Analysis of the Number of Active Enterprises in Individual Regions of Slovakia in the Period 2014–2019

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Keywords: Number of active enterprises; Contribution method; Slovakia regions

Abstract: The paper aims to analyze the trend in the number of active enterprises in individual regions of Slovakia in the period 2014–2019. Selected characteristics of time series are used to analyze the trend. The contribution method is used to find out which region contributed the most to the total increase in the number of active enterprises.

The largest increase in the number of active enterprises was in 2017 compared to 2016 when an increase of 5.95% was recorded, which is absolutely 29,496 more active enterprises. The lowest increase was found in 2016 compared to the previous year, namely an increase of 1.86% (9,036 more active enterprises). In 2019 compared to 2014, the number of active enterprises increased by 19.58%. During the entire monitored period, the largest number of active enterprises was in the Bratislava region (124,334 in 2019), the least in the Banská Bystrica region (47,114 in 2014). The number of active enterprises increased the most in 2019 compared to 2014 in the Bratislava region (an increase of 26.84%), the least in the Trenčín region (an increase of 12.80%). In 2014, the Bratislava region had the highest share of the total number of active enterprises (20.56%). Bratislava region contributed the most to the increase in the number of active enterprises in 2019 compared to 2014 by 19.58%, namely 5.52% and Trenčín region the least at 1.29%.

1. INTRODUCTION

The term business demography refers to the database of data created by the National Statistical Office. The need for this data arose as a result of the lack of a register that would provide information on the activity of enterprises.

Currently, business demography provides key information needed for the creation of indicators following the Europe 2020 strategy. It also provides data for a joint Eurostat and OECD project – the EIP (Entrepreneurship Indicators Program) project, which collects international comparable statistics from the field of entrepreneurship (Európsky hospodársky a sociálny výbor, 2022).

Business demography tracks the population of active businesses, the birth of active businesses, the number of surviving active businesses (up to 5 years after their creation) and the death of active businesses. An enterprise as a statistical unit is the smallest combination of legal units, that is, an organizational unit that provides products or services. It performs one or more activities in one or more locations.

Among the set of enterprises, from a demographic point of view, the greatest emphasis is placed on the population of active enterprises. If the company paid social security or insurance for at least one employee in at least one month during the year or submitted a tax return with a non-zero value for the given year, it belongs to the population of active enterprises, otherwise, the company is inactive. The set of active enterprises consists of all enterprises that had sales and/or
employees in a given year. At the end of 2015, a new methodological guideline came into force in Slovakia. As of 2014, an enterprise that had sales and/or employees and/or investments in the monitored period is also considered an active business in the business demography database (ŠTATISTICKÝ ÚRAD SR, 2016).

The basic indicator of the set of active enterprises is the number (population) of active enterprises in the year (Bolgáč, 2014).

The population of active enterprises, actually the birth, death and survival of enterprises for a certain period form the group of basic indicators of business demography.

2. METHODOLOGY

We will use the contribution method to find out which region contributed the most to the total increase in the number of active enterprises.

2.1. The contribution method

This method is used for the analysis of additive indicators, which are the sum of individual components, while (Híndls et al., 1997):

\[ Y_t = \sum_{i=1}^{n} y_{i}^t \]  

where:
- \( Y_t \) is additive indicator,
- \( y_{i}^t \) are individual components.

When applying this method, the following procedure must be followed (Hurbánková & Sivašová, 2018):

1. First, the relative increase of the additive indicator is calculated, which expresses the relative increase of this indicator in the given period compared to the previous period:

\[ k_M = \frac{Y_t - Y_{t-1}}{Y_{t-1}} \]  

2. Subsequently, we calculate the relative increase of the individual components, which will tell us what relative increase the individual components had:

\[ k_{i}^t = \frac{y_{i}^t - y_{i}^{t-1}}{y_{i}^{t-1}} \]  

3. Then we calculate the structural numbers. These tell us what share the individual components have on the additive indicator. These numbers are calculated in the period \( t-1 \), while we assume that the analogous share of the component in the additive indicator will be preserved during the continuous trend of this indicator:

\[ s_{i}^{t-1} = \frac{y_{i}^{t-1}}{Y_{t-1}} \]  

4. Finally, we calculate how the individual components contributed to the relative increase of the additive indicator. The contribution of each individual component is equal to the
product of its relative increase and the share of this component on the additive indicator in the previous period:

$$k_i^t \cdot s_i^{t-1}$$ \hspace{2cm} (5)

The relative increase of the additive indicator is equal to the sum of the contributions of the individual components (Hindls & Hronová, 1997):

$$\frac{1}{Y_{t-1}} \sum_{i=1}^{n} \left( \frac{y_i^t - y_i^{t-1}}{Y_{t-1}} \right) = \frac{1}{Y_{t-1}} \sum_{i=1}^{n} \left( y_i^t - y_i^{t-1} \right) = \frac{Y_t - Y_{t-1}}{Y_{t-1}}$$ \hspace{2cm} (6)

3. ANALYSIS OF THE TOTAL NUMBER OF ACTIVE ENTERPRISES

In this section, we will analyze the number of active enterprises in Slovakia in the period 2014–2019. First, we will focus on the analysis of the total number of active enterprises, and then we will focus on the analysis of the number of active enterprises in individual regions of Slovakia.

Table 1 shows the number of active enterprises in Slovakia in the period 2014–2019 and the absolute and relative change of the analyzed indicator.

<table>
<thead>
<tr>
<th>Year</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>The number of active enterprises</td>
<td>476,839</td>
<td>486,337</td>
<td>495,373</td>
<td>524,869</td>
<td>548,271</td>
<td>570,224</td>
</tr>
<tr>
<td>Absolute gain</td>
<td>-</td>
<td>9,498</td>
<td>9,036</td>
<td>29,496</td>
<td>23,402</td>
<td>21,953</td>
</tr>
<tr>
<td>Growth coefficient</td>
<td>-</td>
<td>1,0199</td>
<td>1,0186</td>
<td>1,0595</td>
<td>1,0446</td>
<td>1,0400</td>
</tr>
<tr>
<td>Base index</td>
<td>1,0000</td>
<td>1,0199</td>
<td>1,0389</td>
<td>1,1007</td>
<td>1,1498</td>
<td>1,1958</td>
</tr>
</tbody>
</table>

Source: ŠTATISTICKÝ ÚRAD SR; Kotlebová et al., 2017.

Figure 1. Trend of the number of active enterprises in Slovakia in the period 2014–2019

Source: ŠTATISTICKÝ ÚRAD SR, own processing in MS Excel based on business demography database

Based on the data in Table 1 on the number of active enterprises in Slovakia in the period 2014–2019 and the calculated characteristics of time series, we can conclude that the most active enterprises were during the monitored period in 2019 (570,224), and on the contrary, the least in 2014 (476,839), while in the period 2014–2019, we noticed a growing trend in the number of active enterprises. Based on the time series characteristics, we found out that the largest increase in the number of active
businesses was in 2017 compared to 2016 when an increase of 5.95% was recorded, which is an absolute increase of 29,496 active enterprises. The lowest increase was found in 2016 compared to the previous year, namely an increase of 1.86% (9,036 more active enterprises). The basic index tells us that in 2019 compared to 2014, the number of active enterprises increased by 19.58%.

The trend of the number of active enterprises in Slovakia can be seen in Figure 1, where we found out that in the period 2014–2019, the number of active enterprises increased. We also noted this in Table 1.

4. ANALYSIS OF THE NUMBER OF ACTIVE ENTERPRISES IN INDIVIDUAL REGIONS OF SLOVAKIA

We can also analyze the number of active enterprises in individual regions of Slovakia. We will focus our attention on the trend of the analyzed indicator of business demography in individual regions.

Table 2. The number of active enterprises in individual regions of Slovakia in the period 2014–2019

<table>
<thead>
<tr>
<th>The number of active enterprises</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bratislava region (BA)</td>
<td>98 026</td>
<td>105 007</td>
<td>108 075</td>
<td>114 212</td>
<td>119 350</td>
<td>124 334</td>
</tr>
<tr>
<td>Trnava region (TT)</td>
<td>47 801</td>
<td>48 557</td>
<td>49 503</td>
<td>52 247</td>
<td>54 199</td>
<td>56 163</td>
</tr>
<tr>
<td>Trenčín region (TN)</td>
<td>48 139</td>
<td>47 774</td>
<td>48 293</td>
<td>50 660</td>
<td>52 491</td>
<td>54 303</td>
</tr>
<tr>
<td>Nitra region (NR)</td>
<td>57 583</td>
<td>58 829</td>
<td>60 180</td>
<td>63 780</td>
<td>66 997</td>
<td>69 343</td>
</tr>
<tr>
<td>Žilina region (ZA)</td>
<td>68 085</td>
<td>67 884</td>
<td>68 775</td>
<td>72 675</td>
<td>75 958</td>
<td>78 861</td>
</tr>
<tr>
<td>Banská Bystrica region (BB)</td>
<td>47 114</td>
<td>47 196</td>
<td>47 652</td>
<td>50 653</td>
<td>52 515</td>
<td>53 830</td>
</tr>
<tr>
<td>Prešov region (PO)</td>
<td>61 562</td>
<td>61 642</td>
<td>62 779</td>
<td>67 296</td>
<td>71 418</td>
<td>75 652</td>
</tr>
<tr>
<td>Košice region (KE)</td>
<td>48 529</td>
<td>49 448</td>
<td>50 116</td>
<td>53 346</td>
<td>55 343</td>
<td>57 738</td>
</tr>
<tr>
<td>Total</td>
<td>476 839</td>
<td>486 337</td>
<td>495 373</td>
<td>524 869</td>
<td>548 271</td>
<td>570 224</td>
</tr>
</tbody>
</table>

