that the share of employed foreigners in the total number does not change significantly in the Bratislava region. However, their structure has changed. As many as 47.4% of all employed foreigners from the EU work in the Bratislava region.

The smallest number of employed foreigners was at the beginning and at the end of the analyzed period in Banská Bystrica region. There was also the smallest number of employed foreigners from the EU / EEA in this region. The smallest number of employed foreigners from third countries with the information card (without a work permit) was in the Prešov region. The smallest number of employed foreigners from third countries with work permits in 2012 was in Banská Bystrica region and in 2018 in Prešov region.
In all regions of SR, more foreign men were employed than foreign women. In 2018, this trend was the same, but in Prešov region the number of employed foreign women was higher than employed foreign men. Thus, we can summarize that in Slovakia are predominantly employed foreign men.

The number of employed foreigners in individual regions of Slovakia showed a tendency towards divergence between 2012 and 2018. The coefficient of determination of the regression function was 10.12%. The regression coefficient was 0.0189. From this we can conclude that the results of the divergence analysis are poorly demonstrated. For this reason, we built a correlation diagram and divided the regions into 4 groups. Based on this, we have constructed a map (in Microsoft Excel) with the division of regions into groups. Figure 1 divides the regions of the Slovak Republic into four quadrants, respectively according to the results into three quadrants.

Figure 1 Distribution of regions of Slovakia according to results of correlation diagram of total number of employed foreigners



Note: BA – Bratislava region, TT – Trnava region, NR – Nitra region, TN – Trenčín region, BB – Banská Bystrica region, ZA – Žilina region, PO – Prešov region, KE – Košice region

Source: own processing (2019)

In the first quadrant of the three regions, namely from other regions in the number of employed foreigners moved away mainly regions - Bratislava, Trnava and Nitra. The increase in the number of employed foreigners was mainly related to the increase in job opportunities. A large proportion of foreigners were employed in industry and construction in these regions. The number of employed foreigners in these regions showed above average logarithm of initial values and also above average logarithm of average growth coefficient. In these three regions, the number of employed foreigners is growing fastest. Regions are moving away from others. On the other hand, the below average logarithm of the initial values and also the below-average logarithm of the average coefficient of growth of the number of employed foreigners were in the Žilina, Prešov and Košice regions. These three regions were behind the others in the number of employed foreigners. They have the slowest growth in the number of employed foreigners.

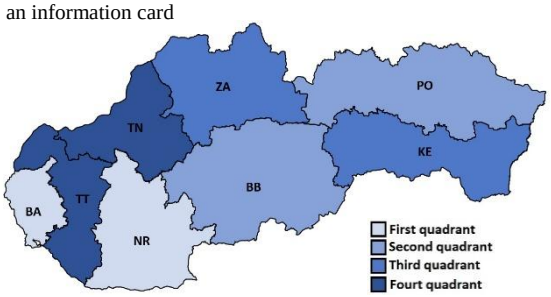
3.3 Convergence of employed EU / EEA citizens with information card in SR regions

The number of employed foreigners from EU / EEA countries in individual regions of Slovakia showed a tendency towards divergence between 2012 and 2018. The coefficient of determination of the regression function was 10.48%. The regression coefficient was 0.018. From this we can conclude that the results of the divergence analysis are poorly demonstrated.

For this reason, we constructed a correlation diagram. Based on this, we have constructed a map with the division of regions into groups (Figure 2). There were two regions in the first quadrant, so the number of foreigners employed by the other regions was mainly due to two regions - Bratislava region and Nitra region.

The number of employed foreigners from EU / EEA countries in these regions showed above average logarithm of initial values and also above average logarithm of average growth coefficient. On the other hand, the below average logarithm of the initial values and also the below-average logarithm of the average coefficient of growth of the number of employed foreigners from the EU / EEA had the Košice and Žilina regions. In particular, the Košice region significantly lagged behind the growth in the number of employed foreigners from the EU / EEA.

