

RURAL AND URBAN MUNICIPALITIES IN THE REGIONS OF LATVIA – DEVELOPMENT TENDENCIES AND CHALLENGES

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Abstract. The aim of the research was to evaluate the 48 indicators in urban and rural municipalities in the regions of Latvia in order to identify the factors for differentiated development of municipalities as well as their socio-economic clusters. One may conclude that there are differences among values of indicators in urban and rural municipalities. Factor analysis results showed that the most important factors for diverse municipality development are - *Residents' income, Employment, Land resources and Provision of basic functions*. As a result of cluster analysis, several municipality groups were identified, which have similar socio-economic processes. Positive socio-economic processes have been recognized in 58 municipalities, for example, larger population, higher income level or positive age structure comparing with other municipalities. Negative socio-economic processes have been observed in 52 municipalities, the main problems being as follows – clear depopulation and aging, small number of employed and low salary, small land area per farm and low intensity of agricultural activity.

Key words: rural, urban municipalities, sustainable development, regional development

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Introduction

The development of municipalities may be characterised by various indicators. An analysis enables to evaluate development tendencies and to model future development. The evaluation is essential to perform sustainable development planning process in all levels – local, regional and national (Rondinelli, Ruddle, 1978; Shucksmith, Cameron, Merridew, Pichler, 2009). The indicators' evaluation can be used as a tool to assess the efficiency of regional policy implementation or as argument to introduce the new regional or spatial development measures in order to promote sustainable and balanced development. Balanced and sustainable spatial development has been a topical issue in the EU since the 1980s with the aim to reduce differences between the EU regions, and rural and urban areas (Wegner, 2008).

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This goal has been included in the European Spatial Development Perspective (1999), the Territorial Agenda (2007), the European Community Strategic Guidelines on Cohesion (2006) and other documents. Necessity of sustainable regional and local development has been updated also in Latvia – both the Sustainable Development Strategy of Latvia until 2030 (2010) and the National Development Plan of Latvia for 2014 – 2020 (2012) as well as the Regional Policy Framework for 2013 – 2019 (2013).

Taking into considerations territorial cohesion as one of sustainable development dimensions, many scientists stated questions – did the city impact on its administrative area could be described as significant (Meijers, Waterhout, Zonneveld, 2007) and were there statistically significant differences between rural and urban areas in terms of socio-economical indicators (Tacoli, 1998; Zonneveld, Stead, 2007; Szajnowska-Wysocka, 2009).

Specific research tasks: (1) to evaluate the indicators in Latvia's urban and rural municipalities for a three year period; (2) to perform a factor analysis to identify the indicator groups that differ between urban and rural municipalities; (3) to perform a cluster analysis to identify the municipalities with positive or negative development tendencies. The research methods employed: monographic, analysis and synthesis, induction and deduction, statistical analysis methods, factor analysis, cluster analysis and Mann-Whitney U test. The secondary data collected by the Central Statistical bureau was used. The municipality is considered as urban if one or more towns/cities are located in its territory. If there are no towns in the territory of municipality – it is considered as rural municipality. The republic cities are excluded of the research. The research was elaborated in the period from 2010 to 2013, the calculations made were performed in the national currency (LVL), and the results can be converted into euro currency according to the exchange rate: EUR 1 = LVL 0.702804.

Research results and discussion

Analysis of the administrative territories of Latvia was carried out in several stages. The *first* stage reveals indicators for rural and urban municipalities in the period 2009 – 2011 (due to data availability, agricultural description was analysed only for 2010). Indicators were analysed in groups of municipalities of the statistical regions of Latvia. To determine differences in indicators correctly, *Mann-Whitney U test* was performed and *p-value* was obtained – if its value is less than 0.05, it shows statistically significant differences in values of indicators in urban and rural municipalities (The theory behind..., n.d). In the *second* stage factor analysis was performed to analyse and study in detail the main structural differences in the groups of municipalities, as large group of common indicators was used to describe situation in the territories. To justify results of factor analysis, objective probative indicators were calculated (*Anti-Fig.* correlation matrix, Bartlett test and Kaiser-Meyer-Olkin test) that prove the statistical significance of the performed analysis. In the *third* stage of data analysis cluster analysis was performed on the basis of complex factors, revealing differences among the municipalities, obtained as a result of factor analysis. As a result different groups of

municipalities was identified, characterising the positive and negative tendencies of their development.

Analysis of demographic indicators

To determine the demographic differences in rural and urban municipalities in Latvia, several indicators were analysed – number of residents and its changes, demographic burden, density in a three-year period. Factor analysis includes one more indicator (Personal income tax (PIT)). Three factors were identified, explaining 88.37% of differences in municipalities (Table 1). The most important factor is *Residents' income*. Six indicators differ statistically in rural and urban municipalities suggesting heterogeneous situation in Latvian municipalities.

Table 1

Results of analysis of indicators characterizing the demographic situation

Indicators	Mann-Whitney U test*	Factors (explained dispersion)
PIT in the municipality budget, LVL per 1 inhabitant	0.34	Residents' income (48.09%)
Residents in the pre-employment age, %	0.41	
Density of population, resid./km ²	0.00	
Residents after the working age, %	0.21	
Demographical load per 1000 residents in the working age	0.00	Residents' structure (24.33%)
Residents in the working age, %	0.00	
Residents after the working age, %	0.00	
Number of residents	0.00	Number of residents (15.95%)
Changes in number of residents (compared to the prev.year)	0.00	

* *p*-value

Source: author's calculations

Fifty-one percent of population lived in nine cities (in 2011), majority of them in the capital city Riga, showing an explicitly monocentric spatial structure. Number of residents has decreased by 4% since 2009 – in urban municipalities the decrease was caused by residents' migration to other territories, in rural municipalities – due to the decrease of natural reproduction. Proportion of number of urban and rural municipalities, however, has not changed (70% and 30%) proving that residents are leaving urban and rural areas. In Pieriga region the numerical dispersion between municipalities in terms of number of inhabitants is - 15.8 times, but the largest difference is in Latgale region (23.9 times) showing an explicit heterogeneity in terms of the number of residents in municipality.

Pieriga region is the most densely populated area (104 resid./km²), Vidzeme region, which is of large space and small number of residents, in terms of density of population is the last one compared to the other statistical regions of Latvia. Ageing structure of residents in urban and rural municipalities is similar – differences in each ageing group are less than 1%, in the

regional aspect it is homogeneous as well. Significant differences is observed in rural municipalities of Pieriga region where proportion of residents in the pre-employment age and residents after the working age ranges within 10% each, proportion of residents in the working age, however, ranges only within 4%.

The average level of demographic load in 2011 in Latvian municipalities was 522 persons; moreover, dispersion was larger in rural municipalities than in urban municipalities. The largest average demographic load was observed in rural municipalities in Kurzeme region, the smallest – in rural municipalities in Pieriga region, showing that the territory is attractive to residents in the working age that can be explained by the wide variety of work opportunities in Riga.

Analysis of indicators describing economic activity

In the cities are located 53% of all economically active statistical units of Latvia, in urban municipalities – 32%, in rural municipalities – 15%, demonstrating concentration of economic activity in the cities. In order to characterise economic activity in rural and urban municipalities, analysis of 12 indicators was made – only three of them (gross salary in public and private sector and number of self-employed) are not statistically different in groups of municipalities. Factor analysis resulted in three factors – factor *Employment* explains 44.78% of disparities in municipalities.

Table 2

Results of analysis of economic activity indicators

Indicator	Mann-Whitney U test	Factors (explained dispersion)
Number of employed, thou.	0.00	Employment (44.78%)
Number of employed in public sector, thou.	0.00	
Number of employed in private sector, thou.	0.00	
Gross salary (companies employing >=50 employees)	0.79	
Number of individual merchants per 1000 residents	0.00	
Gross salary (companies employing <50 employees)	0.79	Salary (19.08%)
Gross salary at public sector	0.79	
Number of companies per 1000 residents	0.00	
Unemployment level, %	0.00	
Number of economically active market sector statistical units of per 1000 residents	0.04	Basic forms of economic activity (13.73%)
Number of self-employed per 1000 residents	0.95	
Number of peasant and fishermen farms per 1000 residents	0.00	

Source: author's calculations

In the cities the most often form of commercial activity is a commercial company (69%), in municipalities - self-employed persons (44% in urban municipalities and 42% in rural municipalities in 2011). Farming and fishing enterprises are mainly located in municipalities - 64% in urban municipalities and 35% in rural municipalities. In Latvia 95% of economically

active statistical units in rural municipalities and 94% of economically active statistical units in urban municipalities are classified as micro by the economic size, 4% and 5%, respectively, fall into the group of small economically active units showing a fragmented economic activity, low competitiveness and limited development opportunities.

According to NACE, the largest number of companies in Latvia is registered in the following lines of business: agriculture, forestry and fishery (52% of the group of rural and 40% of the group of urban municipalities), retail sales and wholesale, repair of vehicles and motorcycles.

In 2011 in Latvian municipalities 228.7 thousand residents were working, 67% of those were employed at companies operating in urban municipalities and 33% - at companies operating in rural municipalities. Proportion of the number of employed complies with the general trends of residents' placement in the groups of municipalities and shows that in urban municipalities there is a larger number of available work places, concentration of economic activity, state and municipality institutions are located there. Private sector employs 57% of the employed; the proportion is equal in both rural and urban municipalities.

When evaluating economic activity indicators one can conclude that there are significant differences in the groups of urban municipalities and rural municipalities – urban municipalities have higher indicators of economic activity in terms of number of employed, number of economically active statistical units as well as in terms of gross salary.

Analysis of agricultural activities

The largest number of registered economically active statistic units is observed in agriculture, forestry and fishery, thus, the main indicators of agricultural activity were assessed in detail using data of agricultural census in 2010.

Seven agriculture indicators were reduced in three factors (Table 4), explaining 91.84% of differences; factor with the greatest impact is *Land resources* as the basis of agricultural activities. Utilised agricultural area (UAA) per farm depends on both location of municipality and municipality overall area. Mann-Whiney test results showed that indicators of agricultural activities did not statistically differ in rural and urban municipalities as agricultural production depended on available resources and land quality.

Table 3

Results of analysis of agricultural activity indicators

Indicator	Mann-Whitney U test	Factors (<i>explained dispersion</i>)
Agricultural area, on average per farm, ha	0.59	Land resources (42.71%)
UAA, on average per farm, ha	0.58	
Total land area, on average per farm, ha	0.67	
Number of persons employed in agriculture	0.72	General description of agriculture (28.39%)
Number of farms	0.09	
Average economic size of farms, thou. EUR	0.95	Agricultural intensity (20.74%)
Average number of persons employed at farm	0.06	

Source: *author's calculations*

According to the farms surveyed during the agricultural census, the total agricultural area occupy 67% of total municipality area, forests occupy 25%. In urban municipalities on average 97% of total agricultural area are utilised, in rural municipalities the result is 96%. There are 83 364 farms registered in Latvia that are managing 1 796.3 thou. ha. The main specialization of farms is agriculture (43%), dairy farming (21%) and mixed farming (13%). In Latgale region the largest number (35%) of farms is registered. Analysing the obtained data, it can be concluded that agricultural activity in Latvia is concentrated in certain areas and municipalities also have differentiation in economic activities – there are municipalities with very intense agricultural activities, especially in Zemgale region. Various economic size of farms is another significant issue for policy developers – in order to increase development diversified policy instruments for the small and large farms are necessary.

The most significant share of persons employed in agriculture is in Latgale region (35%). In Zemgale region the number of employed in rural municipalities is higher (53%) than in urban municipalities demonstrating the explicit specialization of farms in Zemgale region in agriculture.

The total standard output of farms in 2010 was EUR 777.2 million. In Zemgale region the farms are more active and economically more efficient that is proved by the share of number of farms and total standard output. In Latgale region the number of rural farms and UAA is larger, however, the total standard output in this region is 18% of total Standard output in Latvia showing an ineffective use of resources. The economical size of Latvian rural farms is EUR 11.7 thou. On average, in rural municipalities – EUR 13.2 thou., in urban municipalities farms – EUR 10.5 thou. showing that farms in rural municipalities are economically more active and the value of produced goods is higher. Assessing the agricultural sphere in the context of the EU, it can be concluded that farms in Latvia are with low competitiveness, comparing with other EU member states. To promote development, merging of farms should be stimulated or operations should be oriented to niche products.

Analysis of financial indicators of municipalities

Analysis of income in municipalities shows the most significant income sources of residents and its size as well as relations to other municipalities, for example, receiving resources from the municipal balancing fund, resources from other municipalities for services provided by education institutions and other income sources. The municipality budget factor analysis identified two factors (Table 5), whereas the Mann-Whitney test showed two indicators which did not statistically differ in rural and urban municipalities (environment protection and health expenses).

Table 4

Results of factor analysis of municipal financial indicators

Indicators	Mann-Whitney U test	Factors (explained dispersion)
Total income of general budget	0.00	Provision of basic (primary) functions (62.19%)
Education expenses	0.00	
Leisure, religion, culture expenses	0.00	
Total expenses of general budget	0.00	
Expenses for general government services	0.00	
Social protection expenses	0.00	
Economic activity expenses	0.00	
Environment protection expenses	0.29	Provision of secondary functions (11.18%)
Municipality territory and housing management expenses	0.00	
Health expenses	0.11	
Public order and security expenses	0.00	

Source: author's calculations

Income of general budget for the majority of municipalities (32%) amounts to LVL 3–5 million, for the fifth part of municipalities – LVL 5–7 million. Personal Income Tax (PIT) contributed to the municipal budget 39% on average (total tax income 46%). In urban municipalities incomes amounted to LVL 7.45 million on average in 2011, in rural municipalities – LVL only 4.60 million, showing that rural municipalities have less opportunities to ensure good life conditions to residents and support economic activities thereby creating an attractive business environment. Income of urban municipalities is 13 times higher on average, allowing affect the development of territory positively and promote the use of potential more than in rural and urban municipalities.

In 2011, PIT payment per one resident in Latvia amounted to LVL 225 on average, in Pieriga region PIT payment was higher by 17%. The lowest amount was in Latgale region, demonstrating differences of income and economic situation among inhabitants that complies with salary trends. In urban municipalities, PIT payment was higher by 12% than in rural municipalities. Municipalities in Pieriga region should be emphasized because the PIT payment per one resident is the highest in Latvia both in urban municipalities (LVL 277 on average) and

in rural municipalities (LVL 248 on average). These differences between both groups of municipalities are comparatively small – 10%. It proves that income of residents of municipalities located near Riga are higher and not dependent upon place of residence, as majority of working places are located in Riga, the declared places of residence are in suburban municipalities.

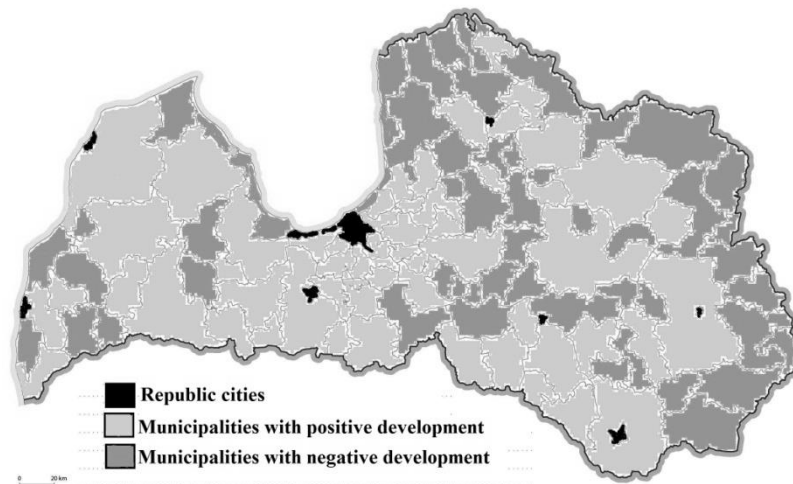
The largest part of expenses of the general budget are expenses for education (40% on average), territory and housing management expenses (18%) and expenses for general governmental services (12%). Expense structure in regions is comparatively homogeneous. There are significant differences in municipalities as regards expenses for environment protection and health - as a result of various reforms, in several municipalities there are no medical institutions and municipalities have not incurred any expenses in this category. Expenses for environment protection are not the priority and have not been included in expense structure.

Assessment of development in municipalities applying cluster analysis

As a result of cluster analysis, clusters of municipalities bearing different social-economic situation is obtained; the analysis is based on previously obtained factors. Municipalities located close to republic cities are more attractive – the number of residents is higher as well as residents' income level. The essential issue for future development is creation and maintenance of infrastructure – both road network and its quality which ensures everyday commuting, and public service availability to improve the quality of life. The second group is municipalities with intense agricultural production – a larger number of farms, higher economic size, more inhabitants are employed in agriculture. A key issue of development in these municipalities is sales markets for agricultural production and creation of demand-supply chains. Cities and towns are major market for agricultural products and partnership establishment between municipalities is an essential factor to ensure development and growth. Municipalities with particular decrease of population and unfavourable aging structure, partnership and cooperation should focus on more attractive living condition creation by ensuring access to public services.

Applying the cluster analysis it is possible to group all Latvian municipalities in clusters with a positive situation or negative situation. For example, Adazi municipality in Pieriga region has especially high residents' income level and values of other indicators are medium. Thus, one can conclude that this particular municipality may be characterised as high-income municipality among other municipalities in Latvia. In order to ensure future development in municipalities it is essential to identify those areas where certain measures should be implemented to improve negative tendencies. In those municipalities, which are characterised positively, local government main task is to ensure the continuation of growth and stabilisation of positive development. Positive development tendencies (for example, high residents' income, high number of employed persons, high economic activity, high agricultural intensity)

are identified in 28 rural and 30 urban municipalities. Negative socio-economic processes (an explicit decrease of number of residents, clear ageing of residents, low number of employed persons, low agricultural intensity) are identified in 22 rural and 30 urban municipalities.



Source: author's construction

Fig. 1. Latvian municipalities with positive and negative socio-economic situation

Results of cluster analysis show that in Latvia there are several groups of municipalities with different socio-economic situation – the regional and spatial planning instruments should be diversified in order to ensure growth and development. Development planning may be carried out in two forms - strengthening and developing the strong points of municipalities (for example, in municipalities with high number of farms and high number of persons employed in agriculture, highlight agriculture as a priority sphere) or focusing on reducing the impact of the weak points of municipalities (for example, in municipalities with the highest decrease of number of residents, focus on matters to maintain the number of residents).

Conclusions, proposals, recommendations

1. When analyzing demographic, economic, agricultural production and municipality financial indicators in municipalities, it can be concluded that there are differences among values of indicators in urban and rural municipalities which can lead to unbalanced development in future.
2. Analysis of demographic indicators revealed by the first three groups of factors, highlight Pierīga region as the most favourable - residents' income and number of residents is higher and demographic load is lower. Situation in urban municipalities in Latvia is more favourable in terms of resources - higher number of residents promote development of municipalities, increase municipal budget and general attractiveness of the territory. In rural municipalities, especially those located close to the cities, there is a more positive demographic load - proportion of children and youth until the age of 15 is larger than in other municipalities proving that families with children choose to live not in urban but in municipalities close to cities.

3. The average values of factors *Employment* and *Basic forms of economic activity* in regions show comparatively homogeneous situation, values of factor *Salary* in regions differ. Economic activity is higher in Pierīga region with a high number of registered companies, in Latgale region, however, there is an opposite situation - level of employment is low and number of commercial companies is small. In rural municipalities residents establish their own companies as the number of offered working places is limited - number of economically active statistical units per 1000 residents is higher than in urban municipalities.
4. Analysing agricultural operations, municipalities in Latgale region have a higher number of persons employed in agriculture and higher number of farms, those are, however, smaller in size and production intensity. In Zemgale region the situation is quite the opposite - farms are bigger in terms of land for agricultural use and size of area of land for agricultural use per one farm. Description of agricultural activity does not significantly differ among urban and rural municipalities.
5. Certain municipality groups with similar socio-economic tendencies can be identified by using 11 factors. Socio-economic processes, which can be evaluated positively, have been recognized in 58 municipalities, for example, larger population, higher income level or more positive age structure as in other municipalities. Negative development tendencies have been observed in 52 municipalities, the main problems being as follows - clear depopulation and aging, small number of employed and low salary, small land area per farm and low intensity of agricultural activity.

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