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EVALUATION OF COMPETITIVENESS OF REGIONS IN LATVIA

Summary of Promotion Thesis

Branch : Management
Sub-branch : Management of Entrepreneurship

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GENERAL DESCRIPTION OF PROMOTION THESIS

Topicality of the research

Socio-economic differences have existed in Latvia both during the first state-independence and they continue to exist also nowadays. The accents and main directions of economic activities have changed, but the basic geographical advantages have been and remain unchanged. This phenomenon is being observed in most countries. It is not possible to achieve completely equal level of development in all regions. Thus it is important not to level out regional differences but to make the regions into attractive living and working places by emphasising the advantages of each region and taking into account also those factors that hinder the development of a specific sphere in a certain region.

After the independence restoration the provision of steady regional development in Latvia has again become one of the actual problems as significant territorial differences in terms of socio-economic development have been observed. These include insufficient economic development and economic activity in some areas, difference in employment and income levels, as well as social and cultural conditions.

The aim of balanced development of territories is to ensure the balancing of levels and rates of social and economic development in separate territories of the country (planning regions, specific local governments) by effectively using the available resources (natural, human, cultural, etc.) for the growth facilitation. By using the development features and growth potential of the territories it is possible to achieve the maximum possible return on investment, thus ensuring qualitative living conditions and growth preconditions for the people irrespective to their belonging of a specific territory.

The issue about regional competitiveness and its essence becomes more topical also due to paradigm shift in economy - national prosperity is no longer confined only to the agrarian sector development and provision of sufficient food or industrial sector development. Ensuring of sustainable development that includes also significant environmental preservation and protection aspects is equally important. Evaluating the competitiveness of the regions natural, environmental and ecological sectors should be taken into account.

Several laws and normative documents have been developed and passed in Latvia related to the provision of balanced regional development:

- *Latvian Regional Development Policy Concept* (approved on 03.12.1996). The Concept provided a comprehensive list of regional development funds, scope

and activities, which gave ample opportunity to consider different state regulatory and support initiatives for regional development tools. However the Concept did not clarify the question about what the state support for the regional development is: whether it is a tool for the institution responsible for regional development or a state action that significantly influences the development of the territorial units;

- *Law On Specially Assisted Regions* (entered into force on 24.06.1997, became invalid on 23.04.2002), which aim was to create opportunities for accelerated economic development of specially assisted regions and to promote establishment of equal socio-economic conditions in the whole national territory. Based on this Law and other related normative acts some local governments were granted the status of specially assisted region that enabled them to receive funds from the Regional Fund. This law became invalid when the Law on Regional Development entered into force, but according to the Law on Regional Development the support for specially assisted territories is continued, i.e. for territories with remaining negative economic and social development tendencies;
- *Spatial Development Planning Law* (entered into force on 13.11.1998, became invalid on 16.06.2002), which aim was to ensure the creation of spatial development planning system that would promote sustainable development in the country;
- *Spatial Planning Law* (entered into force on 26.06.2002), which aim is to promote sustainable and balanced development in the country by using effective spatial planning system;
- *Regional Development Law* (entered into force on 23.04.2002), which aim is to promote and ensure balanced and sustainable state development considering features and opportunities of all state territories and separate its parts, to decrease disparities between them, as well as to preserve and develop features and growth potential of nature and culture characteristic to each territory. This Law not only determines the targets of regional development, but also the responsible institutions, their responsibilities and tasks, financing sources of regional development and basic principles of specially assisted territory programme;
- *Guidelines of Regional Policy* (approved on 02.04.2004), that determine the state regional policy for the next 10 years. The Guidelines include the main principles,

objectives, priorities and action lines of the regional policy. The objectives and action lines set in the Guidelines reflect the priorities of the regional policy;

- *National Development Plan* (approved on 04.06.2006). This is a medium term planning document for the period from year 2007 – 2013. The aim of the plan is to facilitate balanced and sustainable state development, to ensure the increased competitiveness of Latvia among other countries. The importance of capable local governments and regions for the state development, as well as ensuring of growth in regions are also emphasised in this Plan;
- *Development Planning System Law* (entered into force on 01.01.2009). Its aim is by setting the development planning system to promote sustainable and stable state development, as well as improvement of citizens' life quality. The Law determines that hierarchically highest long-term development planning document is the Sustainable Development Strategy of Latvia, but hierarchically highest medium-term development planning document is the National Development Plan;
- *Sustainable Development Strategy of Latvia until 2030* (approved on 10.06.2010). Its basic settings are a happy person in a prosperous country, sustainable and healthy lifestyle, creative, indulgent and tolerant society, competitiveness caused in cooperation and a state as a responsiveness partner. After approval *Latvia 2030* became the country's main planning tool with a force of law. All strategic planning and development documents on closer and further future will be made in accordance with directions and priorities set by this Strategy.

