Possibilities of using of the cost-effectiveness analysis for the evaluation of the EU Cohesion Policy aimed at support of the tourism infrastructure at the regional level in the Czech Republic

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Abstract: - The paper deals with the efficient use of EU Structural Funds. The main aim of this paper is to evaluate public expenditure from the EU Structural Funds in regions of the Czech Republic in the programming period 2004 - 2006 that was intended to support businesses in the development of regional and local tourism infrastructure. The evaluation was made by the cost-effectiveness analysis (CEA). The results of the analysis of individual projects indicate relatively different status of individual Czech regions in relation to the efficiency of the use of financial resources from the Structural Funds, and also show the need to strengthen the assessment and evaluation activities of the governing authorities of the operational programs in relation to the efficiency at the micro-level of funded projects.

Key-Words: - Cohesion Policy, Structural Funds, Cost-effectiveness Analysis, Expenditures, Public Administration, Regional Policy, Tourism, Regions of the Czech Republic

1 Introduction
Joining of the European Union in 2004 was for the Czech Republic associated also with new opportunities for regional development, which consisted, among others, in the possibility to finance development projects from the Structural Funds as a one group of instruments of the Cohesion Policy. For the first shortened programming period 2004 - 2006, the total financial allocation for Cohesion Policy in the Czech Republic was around 2.6 billion euros. The basic constraints for the provision of this financial assistance were defined by the document entitled Community Support Framework. Its overall objective was defined as a sustainable development based on competitiveness. This general objective was followed by three specific targets aimed at creation of conditions for entrepreneurship, improvement of flexibility of the labor market, and improvement of the quality of infrastructure [9].

Implementation of the EU Cohesion Policy is founded on five principles - concentration, programming, partnership, additionality and efficiency [18]. This paper is aimed right at the last named principle, i. e. the principle of efficiency of spending of financial resources. The main objective of this paper is to evaluate by the method of cost-effectiveness analysis the public expenditure incurred in the Czech Republic in the programming period 2004 - 2006 from the EU Structural Funds, which was intended to support businesses in the development of regional and local tourism infrastructure. Theme of projects to develop business tourism infrastructure was chosen because of its close connection to the above-mentioned three specific objectives of the implementation of Cohesion Policy in the Czech Republic in the period (the business environment, labor market and infrastructure).

The paper is structured as follows. This first chapter serves as the basic introduction. The second chapter presents the basic theoretical knowledge and tries to formulate the basic questions that relate to the issue. Presentation of the methodology which was used in the research is also included. The third chapter is then devoted to the analysis of the efficiency of expenditure. In the final fourth chapter is then given and discussed a summary of the findings and major recommendations related to this issue.

2 Structural Funds of the EU and the efficiency of spending
EU Cohesion Policy covers approximately one third of the budget of the European Union and aims at achievement of the social and economic cohesion by reduction of disparities between European regions.
The main instruments of the EU Cohesion Policy are the Structural Funds (SF) and the Cohesion Fund (CF) which are used to financing of various public goods, such as building of economic and social infrastructure [2]. A large amount of funds allocated through the EU Cohesion Policy puts quite high demands on the efficiency of their provision.

Theory and practice distinguishes different approaches to measurement of the efficiency of the Cohesion Policy as a whole, on the level of operational programs, but also on the micro-level of individual projects [15]. [1] dedicate to the assessment of the added value and efficiency of the EU structural funds from several perspectives. They show the importance of monitoring and evaluation for the increase of operational efficiency, but also for the improvement of transparency and development of better policies in the next period. [7] focused on the empirical evaluation of the efficiency of the EU Structural Funds on the example of nine member states, using the aspect of the economic growth of these countries within a specified time period. [10] analyzed the implementation of the EU Structural Funds and their efficiency on the example of the new German federal states of former East Germany. [4] devoted in their study to the administrative capacities of the EU candidate countries, also from the perspective of potential efficiency of the implementation of the Cohesion Policy by the EU Structural Funds. [5] points out in his contribution to certain aspects of inefficiency of management of the Structural Funds at regional level in Poland and the possibilities of learning from past mistakes in the future. Assessment of efficiency, possibilities of increase of efficiency in implementation of the Cohesion Policy through the operational programs of the Structural Funds, or the possibility of improvement of the implementation process are subjects of interest of also other authors, see e. g. [6, 12, 17].

