Towards Creative Clusters: Mapping and Development of Creative Industries in Slovakia

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Abstract: - Mapping the creative industries is a crucial basis for assessing the creative economy in the regions, particularly to develop creative clusters and the subsequent identification of stakeholders and networks. The paper provides topic to discuss methods of secondary data quantitative analysis of the commercial creative industries from publicly available sources and exposes shortcomings in databases in Slovakia. The performed mapping takes into account a contribution of the time factor, where reveals the significant differences between enterprises in Slovak’s regions. The paper posts a foundation for facilitation of creative clusters and creative industries development strategies as instruments to support competitiveness at the regional level.

Key-Words: - cluster, creative industries, creative sectors, mapping, regional analysis, Slovakia

1 Introduction
There have not yet been taken any step towards the analysis of creative industries at the regional level in Slovakia as a factor for developing creative clusters. Among the key contributions, we considered [15, 18] dealing with the spatial perspective of creative index. The remaining books [13, 14] focus on the introduction to creative industries in Slovakia respectively where the main aims are the definition of creative industries, creative class, creative index, management issues and an evaluation of creative economy’s impact.

Following the previous studies and in order to further research the creative industries in Slovakia, the question of methodical unification of mapping the creative industries arises to ensure the provision of a robust process. In terms of national conditions, however, this is hindered by a weak data base limiting research exclusively to a sector approach, i.e., mapping the creative industries firms rather than creative occupations. In addition to this level, there have occurred some fundamental differences in relation to available data sources in terms of distinctions of the creative industries to private, public and informal sector [21, Wiesand and Söndermann as cited in 13, 14]. The creative industries within the private sector are in a completely opposite situation to public one. There is neither a specialized database publicly available nor a methodology covering the private sector.

Thus the aim of the paper is to improve the discussion on methodology for data collecting and analysis within the creative industries mapping at the regional level using secondary dataset. Nevertheless, the major objective is to map the creative industries at the regional level, here defined as regions NUTS 3, in terms of debate on the competitiveness of regions [2].

2 Creative industries mapping
Mapping the creative industries plays a key role in assessing the position of creative industries in the economy [9, 10, 11] at any spatial level and particularly during facilitation of creative clusters [16]. Furthermore, the mapping of creative industries faces many difficulties in terms of their definition, methods of collecting information, availability of secondary databases, and the way of interpreting the results of the data processing. The mapping of creative industries is conducted at different spatial levels – global, national, and regional and, last but not least, city or local levels, respectively.

The following methods belong among quantitative methods of mapping creative industries revealing their structure and spatial distribution [10, 11]:

- mapping the creative industries by the industry activity-based on sector definitions,
• mapping creative industries by occupations. In the first case, according to [10, p. 8] the research focuses on:
  • firm activity – primarily the number of firms, the full time employees, sometimes banded according to their turnover and occasionally the degree of concentration of the industry,
  • gross value add to the economy determined by national input/output tables or specialist surveys,
  • exports – the value of exports from the industry usually determined by both survey and extrapolation or from official product and service export statistics.

The industry sector of activity-based definitions, however, does not respect the relationship to the value chain within the creative industries [10]. The second case involves the mapping using the Creative Trident method. ‘The model brings together those working in the creative industries and working in specialist creative jobs in other firms and organisations’ [11, p. 3].

2.1 Mapping methodology

Since the aim of the paper is a case study on differentiation and spatial distribution of creative industries firms in regions, the most of the mapping has been done at the city level as it had been presented for example in [5, 6, 19]. The European Cluster Observatory database [4] could not be used since the data is only available at NUTS 2 level. Thus, the creative industries commercial firms mapping was based on [Wiesand and Söndermann as cited in 13, 14] using a secondary database of Albertina 2011, summarizing data from all publicly available registers as data sources, including registers of tax authorities and other commercial databases. This database provides an advantage of the definition of the item of ‘Predominant NACE’ enabling to avoid the double-counting of firms within the creative industries. Thus every company is unambiguously assigned to a particular sector of the creative industries. As a result, the following variables from the database of Albertina 2011 were selected:
  • firm name,
  • type of ownership,
  • firm size by number of employees broken down in categories by number of employees,
  • registered office showing the region
  • date of firm registration, enabling to derive the length of trading

Further items were not selected for the following reasons:
  • turnover – incomplete data with non-employing enterprises; various time periods of data sources
  • export – incomplete data with non-employing enterprises; various time periods of data sources; export destination not spatially differentiated.

