Identification of Tourism Clusters in the Russian Far East

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Abstract—Around the world, tourism is one of the most dynamically developing spheres in international trade in services, and the Russian Federation is no exception. But in Russia tourism industry potential is still used very poor. To a large extent, the realization of the development potential of regional tourism complexes will be promoted by the use of the cluster approach. Foreign experience shows the high efficiency of introducing a cluster approach in the tourism industry. However, in the Russian economy, there is a problem of identifying industries with the greatest potential for clustering. This problem is especially acute with the aim of developing the necessary measures for state support of clustering industries. In this article, using the example of the Far Eastern Federal District, a method is proposed that makes it possible to identify tourism clusters. In contrast to the existing ones, the method developed by the authors is characterized by an expanded set of analyzed indicators (number of employees, the volume of investments in fixed assets, the share of sectoral gross value added, labor productivity), and a system for evaluating the criteria characterizing the processes of clustering in time (the number of time periods in which: the localization coefficient and the regional factor takes admissible values and has a positive dynamics of development). As a result of identification, the authors identified regions of the Russian Far East that have the greatest potential for the formation of specialized territorial clusters in tourism industry.

Keywords—Tourism Industry, Cluster Identification, Shift-share Analysis, Far Eastern Federal District.

I. INTRODUCTION

Nowadays tourism comprises a significant share of GDP of developed countries. However in Russia, amidst the economic crisis, which has resulted in the fall of ruble exchange rate and the decrease of consumer demand as a consequence of economic sanctions, as well as in the prohibition against foreign (business) trips abroad for civil servants, sustainable development of service-oriented spheres, including tourism, is hampered.

Such strategic documents concerning tourism development as the ‘Russian Federation inbound and domestic tourism development in 2011–2018’ Federal Target Program declare the creation of tourism clusters. The cluster approach in tourism industry development is expected to boost the competitiveness of the industry, to stimulate business enterprises, to enhance the promotion of brands in the international market, and to increase the innovative components of the tourism products.

It is worth mentioning that the core of the tourism industry is guest hospitality sector. It is this business sector that plays the role of the infrastructural platform defining the number of tourists and the attractiveness of the territory for the tourists. In its turn identifying the concentration of businesses within the ‘Hotels and restaurants’ group allows us to identify the potential of the territory for cluster development, which makes this research even more important.

The aim of this article is to identify the regions of the Russian Federation which have the best prospects of creating and further developing guest hospitality clusters.

II. DATA, METHODOLOGY AND RESULTS OF EXPERIMENTAL RESEARCH

There is a great number of quantitative and qualitative methods of identifying clusters employed by scientists [3-9]. However, the questions of choice of the criteria and indices reflecting the processes of cluster-formation in a region, still remain underresearched, which we acknowledged in our previous research [10]. As a result, we have produced a method which consists of the following stages:

1. Collection of statistics on the labour force, overall amount of fixed asset investment, and GVA in the guest hospitality industry in Russian regions.

2. Calculation of the coefficients of localization in accordance with the employment in the ‘Hotels and restaurants’ sector over 6 time periods for all the Russian regions using the following formula:

\[ LQ = \frac{L_i}{L} \]

where \( L_i \) – the number of the employed in sector \( i \) in the region; \( L \) – the number of employed; \( L_i \) – the number of employed in the industry in the country; \( L \) – the total number of employed in the country.
3. Selection of the regions where the localization coefficient is more than 1 in at least 4 time periods. The first two stages are necessary to exclude those regions where the guest hospitality sector does not have the labour force sufficient enough for further development, as well as to further draw a comparison between the regions possessing the biggest potential for tourist cluster-formation.

4. Calculation of the coefficient of localization in accordance with the employment, overall amount of fixed asset investment, and GVA for the regions within the selected group. The following formula will be used:

\[ LQ = \frac{l_t^{t+1} - l_t^{t-1}}{l_t^{t+1} - l_t^{t-1}} \]

where \( l_t \) - the number of employed (fixed asset investment amount, GVA) in the guest hospitality sector of the leading region; \( l_t \) - the number of employed (fixed asset investment amount, GVA) in the current region, \( l_t = l_t^{t+1} - l_t^{t-1} \) - the number of employed (fixed asset investment amount, GVA) in the group of leading regions.

5. Calculation and analysis of the structural shifts for the sectoral, regional and national factors for each of the indices employed based on the formulas used in table 1.

