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**LITHUANIAN DIAGNOSTICS OF LAGGING TERRITORIES:  
EVALUATION AND INSIGHTS**

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# LITHUANIAN DIAGNOSTICS OF LAGGING TERRITORIES: EVALUATION AND INSIGHTS

## Abstract

During the period 2006-2007 diagnostics were conducted on territorial aspects of rural Lithuania with a special focus on the rural areas lagging behind. The study includes analysis of economic, demographic and social indicators of rural areas at a disaggregated level and a methodology enabling the assessment of opportunities and constraints and the comparisons of rural areas in various territories. The study objective is an improved set of diagnostics that captures territorial differences, improves the targeting of RDP measures and strengthens the framework for allocation and access to structural and rural development funds. The paper discusses diagnostic methods by reviewing concepts of rurality and presenting methods used for identifying and ranking leading and lagging territories. We use selected socio-economic indicators to describe differences among municipalities in Lithuania and identify the key factors that indicate more and less successful areas. These are then used to identify and rank leading and lagging municipalities with a development index.

**Key words:** investment, rural development, lagging rural areas, economic structure, competitiveness, social well-being, development indices, funding envelopes.

## Introduction

EU and Lithuanian policy include as goals the increased cohesion of territories and reduction of socio-economic disparities and governments take seriously the difficult task of slowing the growth of inequalities and especially the growth of inequities in opportunity across different territories.

The objective of this study is to develop an improved set of diagnostics that:

1. Capture local territorial differences in opportunities and constraints and improve the targeting and qualities of RDP measures,
2. Strengthen the framework for allocation and access to structural and rural development funds.

This paper explains how the indicators are selected and used and how different indices can be obtained from these indicators and used for decision making. It forms the basis to discuss with decision makers and analysts in Government the choices that must be made in developing and using such indices, which are:

- What indicators to use
- What weights to use in forming thematic indices
- What weights to use in forming combined rural development indices

- Where and when to apply indices for program design and implementation.

The paper discusses diagnostic methods by reviewing concepts of rurality in Europe and presenting methods to be used for identifying and ranking leading and lagging territories in Lithuania. Next, we use selected socio-economic indicators to describe differences among municipalities in Lithuania and identify the key factors that indicate more and less successful areas. In section 3 we present the thematic indices which are calculated from the selected indicators for each municipality and used to rank municipalities according to different criteria. These are then used to identify and rank leading and lagging municipalities with a combined rural development index. Finally, we draw conclusions from the analyses and make recommendations on how these results could be useful in better targeting the measures and funding of the RDP 2007-2013.

### **Methodology**

In order to properly identify and characterize lagging rural regions, it was necessary to first decide on indicators of rurality, and then to decide on which indicators of social and economic well being or disadvantage should be used. Coming up with indicators of rurality was particularly challenging due to the disconnect between the definitions used by the Government of Lithuania, The European Commission, other New Member States and centers of expertise such as the OECD.

The OECD typology was chosen due to its simplicity and widespread use. According to this classification, local communities (NUTS 5) are considered rural if they have a population density below 150 inhabitants per square kilometer. This allows us to classify regions (NUTS 3&4) as being predominantly rural (over 50% of population living in rural communities), significantly rural (15% to 50% of population living in rural communities) or predominantly urbanized (less than 15% of population living in rural communities).

Currently, the Government of Lithuania uses two different sets of indicators to classify lagging territories – problematic areas and less favored areas: (i) Problematic areas are those municipalities where either proportion of registered unemployed and employable age population is 60% and more above the national average, or the proportion of the population receiving social allowances and other population is 60% and more above the national average; (ii) Less Favored Areas are agricultural areas where characteristics include cereal yields lower than 80% of national average, value of total agricultural production per capita is lower than 80% of national average, population density is less than 50% of the national average, the percentage of the active population engaged in agriculture is more than 15%, the rate of population decline is 0.5% or more per year, or the territory is classed as a Karst area or covered by NATURA 2000.

