

# “Endogenous factors in Latvian regional development”

<b>AUTHORS</b>	Anna Ābeltiņa Rosita Zvirgzdiņa Juris Ozols
<b>ARTICLE INFO</b>	Anna Ābeltiņa, Rosita Zvirgzdiņa and Juris Ozols (2016). Endogenous factors in Latvian regional development. <i>Problems and Perspectives in Management</i> , 14(3), 21-30. doi: <a href="https://doi.org/10.21511/ppm.14(3).2016.02">10.21511/ppm.14(3).2016.02</a>
<b>DOI</b>	<a href="http://dx.doi.org/10.21511/ppm.14(3).2016.02">http://dx.doi.org/10.21511/ppm.14(3).2016.02</a>
<b>RELEASED ON</b>	Friday, 29 July 2016
<b>JOURNAL</b>	"Problems and Perspectives in Management"
<b>FOUNDER</b>	LLC "Consulting Publishing Company "Business Perspectives"



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

© The author(s) 2025. This publication is an open access article.

Anna Ābeltiņa (Latvia), Rosita Zvirgzdiņa (Latvia), Juris Ozols (Latvia)

## Endogenous factors in Latvian regional development

### Abstract

The aim of this paper is to explore what endogenous factors dominate in the regional development of Latvia. To achieve the aim, the following tasks were established: to examine the theoretical background of regional development; to analyze the endogenous factors of regional development in Latvia; to evaluate the significance of the endogenous development factors of regions by using expert evaluation method. The following research methodology was used: literature review, graphical method, expert evaluation method and logically constructive approach – for data evaluation and result analysis; synthesis method – to combine the elements in a unified system; social research methods – to obtain the primary information and to carry out its verification. For expert evaluation data processing the statistical and data analysis methods were used, including the data parametric grouping and correlation calculations, and the average calculations of the factors corresponding to each group.

The analysis of the statistical data and the independent expert evaluation results allow concluding that the most important factors influencing regional development are the government decisions and the existing infrastructure, as well as the influence of migration, the distance from the centre and the availability of investment. These findings on regional development apply particularly to a small country where geographically and historically has formed a single highly-developed economic and political centre – the capital, and where does not exist a secondary centre. The research findings confirm the thesis that the endogenous development factors are the primary in the regional development.

**Keywords:** regional development, endogenous and exogenous factors in regional development, growth indicators.

**JEL Classification:** E24, O110, R110.

### Introduction

Regional policy is defined as guidelines and purposeful activity of the government in promoting regional development by coordinating sectorial development in conformity with the development priorities of separate parts of the State territory and by providing direct support for development of separate parts of the State territory (Regional Development Law, 2012).

Regional policy implementation uses the organizational and financial resources, measures to promote innovation, and spatial planning. Regional development policy forms part of the country's overall development policy. It is a set of measures and actions with the aim of reducing the socio-economic development differences between locations, regions and territories.

The aim of the European regional policy is to implement solidarity within the European Union, using economic and social cohesion to reduce the differences between the development levels of the various regions. Thanks to the special approach, the regional policy brings added value to the local actions. It helps to finance particular projects for regions, towns and their inhabitants. The idea is to ensure that the regions can carry out successfully their task in promoting growth and competitiveness, exchanging ideas and best practices (Regional policy, 2015).

Latvian national regional policy is formulated to level off the development levels of the regions, taking into account the European Union's regional policy principles, which set the overall framework of the Community regional policy development and implementation. Latvian regional policy is developed and improved, taking into account the European Union's regional policy guidelines.

Despite the fact that the regional economy as an independent branch of science has existed for almost a hundred years, there is still no such theory that would be able to explain fully the main driving forces, obstacles and reasons of success of the regional development. There are different views on the driving forces of the development, some researchers emphasize the importance of exogenous factors, while the others argue that endogenous factors prevail. Over the years, many scientists have made a significant contribution to these issues, yet, each new day, at a specific time and place in a particular country or region, new questions arise again and again. Thus, the authors tried, on the basis of theoretical knowledge, to discover what regional development factors currently dominate in Latvia.

### 1. Literature review

So, what exactly is regional policy? One of the definitions provides the following explanation. Regional economics is a study of regions based on the consideration of space, transportation costs, and location in production and consumption decisions. Regional economics studies a wide variety of topics, including the migration of labor, the macroeconomic activity in cities and states, and the location choices of firms (Regional economics, 2015).

Another definition provides for the following: ‘...Regional economics represents a framework within which the spatial character of economic systems may be understood. We seek to identify the factors governing the distribution of economic activity over space and to recognize that, as this distribution changes, there will be important consequences for individuals and for communities (Hoover, Giarratani, 1999).

Thus, regional or ‘spatial’ economics might be summed up in the question ‘What is where, and why – and so what?’, which refers to every type of economic activity – not only production establishments in the narrow sense of factories, farms, and mines, but also other kinds of businesses, households, and private and public institutions. ‘Where’ refers to location in relation to other economic activity; it involves aspects of proximity, concentration, dispersion, and similarity or disparity of spatial patterns, and it can be discussed either in broad terms, such as regions, or micro-geographically, in terms of zones, neighborhoods, and sites. The ‘why’ and ‘so what’ refer to interpretations within the somewhat elastic limits of the economist’s competence and daring. Regional economics is a relatively young branch of economics. Its late start exemplifies the regrettable tendency of formal professional disciplines to lose contact with each another and to neglect some important problem areas that require a mixture of approaches (Hoover, Giarratani, 1999).

As noted before, the theoretical aspect of the regional development started to develop in the first half of the previous century, but gained pronounced expression in the EU’s regional policy. Since the Rome Treaty of 1957, the need for a coordinated community solution to regional problems and the elimination of regional imbalances was also recognized in the EU’s political solutions. Since the very beginning, the EU has sought to position itself as an organization ensuring equality between all Member States and, therefore, has established its regional development policy, the main principle of which is non-division of the Member States into rich and poor. Economic and social cohesion, as determined by Article 158, was necessary for the Community’s overall harmonious development and called for the reduction of the regional development disparities, i.e., the backwardness of the least developed regions (Treaty Establishing the European Community, 2002). The cohesion policy was focused on growth, competitiveness and employment by incorporating the Community’s priorities for sustainable development, this policy was continued in the further course of the EU’s development.

Obviously, it is very important to study not only the region and its characteristics, but also its development, therefore, the research on regions usually highlights the regional development.

OECD has paid much attention to the regional development. There has been defined that the regional development is a broad term, but can be seen as a general effort to reduce regional disparities by supporting (employment and wealth-generating) economic activities in regions. In the past, regional development policy tended to try to achieve these objectives by means of large-scale infrastructure development and by attracting inward investment. Awareness of the need for a new approach is driven by observation that past policies have failed to reduce regional disparities significantly and have not been able to help individual lagging regions to catch up, despite the allocation of significant public funding. The result is under-used economic potential and weakened social cohesion (OECD. Regional Development, 2015).

OECD publication ‘How Regions Grow’ establishes that opportunities for growth exist in all regions and national government should promote growth in all regions, but regions should promote their own growth using local assets and resources in order to benefit their specific competitive advantages, rather than depending on national transfers and subsidies to help them to grow. Further, this document notes that the traditional policies, based only on infrastructure provision or education, are insufficient. Instead, a more comprehensive policy is called for, one that integrates these two policies in a coordinated agenda across governance levels and that fosters business development and innovation (OECD, 2009, p. 13).

OECD work on regional development recognizes that a new approach to regional development is emerging; one that promises more effective use of public resources and significantly better policy outcomes. This involves a shift from redistribution and subsidies for lagging regions towards the measures to increase the competitiveness of all regions.

Some key features of this new approach to regional development include:

- ◆ a development strategy that covers a wide range of direct and indirect factors that affect the performance of local firms;
- ◆ a focus on regional specific assets, and less on top-down investments and transfers;
- ◆ an emphasis on opportunity rather than on disadvantage or need for support;
- ◆ a collective/negotiated governance approach involving national, regional and local government plus other stakeholders, with the central government taking a less dominant role (OECD. Regional Development. A new approach, 2015).

Currently, European regions may become a stage for a socio-technical experiment. Its goal is to create and institutionalize the region as a self-regulating socio-economic field, which will be included in global processes while preserving its own unique 'brand' of marketing and self-governing resources, and which will participate in the national space on the basis of a contract (Szajnowska-Wysocka, 2009, pp. 75-90).

Several scientists hold that three regional development paradigms were developed consequently in the modern world. The origins of the first are to be found in the period after the World War II. In this period, it was believed that regional development can be initiated by external support mechanisms, which facilitate the development process by creating infrastructure and leading production. The 1970 crisis, which caused to significant changes in economic regimes in the world, brought new regional development approach based on local production dynamics. The increasing effect of globalization in 1990s caused to development of the third paradigm. Sources of regional development are seen as social capital, social embeddedness of economic relations, untraded interdependencies, knowledge, learning capacity and internally driven technical and organizational innovation. Knowledge, learning and innovation raised its significance in this period. In this period, growing emphasis occurred on the importance of endogenous potentials for regional development (Çiçek Hüseyin, 2013).

We have already noted that there does not exist a unified regional development theory, and the study of the different theories allows concluding that they focus on the research of the following factors: natural resources; labor; capital; investment; entrepreneurship; transport; communication; industrial composition; technology; size; export market; international economic situation; local institutional capacity; national, local and state government spending; development support schemes (Stimson, Stough, Roberts, 2006).

While the authors analyze these factors from various points of view, most of them put stress on two different forces: exogenous factors, on the one hand, and extraneous factors, on the other. Initially, the exogenous factors dominated, but gradually more and more scientists accentuated and researched the endogenous factors more deeply. There may be established a hypothesis that the change in the direction is linked with the global economic processes in general and two of those in particular: globalization and localization (the EU being one of the most prominent examples of localization). The combination of the two processes eventually grows into glocalization. It is not possible to fully distinguish these processes or accentuate only one of them. Currently, the accent is put on the local factors, thus, it is possible to conclude that the endogenous factor

theories follow the same direction as the general economic theories. Glocalization is the practice of conducting business according to both the local and global considerations (Glocalization. Oxford dictionaries, 2015).

Regions are affected by the globalization processes to varying degree, depending on their structure and specialization. In fact, another factor may be applied in the analysis of the global and local context – coopetition. While, on the one hand, the two processes are opposed, as they seemingly compete with each other, on the other, a lot can be achieved only by working together, and they cannot be separated fully from each other. As the present article focuses mainly on the endogenous growth factors, further we will look at the factors the researchers consider to be endogenous and at how this view has developed historically.

Different authors have different opinions on when exactly the endogenous growth theory started to develop. Some believe that it originated in the nineties of the previous century (as we saw before), some others – that it happened in the eighties. One of the authors to be mentioned is M. Romer, who published several works in the eighties depicting the main endogenous growth factors, e.g., regarding the Solow type growth model (Romer, 1986). To some extent, this theory emerged as a critical response to the neoclassical growth theory. The endogenous growth is connected with several changes taking place within the region and is based on the idea that the economic growth is promoted from within rather than by external trade and other elements of the external system. This theory identifies various factors that provide possibility to increase competitiveness and form sustainable development. Different authors establish different factors, which will be discussed further.

Endogenous factors are investment in infrastructure, schools, training organizations, universities and research organizations. Endogenous factors, thus, refer to highly-educated workforce, and to knowledge and technologies developed in the region, which lead to new products, processes or other new solutions. The next kind of endogenous forces include social and political factors, such as the engagement of social agents and civil society, which trigger processes of self-help, local initiatives, and social movements aiming at the improvement of living conditions in a particular region (Handbook of Local and Regional Development, 2010). The concept of the endogenous development stresses the importance of social development, the growth of human capital, the role of local communities and their activities in regional development. Apart from these factors, endogenous development is largely influenced by economic policy. This determines the role of economic policy as it raises questions regarding the possible

combinations of national and regional policy. The answers to these questions lead to civilizational premises, since the development in modern economy at the end of the 20th century is driven more successfully and efficiently by endogenous processes of self-adaptation and self-organization (Szajnowska-Wysocka, 2009, p. 84).

In relation to regional economic development, Capello and Nijkamp (Endogenous Regional Development, 2011, pp. 301-324) write: 'besides others, give the examples of healthy living environment, access to social facilities and high quality education.' When discussing regional economic development, Stimson and co-authors (Endogenous Regional Development, 2011, pp. 1-19) differentiate quantitative and qualitative attributes. The following factors are all of concern while carrying out measurements and monitoring regional economic processes such as changing wealth and income levels, employment levels, generating creative capitals, social and financial equity, or sustainable development. According to the authors, regional endogenous growth has three key factors included in the model: leadership, institutional factors and entrepreneurship. The results of the model are remarkable and useful to establish the scientific foundations of regional development policy. The authors support the idea that the missing link between knowledge creation and economic growth is the entrepreneurial activity and the factors that determine the regional performance are not only the internal regional development capabilities, but also the features and performance of the national economy.

Exogenous factors are those that have no direct local contact, e.g., foreign investment (which typically chooses the region of and around the capital or a region with large airports), the infrastructure created by external actors, as well as the international companies within the region. Regarding Europe, essentially more favorable situation is in the Eastern European regions bordering with the Western European countries and, correspondingly, less favorable in the regions near the EU's Eastern border (unfortunately, this is the case of Latvia, and one of the least developed regions is Latgale region). In essence, the exogenous factors may be called also the globalizing external factors.

Endogenous factors form and develop within a particular region or a particular place resultant to its development, e.g., local companies, entrepreneurial skills and abilities, local production, local power, knowledge, innovations, etc. Supporters of the endogenous growth theory search for change and development possibilities within the system. In the 21<sup>st</sup> century, the main such factors are technical progress, education, innovations, highly-developed human capital, and investment.

Of course, as established by R.J. Stimson and R. Stough (2004, pp. 1-20), the exogenous factors remain important to a region's economic performance and to how it develops over time, and increasing importance is being placed on endogenous forces as determinants of the region's competitiveness and, thus, on policy initiatives that enhance local capacity and ability to develop and cope with rapid change in an increasingly competitive global environment. While endogenous growth theory makes mention of leadership and institutional factors, little systematic analysis has occurred to thoroughly conceptualize or measure their roles as endogenous factors in the development process.

The regional development policy is now increasingly trying to create conditions for endogenous development in each territory based on local values, skills and economic potential (OECD, 2010).

## 2. Methodology

During the research, the following research methods were used:

1. Monographic method – information gathering and compilation on a particular scientific problem or issue, based also on literature review, as well as characterizing not only the direct state of the particular object, but also the connections that exist between the object in review and the external environment.
2. Logically constructive method – for formulation of conclusions, analysis of results and establishing correlations.
3. Analytical method – the division of the whole into parts and analysis of the parts during the research. In economic research, such division allows to study the structure and characteristics of the object.
4. The method of synthesis – unification of the elements into a system to research their correlations. The synthesis is inseparably connected with the analysis. While the analysis of a phenomenon divides it into parts, the synthesis reunifies these parts, their characteristics and relationships.
5. Graphic method – for depiction of factor interactions.
6. Social research method – expert interviews. This method allows to obtain quality information on the development drivers of Latvian regions. The evaluation of seven independent experts was obtained on the main factors affecting Latvian regional development. The group of experts included the representatives of both regional governments and local entrepreneurs, as well as the economists. The experts were independent, did not communicate with each other, and each

provided answers at a different time and place. Regarding expert evaluations, the data processing, the statistical and data analysis methods were used, including the data parametric grouping and correlation calculations, and the average calculations of the factors corresponding to each group.

### 3. Results and discussion

The authors have briefly described the endogenous (and also sketched the exogenous) growth factors and the findings of particular scientists. Further, the summary of the survey of the Latvian regional development factors will be depicted.

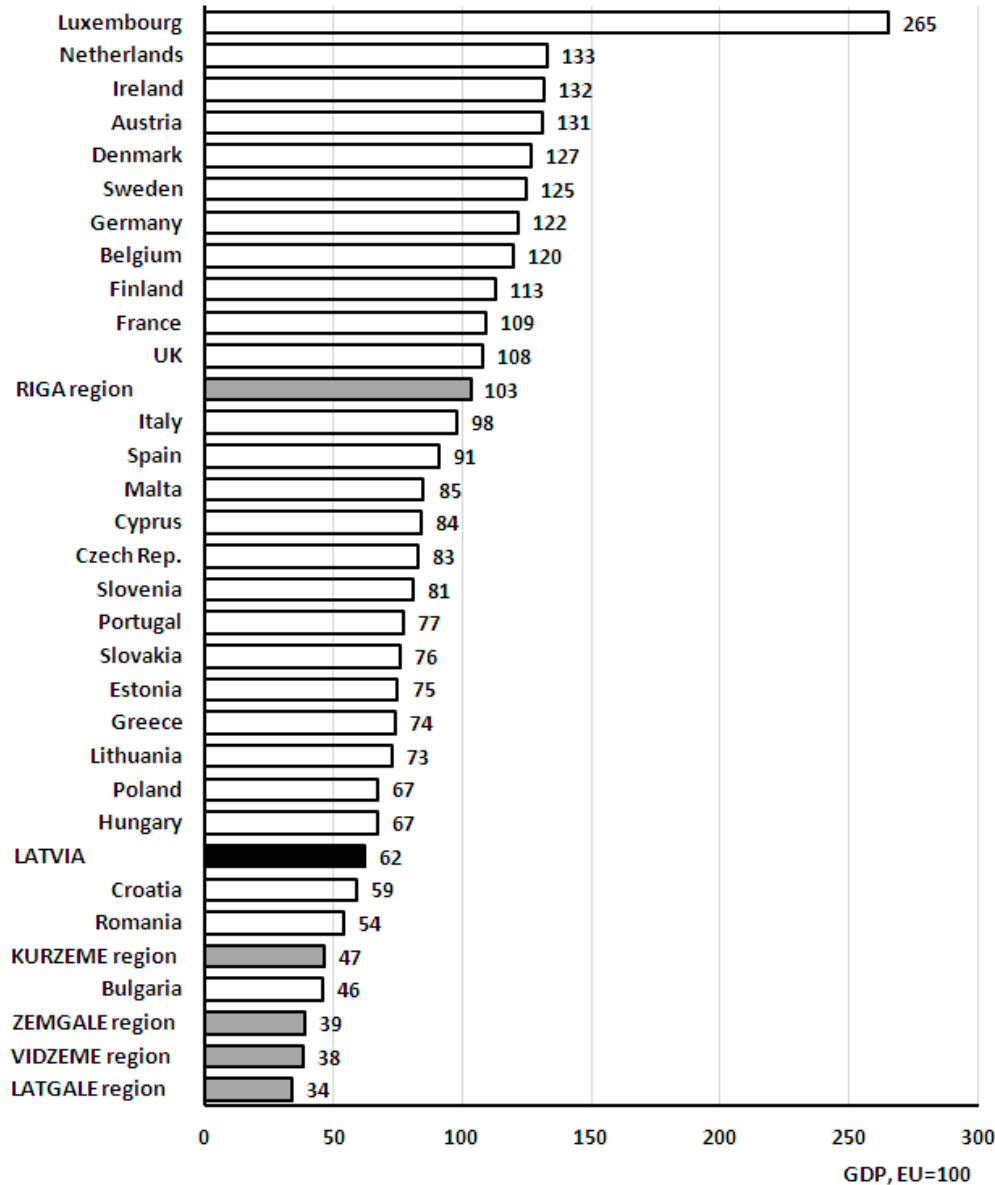


Fig. 1. GDP per capita in PPS in 2014 (EU=100)

Source: Central Statistical Bureau of Latvia; Eurostat.

Figure 1 shows the GDP per capita according to the purchasing parity power for the EU countries, including Latvia as a whole country and also its regions. Hereinafter, the situation will be described both at the national and the regional level. As it can be seen, Latvia, according to this indicator, takes place 25 out of all 28 EU countries, yet, at the regional level, the situation is rather different. The region of the capital, Riga, ranks the 11th right after France, while Kurzeme region ranks the 27th, and the rest three regions below Bulgaria, correspondingly.

Thus, the GDP per capita in these three regions is even lower than in the country which takes the last or the 28th place. This clearly depicts the problem of Latvia, namely that the country's development is mainly dependent on Riga and Riga region and the country has an expressed mono-centric model (Central Statistical Bureau of Latvia, 2015).

The most unfavorable development factor has become the changes in the number of population (Figure 2).

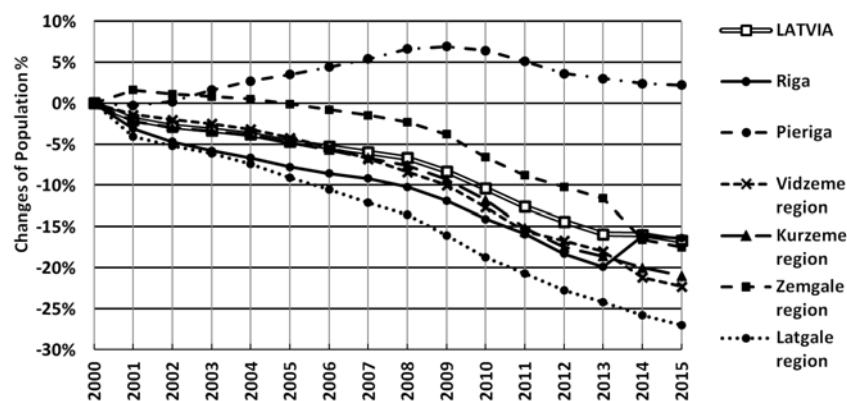


Fig. 2. Changes in the Number of Population in Latvian Regions, 2000-2015

Source: Central Statistical Bureau of Latvia.

The data in Figure 1 indicate that, during the period 2000-2015, Latvia has experienced a consequent gradual decrease in its population, having led to the loss of 15.9 percent of inhabitants in 2013. The situation in the regions differs. As to the proportion of the loss, Latgale has suffered mostly, having lost at the end of the period 24.2 per cent of its inhabitants. Latgale is followed successively by Riga region (19.9 per cent), Kurzeme region (18.6 percent), Vidzeme region (18.0 per cent) and Zemgale region – 11.6 per cent). The only region that has showed a small increase in the number of population (3.0 per cent) is the Pieriga region. The changes in the number of population are related to the emigration and the migration to other regions of Latvia, mainly to Riga and Pieriga regions. The departing of native locations becomes explained, for

the most part, on the basis of impossibility to find employment at all, to find a suitable employment and because of insufficient wages. And, usually, there are departing the more skilled and better trained workers, with remaining of the less skilled, that results sometimes in appearance of unfavorable structural changes in both the labor force and the population. The analyzed data clearly indicate the serious problems already faced by Latvia and which may only become more expressed in future, as the depopulation trend is not compatible with the national economy growth. Thus, the following finding should be mentioned: 'A primary driver of regional development in developed nations... has been population growth, especially through immigration' (Stimson, Stough, Roberts, 2006, p. 9).

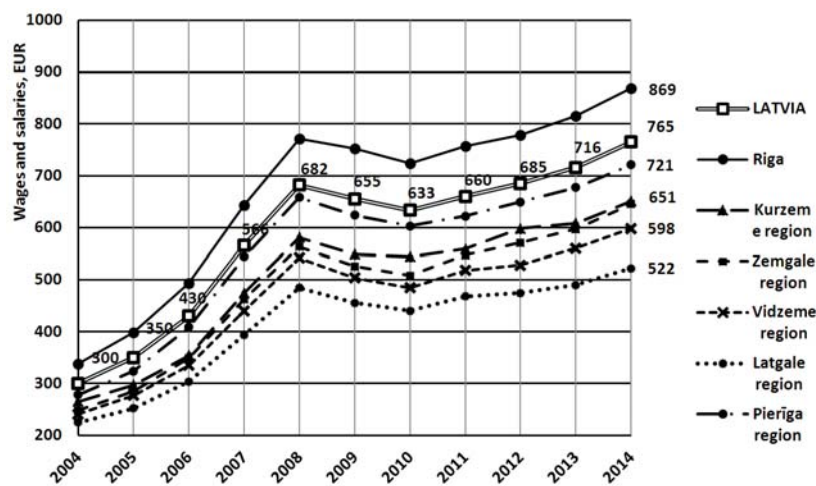


Fig. 3. Average monthly wages and salaries by statistical region of Latvia (in euro)

Source: Central Statistical Bureau of Latvia.

The wages (Fig. 3) are comparatively low, as it was seen if compared with the wages in other countries of the EU and they show considerable disparities in Latvian regions. The situation is similar to what was seen in Figure 1. Riga region is an expressed leader, while the other regions have the same rankings as previously.

The development of the regions, the economic growth, being the basis of balanced and sustainable development, cannot be achieved without respective investments. However, as it is seen from the statistics, the distribution of the non-financial investments in Latvia is far from a desirable one (Figure 4).

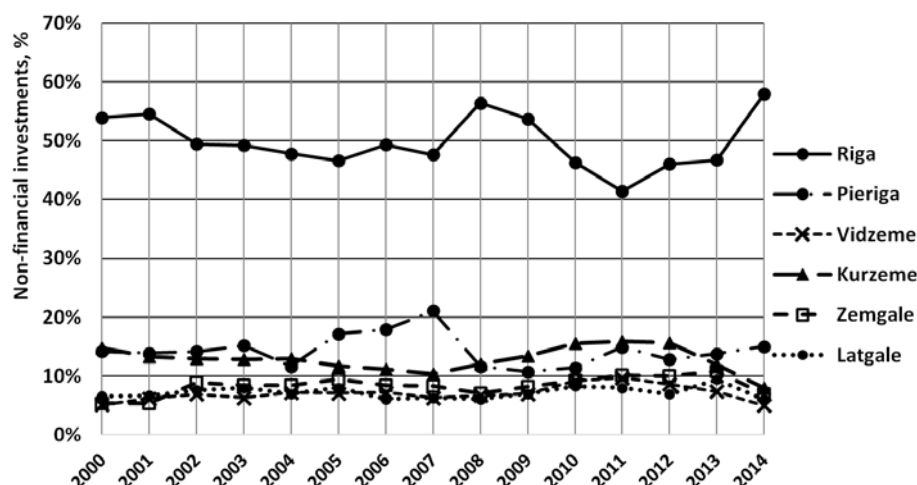


Fig. 4. Non-financial investments in Latvian regions, 2000-2014

Source: Central Statistical Bureau of Latvia.

For the period 2000-2014, the proportion of investments received by Riga region, fluctuated from 56.4 percent in 2008 to 41.4 percent in 2011, by Pieriga region – from 21.1 percent in 2007 to 10.7 percent in 2009, by Vidzeme region – from 9.2 percent in 2010 to 5.1 percent in 2000, Kurzeme region – from 15.9 percent in 2011 to 10.4 percent in 2007, Zemgale region – from 10.8 percent in 2013 to 5.4 percent in 2000, Latgale region – from 9.4 percent in 2013 to 6.1 percent in 2006 and 2008. The biggest sum of investments Riga region received in 2008 – 3935.5 million Euros, the smallest in 2010 – 1576.2 million Euros. Respective sums in Pieriga region were: 1479.6 million Euros in 2007 and 417.4 million Euros in 2000, in Vidzeme region – 471.9 million Euros in 2006 and 150.2 million Euros in 2000, Kurzeme region – 840 million Euros in 2008 and 421.6 million Euros in 2001, Zemgale region – 580.7 million Euros in 2007 and 158.2 million Euros in 2000, Latgale region – 478.5 million Euros in 2005 and 193.6 million Euros in 2000.

The research is based on both the secondary (statistical) data and the primary data obtained resultant to the expert survey. During the research, the evaluation of seven independent experts was obtained on the main factors affecting Latvian regional development. The group of experts included the representatives of both regional governments and local entrepreneurs, as well as the economists. The experts were independent, did not communicate with each other, and each provided answers at a different time and place. The questions were weighted preliminary and based on the theoretical findings and the results of previous applied research on the situation in Latvia. The experts were asked to evaluate 20 following factors (see Table 1).

Table 1. Factor impact characteristics

N	Factor	Characteristics
1	Impact of government decisions on the regional development	G
2	Activities of local governments	L
3	Geographic location, distance from the centre of economic activity	G
4	Use of natural resources	L
5	Impact of migration on human capital and its development	G, L, H
6	Provision of new jobs	L, H
7	Availability of labor force	L, H
8	Availability of educational institutions in Latvian regions	G, L
9	Sufficiency of the number of enterprises	G, L
10	Availability of investment	G
11	Investment in healthcare	G
12	Investment in human capital, innovations and knowledge	G, L, H
13	Provision of infrastructure	G
14	Provision with information	L
15	Publications in mass media	G, L
16	Foreign technology transfer to Latvia	G, L
17	Development and use of local technologies	L, H
18	Innovative businesses in regions	L
19	Supporting structures for innovative entrepreneurship	G
20	Standard of living	G

For data analysis, the factors can be relatively (but not absolutely) divided by their characteristics into three groups:

- ◆ factors arising from government decisions and objective circumstances (G);
- ◆ factors influenced by the local government activities and competence (L);
- ◆ factors dependent on human activity – movement of inhabitants, changes in and location of the labor force (H).

Evaluation was based on 6 point measurement scale where:

1 – no impact at all; 2 – insignificant impact; 3 – little impact; 4 – partial impact; 5 – significant impact; 6 – large impact.

Let's turn to the results of the expert evaluations. The statistical and data analysis methods were used in data processing.