In the so-far adopted laws and regulations in Latvia the increase of competitiveness has been emphasised as the mean for the achievement of the main aim, however its definition has not been given. The main objectives are related to the necessity of sustainable and balanced development in the Latvian regions. However, at developing the regional policy and granting procedure for support tools in Latvia, the factors hindering or facilitating the regional development should be taken into account. Particular attention should be given to those factors that hinder the regional development, seriously evaluating their importance and making decisions on further initiatives for the mitigation of their impact.

Several studies on evaluation of regional development and regional policy development have been conducted in Latvia. The State Regional Development Agency (SRDA) starting with year 2004 prepares an annual report "Development of Regic

indicator values contained in the Territory Development Index and dynamics in the planning regions and local governments of Latvia have been emphasised. The SRDA has also conducted several studies related to innovations in local governments of Latvia (year 2007), interaction between Latvian cities and rural areas (year 2009), development of pre-school and alternative childcare services in the Latvian planning regions (year 2009). During the period 2005-2007 the Ministry of Regional Development and Local Government has issued 4 reports on regional development in Latvia. With the support of the European Social Fund in-depth studies on the workforce mobility and labour market problems in the Latvian regions have been conducted.

Likewise the Doctoral students from Latvian universities have repeatedly addressed the analysis and research of regional problems. Significant studies have been conducted in the University of Latvia, Daugavpils University, Latvia University of Agriculture. The Doctoral students have and are carrying out research on development opportunities of different separate industries in the Latvian regions, as well as solutions for socio-economic development problems in regions have been researched using, for example, territory marketing (S.Ignatjevs, 2010) or cluster determination (V.Boronenko, 2009) method. Studies on improvement problems of the Territory Development Index and its implementation on the EU level in the last few years have been conducted by the Doctoral student of the LLU, V.Vesperis. In most of the existing regional studies the regional competitiveness and its evaluation possibilities have not been emphasised, and facilitating and hindering factors of competitiveness have not been reasonably determined. Thus it is necessary to develop a complex index for the evaluation of region competitiveness and methodology for determining facilitating and hindering factors of competitiveness.

Evaluation of regional development becomes more important also with Latvia's joining the international integration processes. The issue on evaluation and increase of competitiveness of Latvia and its separate regions gets more topical. Ensuring of equal work, income, social and cultural life opportunities for all citizens is in the interest of the national development of Latvia. It is necessary to develop scientifically justified methodology for the determination of competitiveness of the territory and a model for its evaluation that would allow clarifying the development hindering factors and, thus showing the possible directions for the region development.

Taking into account the experience, problems and application of development of many international indexes it is possible to develop a regional competitiveness evaluation index that would help to make justified decisions for the promotion of the regi

index would give an overview of the development level of the regional competitiveness influencing factors in the regions, as well as their development rate would be emphasised that would allow making forecasts on possibilities of competitiveness level increase or decrease.

At the moment in Latvia there is no sufficiently developed complex competitiveness index on the regional level that could be applied for decision justification. While competitiveness indexes developed in the world and Europe are mainly on the state level. The indexes related to regional level problems do not include the specific aspects characteristic to Latvia and its regions. Now for numerical description of the regional socio-economic development in Latvia the Territory Development Index (TDI) is used that is being annually calculated for the planning regions since 1999. However indicators used for the TDI calculation do not completely cover all factors influencing regional competitiveness, thus the TDI does not reflect the advantages of the regional competition and the competitiveness in general.

The object and the subject of the research

The *object* of the research is the competitiveness of planning regions of Latvia.

The *subject* of the research is the factors influencing competitiveness and their interaction.

The goal and the objectives of the Promotion Thesis

The *goal* of the Promotion Thesis is, basing on the conducted research and analysis, to develop complex system of competitiveness evaluation for the Latvian regions that could be applied in decision making of different management levels and for regional competitiveness increase.

For the achievement of the aim the following *objectives* were raised:

- to study and analyse the nature of competitiveness and its influencing factors;
- to study critically the hitherto offered regional competitiveness evaluation approaches in the world;
- to select, group and analyse the competitiveness influencing factors and indicators taking into account the specific conditions of Latvia;
- to develop the Regional Competitiveness Index (RCI);
- to evaluate the influencing factors and indicators of the Regional Competitiveness Index basing on the analysis of competitiveness influencing indicators;

- to evaluate the competitiveness of planning regions of Latvia emphasising the more important development hindering factors and showing the further possibilities for regional development by using the developed Regional Competitiveness Index.

Limitations of the research

The regional competitiveness covers wide range of study issues and problems, each of them would require a separate in-depth scientific research and analysis. The following limitations have been determined in the Thesis:

- due to the limited volume of work only the internal environmental factors influencing the regional competitiveness were analysed in the Doctoral Thesis, without conducting a deeper analysis on the influence of the external environmental factors;
- the limited availability of statistics determined the chosen time period for the analysis from 2000-2009 and restricted the choice of the regional competitiveness characteristic indicators.

Theoretical and methodological basis of the research

The theoretical and methodological basis of the Doctoral Thesis is mainly created on the findings on the essence of competitiveness and its evaluation methods in the works and publications of foreign authors W.Steinle, P.Cheshire, I.Gordon, J.Duffy, M.Storper, R.Camagni, M.Porter, P.Krugman, D.Webster, L.Muller, R. Rowthorn, R.Cellini, A.Soci, D.Dollar, E.Wolff, J.W.McArthur, J.D.Sachs, Xavier Sala-I-Martin, E.Artadi, A.Andrejev (*Андреев А.В.*), L.Borisova (*Борисова Л.М.*), E.Pluchevskaja (*Плучевская Э.В.*), I.Shapkin (*Шапкин И.И.*), A.Blinov (*Блинов А.О.*), J.Kester (*Кестер Я.М.*), K.Jusupov (*Юсупов К.И.*), A.Taimasov (*Таймасов А.Р.*), W.Kosiedowski, as well as on studies of the Latvian authors (I.Vilka, E.Vanags, I.Vanags, I.Vaidere, E.Jermolajeva, B.Rivža, M.Pūķis, L.Začesta, V.Boroņenko, O.Krastiņš, A.Melluma, V.Voronovs, G.Dāvidsons etc.) on the regional policy and state competitiveness of Latvia. In the basis of the Doctoral Thesis the database of the Central Statistical Bureau of the Republic of Latvia has been used, as well as databases and studies of the Ministry of Culture, the Ministry of Transport, the Ministry of Regional Development and Local Government, the Ministry of Education and Science, the Department of Social Services, the State Regional Development Agency, the Latvian Environment, Geology and Meteorology Centre, the Centre of Health Economic

Republic of Latvia, annual reviews, reports and studies of the Latvian and foreign universities and research institutions, as well as materials of international scientific conferences.

Statements proposed for defence

1. The regional competitiveness is closely related to the possibility to satisfy the needs of its citizens.
2. The regional competitiveness cannot be characterised by such conventional indicators as GDP or GDP per capita that reflect the competition result only partly, as by using only these indicators other significant competitiveness aspects are not taken into account.
3. Although the predominance of Riga region over the rest regions of Latvia is significant, each Latvian planning region has its own competitiveness spheres, in which they can successfully compete, also with Riga planning region.
4. The Territory Development Index currently used in Latvia is improvable as it does not reflect the processes in regions in a sufficiently complex way.

Scientific novelty of the Promotion Thesis

1. Critical analysis of the defining of the competitiveness notion and its evaluation methods was performed, as well as application possibilities of separate methodologies, indicators and correlations on a regional level in Latvia were assessed.
2. Basing on the performed analysis, an improved definition of the regional competitiveness and a model of regional competitiveness have been recommended that show the influence of the internal and external environment factors on the regional competitiveness.
3. The Regional Competitiveness Index has been developed and its sub-indexes in 10 sectors: human resources, social, education, health, culture, accessibility, economy, innovation, ecology and environment, which are applicable for the regional competitiveness evaluation in Latvia.
4. The competitiveness level of each Latvian planning region has been assessed comparing to the rest planning regions of Latvia.
5. The competitiveness facilitating and hindering factors have been defined for each planning region, thus showing their further development possibilities.

Approbation and practical application of research results

The research results of the Doctoral Thesis have been used in the following scientific studies:

- International project – the co-financed project RTU PVS ID 1411 “Establishment of the centre for spatial and regional developments research in Kurzeme” under the priority of the bilateral EEA/Norwegian Financial Mechanism “The Regional Policy and Development of Economic Activities” (2009-2011);
- The RTU study No. 7361 financed by the Ministry of Education “The Competitiveness of the Regions of Latvia and its Evaluation Possibilities”.

The research results have been used in developing and preparing the RTU course of lectures “International Competition”, and published in the methodological training monograph - Deņisovs M., Judrupa I. Reģionu attīstības un konkurētspējas novērtēšana. - Rīga : RTU Izdevniecība, 2008. - 72 p.

The author of the Doctoral Thesis has published a textbook – Judrupa I. Eiropas valstu ekonomika. – Rīga: RTU Izdevniecība, 2007. - 332 p.

Scientific publications

The results of the Doctoral Thesis have been reflected in 15 publications, including 7 articles in ***generally recognized reviewed scientific editions***:

1. Judrupa I., Šenfelde M. Kurzemes reģiona konkurētspēja. – R: RTU, Ilgtspējīga telpiskā attīstība, Series 14, Volume 1, 2010, 52.-57.p. – ISSN 1691-6174
2. Judrupa I., Šenfelde M. Competitiveness of Planning Regions in Latvia // Management and Sustainable Development. - 26. (2010) 15.-18. p. – ISSN 1311-4506
3. Judrupa I., Šenfelde M. The competitiveness of Latvia and role of innovations in its enhancement. Страны с переходной экономикой в условиях глобализации, March 25-28, Russia, Moscow. – Москва: Российский университет дружбы народов, 2008, 9.-12.p. – ISBN 978-5-209-02617-4
4. Judrupa I., Šenfelde M. Application of the ranking method in the evaluation of regional competitiveness in Latvia. – R: RTU, Ekonomika un uzņēmējdarbība, Series 3, Volume 17, 2008, 37.-45.p. – ISSN 1404-7337
5. Judrupa I., Šenfelde M. Starptautisko indeksu nozīme valsts un reģionu konkurētspējas novērtēšanā. Tautsaimniecības un uzņēmējdarbības attīstības problēmas, September 21-23, 2006, Latvia, Riga – R: RTU Izdevniecība, 2007, - 89.-96.p. – ISBN 978-9984-32-298-5

6. Judrupa I., Šenfelde M. The main factors of regional competitiveness and the importance of international indexes in its evaluation. Problems of foreign economic relations development and attraction of foreign investments: regional aspect, October, 2007, Ukraine, Donetsk. – Donetsk: Donetsk National University, 2007, 945.-950.p. – ISSN 1991-3524
7. Judrupa I., Šenfelde M. Latvijas reģionālās attīstības problēmas un ES struktūrfondu nozīme to risināšanā. Tautsaimniecības un uzņēmējdarbības attīstības problēmas, October 13, 2005, Latvia, Riga. - R: RTU Izdevniecība, 2006, 103.-110.p. – ISBN 9984-32-503-2

In other scientific editions:

8. Judrupa I. Līdzsvarota reģionālā attīstība Latvijā // Latvijas ekonomiskās izaugsmes faktori un perspektīvas. - R : RTU Izdevniecība, 2010. - 46.-51. p. – ISBN 978-9934-10-062-8
9. Judrupa I. Influence of the Human Resources on the Regional Competitiveness of Latvia // The Role of Human Capital in the Development of the Countries and Regions of Central and Eastern Europe, Poland, Torun, May 20-21, 2010. - 239.-244. p. – ISBN 978-83-7285-562-3
10. Judrupa I. Sociālās sfēras loma Latvijas reģionu konkurētspējas veicināšanā. Psiholoģijas, biznesa un sabiedrības sociālās sfēras aktuālās problēmas: teorija un prakse, November 22-23, 2006, Latvia, Riga – R: Psiholoģijas Augstskola, Baltijas Starptautiskā Akadēmija, 2009. - 79.-86.p. – ISBN – 978-9984-47-006-1
11. М.Н.Шенфельде, И.В.Юдрупа. Формирование и расчёт индекса региональной конкурентоспособности в Латвии. Государственное регулирование экономики и повышение эффективности деятельности субъектов хозяйствования, April 23-24, 2009, Belarus, Minsk. - Минск: Академия управления при Президенте Республики Беларусь, 2009, 64.-68.p. – ISBN 978-985-457-915-3
12. Judrupa I. Latvijas reģionālās attīstības novērtēšanas problēmas. Tautsaimniecības un izglītības sistēmas attīstības problēmas, April 2, 2008, Latvia, Riga – R:RTU izdevniecība, 2008. – 12.-16.p. – ISBN – 978-9984-32-256-8
13. Šenfelde M., Judrupa I. The competitiveness of regions in Latvia and problems of its evaluation. Competitiveness in the conditions of a global economy, October 16-17, 2008, Serbia, Niš. – Niš: University of Niš, Faculty of Economics, 2008, 81.-88.p. – ISBN 978-86-85099-80-9

14. Юдрупа И. Основные проблемы регионального развития Латвии и их концептуальные решения. Социально – экономические направления развития регионов в контексте современных процессов международной интеграции, September 15-18, 2006, Ukraine, Herson. – Херсон: Херсонский Национальный Технический Университет, 2006, 319.-322.p. – ISBN 966-8912-25-X
15. Юдрупа И. Значение структурных фондов ЕС в развитии регионов Латвии. Regiony Europy Srodkowej i Wschodniej wobec globalizacji i integracji miedzynarodowej, September 18-20, Poland, Torun. - Torun: Włocławek, 2005, 153.-158.p. – ISBN 83-60150-10-9

The results of the Doctoral Thesis have been presented in the following ***international scientific conferences***:

1. 3rd International Scientific Conference in Kuldiga „Spatial Strategy for Sustainable development”. Report „*System Dynamics Modeling of Support System for Local Government in Latvia*”, April 26-28, 2011.
2. XIII International Scientific Conference in Bulgaria, Jundol „Management and sustainable development”. Report „*Human capital as the facilitating factor of regional competitiveness in Latvia*”, March 25-27, 2011.
3. 2nd International Scientific Conference in Riga, in the RTU Spatial and Regional Development Research Centre „Spatial Strategy for Sustainable development”. Reports „*Criteria and indicators of economic sector*” and „*Economic models*”, September 14-15, 2010.
4. V International Conference in Poland, Torun from the cycle „Региональное развитие” – „Роль человеческого капитала в развитии стран и регионов Центральной и Восточной Европы”. Report „*Role of the human resources in regional development of Latvia*”, May 20-21, 2010.
5. XII International Scientific Conference in Bulgaria, Jundol „Management and sustainable development”. Report „*Competitiveness of planning regions in Latvia*”, March 19-21, 2010.
6. 1st International Scientific Conference in Riga, in the RTU Spatial and Regional Development Research Centre „Telpiskā stratēģija ilgtspējīgai attīstībai: Veidojam Latvijas nākotni”. Report „*Kurzemes reģiona konkurētspēja*”, October 15-16, 2009.
7. V International Scientific-Practical Conference in Belarus, Minsk „Государственное регулирование экономики и повышение эффективности

