THE UNEVERNESS OF LIFE QUALITY IN LITHUANIA’S RURAL AREAS: ECONOMIC AND SOCIAL DIMENSIONS

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Abstract
The fundamental and empirical investigations into the life quality are becoming more and more topical in the present-day world. The concept of life quality is of a multi-aspect character that’s why measurements become more complicated. The paper analyzes the economic and social values of life quality in Lithuanian rural areas. The authors suggest a two-stage model of measuring the economic and social aspects of life quality, i.e. indexation and a multi-factorial analysis. These indices made it possible to divide Lithuanian’s rural areas into five groups as to their economic and social development. The multi-factorial analysis showed that unfavourable conditions for developing business, complicated demographic situation and a great number of residents who receive social payments are the most important reasons limiting the development of certain rural areas.

Key words: rural area, life quality, economic and social development, regional policy.

Introduction
The concept of quality of life is closely related to understanding of sustainable development and as well as sustainable development it is multidimensional. Three dimensions of quality of life are usually mentioned in literature: economic, social and environmental.

The evaluation of quality of life requires well organized set of various indicators. There were many attempts to develop single universal set of indicators for evaluation of quality of life in the popular scientific literature of the last two decades (Fahey, Nolan and Whelan, 2003; Hernes and Knudsen, 1990, etc.) and empirical studies (EQLS, 2004; Mercer, 2005; DEFRA, 2004; Audit Commission, 2005) but none of them was widely accepted with global accord. The first attempts of measuring quality of life were adopted on international level trying to evaluate difference of sustainable development and quality of life among countries. Lately concept of quality of life was extended to national and regional levels with emphasis on local rural areas.

In this paper, local rural areas (regions) are understood as Eurostat’s Local Area Units (LAU2). It is the smallest administrative unit for statistical purposes in the EU. For monitoring changes in indicators of quality of life and its dynamic there were formed range of data basis and population survey systems (EurLIFE – in European Union, „Regional quality of life counts“ and „Local quality of life counts“ – in UK, etc.) in Europe. Evaluating and monitoring indicators of regional and local quality of life are of critical importance for the systematic regional policy formation and local government strategic planning and implementation processes.
The purpose of this paper is to identify the differences of economic and social dimensions of quality of life among Lithuanian rural areas (LAU2 regions) and to classify them according to their economic and social development. The major contribution of the paper is to use integrated system of evaluation of quality of life. The word “Integrated” is understood in the sense of using both multi-factor analysis and integrated index analysis. Multi-factor analysis is being developed for identifying problems and potential threats in the regions. Integrated index analysis provides single value which could be used for the classification of the regions on different levels.

Methodology

For the research purpose two of three dimensions of quality of life economic and social have been selected. Environment which refers as the third dimension was excluded due to the lack of statistical data on LAU2 level in Lithuania. To evaluate economic and social situation in LAU2 regions, two composite indices – economic (for evaluation of economic situation) and social (for evaluation of social situation) were used.

Indices were calculated using method of Simple Additive Weighting (SAW). SAW indexing method is simple, practical and easy to use. Using SAW indicators of various scales could be added to the single index. There are four steps of calculating index using SAW. Suppose we have \( n \) indicators \( i \) in the set for compilation an index. Value of the indicator for LAU2 region \( j \) is equal to \( a_j \).

The first step which is needed to do is to group the indicators to positive and negative according their impact on the object. Positive indicators are the larger the better (i.e. GDP per capital, wage, etc.), negative ones – the lesser the better (i.e. unemployment rate, crime level, etc.). Then indicators are normalized to avoid the influence of the different measurement units on index results. Positive indicators are normalized by the maximal value of the set (Eq. 1). Negative indicators are normalized by minimal value of the set (Eq. 2).

\[
\begin{align*}
    x_{ij} &= \frac{a_{ij}}{a_{j}^{\text{max}}}; \\
    x_{ij} &= \frac{a_{ij}}{a_{j}^{\text{min}}};
\end{align*}
\]

Index value \( S_{SAW} \) is a sum normalized estimations \( x_{ij} \) which could be weighted by \( w_i \) if needed (Eq. 3). The sum of all \( w_i \) equal to one.

\[
S_{SAW} = \max_{j} \sum_{i=1}^{n} x_{ij} \times w_i, \quad j = 1, 2, 3, ..., m ;
\]

There are a lot of economic and social indicators useful for measuring the economic and social dimensions of quality of life. The sets of indicators for economic and social indices are formed according statistical data availability and validity. Shortage of statistical data to evaluate the quality of life in LAU2 regions exists in
Lithuania. Statistical Department gathers longitudinal statistics about economic social situation in the rural areas. Other national and regional institutions supply data only on the level of municipality (LAU1). Such situation makes difficulties of analysing structural and dynamic changes in local regions. The above reasons, most valuable indicators were included in the economic and social indices.

Then inter-relations between indicators are checked. Often indicators are closely related with each other and indicate same tendencies or describe same phenomena. To avoid it, binary correlations are calculated. Indicators with strong binary correlations were removed from the set.

Economic index compounds of three following indicators: 1) registered business units per 1000 population, 2) working-age population per 1000 population, 3) integrated agricultural index.

The integrated agricultural index compounds of four agricultural indicators: number of livestock units per 100 ha of utilised agricultural area (UAA), share of annual work units in agriculture per 1000 working–age population, share of employees in registered farm households in total number of population, and area of agricultural land in ha per employee in registered farm household.

Social index compounds of 5 indicators: 1) economic burden of population (dependency ratio), 2) demographic labour pressure, 3) number of employees per 1000 habitants, 4) share of recipients of social assistance benefit in total population, 5) average useful floor space per capita.

Rural territories were attributed to five groups (Fig. 1). Index estimations were divided into three intervals.

**Figure 1. Groups of LAU2 regions according to economic and social development**

Source: own research.

Middle interval of estimations was equal to ±10% of the average index. Other index estimations which are more than 10% lower or higher of index average were attributed to the intervals of lower and higher estimations. These two intervals indicate accordingly worse or better situation comparing with average.
Results

Lithuanian LAU2 regions significantly differ in the terms of the economic and social development (see Fig. 2). Nearly 70 LAU2 regions (17%) are of low economic and social development and 66 LAU2 regions (16%) are highly developed economically and socially comparing with the other Lithuanian LAU2 regions.

![Figure 2. Spread of economic and social development in Lithuanian LAU2 regions](source)

Almost one quarter of LAU2 regions are partially developed with not satisfactory situation in economic or social aspects of development. 82 LAU2 regions (20%) had good social index indicating relatively stable demographic and social stance in the regions. But economic index of these regions is less than national average mainly (see Table 1).

Only 4% of LAU2 regions are with high economic index but low social index. Little number of such regions indicates that high agriculture level and positive business environment usually put strong positive effect on social stance in the regions and due to that there are no significant social or demographic problems there.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>1(^{st}) group</th>
<th>2(^{nd}) group</th>
<th>3(^{rd}) group</th>
<th>4(^{th}) group</th>
<th>5(^{th}) group</th>
<th>6(^{th}) group</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of LAU2 regions</td>
<td>157</td>
<td>66</td>
<td>15</td>
<td>82</td>
<td>69</td>
<td>22</td>
<td>411</td>
</tr>
<tr>
<td>Share, %</td>
<td>38</td>
<td>16</td>
<td>4</td>
<td>20</td>
<td>17</td>
<td>5</td>
<td>100</td>
</tr>
<tr>
<td>Average of economic index</td>
<td>0,46</td>
<td>0,55</td>
<td>0,50</td>
<td>0,43</td>
<td>0,37</td>
<td>0,58</td>
<td>0,46</td>
</tr>
<tr>
<td>Average of social index</td>
<td>0,37</td>
<td>0,41</td>
<td>0,33</td>
<td>0,39</td>
<td>0,34</td>
<td>0,48</td>
<td>0,37</td>
</tr>
</tbody>
</table>

Source: own research.

Most of Lithuanian LAU2 regions (38%) have average economic and social situation (these regions have similar demographic situation, business environment and social conditions for living). Variation of employment rate across all Lithuanian
LAU2 regions observed is 19% thus for middle sized LAU2 regions that variation is even smaller. There were 5% of LAU2 regions with extreme values of economic or social index. Most of those regions are located near the largest Lithuanian cities – Vilnius, Kaunas and Klaipeda. Thus economic or social situation differs significantly from the national average and are removed from grouping. Because of that 65% of LAU2 regions in Kaunas municipality and 44% of LAU2 regions in Klaipeda municipality were excluded.

Analyzing data on municipality level (LAU1), which are aggregated data of LAU2 regions, three large regions of different economic and social development could be pointed out. Most of the Lithuanian territory is covered by municipalities where LAU2 regions dominate with average economic and social index.

The second region is in the very heart of the country where the intensive agriculture sector and favourable demographic situation support faster economic and social development than in other Lithuanian regions.

The third region which is in the southern and eastern part of Lithuania appears to be most problematic. Despite the fact that Vilnius attracts majority foreign direct investments in Lithuania, surrounding municipalities especially those bordering with Belarus face slow improving in business environment, weak agricultural development and worsening social and demographic situation. Different pattern of economic and social development appears when analysing data of LAU2 regions.

Six groups of municipalities (LAU1) are identified according to dominating economic and social development in LAU2 regions.

*First group.* Most of the LAU1 regions in Lithuanian have dominating LAU2 regions with the average estimates of economic and social indices. Only three municipalities (LAU1 regions) – Varena, Jonava and Elektrenai – are those who have more than 4 LAU2 regions and have no LAU2 in first group. Most homogenous LAU2 regions (in the term of LAU1 development diversity) are in municipalities of Silute and Prienai.

*Second group.* Municipalities of Panevezys, Kupiskis, Rietavas and Jonava are best developed rural territories in Lithuania. Panevezys municipality, which is one of the largest municipalities in Lithuania, has 50% of LAU2 regions in second group, 30% in first group and only 2 LAU2 regions with low social index are classified to fourth group. Panevezys, Kupiskis, Jonava are situated in the middle of the Lithuania where best agricultural land is and favourable business environment social conditions are also good.

*Third group.* There is no municipality with dominated LAU2 regions of third group. Largest shares of LAU2 regions with high economic index but low in social one are in municipalities of Anyksciai (with 29% of LAU2 regions in third group), Ukmerge (27%) and Kelmė (25%). The majority of LAU2 regions in mentioned municipalities are from the first group.

*Fourth group* is formed of municipalities with low economic index but higher than average social index. There are three municipalities with majority of LAU2 regions in the fourth group. Vilnius municipality has 11 LAU2 regions (50% of all LAU2 in the municipality), and municipality of Moletai and Pakruojis have accordingly 6 (50%) and 4 LAU2 regions (44%). Although 10% of the LAU2 regions
in these three municipalities are classified as strongly developed economically and socially, other LAU2 territories tend to have social index less than national average.

**Fifth group.** There are six municipalities with majority of LAU2 with low economic and social index. Mainly southern and eastern municipalities of Lithuania bordering with Belarus are relatively poor developed. Due to low yield agricultural land, the poorly developed animal sector and domination of small farm households economic index is less than in other Lithuanian municipalities. Because of the lack of economic activities, population aging and high unemployment rate social condition in the regions is complicated. Also a large number of national minorities (Russians, Polish and Belarusian) put additional pressure on social conditions there.

**Diversified group.** 13 municipalities have no dominating group of LAU2 regions. On average those regions has one third of first group LAU2 regions, one third group and one third of fourth or fifth group of LAU2 regions. Thus these municipalities are remarkably diversified in terms of economic and social development.

It is worth to pay attention that analysis on the level of municipalities (LAU1) without analysis of LAU2 regions can not reveal such diversification between municipalities and that hinders to determine true situation in the regions. As mentioned earlier integrated index analysis is useful for grouping regions according to specific criteria. But trying to identify problems and arising threats in the regions integrated index is not enough. Instead multi-factor analysis should be applied.

LAU2 regions in first group on average do not have high number of registered business units per 1000 population but has relatively well developed agricultural sector. Due to relatively small share of recipients of social assistance benefit in total population social index for that group is close to national average. Regional policy should encourage incentives to invest more in the regions for increasing attractiveness of them.

The second group of LAU2 regions has a favourable business environment with well developed agriculture and low unemployment level. Besides share of social assistance benefit recipients is significantly lower than in other LAU2 regions. Regions have a small economic burden of population and high demographic labour pressure indicating that relatively high number of children and low number of old people per man of working-age live in the regions.

The third group has a well developed agriculture which was the most important factor of favourable economic situation in the regions. Old people, high unemployment rate and large number of social assistance benefit recipients determine difficult social stance. Specific policy measures should be taken in these regions namely increasing role of local societies, encouraging local initiatives, creating more jobs, supporting young people business activities in the regions.

The fourth group according average values of the indicators is similar to the first group. Only the average values of agricultural level and share of working-age population in total population determined less favourable economic development in the regions of this group. Social development is close to national average. Policy in these regions should be oriented towards improving agricultural and business conditions.
The situation in the fifth group on average is significantly worse than in other groups. Poor conditions for agriculture, low number of business unit per capita, little number of young people, high level of unemployment and huge number of recipients of social assistance benefit determine critical economic and social situation in the regions. Policy should encourage investments in local infrastructure and human capital, help to diversify agriculture and find more efficient ways of using local resources. Also the important issue should be the creation of job places and review of social policy effectiveness in such regions.

Conclusions
The analysis of economic and social dimensions of quality of life in rural areas (LAU2 regions) suggests that wide differences in economic and social development exist in both Lithuania and within municipalities. This implies the necessity to form specific regional, economic and social policy to local areas, adapted to local needs and resources. Also administration institutions of rural areas and municipalities collect too little statistical data needed on economic, social and environmental dimensions of quality of life.

Classification of rural areas according to their economic and social development could be applied: a) to improve Rural development and Regional policies on national, regional and local levels; b) to make more effective European Union financial support instruments during the period 2007–2013 and c) to monitor effectiveness of local government bodies.

Finally it is necessary to emphasize the importance of monitoring system of local quality of life on development of the regions (LAU1 and LAU2). The system could lead to more effective action of local government institutions and social partners by monitoring local situation, identifying arising problems and faster responding to changing economic, social and environmental environment.

References

НЕРАВНОМЕРНОСТЬ КАЧЕСТВА ЖИЗНИ В СЕЛЬСКИХ МЕСТНОСТЯХ ЛИТВЫ: ЭКОНОМИЧЕСКИЕ И СОЦИАЛЬНЫЕ ИЗМЕРЕНИЯ

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Аннотация
Фундаментальные и эмпирические исследования качества жизни приобретают все большую актуальность в нынешнем мире. Концепция качества жизни многоаспектная, поэтому измерение становится сложным. В данной статье анализируются экономические и социальные оценки качества жизни в сельских местностях Литвы. Авторы предлагают двухэтапную модель измерения экономического и социального аспектов качества жизни – индексирование и многофакторный анализ. С помощью индексов сельских местности Литвы разделены на пять групп по экономическому и социальному развитию. Многофакторный анализ показал, что неблагоприятные условия для развития бизнеса, сложная демографическая ситуация и большое количество жителей, получающих социальные выплаты, являются самыми важными причинами ограничивающих развитие некоторых сельских местностей.

Ключевые слова: сельская местность, качество жизни, экономическое и социальное развитие, региональная политика.