Figure 2 Distribution of regions of Slovakia according to results of correlation diagram of employment of EU / EEA citizens with an information card



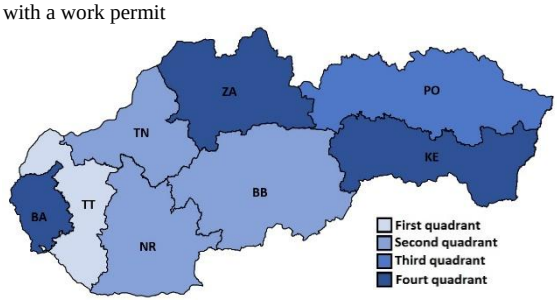
Note: BA – Bratislava region, TT – Trnava region, NR – Nitra region, TN – Trenčín region, BB – Banská Bystrica region, ZA – Žilina region, PO – Prešov region, KE – Košice region

Source: own processing (2019)

3.4 Convergence of employed third-country nationals with work permit in SR regions

In contrast to the number of foreigners from the EU / EEA, the number of employed foreigners from third countries with work permits in individual regions of Slovakia showed a tendency towards convergence between 2012 and 2018. The coefficient of determination of regression function was 19.11%. The regression coefficient was -0.041. From this we can conclude that the results of the convergence analysis are little proven. For this reason, we built a correlation diagram. Based on this, we have constructed a map with the division of regions into groups (Figure 3).

Figure 3 Distribution of regions of Slovakia according to results of correlation diagram of employment of third-country nationals with a work permit



Note: BA – Bratislava region, TT – Trnava region, NR – Nitra region, TN – Trenčín region, BB – Banská Bystrica region, ZA – Žilina region, PO – Prešov region, KE – Košice region

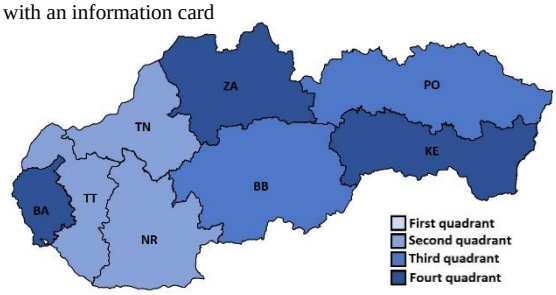
Source: own processing (2019)

There was one region in the first quadrant, the Trnava region was moving away from other regions in the number of employed foreigners with work permit. This region had above average logarithm of initial values and also above average logarithm of average growth coefficient. The Bratislava region had a smaller average coefficient of growth in the number of employed foreigners from third countries with a work permit than the average coefficient of growth in the number of employed foreigners from third countries with work permits in Trnava region. On the other hand, the below average logarithm of the initial values and the below average logarithm of the average growth coefficient were in the Prešov region.

3.5 Convergence of employed third-country nationals with an information card (without a work permit) in SR regions

The number of employed foreigners from third countries with an information card (without a work permit) in individual regions of Slovakia showed a tendency towards convergence. The coefficient of determination of regression function was 1.17%. The regression coefficient was -0.019. From this we can conclude that the results of the convergence analysis are little proven. For this reason, we built a correlation diagram. Based on this, we have constructed a map with the division of regions into groups (Figure 4). There was no region in the first quadrant. The above-average logarithm of the initial values and the below average logarithm of the average growth coefficient were in the Prešov and Banská Bystrica regions. So there were two regions in the third quadrant. They tend to lag behind the number of employed foreigners from third countries with an information card.

Figure 4 Distribution of regions of Slovakia according to results of correlation diagram of employment of third-country nationals with an information card



Note: BA – Bratislava region, TT – Trnava region, NR – Nitra region, TN – Trenčín region, BB – Banská Bystrica region, ZA – Žilina region, PO – Prešov region, KE – Košice region

Source: own processing (2019)

The analysis carried out shows some of the region's specificities, which are summarized in Table 2 below.