As for the Czech Republic, for the first programming period 2004 - 2006 we can affirm a major positive shift in the implementation of Cohesion Policy, accompanied by the adoption of appropriate legislative framework, creation of the regional level governments, and introduction of the programming principles into everyday practice. At the same time, however, some problems occurred when there were cases of implementation of projects that did not bring a qualitative change, but only were covering costs of already existing activities. Also the efficiency of spending on projects co-financed under the Cohesion Policy remains a discussed matter [3, 9].

And on this issue is focused this paper, specifically on the financial resources expended under the Structural Funds to support the „business“ regional and local tourism infrastructure, which were provided by the Joint Regional Operational Programme (SROP) for the area of the whole Czech Republic except the capital in the years 2004 - 2008. Finances were allocated to Priority 4 of this program called Development of tourism, measure 4.2 called Development of infrastructure for tourism, submeasure 4.2.2 called Support of regional and local tourism infrastructure. According to the text of the SROP program document the submeasure 4.2.2 was intended to support projects of regional or local significance, aimed at development of the infrastructure needed for tourism in municipalities and regions. It included revitalization of cultural, technical and industrial monuments and cultural heritage for their use in tourism development, the development of local and regional tourist information systems, construction or restoration of facilities for sport, recreation and spa treatment, or restoration and development of trails or bike routes [13]. The funds were distributed by the system of grant schemes that represent a form of a „group project“, which includes a larger number of activities aimed at fulfillment of the objectives and outputs of the grant scheme. Individual regions of the Czech Republic were provided by the SROP with finances for funding of their grant schemes aimed at development of the tourism infrastructure in their territory. These finances were subsequently divided, according to the established conditions, for the projects of the end users who have been defined as small and medium-sized enterprises active in the field of tourism [8].

Thus, in the frame of the grant schemes, there was provided the tourist infrastructure, which can be considered as one of the public goods ensured and provided by the public administration (by state or by individual regions). These are goods whose provision by the free market would not be sufficiently secured for various reasons. These goods are therefore provided by various public authorities and are financed or co-financed within the framework of public budgets [11]. Expenditure on the provision of tourist infrastructure can be considered as a part of public expenditure, which can be evaluated, supervised and monitored by a relatively large number of evaluation methods and mechanisms. One of these methods is also the cost-effectiveness analysis [16, 20].
2.1 Methodology

Evaluation of public expenses spent through SROP grant schemes aimed at support of the regional and local tourism infrastructure was carried out on complete sample of all grant schemes of all regions of the Czech Republic realized within the sub-measure 4.2.2 in programming period 2004 - 2006. There was a total of 15 grant schemes which were announced and implemented by 12 regions (the Pardubice Region did not implement the grant scheme in the given sub-measure). The author of this research created a database of all projects focused on the construction or modernizing hotels and guest houses in all the regions. The source which provided information about amount of public resources co-financing projects and their outputs was the MSSF information system [14] which provides information about all projects implemented and co-financed by the EU Structural Funds in 2004 - 2006 programming period. Each of 113 analyzed projects was described by following attributes:

- Designation of the project (number and titles),
- Region in which the project was implemented,
- Amount of resources used for co-financing in Czech Crowns (CZK),
- Number of beds in accommodation facility created thanks to implementation of the project (output 1),
- Number of jobs created thanks to implementation of the project (output 2).

The evaluation was carried out while using Cost-Effectiveness Analysis (CEA). This analysis is used in cases when the amount of expenses on certain action is known in monetary units but the benefit in form of the output is known in natural units – compare with [16, 19, 20]. We can simply say that as for efficiency criterion the relationship between monetary quantified inputs - costs (C) and naturally quantified outputs - effects (E) is observed. Then we are able to define so called indicator of cost efficiency (CEA) as follows:

\[
 CEA = \frac{C}{E} \quad (1)
\]

The total amount of public expenditure spends on grant schemes on co-financing projects (i.e. contribution from the EU and co-financing from the Czech national budget) were regarded as inputs (C). The outputs (E) were represented by two main monitored outputs - number of beds in accommodation facility created thanks to implementation of the project \((E_1)\) and number of jobs created thanks to implementation of the project \((E_2)\).