The companies which had been declared insolvent were removed from the collected database not being involved in any corresponding activities in relation to the creative economy. Predominant NACE sectors of creative industries firms were clustered with respect to [Wiesand and Söndermann as cited in 13, 14]. This resulted in the determination of the ‘Derived predominant SVK NACE’ variable containing thirteen creative industries sector see Table 1.

Tab. 1 Creative sectors by creative circles

<table>
<thead>
<tr>
<th>Creative circle</th>
<th>Creative sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Culture</td>
<td>Craft</td>
</tr>
<tr>
<td></td>
<td>Creative, arts and entertainment</td>
</tr>
<tr>
<td></td>
<td>Libraries, museums and heritage</td>
</tr>
<tr>
<td></td>
<td>Photography</td>
</tr>
<tr>
<td>Cultural industries</td>
<td>Broadcasting and news agencies</td>
</tr>
<tr>
<td></td>
<td>Motion picture and video</td>
</tr>
<tr>
<td></td>
<td>Publishing</td>
</tr>
<tr>
<td></td>
<td>Sound recording and music publishing</td>
</tr>
<tr>
<td>Creative industries</td>
<td>Advertising and marketing</td>
</tr>
<tr>
<td></td>
<td>Architecture</td>
</tr>
<tr>
<td></td>
<td>Data and web portals</td>
</tr>
<tr>
<td></td>
<td>Software</td>
</tr>
<tr>
<td></td>
<td>Specialised design</td>
</tr>
</tbody>
</table>

Source: Authors’ elaboration based on [22]

Number of employees in enterprises was set by calculating the mid-range of the corresponding categories number of employees. An imputation of series averages was used to perform number of employees in enterprises in the case of enterprises with no employees. Thus, the total number of employees was reached as sum of the results performed via abovementioned methods.

To improve the discussion on methodology for analysis within the creative industries mapping at the regional level a correspondence analysis was applied instead of location and urbanization quotients which are used for delimiting industrial clusters and data are based on employment [20, 23]. The correspondence analysis was selected both due to lack of original data on employment in micro creative industries firms and for revealing
specialization of the region within creative industries sectors. The correspondence analysis is a method of factoring categorical variables and displaying them in a property space which maps their association in two or more dimensions [12]. Symmetrical normalization in the correspondence analysis was performed for comparing two variables – the derived predominant SVK NACE and the regions due to standardizing on both row and column profiles in cross tabulation. Outlier points were treated as supplementary category. The supplementary elements do not contribute to the orientation of the factorial axis, but their relative contributions to the factorial axes and their coordinates are computed by the correspondence analysis.

Mann-Whitney U non-parametric test was conducted for assessing whether enterprises with employees and non-employing enterprises tend to have different values of length of trading within creative sectors. Mann-Whitney U test was applied instead of Student’s Two Independent Sample T test due to several type of data distribution by type of businesses within creative sectors.

Spearman’s Rho was used for detecting correlations of ranked data, i.e. ordinal values, for the New Creative Index [15] and creative enterprises in creative circles per 100,000 inhabitants within Slovak’s regions.

### 3 Creative industries in the Slovak’s regions

The total of 25,854 companies with estimated 72,265 employees was revealed as the result of creative industries mapping procedure in the Slovak’s regions. The proportion of non-employing enterprises reached 75.2%, i.e. 19,433 registered businesses. Table 2 shows the detailed view on Slovak’s regions within creative industries circles. The Bratislava Metropolitan Region includes the capital city of Bratislava which dominates in the number of enterprises in all creative circles. This was observed even more within Creative industries and Cultural industries, achieving the share higher than 40%. The Cultural sector’s share reached 25.4% only. Remaining regions showed similar values varying from 8% to 11%. The share of Košický kraj and Prešovský kraj within creative industries reflects their location at the eastern part of Slovakia, i.e. the most peripheral regions, albeit a higher number of inhabitants and a presence of one of the most recognized regional universities.