- деятельности субъектов хозяйствования”. Report „*Формирование и расчёт индекса региональной конкурентоспособности в Латвии*”, April 23-24, 2009.
8. International Scientific Conference in Serbia, Niš „Competitiveness in the conditions of a global economy”. Report „*The competitiveness of regions in Latvia and problems of its evaluation*”, October 16-17, 2008.
 9. RTU 49th International Scientific Conference „The problems of development of national economy and entrepreneurship”. Report „*Application of the ranking method in the evaluation of regional competitiveness in Latvia.*”, October 10, 2008.
 10. VII International Scientific-Practical Conference in Russia, Moscow „Страны с переходной экономикой в условиях глобализации”. Report „*The competitiveness of Latvia and role of innovations in its enhancement*”. March 25-28, 2008.
 11. International Scientific Conference of Daugavpils University „Reģionālās ekonomikas konkurētspēja: attīstības faktori globalizācijas apstākļos”. Report „*Cilvēkresursu nozīme Latvijas reģionu konkurētspējas novērtēšanā*”, December 7, 2007.
 12. International Seminar in Riga „Ukraine – Latvia – EU: current state and future trends”. Report „*Основные факторы региональной конкурентоспособности и роль международных индексов в её определении*”, April 16-21, 2007.
 13. International Scientific-Practical Conference of the Psychology High School and the Baltic International Academy “Psiholoģija, bizness un sabiedrības sociālā sfēra: mūsdienu aktuālās problēmas”. Report “*Sociālās sfēras loma Latvijas reģionu konkurētspējas veicināšanā*”, November 22-23, 2006.
 14. RTU 47th International Scientific Conference dedicated to the 40th Anniversary of the Faculty of Engineering Economics “Tautsaimniecības un uzņēmējdarbības attīstības problēmas”. Report “*Starptautisko indeksu nozīme valsts un reģionu konkurētspējas novērtēšanā*”, September 22, 2006.
 15. International Scientific-Practical Conference in Ukraine, Herson “Социально – экономические направления развития регионов в контексте современных процессов международной интеграции”. Report “*Основные проблемы регионального развития Латвии и их концептуальные решения*”, September 15-18, 2006.
 16. RTU 46th International Scientific Conference “Tautsaimniecības un uzņēmējdarbības attīstības problēmas”. Report “*ES struktūrfondu nozīme Latvijas vienmērīgas reģionālās attīstības veicināšanā*”, October 13, 2005.

17. IV International Scientific Conference in Poland, Torun “Регионы Центрально – Восточной Европы в условиях глобализации и международной интеграции”. Report “Роль структурных фондов ЕС в способствовании равномерному региональному развитию Латвии”, September 18-20, 2005.

In other conferences and seminars:

18. RTU Innovation and New Technology Conference. Report „Latvijas reģionu konkurētspējas paaugstināšanas ekonomiskie aspekti”, January 21, 2009.
19. RTU IEF TREI Scientific Seminar „Izglītības nozīme cilvēkresursu un Latvijas tautsaimniecības attīstībā”. Report „Latvijas reģionālās attīstības novērtēšanas problēmas”. April 2, 2008.
20. Discussions about selection of the most appropriate research method for the implementation of RAPLM and OECD LEED co-project "Stratēģiskās plānošanas, uzraudzības un novērtēšanas ietvari reģionu un pašvaldību attīstībai", June 12, 2008.

Structure and scope of the Promotion Thesis

The Doctoral Thesis is an independent scientific research, written in the Latvian language and consisting of introduction, three chapters, conclusions and recommendations, list of literature and appendices.

In the **first** chapter of the Thesis “The notion essence and analysis of the regional competitiveness” the evolution of the competitiveness as an economic notion was studied, the nature of the region was defined and different definitions of the regional competitiveness were critically evaluated. After the research the author of the Thesis gives her own improved definition of the regional competitiveness. The factors influencing regional competitiveness have also been studied and summarized in this chapter and the graphic model of factors influencing regional competitiveness developed by the author has also been recommended.