The cost efficiency of spent finances in each region was evaluated from two points of view:

- Efficiency of the expenditures with regards to number of beds in accommodation facility created thanks to implementation of the projects of the grant schemes \((CEA_1)\),
- Efficiency of the expenditures with regards to number of jobs created thanks to implementation of the projects of the grant schemes \((CEA_2)\).

For each of the evaluated regions values of \(CEA_1\) and \(CEA_2\) were calculated and at the same time the value of these indicators was calculated for the set of all regions (as a share of total public expenditure earmarked for the co-financing of projects under the grant schemes for all regions and the sum of beds in accommodation facilities created thanks to the implementation of all projects in all regions - \(CEA_{S1}\), respectively the sum of jobs created thanks to the implementation of all projects in all regions - \(CEA_{S2}\)).

The next step was finding out the efficiency rating (ER) for each of evaluated regions. It consists of the share of \(CEA_1\) indicator (or \(CEA_2\) indicator) of specific region and the \(CEA_{S1}\) indicator (or \(CEA_{S2}\) indicator) of the complete set of evaluated regions. The calculation shows that the value of \(ER_{S1}\) (or \(ER_{S2}\)) evaluated the entire set of regions equals to 1. Regions whose value of indicator \(ER_1\) (or \(ER_2\)) is less than 1 may be considered within the entire set of regions as efficient. Those whose value of indicators \(ER_1\) (or \(ER_2\)) is greater than 1 on the contrary can be considered inefficient.

The last step of the analysis consisted of determining the complex efficiency rating (CER) as sum of two used indicators \(ER_1\) and \(ER_2\). Note that the value of complex indicator \(CER_3\) of the whole set of evaluated regions equals 2. Regions with smaller value can be regarded as efficient, those with larger analogically as inefficient.

3 Analysis

Table 1 presents source data used for cost-effectiveness analysis.
Table 1 - Source data

<table>
<thead>
<tr>
<th>No.</th>
<th>Region</th>
<th>Number of projects</th>
<th>Public expenditures in CZK (C)</th>
<th>Beds (E₁)</th>
<th>Jobs (E₂)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>South Bohemian</td>
<td>13</td>
<td>31 919 486</td>
<td>356</td>
<td>37,5</td>
</tr>
<tr>
<td>2</td>
<td>South Moravian</td>
<td>8</td>
<td>55 964 694</td>
<td>413</td>
<td>61,5</td>
</tr>
<tr>
<td>3</td>
<td>Karlovy Vary</td>
<td>5</td>
<td>38 700 583</td>
<td>367</td>
<td>20,2</td>
</tr>
<tr>
<td>4</td>
<td>Hradec Králové</td>
<td>7</td>
<td>16 233 821</td>
<td>272</td>
<td>25,0</td>
</tr>
<tr>
<td>5</td>
<td>Liberec</td>
<td>5</td>
<td>14 583 739</td>
<td>115</td>
<td>17,0</td>
</tr>
<tr>
<td>6</td>
<td>Moravian-Silesian</td>
<td>15</td>
<td>84 686 081</td>
<td>432</td>
<td>62,7</td>
</tr>
<tr>
<td>7</td>
<td>Olomouc</td>
<td>8</td>
<td>36 256 199</td>
<td>284</td>
<td>43,0</td>
</tr>
<tr>
<td>8</td>
<td>Plzeň</td>
<td>6</td>
<td>35 462 858</td>
<td>249</td>
<td>29,0</td>
</tr>
<tr>
<td>9</td>
<td>Central Bohemian</td>
<td>10</td>
<td>37 767 026</td>
<td>161</td>
<td>20,6</td>
</tr>
<tr>
<td>10</td>
<td>Ústí nad Labem</td>
<td>14</td>
<td>85 625 030</td>
<td>375</td>
<td>84,5</td>
</tr>
<tr>
<td>11</td>
<td>Vysočina</td>
<td>14</td>
<td>47 805 585</td>
<td>339</td>
<td>62,2</td>
</tr>
<tr>
<td>12</td>
<td>Zlín</td>
<td>8</td>
<td>54 085 831</td>
<td>238</td>
<td>76,0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>113</td>
<td>539 090 932</td>
<td>3 601</td>
<td>539,2</td>
</tr>
</tbody>
</table>

Source: author based on [14]

Fig. 1 and Fig. 2 display status of regions in ascending series according to the calculated values of efficiency $CEA_1$ and $CEA_2$. The value of indicators for the whole set of regions is also depicted ($CEA_{S1} = 149 706$ CZK per one created bed and $CEA_{S2} = 999 816$ CZK per one created job).

Table 2 - Resulting values of $ER$ and $CER$

<table>
<thead>
<tr>
<th>No.</th>
<th>Region</th>
<th>$ER_1$</th>
<th>$ER_2$</th>
<th>$CER$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>South Bohemian</td>
<td>0,60</td>
<td>0,85</td>
<td>1,45</td>
</tr>
<tr>
<td>2</td>
<td>South Moravian</td>
<td>0,91</td>
<td>0,91</td>
<td>1,82</td>
</tr>
<tr>
<td>3</td>
<td>Karlovy Vary</td>
<td>0,70</td>
<td>1,92</td>
<td>2,62</td>
</tr>
<tr>
<td>4</td>
<td>Hradec Králové</td>
<td>0,40</td>
<td>0,65</td>
<td>1,05</td>
</tr>
<tr>
<td>5</td>
<td>Liberec</td>
<td>0,85</td>
<td>0,86</td>
<td>1,71</td>
</tr>
<tr>
<td>6</td>
<td>Moravian-Silesian</td>
<td>1,31</td>
<td>1,35</td>
<td>2,66</td>
</tr>
<tr>
<td>7</td>
<td>Olomouc</td>
<td>0,85</td>
<td>0,84</td>
<td>1,70</td>
</tr>
<tr>
<td>8</td>
<td>Plzeň</td>
<td>0,95</td>
<td>1,22</td>
<td>2,17</td>
</tr>
<tr>
<td>9</td>
<td>Central Bohemian</td>
<td>1,57</td>
<td>1,83</td>
<td>3,40</td>
</tr>
<tr>
<td>10</td>
<td>Ústí nad Labem</td>
<td>1,53</td>
<td>1,01</td>
<td>2,54</td>
</tr>
<tr>
<td>11</td>
<td>Vysočina</td>
<td>0,94</td>
<td>0,77</td>
<td>1,71</td>
</tr>
<tr>
<td>12</td>
<td>Zlín</td>
<td>1,52</td>
<td>0,71</td>
<td>2,23</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,00</td>
<td>1,00</td>
<td>2,00</td>
</tr>
</tbody>
</table>

Source: author’s analysis

Note that the Fig. 1 and Fig. 2 enable us to compare the status of selected region in terms of selected efficiency indicators (in view of the number of created beds and in view of the number of created jobs). The figures show rather large variability that exists among the regions. There are regions registering above-average efficiency in both indicators (e.g. the Hradec Králové Region or the South Bohemian region). On the other hand there are those that seem to be rather inefficient in both indicators (e.g. the Central Bohemian Region or the Moravian-Silesian Region). There are also regions registering significant above-average efficiency in one indicator and significant below-average efficiency in the second indicator (e.g. the Karlovy Vary Region or the Zlín Region). Last and rather large group includes regions that navigate around the average value of indicators (e.g. the South Moravian Region, the Liberec Region or the Plzeň Region).

Graphic expression of final results is shows in Fig. 3 which depicts ascending series of regions by complex efficiency rating ($CER$).
The results of analysis highlight the importance of results monitoring even on lower level than the Cohesion Policy or operational program as whole (micro-level of individual projects). The analysis showed rather large differences in the status of the regions, e.g. what amount of outputs (beds and jobs in tourism) was gained for their budget expenditures for co-financing individual projects. If we skip the evaluation on micro-level of individual projects, we can only state that about 500 million CZK of public expenditures were spend through grant schemes and there were created 3 601 beds and 539 jobs. The efficiency evaluation on micro-level of individual projects enables us to find out the “efficient contribution” of each region to the total outputs. The recommendation therefore aims especially to managing authorities of individual operational programs that can use the presented method for the assessment, comparison and evaluation of financed operations.

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