**TABLE I. ELEMENTS OF THE FACTOR ANALYSIS OF STRUCTURAL SHIFTS**

<table>
<thead>
<tr>
<th>Factors</th>
<th>Calculation formula</th>
<th>Symbolic representation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. NS (National Share) – factor reflecting the influence of national growth tendencies</td>
<td>( NS = \frac{t_t^{t+1} - t_t^{t-1}}{t_t^{t+1} - t_t^{t-1}} )</td>
<td>( l_t^{t+1} - l_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the guest hospitality sector of the leading region over the periods ( t ) and ( t+1 ); ( t_t^{t+1} - t_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the current region, ( t_t = t_t^{t+1} - t_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the group of leading regions.</td>
</tr>
<tr>
<td>2. IM (Industry Mix) – factor reflecting the influence of sectoral growth tendencies</td>
<td>( IM = \frac{t_t^{t+1} - t_t^{t-1}}{t_t^{t+1} - t_t^{t-1}} )</td>
<td>( t_t^{t+1} - t_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the guest hospitality sector of the leading regions over the periods ( t ) and ( t+1 ); ( t_t^{t+1} - t_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the group of leading regions over the periods ( t ) and ( t+1 ).</td>
</tr>
<tr>
<td>3. RS (Regional Shift) – factor reflecting the influence of regional growth tendencies</td>
<td>( RS = \frac{t_t^{t+1} - t_t^{t-1}}{t_t^{t+1} - t_t^{t-1}} )</td>
<td>( t_t^{t+1} - t_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the guest hospitality sector of the group of leading regions over the periods ( t ) and ( t+1 ).</td>
</tr>
<tr>
<td>4. The sum of influence of sectoral and national factors</td>
<td>( EC = NS + IM )</td>
<td>( t_t^{t+1} - t_t^{t-1} ) – the number of employed (fixed asset investment amount, GVA) in the guest hospitality sector of the group of leading regions.</td>
</tr>
</tbody>
</table>

6. Grading of the regions in accordance with the estimated indices, calculating the overall ranking in accordance with the cluster evaluation criteria presented in table 2.

**TABLE II. RUSSIAN FEDERATION REGIONS TOTAL RANKING CRITERIA**

<table>
<thead>
<tr>
<th>Index</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The number of periods where ( LQ&gt;1 )</td>
<td>1 point for each period where the coefficient of localization for each of the indices (the number of employed, fixed asset investment amount, industrial GVA) is more than 1</td>
</tr>
<tr>
<td>2. The ratio of ( LQ ) in 2013 to ( LQ ) in 2008</td>
<td>Points equal to the quantity of this ratio</td>
</tr>
<tr>
<td>3. The number of periods, where ( RS&gt;0.1</td>
<td>EC</td>
</tr>
<tr>
<td>4. The number of periods where ( RS&gt;0.1</td>
<td>EC</td>
</tr>
</tbody>
</table>

As a result of the first and the second stages of this research, we managed to select 37 regions of the Russian Federation which had enough labour force to create guest hospitality clusters. The indices, which were calculated later, were compared within the pre-selected group of Russian regions.

7. In order to systematize the accumulated data and group the regions in accordance with their cluster development, it is necessary to group the regions in accordance with the intervals of the cluster development scale were presented in table 3. The length of the interval is calculated with the help of the following formula:

\[ h = \frac{(x_{max} - x_{min})}{k}, \]

\( h \) – length of the interval; \( x_{max} \) – maximum ranking position; \( x_{min} \) – minimum ranking position; \( k \) – number of groups of regions.

**TABLE III. THE SCALE OF TOURISM CLUSTER DEVELOPMENT IN RUSSIAN REGIONS**

<table>
<thead>
<tr>
<th>Russian regions</th>
<th>Emerging cluster</th>
<th>Protocluster</th>
<th>Medium level</th>
<th>Low level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Krasnodar Krai, Moscow Oblast, Saint-Petersburg, Stavropol Krai, Republic of Bashkortostan, Primorsky Krai, Khabarovsk Krai,</td>
<td>48</td>
<td>40</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>Leningrad Oblast, Astrakhan Oblast, Samara Oblast, Republic of Dagestan, Perm Krai, Republic of Altai, Sverdlovsk Oblast</td>
<td>57</td>
<td>48</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>Moscow, Voronezh Oblast, Kaluga Oblast, Lipetsk Oblast, Orlov Oblast, Republic of Tatarstan, Nizhny Novgorod Oblast, Kemerov Oblast, Volgograd Oblast, Orenburg Oblast, Saratov Oblast, Altai Krai, Krasnoyarsk Krai</td>
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</tbody>
</table>
III. CONCLUSION

To sum up, the fewer points a region gets, the lower are the prospects of creating clusters in it. This is due to certain factors influencing the process of clusterization being underdeveloped. Accordingly, the more points a region gets, the higher are its prospects as it has sufficient amount of labour force, fixed asset investments in the industry as well as a high concentration of production in this industry in the region. See the results of the calculation — the ranking positions of the regions in questions — in Fig. 1.

The regions, where the clusters can be identified as emerging, include Krasnodar Krai, Moscow Oblast, Saint Petersburg, Stavropol Krai, Republic of Bashkortostan, Primorsky Krai, and Khabarovsk Krai. The integration processes currently occurring in the second group of the regions suggest that in those regions protoclusters are emerging. The regions that fall into the next interval of 32 to 40 points, have a medium cluster potential. It means that currently there are no emerging clusters, but it is those regions that have more potential than others. The last group does not have sufficient preconditions for the establishment of guest hospitality or tourism clusters. This is due to certain factors — the ranking positions of the regions in questions — in Fig. 1.

Fig. 1. Final ranking of the Russian Federation regions concerning the prospects of guest hospitality cluster formation.

All in all, the analysis conducted in this paper demonstrates that there are real prerequisites for the establishment of tourism clusters in the Russian Federation. These are determined by a sufficient amount of labour force, high levels of industrial concentration and the existing investment projects. The produced scale of regions in accordance with their cluster development helps identify the regions that have emerging cluster-formation processes. This, in its turn, helps identify the regions, which need state support for establishing clusters.

REFERENCES