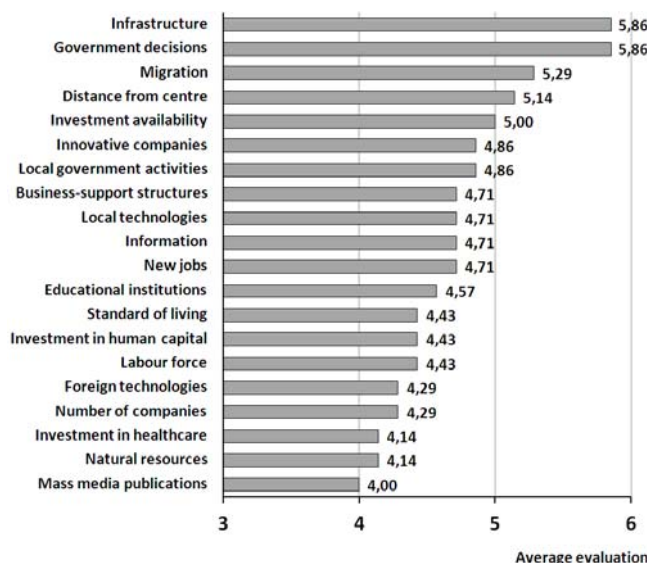


Fig. 5. Expert evaluations of the main factors influencing Latvian regional development

Processing the survey data, firstly, there was calculated the average value of the impact of each factor, which led to the following results. The experts believed that the regional development was influenced the most by the government decisions and infrastructure, both of the factors evaluated as having equal impact. The third comes the migration factor, followed by the distance of the region from the centre and by the availability of investment.

The concept of infrastructure implies a range of important and different factors with varying levels of development and impact on development. Among the most important there should be mentioned, firstly, the road network, as Latvia with its small number of inhabitants has a large territory, which the road network development makes even more significant. As established before, the leader's role is taken by the capital, therefore, the distance from it and the other larger towns is very important. If the road network is sufficient and its quality corresponding, the business should not have any development problems even in the furthest regions, nevertheless, such conditions have not been developed yet. The problem with moving around the territory of Latvian regions is one of the most important factors hindering the development of the furthest regions, e.g., Latgale region. The government decisions are connected with nearly all areas of life, such as the development of road network – at the national level or the main roads (of course there are also the local roads under the responsibility of local governments), the development of human capital, investment, etc. Thus, it is unsurprising that the experts have valued this factor so highly.

The experts have ranked the migration factor as the third. It should be noted that it is one of the most important factors for Latvia in general. For a country with the population of around 2 million people, the loss of every person constitutes a serious problem. Nevertheless, since regaining independence, more than half a million inhabitants have moved to other countries in search of better economic conditions. While the free movement of people within the EU has its positive aspects, the government of Latvia has done little to stimulate the living standard within the country and to ensure people with opportunities to find appropriately remunerated jobs in their homeland. Apart from the emigration to other countries, the problems include the population concentration around Riga and other larger towns, while many rural regions become unpopulated.

The fourth most important factor, according to the experts' evaluation, is the distance from the centre. The largest distances from the centre pertain in many areas of Vidzeme region, as well as nearly all Latgale region. When these evaluations are compared with the average salaries in Latvian regions, it can be seen that the furthest regions correspond with the lowest salaries. Non-financial investment in these regions also are the lowest. The expert evaluations obviously correlate with the statistical data results analyzed before.

With the means of the correlational analysis, there was carried out the cross-analysis of individual expert evaluations on the influence of all factors. Nearly all expert evaluations were different and did not correlate among themselves (correlation coefficient  $k \sim 0.45$ ), and the evaluations of only

one expert correlated with (but were not the same as) the evaluations of other two experts, which on their own did not have any correlation. The authors believe that such relationships between the evaluations indicate the objectivity of the experts' evaluations and the pluralism of opinions.

The factor group impacts have obtained somewhat similar scores – the government decision impact  $V_{aver}=4.78$ , human factor impact  $C_{aver}=4.71$ , local government factor impact  $P_{aver}=4.55$ . The difference in the evaluation scores of the particular groups within the limits of 5% is insignificant, and the

impact of all these groups should be regarded as nearly the same and, correspondingly, 'impact' the development of each region according to the scale.

Further, the analysis of the results as a whole aimed to approximate the impact evaluation correlations for factor pairs – a significant correlation between two factors would indicate that the factors are interrelated, may have caused one another or may have a hitherto unnoticed relationship. A correlation of  $k > 0.7$  would indicate a significant or even large relationship, while a correlation of  $0.5 > k > 0.7$  would indicate an existing relationship.

	Investment availability	Natural resources	Number of companies	Innovative companies	Local technologies	Standard of living	Labour force	Migration	Business-support structures
Government decisions	✓	✓					✓		
Infrastructure			~						
Local government activities								~	
Local technologies					~				
Business-support structures			✓						
Investment in human capital			✓						
Educational institutions				✓	✓				
Number of companies					✓				
New jobs						✓			
Labour force					✓				
Foreign technologies		✓		✓	✓				

Notes :

Most important factors

Correlation coeffic.  $k > 0.70$

Correlation coeffic.  $0.70 > k > 0.65$

Fig. 6. Correlations between the main factors influencing Latvian regional development

The correlation table shows that the standard of living interrelates with the availability of educational institutions, the number of operating companies, and foreign innovation transfer into companies, i.e., existence of progressive companies. The availability of workforce also relates with the overall standard of living in the region. There are expressed the technology transfer trends – the use of foreign technology is connected with the development of the local technologies and the increase in the number of companies in the regions. The availability of the educational institutions and the education opportunities in the regions certainly influence the possibilities of modern technology application in companies. Appearance of innovative companies within a region is connected with the activities of business support structures, provision of infrastructure and undoubtedly with the investment in human capital and knowledge.