Source: ŠTATISTICKÝ ÚRAD SR, own processing in MS Excel based on business demography database

Figure 2. The number of active enterprises in individual regions of the Slovak Republic in the period 2014–2019

Source: ŠTATISTICKÝ ÚRAD SR, own processing in MS Excel based on business demography database
Table 3. Calculation of the contribution method of the number of active enterprises in individual regions of Slovakia in 2014 and 2019

<table>
<thead>
<tr>
<th>The number of active enterprises</th>
<th>Relative increase</th>
<th>Structural number</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bratislava region (BA)</td>
<td>0.2684</td>
<td>0.2056</td>
<td>0.0552</td>
</tr>
<tr>
<td>Trnava region (TT)</td>
<td>0.1749</td>
<td>0.1002</td>
<td>0.0175</td>
</tr>
<tr>
<td>Trenčín region (TN)</td>
<td>0.1280</td>
<td>0.1010</td>
<td>0.0129</td>
</tr>
<tr>
<td>Nitra region (NR)</td>
<td>0.2042</td>
<td>0.1208</td>
<td>0.0247</td>
</tr>
<tr>
<td>Žilina region (ZA)</td>
<td>0.1583</td>
<td>0.1428</td>
<td>0.0226</td>
</tr>
<tr>
<td>Banská Bystrica region (BB)</td>
<td>0.1425</td>
<td>0.0988</td>
<td>0.0141</td>
</tr>
<tr>
<td>Prešov region (PO)</td>
<td>0.2289</td>
<td>0.1291</td>
<td>0.0295</td>
</tr>
<tr>
<td>Košice region (KE)</td>
<td>0.1898</td>
<td>0.1018</td>
<td>0.0193</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.1958</strong></td>
<td><strong>1.0000</strong></td>
<td><strong>0.1958</strong></td>
</tr>
</tbody>
</table>


Table 2 and Figure 2 show the number of active enterprises in individual regions of Slovakia for the period 2014–2019. We can see that the most active enterprises were in the Bratislava region during the entire observed period (the highest number of 124,334 active enterprises was found in 2019), and the least in the Banská Bystrica region (47,114 active enterprises in 2014).

We are also interested in which region contributed the most to the increase in the number of active enterprises in 2019 compared to 2014. We will use the contribution method for the analysis.

Table 3 contains the calculation of the contribution method for the number of active enterprises in individual regions of Slovakia in 2014 and 2019.

5. CONCLUSION

In the paper, we analyzed the trend of the number of active enterprises as one of the indicators of business demography. Analyzed is the period 2014–2019 in individual regions of Slovakia at the NUTS 3 level.

The following conclusions from the performed analyses can be drawn:

- The largest number of active enterprises in Slovakia during the observed period was in 2019 (570,224); on the contrary, the least was in 2014 (476,839).
- The largest increase in the number of active enterprises was in 2017 compared to 2016 when an increase of 5.95% was recorded, which is absolutely 29,496 more active enterprises. The lowest increase was found in 2016 compared to the previous year, namely an increase of 1.86% (9,036 more active enterprises). In 2019 compared to 2014, the number of active enterprises increased by 19.58%.
- During the entire monitored period, the largest number of active enterprises was in the Bratislava region (124,334 in 2019), the least in the Banská Bystrica region (47,114 in 2014).
- The number of active enterprises increased the most in 2019 compared to 2014 in the Bratislava region (an increase of 26.84%), the least in the Trenčín region (an increase of 12.80%). In 2014, the Bratislava region had the highest share of the total number of active enterprises (20.56%). Bratislava region contributed the most to the increase in the number of active enterprises in 2019 compared to 2014 by 5.52% and Trenčín region the least at 1.29%.
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References