In the **second** chapter “Evaluation possibilities of the regional competitiveness and development of Regional competitiveness index” the author of the Thesis analyses the most world-known regional competitiveness evaluation methods and proposes the complex system for the regional competitiveness evaluation. The selection of regional competitiveness influencing indicators for the planning regions of Latvia, the defining of the factor relative scale and normalisation of the indicators are in the bases of this system. For defining of relative scale of the factors the factor paired comparison matrix was used and a survey of the regional sector experts was performed. In this chapter the fu

Competitiveness Index (RCI), criteria for evaluation of competitiveness level and matrix of competitiveness level / increase rate were developed. The position of the competitiveness factors in this matrix allows evaluating the competitiveness facilitating, hindering, as well as the potentially facilitating or potentially hindering factors.

The *third* chapter “The competitiveness indexes of the Latvian regions and development opportunities of the regions” has been made as the calculation of the Regional Competitiveness Index and the analysis of its influencing indicators. In the beginning of this chapter the sub-indexes included in the Regional Competitiveness Index of 10 sectors: human resources, social sphere, education, health, culture, accessibility, innovation and research, economy and production, the presence of natural resources and ecology, have been calculated. Then the Regional Competitiveness Index has been calculated for each planning region of Latvia, the level of regional competitiveness has been evaluated. The author of the Thesis has compiled the competitiveness facilitating and hindering factors for each planning region by using the obtained results from the matrices of competitiveness influencing factors.

RELEVANT SCIENTIFIC CONTRIBUTION OF THE RESEARCH

1. NOTION ESSENCE AND ANALYSIS OF REGIONAL COMPETITIVENESS

1.1. Evolution of the Competitiveness as an Economic Notion

The studies on regional competitiveness and regional competitiveness conceptions have been conducted by several authors, for example, W.Steinle (1992), P.Cheshire and I.Gordon (1995), J.Duffy (1995), The Lisbon Group (1995), M.Storper (1995, 1997), R.Camagni (2003), M.Porter (2003, 2005, 2007) etc. However, despite this contribution there is still no united, generally accepted definition and evaluation methodology of the regional competitiveness.

The notion of State competitiveness and its theoretical background have historically evolved that has allowed defining of different aspects of the competitiveness notion.

One of the founders of the state competitiveness concept is D.Ricardo. He developed the idea of absolute advantage by A.Smith and created the concept of comparative advantage. A.Smith justified the state advantages in the foreign trade by division of labour, specialization and absolutely differing production costs, but D.Ricardo – by capital migration restrictions, trade defence rules and comparatively differing production costs.

The further evolution of the competitiveness notion is related to the economic systems existing in the states in specific time periods, development directions of the economic theory, the ongoing economic integration and development of new industries. So in the 19th century the socio-political environment in the state was emphasised as a significant aspect of competitiveness, in the beginning of the 20th century innovations were mentioned as one of the competitiveness ensuring factors. Thanks to the development of new, knowledge-intensive industries the notion of competitiveness is increasingly related to education, knowledge, technological development and innovations. In recent years the linkage of competitiveness notion to sustainable development and provision of ecological factors has started.

By studying the notion of competitiveness it becomes clear that it is not possible to analyse equally the competitiveness of goods, enterprises, fields, regions and states. However, the different levels of competition advantages are closely related. Thus it can be concluded that:

- the competitiveness is a multi-level notion. Wide range of subjects – types of goods, enterprises, organisations, fields, regions, separate countries or their alliances compete between themselves;
- the fight of competition varies in different levels, thus the notion of competitiveness for each level will be different;
- all economic levels are closely interrelated and it means that in determining the notion of competitiveness a structural analysis is necessary that would allow linking all levels.

By analysing the existing studies on notion of competition, fight of competition and competitiveness, the author concludes that the notion of competition on all levels is one and the same – competition is a race. On each level there will be only different object of competitiveness. On the enterprise or field level there is a fight to get the manufactured goods or services bought that would ensure the company's survival in a competitive environment. On a regional or state level the fight is about investments and workforce to ensure a higher level of welfare.

1.2. The Essence of a Region and the Defining of the Regional Competitiveness

In the science in general the notion “region” is understood as a part of geography with certain community of specific natural, socio-economic, national, cultural and other conditions. However each science sector distinguishes one particular determining factor of

the region. Thus, the regions in different sectors are different objects as they have been studied from various aspects.

In order to divide the state territory in regions various criteria can be used. These criteria have been divided in two groups: normative and analytical. Depending on what criteria have been used for the formation of regions, also regions can be normative (formal) or analytical (functional).

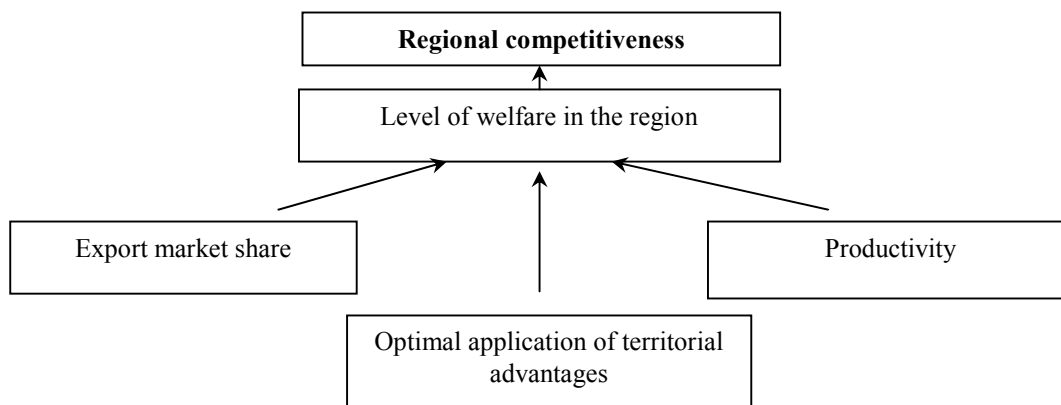
In the Conception of Regional Development Policy in Latvia (1996) the region is defined as a relatively homogenous part of the Latvian territory (group of rural municipalities and towns, district or group of districts), which is united by one particular feature or a common problem. In cases when the problem is identified in respect to functionally linked space and legal basis have been established for the solution of the problem, as well as the management has been formed, the geographical space can be reviewed as a normative region. At the moment five planning regions have been defined in Latvia, that partly correspond to normative regions. While specially supported territories, where negative trends of economic and social development or one of such trends persist long-term, that are set in *the Law on Regional Development* (2002) correspond more to the analytical region type.

Considering the historical division four planning regions were made in Latvia: Kurzeme region, Latgale region, Vidzeme region and Zemgale region, but as the fifth planning region Riga region was established. Such planning regions were established for the planning and coordination of regional development and ensuring of cooperation among local governments in Latvia.

In the Doctoral Thesis with the notion region the division of the Latvian regions in 5 territorial units - planning regions is understood, as at the moment in Latvia for such territorial units the development plans have been worked out and development indexes calculated. Exactly the Planning Region Development Councils are one of the potential users of the Regional Competitiveness Index. The author has developed the definition of the regional competitiveness, the competitiveness influencing factors and the model of competitiveness evaluation in accordance with the division of Latvia in planning regions.

Studying the more widely known definitions of competitiveness it can be concluded that the easiest way to define the regional competitiveness is as a successful competition between regions or towns in a certain sector.

Summarising the more frequently applied definitions of competitiveness the more often mentioned emphasis in the definitions of the regional competitiveness can be distinguished, shown in Picture 1.1.



Pic.1.1. Frequently Mentioned Emphasis of Regional Competitiveness in the Definitions
[the author-made picture]

In all definitions the central protruding opinion is that the regional competitiveness depends on the fact how high and stable the level of welfare in the certain region is. Depending on how it is achieved the different interpretations of the regional competitiveness appear.

Basing on the worldwide studies and emphasising the main task of the regional competitiveness – to increase the living standards of the inhabitants, the author of the Doctoral Thesis gives the following improved definition of the regional competitiveness:

The regional competitiveness is the ability to meet the needs of the region's population and to ensure the highest possible standard of living most efficiently using the existing and attracting the necessary resources.

1.3. The Defining of Factors Influencing the Regional Competitiveness

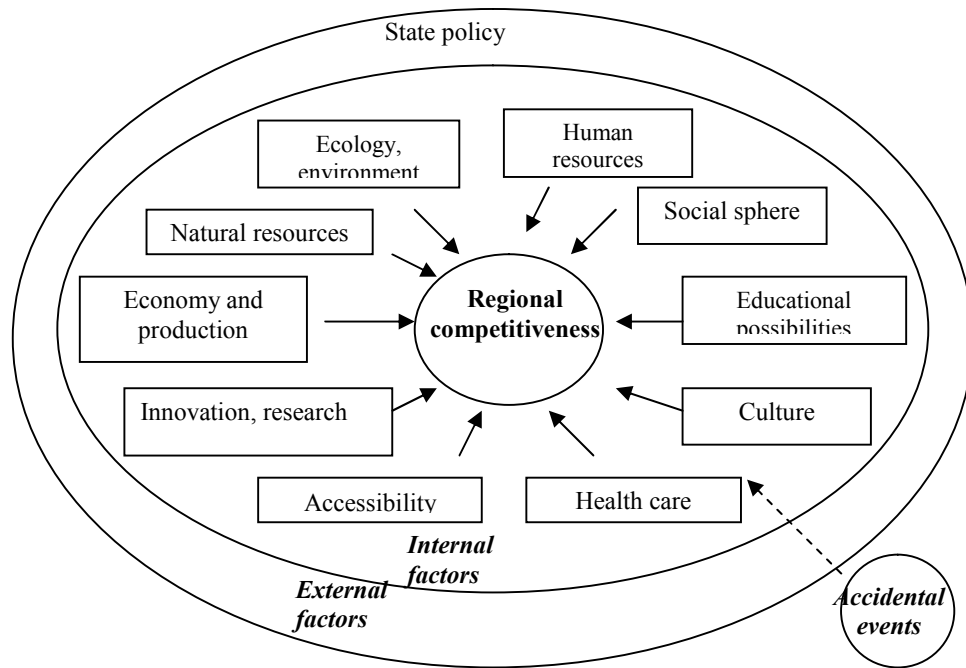
The regional competitiveness is influenced by a number of different, interrelated factors of macroeconomic and microeconomic fields. Several well-known foreign authors (M.Porter, E.Helander, B.Gardiner, R.Martin, P.Taylor, F.Kronthaler, the scientists of the ECORYS group, D. Webster, L.Muller etc.) have addressed in their scientific studies the defining of factors influencing the regional competitiveness and evaluation of characteristic indicators of the competitiveness.