Table 2 depicts an overview of creative industries enterprises and number of employees in creative in each city. The number of enterprises and number of employees reflected the concentration of creative industries enterprises in the national metropolitan region of Slovakia, i.e. Bratislavský kraj, achieving more than 50% share of Creative industries and Culture industries, and 35% share of Culture sector.

### Tab. 2 Creative industries enterprises in Slovak’s regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Creative industries</th>
<th>Cultural industries</th>
<th>Culture</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banskobystrický kraj</td>
<td>1066</td>
<td>383</td>
<td>554</td>
<td>2003</td>
</tr>
<tr>
<td>Bratislavský kraj</td>
<td>6035</td>
<td>3171</td>
<td>1210</td>
<td>10416</td>
</tr>
<tr>
<td>Košický kraj</td>
<td>1236</td>
<td>779</td>
<td>464</td>
<td>2479</td>
</tr>
<tr>
<td>Nitrianský kraj</td>
<td>1165</td>
<td>508</td>
<td>521</td>
<td>2194</td>
</tr>
<tr>
<td>Prešovský kraj</td>
<td>1193</td>
<td>530</td>
<td>566</td>
<td>2289</td>
</tr>
<tr>
<td>Trenčianský kraj</td>
<td>1083</td>
<td>444</td>
<td>469</td>
<td>1996</td>
</tr>
<tr>
<td>Trnavský kraj</td>
<td>1294</td>
<td>482</td>
<td>526</td>
<td>2302</td>
</tr>
<tr>
<td>Žilinský kraj</td>
<td>1122</td>
<td>603</td>
<td>450</td>
<td>2175</td>
</tr>
<tr>
<td>Total</td>
<td>14194</td>
<td>6900</td>
<td>4760</td>
<td>25854</td>
</tr>
</tbody>
</table>

Source: Elaborated from Albertina 2011

### Tab. 3 Creative industries by employees of enterprises in Slovak’s regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Creative industries</th>
<th>Cultural industries</th>
<th>Culture</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banskobystrický kraj</td>
<td>2105</td>
<td>797</td>
<td>2469</td>
<td>5371</td>
</tr>
<tr>
<td>Bratislavský kraj</td>
<td>18031</td>
<td>10449</td>
<td>6711</td>
<td>35191</td>
</tr>
<tr>
<td>Košický kraj</td>
<td>3056</td>
<td>1197</td>
<td>2147</td>
<td>6400</td>
</tr>
<tr>
<td>Nitrianský kraj</td>
<td>2846</td>
<td>991</td>
<td>1399</td>
<td>5236</td>
</tr>
<tr>
<td>Prešovský kraj</td>
<td>2330</td>
<td>915</td>
<td>1547</td>
<td>4792</td>
</tr>
<tr>
<td>Trenčianský kraj</td>
<td>2191</td>
<td>761</td>
<td>1431</td>
<td>4383</td>
</tr>
<tr>
<td>Trnavský kraj</td>
<td>2447</td>
<td>794</td>
<td>1373</td>
<td>4614</td>
</tr>
<tr>
<td>Žilinský kraj</td>
<td>2453</td>
<td>1912</td>
<td>1913</td>
<td>6278</td>
</tr>
<tr>
<td>Total</td>
<td>35459</td>
<td>17816</td>
<td>18990</td>
<td>72265</td>
</tr>
</tbody>
</table>

Source: Elaborated from Albertina 2011

Figure 1 portrayed a specialization of Slovak’s regions by the creative sectors. The results of
correspondence analysis showed the national metropolitan region of Slovakia was more specialized on software and advertising along with motion picture and video primarily due to proximity to Vienna in the first case, proximity of local customers in the second case and headquarter of all Slovak’s television broadcasters in the third case. The majority of the rest Slovak’s regions are clustered around broadcasting (local radio stations), publishing (local newspapers and promotional brochures etc.) and architecture. Banskobystrický and Trnavský kraj are primarily connected with creative and arts owing to presence of universities having programmes on education in this field of study.