Table 2 Characteristics of NUTS III regions

1. Bratislava region (BA)
- region with the largest number of employed foreigners - region, which is the most distant to other regions in the total number of employed foreigners, mainly employed citizens of EU / EEA countries with an information card
2. Trnava region (TT)
- the region that is the most remote from the other regions in the number of employed third-country nationals with a work permit
3. Trenčín region (TN)
- a region with below average initial value and above average growth rate in the total number of employed foreigners
4. Nitra region (NR)
- belongs to the regions that are diverging to other regions in the total number of employed foreigners - region with above-average start-up value and above-average growth rate mainly in employed EU / EEA citizens with information card
5. Žilina region (ZA))
- region with above-average start-up value and below-average growth rate for employment of third-country nationals with work permits and for third-country nationals with an information card (without work permit)
6. Banská Bystrica region (BB)
- region with the lowest number of employed foreigners - region with below average start-up value and above-average growth rate in employment of EU / EEA citizens with information card and also in employment of third-country nationals with work permit
7. Prešov region (PO)
- the region with the smallest number of third-country nationals with an information card (without a work permit)

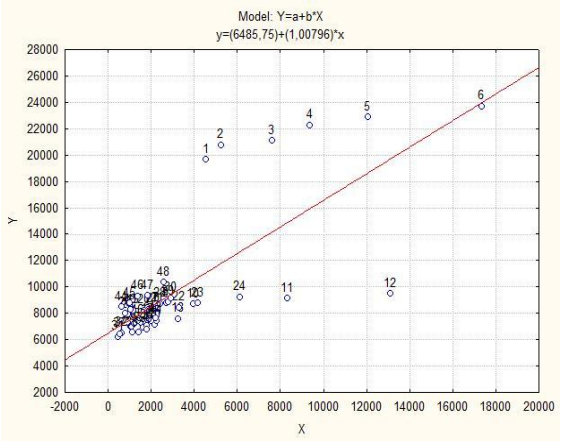
- a single region, below average start-up value and below-average growth rate for employment of third-country nationals with work permits
8. Košice region (KE)
- the region that is lagging behind the other regions in the total number of employed foreigners, mainly in the employment of EU / EEA citizens with an information card

Source: own processing

3.6 The relationship between regional GDP and the number of employed foreigners

In the period 2012-2017, we investigated the relationship between regional GDP and the number of employed foreigners in the regions of Slovakia (Statistical Office of the Slovak Republic, 2014; Statistical Office of the Slovak Republic, 2018). Regional GDP data for 2018 weren't available during processing. The relationship between regional GDP and the number of employed foreigners is shown in Figure 5.

Figure 5 The relationship between regional GDP and the number of employed foreigners



Source: own processing (2019)

X is the number of employed foreigners, Y is regional gross domestic product, at current prices in mill EUR. Based on the regression analysis, we can conclude that there is a moderately strong correlation between the number of employed foreigners and GDP in NUTS 3 regions of the SR in 2012-2017. The correlation coefficient is 0.752. The determination coefficient is 56.56%. Thus, 56.56% of the total variability is explained by the model.

The figure shows the relationship between GDP and the number of employed foreigners. However, it does not allow to determine to what extent the change in GDP was affected by employed foreigners in the SR. To estimate the share of GDP generated by the employment of foreigners, we will use an estimate based on a comparison of GDP if the state had no immigrants (there would be no changes in their immigration revenues).

Based on the relation (1) and assuming that as Borjas (2005) we consider that labour's share of income is not significantly changing and is 0.7 and that the factor price elasticity remains unchanged and is -0.35, we can calculate the Immigration surplus share in GDP. The Immigration surplus's share of GDP is shown in Table 3.

Under these assumptions, we can conclude that the largest values of Immigration surplus's share in GDP in individual regions of Slovakia did not exceed 0.043%. Share of the immigration surplus on GDP was the largest in 2012 in the Trnava region. The second largest share of the surplus of immigration in GDP in 2012 was in the Bratislava region.

In 2017, the highest share of Immigration surplus in GDP was Bratislava region. The second largest share of Immigration surplus in GDP in 2017 was in the Trnava region. The smallest share of Immigration surplus in GDP at the beginning and end of the analyzed period and at the same time its smallest growth was in the Prešov region. The share of Immigration surplus in GDP in the Prešov region was almost 41 times smaller in 2012 than in the Trnava region.

Table 3 GDP change 2012, 2017 in NUTS 3 regions of Slovakia

2012	*p (%)*	p^2	*-0.5 0.7 -0.35 p^2 (%)*
Bratislava region	3.8597	14.89751	0.0182
Trnava region	5.4795	30.0254	0.0368
Trenčín region	1.4071	1.979892	0.0024
Nitra region	2.3904	5.714084	0.0070
Žilina region	1.0715	1.148183	0.0014
Banská Bystrica region	0.9509	0.904297	0.0011
Prešov region	0.8724	0.761059	0.0009
Košice region	0.9081	0.824723	0.0010
2017	*p (%)*	p^2	*-0.5 0.7 -0.35 p^2 (%)*
Bratislava region	5.8825	34.60323	0.0424
Trnava region	5.7061	32.55939	0.0399
Trenčín region	2.5254	6.377583	0.0078
Nitra region	2.7628	7.6333	0.0094
Žilina region	1.3292	1.766766	0.0022
Banská Bystrica region	1.1942	1.426014	0.0017
Prešov region	1.0307	1.062426	0.0013
Košice region	1.1309	1.278876	0.0016

Note: p - the share of foreigner workers from total number of employees in %

Source: own prcessing (2019)

4 Conclusion

From the above we can conclude that the trend of the number of all employed foreigners is growing. In the period 2012-2018, the fastest growth was in the category of employed foreigners from third countries with an information card. Their relative share also increased significantly. In the other two categories: employed foreigners from the EU / EEA and employed foreigners from third countries with permits, their development grew but their share fell. However, the share of employed foreigners from the EU / EEA has been prevalent throughout. There is a clear difference in the employment of foreigners by sex in the SR. In the analyzed period, foreign men were employed to a much greater extent.

The fastest growing number of employed foreigners is in Bratislava, Trnava and Nitra regions. These regions are moving away from others. In the Bratislava and Nitra regions, the fastest growth was in the number of employed foreigners from the EU / EHP. The number of employed foreigners from third countries with the granted permission was the fastest growing in the Trnava region.

The slowest growth is in the number of employed foreigners in Žilina, Prešov and Košice regions. These three counties were behind others. The growth in the number of employed foreigners from the EU was the slowest in the Košice and Žilina regions. Above all, the Košice region significantly lagged in the number of employed foreigners from the EU. In the Prešov region, the number of employed foreigners from third countries with permission granted was the slowest growth. The increase in the number of foreigners from third countries with the information card was the slowest in the Prešov and Banská Bystrica regions.

By using beta convergence, we can conclude that the number of employed foreigners from third countries with permits in individual regions of Slovakia showed a tendency towards convergence. The total number of employed foreigners and the number of employed foreigners from EU countries showed a tendency to divergence. However, these trends were of little significance. The development suggests that the number of employed foreigners from third countries with permits in SR

regions has the greatest tendency to convergence, i.e. the convergence of regions in individual regions. On the contrary, the number of employed foreigners from the EU has the greatest tendency to divergence, i.e. the widening of differences in the regions of Slovakia.

There is a moderately strong correlation between the number of immigrants and GDP in individual regions of the SR between 2012 and 2017.

Literature:

1. Borjas, G.J. Immigration and the Effects on the U.S. Labor Market. 2005. [online]. [cit. 2019 – 04 –30]. Available on: https://wdr.doleta.gov/research/FullText_Documents/Immigration%20and%20the%20Effects%20on%20the%20U.S.%20Labour%20Market%201960_2000%20Report.pdf
2. Central Office of Labour, Social Affairs and Family. Statistics Employment of Foreigners. [online]. [cit. 2019-04-30]. Available on: https://www.upsvr.gov.sk/statistiky/zamestnavanie-cudzincov-statistiky.html?page_id=10803
3. Fraňková, A. Determination of Labour Shortages and Labour Migration Needs from Tertiary Countries in the Slovak Republic. A Small Thematic Study of the National Contact Point of the European Migration Network in the Slovak Republic. International Organization for Migration (IOM) Office of the Slovak Republic.2015. [online]. [cit. 2019 – 04 –30]. Available on: https://ec.europa.eu/home-affairs/sites/homeaffai rs/files/24b_slovak_determining_labour_shortages_sk.pdf
4. Kordoš, M., Krajňáková, E. Significance of Innovation in Slovak Regions - Issues and Challenges In: AD Alta-Journal of Interdisciplinary Research, 8(1). 2018. pp. 137-141. ISSN 1804-7890.
5. Kostrová, J. Regional Disparities in Context of Working Migration in the Slovak Republic In: RELIK 2018: Reproduction of Human Capital - Mutual Links and Connections. The 11th International Scientific Conference. - Prague: University of Economics, 2018. p.163-172. ISBN 978-80-245-2281-4.
6. Kostrová, J., Škrovánková, K., Bulko, P. Comparison of Demographic Indicators in the Czech Republic and the Slovak Republic and Their Interconnection with the Labor Market. AD ALTA: Journal of Interdisciplinary Research, 7(2), 2017. pp. 199-204. ISSN 1804-7890.
7. Krajňáková E., Vojtovič, S.: Struggles of Older Workers at the Labour Market. In Economics & Sociology. 10(1) Poland: University of Szczecin, 2017. pp. 319-333. ISSN 2071-789X
8. Masárová, J. Koišová, E. Identification of the Conditions (Potential) for the Development of Potential Clusters in the Conditions of Regions of the Slovak Republic. In AD Alta Journal of Interdisciplinary Research, 7(2). 2017. pp. 103-107. ISSN 1804-7890.
9. Minářik, B., Borůvková, J., Vystrčil, M. Analyzes in Regional Development. Příbram: Professional Publishing, 2013. 244 p. ISBN 978-80-7431-129-1
10. National Research Council. The New Americans: Economic, Demographic, and Fiscal Effects of Immigration. 1997. [online]. [cit. 2019 – 04 –30]. Available on: https://www.nap.edu/read/5779/chapter/6#141
11. Niraula, A., Valentin, K. Mobile Brains and the Question of 'Deskilling': High-skilled South Asian Migrants in Denmark. In Nordic Journal of Migration Research, 9(1). 2019. pp. 19-35. ISSN 1799-649X.
12. Ondrušek, M The International migration - an Important Factor in the Socio-economic Development of World Regions. International relationships, 8(2), 2010. pp. 35-47.
13. Privara, A., Rievajová, E., Dzjura, B. Unemployment Aspects of Regional Development (The Cases of the Czech and Slovak Republics). In Advanced Science Letters, 24(9). 2018. pp. 6320-6322(3). ISSN 1936-6612.
14. Skibiński, A., Rączaszek, A. Economic and Demographic Effects of External Migration in Poland and Slovakia – Some Aspects. In European Journal of Sustainable Development, 6(3). 2017. pp.129-140. ISSN 2239-5938.
15. Statistical Office of the Slovak Republic. Database. 2019. [online]. [cit. 2019-04-30]. Available on: https://slovak.statistics.sk/
16. Statistical Office of the Slovak Republic. The Regional Statistical Yearbook of Slovakia 2014. [online]. [cit. 2019-04-30]. Available on: https://slovak.statistics.sk/
17. Statistical Office of the Slovak Republic. The Regional Statistical Yearbook of Slovakia 2018. [online]. [cit. 2019-04-30]. Available on: https://slovak.statistics.sk/
18. Tupá, M. Impacts of Labour Migration on Development and Amount of Salary. In: 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016: Political Sciences, Law, Finance, Economics and Tourism, 2(8). Sofia : STEP92 Technology Ltd., 2016. pp. 321-328. ISBN 978-619-7105-76-6.
19. Vojtovič, S.; Tupá, M. Evaluation of Economic Benefits from Migrated Labour Force. In: 3rd International Multidisciplinary Scientific Conference on Social Sciences and Arts SGEM 2016: Political Sciences, Law, Finance, Economics and Tourism, 2(8). Sofia : STEP92 Technology Ltd., 2016. pp. 229-236. ISBN 978-619-7105-76-6.
20. Zudelova, M., Urbancikova, N. Labour Migration and Mobility in the Districts of the Slovak Republic. In 5th Central European Conference in Regional Science (CERS). 2015. pp. 1198-1208.

Primary Paper Section: A

Secondary Paper Section: AO