This study is focused on developing a comprehensive typology that could address multiple aspects of area based socio-economic disadvantage. After an extensive

review of different methodologies and indicators for characterizing lagging rural regions, it was decided to use those indicators suggested by Bryden and colleagues<sup>1</sup>. These indicators were combined with those recommended in a guidance note produced by the European Commission<sup>2</sup>. It was then determined which of these indicators were available at the NUTS 3 level (Counties), and at the NUTS 4 level (Municipalities). Because there is often a mix of leading and lagging municipalities which are hidden in the NUTS 3 aggregation, it was decided to focus on the data available at the NUTS 4 level. This allows for a more detailed comparison between levels of socio-economic well being in different parts of the country. The indicators selected are grouped according to the following themes: demographic, social well-being, investment and business, and agriculture.

By some measures there is convergence among regions in Lithuania over time and by other measures there is growing disparity. This is described by using a few of the indicators. For example, over the period 2003 to 2005, unemployment dropped more quickly in the highest unemployment regions, so the gap between the highest and lowest among municipalities narrowed by that measure. Similar convergence could be seen in social payments and average population change. By contrast, monthly earnings per capita grew in general; but the gap between the highest and lowest among municipalities also increased slightly. By far the largest disparity was in the comparison of investment in tangible fixed assets per capita, which moved up and down, but the gap between highest and lowest remained large and was about 25 percent higher in 2005 compared with 2003. It was also noticeable that municipalities with higher investment levels also tended to have higher earnings per capita, and those with higher dependency ratios tended to have lower earnings per capita. These correlations are not at all surprising and merely confirm the importance of these indicators.

The indicators identified were further used to construct indices which could then be added together in order to rank Lithuanian municipalities using a combined “rural development index”. The indicators which were used to construct this index are presented in Table 1, and are grouped according to four different dimensions of socio-economic well being for Lithuanian municipalities. These dimensions represent the data available at the municipal (NUTS 4) level on socio-economic well being in Lithuania. The thematic groups were demographic status, social well being, business and investment, and agricultural. In each case, we usually had several indicators in each category and used principle component analysis to select the more important of these and avoid using indicators that were highly correlated with each other.

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<sup>1</sup> Bryden, J. M., Copus, A. and MacLeod. 2002. “Rural Development Indicators” in the Report of the PASI project, Phase 1. Report for Eurostat with LANDSIS, Luxembourg.

<sup>2</sup> European Commission - Directorate General for Agriculture. 2006. Guidance note G – Baseline Data. (Preliminary document under negotiation with member states).

**Table 1** - Indicators used to construct the combined rural development index

<b>Demographic status</b>	<b>Social well being</b>	<b>Business and investment</b>	<b>Agricultural</b>
- % of population over working age Jan 06 (-) -Average annual population change 04/03 to 06/05(+)	-Unemployment rate 05 (-) -Average earnings per capita 05 (+)	-New business formation, average 03/02 to 05/04(+) -Investment per capita in tangible fixed assets, average 03 to 05(+) -FDI per capita, average 03-05 (+)	-Ave farm size (+) -Ag Land Quality (+) -% of agricultural employment (-) -Holdings as % of agr land (+) -LFA as % agr land (-)

+ positive indicator, - negative indicator

Since these indicators were expressed in different forms such as percentages, hectares, liters per capita etc, they needed to be standardized so a composite index could be constructed.

The formula used for indicators where *high values are considered good* (e.g. average earnings, new business formation, land quality etc) is as follows:

$$F = (\text{variable X minus mean of X})/(\text{standard deviation of X}).$$

For indicators where *high values are considered bad*, the formula used was the following:

$$F = (\text{mean of X minus variable X})/(\text{standard deviation of X}).$$

Each thematic index is formed by giving the same weight to each of the indicators within that theme. For example, unemployment and average earnings per capita each have a 50 % weight in the Social Well-being index. For the purpose of constructing a composite rural development index it was decided to add the four thematic components together with equal weights (though they could as well be given different weights depending on priorities of policy makers). This index was used to create five categories of territories: (i) leading, (ii) promising, (iii) intermediate, (iv) lagging, and (v) severely lagging. Cities are outside as an additional non-ranked category.

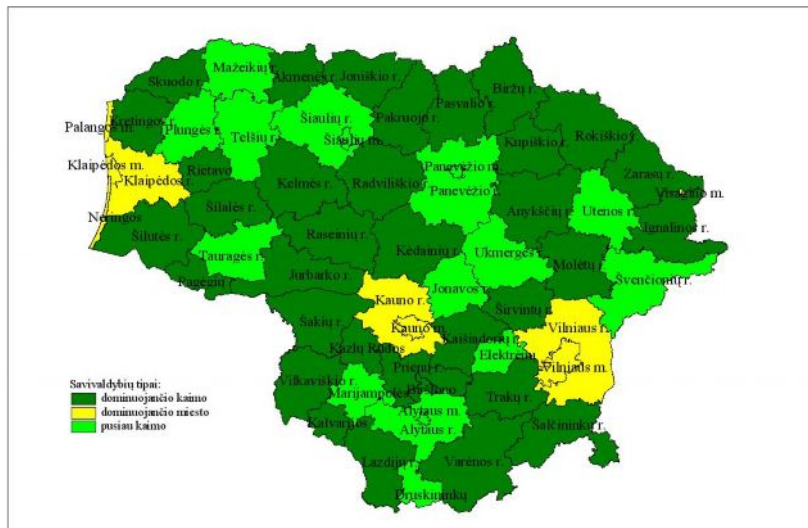
### **Key Findings**

The map below (Figure 1) shows that most of the municipalities in Lithuania are predominantly rural. Over 50% of the population lives in ‘predominantly rural’ communities’ (dark green), and much of the remaining territory is significantly rural (light green). While it is important to identify rural areas, it is also important to look beyond this classification in order to understand the spatial distribution of social and economic well being in rural Lithuania.

There are two official classifications of disadvantaged rural territories in Lithuania. One is the Less Favored Area classification, which is based on indicators of agricultural performance and potential. The other category is “problematic” areas which are based on a limited set of indicators of social disadvantage. Overall, less favored areas, problematic areas, as well as territories where less favored areas and problematic areas overlap tend to be disbursed throughout the country, except in the more productive central area and near the larger cities in the East and West. However, there is some clustering of ‘problematic’ areas along the borders with Belarus, Poland, and Russia. Again, these classifications are not sufficiently specific to separate the lagging from the developing regions.

While the problematic area approach represents a useful starting point for understanding the spatial distribution of socio-economic well being in Lithuania, it relies on a limited set of indicators. What follows is a discussion of the results from the set of indicators chosen according to the recommendations of Bryden and colleagues<sup>1</sup> and the European Commission<sup>2</sup>. These include indicators of demographic status, social well-being, business and investment, and agricultural performance and potential (presented above in table 1). Each of these categories represents a separate index of socio-economic well being in Lithuania. The following are the main findings of the analysis of the spatial distribution of each of these indices:

**Figure 1 - Rural Lithuanian typology according to OECD methodology**



1. ***The spatial distribution of the index of demographic status suggests that the leading regions (which have low levels of retired population and high levels of population increase) tend to be clustered around Lithuania's cities.*** On the other hand, municipalities which are lagging demographically are clustered in North East and South of the Country (with the exception of Kelmes and Sakiu).
2. ***According to the social well-being index, there is a cluster of lagging municipalities along the border regions, while other lagging municipalities tend to be dispersed throughout the country.*** There are two major groups of leading municipalities, one clustered in the center of the country in close proximity to the urban areas of Vilnius and Kaunas, while the other cluster is along the coast and Northwest in proximity to the port city of Klaipeda, resort city of Palanga and the industrial town of Mazeikiai. The indicators used for this index included unemployment and average earnings per capita.
3. ***The distribution of lagging and leading municipalities according to business formation and investment follows a pattern with leading municipalities tending to be in close proximity to major urban areas, resorts and industrial towns,*** while lagging municipalities are more remote from these economic activity poles and/or clustered along the borders with Russia, Poland, and Belarus.
4. ***According to the index of agricultural performance and structure both lagging and leading municipalities form distinct clusters that appear unrelated to urban proximity but rather to land resources and productivity.*** Accordingly, leading agricultural municipalities are clustered in the center of the Country, while lagging areas are clustered in the East, South East and South West, where soils and land productivity are lower. This is somewhat different to the spatial distribution of other indices.

The final element of the analysis is the combined rural development index, which merely combines all four thematic indices into one, with equal weights given to each of them to create a measure for classifying lagging rural areas in Lithuania. Five categories of municipality are designated – leading, promising, intermediate, lagging, severely lagging, and cities.

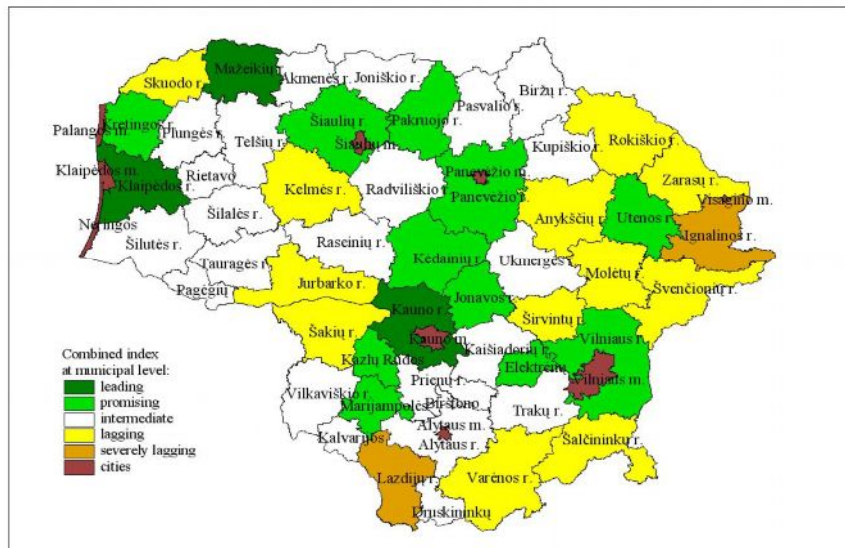
The map in Figure 2 shows that most municipalities are in the intermediate to leading categories. Those which fall into the lagging or severely lagging categories tend to be more remote from urban or industrial centers and/or located on the border with Russia, Poland or Belarus. It is also the case that no lagging or severely lagging municipality is adjacent to or contains a city.

These territorial rankings can be used to ***select appropriate measures and/or develop mechanisms to increase project or program funding*** for lagging areas and thereby shift development resources from leading to lagging areas. Thus, it is useful to state a rationale for such targeting. First, it is clear that investment is critical to increased development and well-being of any territory, so greater access



to such investment opportunities clearly means improved development potential. Second, there are direct and indirect benefits of developing rural places. Direct benefits are the effect of solving equity issues and increasing social cohesion. The indirect one is the potential reduction in the budgetary cost of various social and safety net programs. If lagging regions develop faster, the need for government spending on social cohesion and equity programs will be reduced.

**Figure 2** - Distribution of municipalities according to combined rural development index



It has been shown that lagging areas in Lithuania are not concentrated in one part of the country but are often in border regions and peripheral areas. The reasons for lagging may differ in different municipalities, so different measures or remedies may be implied for different areas. Also, this more scattered distribution of Lithuania's lagging territories generates an opportunity for "growth pole" effects of regional cities and municipal centers.

Lagging conditions are in part due to fixed resource endowments and location that clearly cannot be changed. However, they can also be due to limited access to human and financial resources to enhance labour and capital productivity. This aspect of the lagging condition can be changed, and part of the remedy may be in the *design and funding* of public investment programs.

There are several means to enhance targeting to promote development of lagging regions. A main principal is to design and implement programs so as to ensure

sufficient access for those regions and those entrepreneurs that may be disadvantaged by location or knowledge. Among the means that can be used are:

1. Regionalization – territorial (place-based) approach to allocation of funds
2. Set maximum grant size to broaden opportunities for participation (smaller grant % for bigger projects)
3. Technical assistance to improve capacity of lagging areas to participate, since they are less well prepared to compete at a national level
4. Give priority funding - does not mean accepting bad investment projects, but rather to ensure access and a level playing field for lagging municipalities.

We suggest ways to regionalize the funding of selected programs or measures.

Generally, lagging regions have had constrained access to development programs. They are less well prepared to compete at a national level and are often crowded out by quicker and better informed applicants in prosperous areas. It must also be recognized that envelopes are not the only remedy. Capacity building in these lagging regions is also necessary, so they improve ability to compete for program resources.

An allocation index can be calculated that could be used in combination with other factors to make a funding envelope for each municipality that includes some consideration of the combined rural development index (CRDI). We suggest an allocation based on three variables – rural population, average income, and CRDI, though other combinations are also valid. The CRDI functions as an allocation index, with higher allocations going to those municipalities with the lower index scores.

One mechanism for ensuring that such funds are fully and productively utilized, is to provide indicative allocations which would be subject to periodic review, and possible reallocation if the local authority (or local action group in the case of LEADER) is not able to develop viable projects within the appropriate time frame. These reallocation decisions would be made on the basis of successful absorption of the funds allocated, along with other region's performance indicators (Saktina et al).

### **Conclusions and Recommendations**

The extended process of collecting data and comparing characteristics of different municipalities has clearly demonstrated the importance of abundant and high quality data at the most detailed possible level. This is especially a problem in rural territories, where there is less data available. Separating rural territories from urban areas is practically impossible except for the major cities. In general, there is a need for more years of data and more recent data for some factors. NUTS 3 level data are not very helpful because they are too aggregate to identify territorial differences, but data for NUTS 4 and NUTS 5 levels is rather limited.

Diagnostics will be improved if better data is available, and it would help to improve program design and implementation too. Improved data should include more indicators reported by Department of Statistics, increasing coverage of existing data for rural area, and possibly surveys to gauge the attitudes and behavior of the rural population. Among the most important data that were not available at the NUTS 4 level were GDP per capita and the education levels of the population (which would reflect the quality of labor).

A well organized and detailed monitoring system would be of great value in tracking the improvements or deterioration of conditions in different communities and regions. It would be a way to institutionalize the type of analysis of territorial characteristics that has been reported here.

In order to improve access of disadvantaged or lagging areas to the programs and development resources of EU and National programs, it is important to take a place-based approach to evaluation of needs and the development of solutions. This includes building the capacity of peripheral and lagging areas through training and bottom-up approaches to local development, designing and managing programs so that there is wide access available, and using regional envelopes to prevent project resources from being dominated by a few large projects in prosperous regions.

It is important to solve co-financing problems of EU supported projects for eligible applicants who lack the personal financial requirements. Possible mechanisms and measures providing exemptions or increasing the grant share of projects should be considered in order to increase absorption of project funding in lagging areas where access to co-financing is constrained.

This study has demonstrated how to use socio-economic indicators to identify lagging areas and to develop envelopes as indicative funding levels to encourage broader participation and prevent resources from being monopolized by a few, prosperous areas and entrepreneurs. Such an allocation approach could be designed for specific measures or a broader range of activities or programs. There is not only one way of making such allocation computations. Important policy decisions on such envelopes are where and when to apply them, what factors to include in them, what weights to use if more than one indicator would be needed for that, and finally a mechanism for reallocation of funding resources if a region is not able to use it.

Finally, there are different problematic areas with potentially different criteria for support during the 2007-13 programming period, but it could be useful to consider all the lists of lagging areas in applying measures to different territories. For example, the Lithuanian Ministry of Interior (MoI) is looking only at their list of two indicators, which, as this study showed, are not correlated with income and investment disadvantages. So, while some of their lagging areas are the same as in this study, some of the lagging ones identified in this study are not included in the

MoI list. Also, some of their “disadvantaged areas” are not disadvantaged ones according to other indicators. So the method of this study with a broader list of indicators could be helpful in reassessing the ranking of assistance receivers.

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