Fig. 1 Specialization of Slovak’s regions by creative industries sectors

Source: Authors’ analysis based on Albertina 2011

Figure 2 depicts the different patterns among the Slovak’s regions by employees in creative industries enterprises. The figure shows the proximity of Slovak’s regions proving a similar specialization by employees in creative industries enterprises. A distinct specialisation on publishing, libraries, museums and heritage was revealed in the Žilinský and Prešovský kraj.

Figure 3 provided the contrast to time series of the length of trading for creative industries by type of businesses in Slovakia. The first phase of creative industries growth in non-employing enterprises, with the concentration in 1989-1991, aroused after the systemic changes allowing private entrepreneurship. The second phase was portrayed by a striking growth in 2002-2008 and it was given primarily by the expansion phase of the business cycle at the global level flat taxation. The fall of enterprises establishment at the turn of 2009 is associated with the beginning of the economic recession. Nevertheless, the number of creative enterprises was increasing again in the period of 2010-2011. Enterprises with employees were intensively developing in the period of 2002-2008 only owing to the same reason like at non-employing enterprises.

Figure 4 was used to evaluate the differences between the creative industries sectors by the type of businesses in creative industries in relation to the length of trading in years. The ‘length’ box is the interquartile range. The outlier cases represent cases with values between 1.5 and 3 of the box lengths from the upper or lower edge of the box. The extreme cases are those with values more than 3 of the box lengths from the upper or lower edge of the box. As a result, every part of the graph represents a quarter of all the values of the length of trading in years in the particular segment of the non-employing enterprises and enterprises with employees.

Mann-Whitney U (p < 0.05) non-parametric test confirmed different distribution of length of trading enterprises with employees and non-employing enterprises tend to have within almost all creative
sectors except broadcasting, data and web portals and photography.

Fig. 4 Length of trading for creative industries sectors in Slovakia by type of businesses

Source: Authors’ elaboration based on Albertina 2011

The New Creative Index (NCI) had been derived from [7] by [15]. This index had been adjusted for local conditions, namely low level of migration and ethnic heterogeneity. Spearman’s Rho (p < 0.05) revealed significant correlation (Rho > 0.7) between the Creative Industries enterprises and the Tolerance index. Therefore, components of the Tolerance index such as immigration and postures are related to the Creative industries. Following relation was revealed in the case of the Cultural industries, even it is lower. The NCI and the Talent index are more significant in this case. The highest correlation was detected among the NCI and all indexes, primarily due to its enhanced structure. Apart of the Tolerance index and the NCI, Cultural industries depend on creativity and human capital.

4 Conclusion

The predominant percentage of non-employing enterprises corresponds to the findings in [1, 8], as many sectors of creative industries do not require a considerable initial capital or office space for starting a business. The comparison of the length of trading between the Slovak’s regions proved that even the same preconditions inherited from the central planned economy might not lead to the same growth peaks of creative industries enterprises, primarily in relation to systemic changes, namely market liberalization. The development and structure of the spatial distribution of creative industries enterprises in Slovakia was also affected by the settlement hierarchy, proximity to markets of developed EU countries, traditions of technical higher education and the presence of foreign actors from the commercial sector. The implementation of flat tax rate and simplification of the Slovak tax system stimulated growth not only in creative industries enterprises [3] during recovery within expansion phase of the business cycle in the mid 2000.

The used database does not allow identifying and analyzing creative industries firms doing business in the selected cities with registered office (headquarters) outside the region, which reduces the explanatory power of the mapping results. Publicly available company databases in Slovakia offer only an indicative framework for evaluating number of employees in the creative industries with no possibility of their identification in accordance with the Creative Trident methodology importance and effectiveness.

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References:


