OBCE V DATECH

Methodology of the Construction of the Life Quality Index

The methodology for constructing the Life Quality Index is based on the OECD and United Nations' approaches for comparing quality of life, which include working with composite indicators and other mathematical and statistical methods.

Indices selection and calculation

In the first phase, we selected a set of indices that affect the happiness and welfare of people's life, and we divided them into three basic pillars - health and environment; work, education and standard of living; community and services. Then each of the indices was calculated with regard to the nature of the issue, which allowed an objective comparison across municipalities in the Czech Republic.

Data editing and normalization

In the second phase, the data was adjusted to a common scale to allow a mutual comparison. This adjustment was implemented in two basic steps:

First, we modified outliers to ensure that the interpretive value of the results was not distorted. Identification of outliers was carried out using the standard statistical methods of Tukey's Fences. For the identified outliers, a logarithmic transformation was performed in order to preserve the information about a strength and the absolute order of the observed values. In case of considerably remote outliers (different data values by several orders of magnitude) the logarithmic transformation was performed repeatedly.

The second step was the normalization of data using min-max normalization – i.e. the municipality with the highest score received a value of 10 and the municipality with the lowest score received a value of 0. The remaining municipalities received a value on the basis of their relative relation to the defined border municipalities (i.e. municipalities with a value of 10 and 0).

Aggregation of indices

In the third phase, we assigned the weights to individual categories, subcategories and indices. The weights were set using a method of multi-criteria decision making – so called Saaty's Matrix, which determines the relationships between objects using pairwise comparison. Input data for this comparison was based on the results of the expert panel. In the final step, we calculated the index values for each category and the overall Life Quality Index using weighted arithmetic means and adjusted weights.

The methodology is verified by Deloitte Czech Republic.