Measurement of economic and social differences of Lithuanian rural areas of improving implementation of sustainable development policy

Jazepcikas D., Vitunskiene V.

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Jazepcikas D., Vitunskiene V.[1]

[1] Department of Economics, Lithuanian University of Agriculture, Kaunas, Lithuania

Abstract— **Large differences in terms of economic and social development across countries and smaller regions are one of the most important hinders for effective implementations of sustainable development. This paper presents a methodological approach to measure differences of economic and social development of rural areas. The research which was based on the presented methodology reveals a remarkable difference of Lithuanian rural areas even they are in neighbourhood of each other.**

Keywords— **Measurement of differences, quality of life, policy of sustainable development.**

I. INTRODUCTION

Effective integration of the principles of sustainable development in the national and international policies is the most outstanding and inconsistent challenge in the globe at the moment. We don't have time to hesitate dealing with climate change and inefficient usage of natural resources. Sustainable development policy is highly expensive and requires high standards of morality and trust. But hesitation with the implementation won't solve the problem. On contrary hesitation would make it even more expensive.

Fundamental problem here is that countries are very different in terms of their economic, social and environmental development. And it is natural that there are so many different attitudes and positions towards the implementation of the sustainable development policy. And while living in the system where greed and power is "naturally desired" there is a need to find natural ways to dissolve the existing differences between the countries to the extent where global compromise on climate change would be achieved.

This poster emphasizes a problem of structural differences of the local administrative units (LAU). Authors suggest a methodological approach to measure both economic and social differences between LAU2 regions as the smallest administrative units under Eurostat classification.

The conclusions are based on the research on differences of quality of life in Lithuanian rural areas.

II. METHODOLOGY

Assessment of differences between LAU2 regions is based on the concept of quality of life which is closely related to the understanding of sustainable development. Usually three basic dimensions of quality of life are mentioned in literature: economic, social and environmental. These dimensions are highly different in terms of intrinsic and market values. So measurement of the dimensions requires well developed system of indicators.

There were a number of attempts to develop single universal set of indicators for evaluation of quality of life in past two decades in fundamental literature [1, 2] and empirical studies [3, 4, 5, 6, 7]. All of them have different number of dimensions and indicators.

Our research compounds of two dimensions economic and social. Environmental dimension was excluded due to several objective reasons. First, LAU2 regions are too small to indicate differences in environment. Second there are plenty of specific elements (such as distance from the city, large factory, water contamination, etc.) and they are impacting an environment in specific ways. Third it is hard to evaluate where are the boundaries of environmental impact and how exactly does it affect people who lives in that area.

In theory there are a lot of economic and social indicators useful for measuring economic and social dimensions of quality of life. In practice sets of indicators for economic and social indices are formed according availability and validity of statistical data.

There is obvious shortage of statistical data to evaluate sufficiently quality of life in LAU2 regions in Lithuania. National and regional administrative or governmental bodies collect data on the level of municipality (LAU1 regions). Longitude statistics are most detailed but they are provided once in 10 years. All other statistics, collected by other organisations often are based on different methodologies thus incomparable. That makes analyses of structural and

dynamic changes in local regions difficult and too abstract.

Before making a final list of indicators authors have checked inter-relations between indicators. 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.

During the research economic and social indices were calculated. 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. 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 compound 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.

Using economic and social index estimations every LAU2 region was grouped according its economic and social development comparing to the national average. First group regions are those which have economic and social indices close to national average (±10%). Second group are those regions where both indices are higher than national average. Third group are regions with high economic index but small social index. Fourth group are regions with low economic index but high social one. Fifth group is of those regions with small economic and social indices. And the sixth group are “non-typical” regions with economic or social index very different of the other regions.

For estimating usefulness of the analysis of differences on LAU2 regions authors also aggregated results to the level of LAU1 regions. The analysis should reveal how different a map of regional development would be comparing results of analysis on both levels LAU1 and LAU2. LAU1 regions were classified based on dominating groups of LAU2 regions. Authors had calculated Herfindahl-Hirschman Index (HHI) in order to estimate a dominated group of LAU2 regions in LAU1 regions.

III. RESULTS AND CONCLUSIONS

This research suggests that there are huge differences in economic and social development across the country and within municipalities. There are 16% of well developed LAU2 regions and 17% rural areas considering as poorly developed. This implies the necessity to form diversified regional and social policy to local areas, adjusted to local needs and resources.

Most of the Lithuanian rural areas are covered by municipalities where LAU2 regions with average economic and social index are dominated (First group in the picture). Second region is in the very heart of the country where intensive agriculture sector and favourable demographic situation support faster economic and social development than in the other Lithuanian regions (Second group in the picture). And third region which is southern and eastern part of Lithuania appears to be most problematic. Despite the fact that Vilnius a capital of Lithuania attracts majority foreign direct investments, surrounding municipalities especially those bordering with Belarus face slow improving in business environment, weak agricultural development and worsening social and demographic situation.

Classification of the rural areas according 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 and efficient action of local government institutions and social partners by 1) regularly monitoring local situation, 2) identifying arising problems and threats on time and 3) faster responding to changing economic, social and environmental environment.

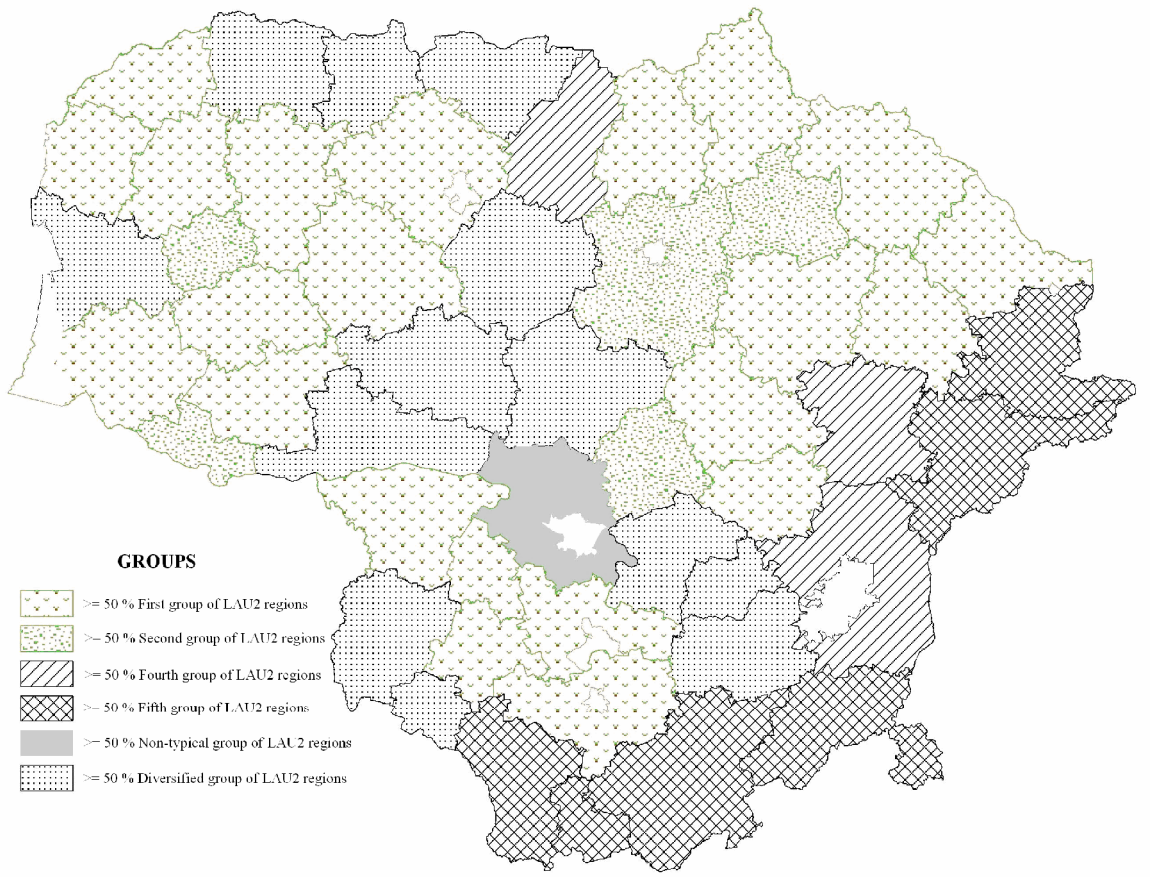

Fig. 1. Distribution of municipalities according dominating LAU2 regions

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- Author: Mr. Darius Jazepcikas
- Institute: Lithuanian University of Agriculture
- Street: Studentu st. 11
- City: Akademija, Kaunas district
- Country: Lithuania
- Email: Darius.Jazepcikas@gmail.com

- Author: Prof. Vlada Vitunskiene
- Institute: Lithuanian University of Agriculture
- Street: Studentu st. 11
- City: Akademija, Kaunas district
- Country: Lithuania
- Email: vlada.vitunskiene@lzuu.lt