The experts' evaluations did not indicate any significant correlation of the provision with information and the publications in the mass media with other regional development factors. The most significant factors (highlighted in the table) are not always closely related with many other factors.

The government decisions, undoubtedly, is a significant regional development factor. They directly influence the allocation and availability of investment, and, consequently, the migration processes. There does not exist an expressed direct correlation between the use of natural resources and the government decisions; they may as well be equally significant regional development factors. The activity of the local governments to promote the economic activity is the formation of the business support structures.

## Conclusions

The analysis of the statistical data and the independent expert evaluation results show that the most important factors influencing regional development are the government decisions and the existing infrastructure, as well as the migration, the distance from the centre and the availability of investment. The abovementioned factors when taken together lead to apprehension that harmonious development of a country depends largely on the development of the remote regions of the country. They should be ensured with an appropriate road network and other elements of infrastructure, as well as attainment of investment. This will promote local companies, increase the

employment and welfare of inhabitants, and, consequently, decrease the migration of inhabitants from these regions. These findings on regional development apply particularly to a small country where geographically and historically a single highly-

developed economic and political centre – the capital has formed, and where does not exist a secondary centre. The research findings confirm the thesis that the endogenous development factors are the primary in the regional development.

## References

1. Central Statistical Bureau of Latvia. (2015). Available at: <http://www.csb.gov.lv/dati/statistikas-datubazes-28270html>.
2. Hüseyin Çiçek. (2013) Critical Evaluation of Endogenous Regional Development Theories. Middle East Technical University. Available at: <http://etdlib.metu.edu.tr/upload/12615764/indexpdf>.
3. Stimson, R., Stough, R., Nijkamp, R., Cheltenham, P. (2011). *Endogenous Regional Development Perspectives, Measurement and Empirical Investigation*. UK – Northampton, MA, USA: Edward Elgar, 339 p.
4. Globalization Oxford dictionaries. (2015). Available at: <http://www.oxforddictionaries.com/definition/english/globalization>.
5. Pike Andy, Rodriguez-Pose Andres, Tomaney John (2010). *Handbook of Local and Regional*. New York: Routledge, 641 p.
6. Hoover, Edgar M., Giarratani Frank. (1999). *An Introduction to Regional Economics*. 3<sup>rd</sup> edition. Available at: <http://www.rri.wvu.edu/webbook/giarratani/chapterone.htm>.
7. How Regions Grow OECD. (2009) Available at: [http://www.oecd-ilibrary.org/urban-rural-and-regional-development/how-regions-grow\\_9789264039469-en](http://www.oecd-ilibrary.org/urban-rural-and-regional-development/how-regions-grow_9789264039469-en), p. 144.
8. Regional economics. AmosWEBa. (2015). Available at: [http://amosweb.com/cgi-bin/awb\\_navpl?s=gl&c=dsp&k=regional+economics](http://amosweb.com/cgi-bin/awb_navpl?s=gl&c=dsp&k=regional+economics).
9. Keišs, S., Kazinovskis, A. (2014). *Reģionālā attīstība Latvijā: administratīvi teritoriālās reformas norises gaita, problēmas, risinājumi. Monogrāfija*. Rīga: Vītola izdevniecība, 615 p.
10. OECD. (2015). OECD Regional Development. Available at: <http://www.oecd.org/gov/regional-policy/regionaldevelopment.htm>.
11. OECD. (2015). OECD Regional Development. A new approach. Available at: <http://www.oecd.org/gov/regional-policy/regionaldevelopment.htm>.
12. OECD. (2010). OECD. *Regional Development Policies in OECD Countries*. Paris: OECD Publishing, 384 p.
13. Regional Development Law. (2012) Available at: <http://www.likumilv/doc.php?id=61002>.
14. Regional policy. European Commission. (2015). Available at: [http://ec.europa.eu/regional\\_policy/archive/policy/why/index\\_en.htm](http://ec.europa.eu/regional_policy/archive/policy/why/index_en.htm).
15. Romer, Paul M. (1986) Increasing Returns and Long-Run Growth, *The Journal of Political Economy*, 94 (5), pp. 1002-1037.
16. Stimson, R.J., Stough, R. (2004). A new model incorporating leadership and institutional factors as mediating variables in regional endogenous growth. In *European Regional Science Assoc Annual Conference, Porto, Portugal*. Available at: <http://espacelibrary.uq.edu.au/view/UQ:101522>, pp. 1-20.
17. Stimson, Robert J., Stough, Roger R., Roberts, Brian H. (2006). *Regional Economic Development: Analysis and Planning Strategy*. 2<sup>nd</sup> edition. Berlin: Springer, 468 p.
18. Szajnowska-Wysocka, A. (2009). Theories of Regional and Local Development – Abridged review Bulletin of Geography Socio-economics Series. Available at: <http://dx.doi.org/10.2478/v10089-009-0005-2>, pp. 75-90.
19. Treaty establishing the European Community (2002). Available at: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12002E/TXT>.