In the LEED – Local Economic and Employment Development Programme developed by the OECD-Organization for Economic Co-operation and Development the control and evaluation indicators have been recommended in order to control the regional development policy in Latvia. On the basis of the needs of analysis, control and evaluation of the regional development policy management, certain groups of indicators are offered. The indicator system developed by the OECD for Latvia covers a wide range of indicators that characterise the economic development and industrial structure in the region, the physical environment of the region, labour resources, social development and efficiency of regional administration. However such significant indicators as finance resources, existing geographical advantages, structure of the economy and others have not been taken into account.

The problem is that the factors influencing the competitiveness are very difficult to describe quantitatively. Their evaluation is based only on survey data obtained from the interviews, workgroups, surveys or voting results.

According to the definition of the regional competitiveness given by the author the existing resources of the region, their usage and the population's needs have also a significant role in the competitiveness evaluation. Thus, the competitiveness index should reflect both the existing resources in the region and the degree of satisfaction of the population's needs.

Basing on the conducted study on the essence of the regional competitiveness and its influencing factors, the author has developed a model of factors influencing the regional competitiveness, shown in Picture 1.2.



Pic.1.2. The Regional Competitiveness Influencing Factors
[the author-made scheme]

The regional competitiveness is mainly influenced by the quality of life, productivity and employment rate in the region. While these factors are dependent on the regional competitiveness influencing internal factors, that is the interaction result of human resources, social sphere, culture, sport, infrastructure, research, innovation and production development. Likewise the external factors, that are the state political stability, developed strategies, state's participation in different international organisations, state unions etc., have significant role in the evaluation of the regional competitiveness. The regional competitiveness can also be significantly influenced by accidental events – natural disasters (floods, storms, earthquakes) etc.

2. EVALUATION POSSIBILITIES OF THE REGIONAL COMPETITIVENESS AND DEVELOPMENT OF REGIONAL COMPETITIVENESS INDEX

2.1. Evaluation Possibilities of the Regional Competitiveness

The competitiveness can be defined only by comparison with other analogic objects. It can be said that the competitiveness influences the evaluation indicators, thus there have to be a subject (who evaluates), an object (who is being evaluated) and criteria of the

competitiveness evaluation. The criteria of competitiveness evaluation can be defined in different aspects depending on the solvable task and aim. There are also various methods of the competitiveness evaluation based on statistical indicators, assessment of experts, ranks and others.

Using the traditional macroeconomic indicators it is not fully possible to judge about the state or regional competitiveness, the real status of the development and future perspectives. Thus, several additional synthetic indicators are frequently applied that are calculated by different international organisations. With the help of these indicators there are attempts to evaluate not only the quantitative but also qualitative changes in each country, state group or regions.

One of the most popular statistical indicators is indexes. They are applied to describe and analyse the economic activity of separate enterprises and fields, as well as to characterise economic development of the state or region, to conduct the international comparisons.

The Analysis of the Most World-known Development Evaluation Indexes

The most popular international indexes applied for the evaluation of the state competitiveness are:

- 1) the indexes included in the Global Competitiveness Report published by the World Economic Forum:
 - Growth Competitiveness Index;
 - Entrepreneurship Competitiveness Index;
 - Global Competitiveness Index;
- 2) the Index of Economic Freedom calculated by the Heritage Foundation and published by the Wall Street Journal;
- 3) the information summarised by the World Bank on the development of the national private sector and the Entrepreneurial Environment Index;
- 4) the evaluation of state competitiveness published by „The World Competitiveness Yearbook” of the World Competitiveness Centre of the International Institute for Management Development in Switzerland;
- 5) the European Competitiveness Index developed by the EU.

Both the Territory Development Index applied in Latvia and various international competitiveness indexes are rather unilateral. The used indicators cover only one specific sector or one side of the regional competitiveness, but they do not describe the state or regional competitiveness in general and they have several drawbacks:

- most indexes are rather subjective ratings where survey data occupy in average 50% from the used data;
- survey data have been used even when statistical data are available without proper grounding of such choice;
- sometimes scales referable to different indicators used for index calculation are freely chosen and not theoretically justified;
- outdated statistics and various statistical sources for the calculation of one and the same index have been frequently used in index calculation;
- not all indicators used for defining of the state competitiveness will be applied also for the regional section.

Summarising all the previously mentioned indexes it has to be concluded that they substantially can not be used to describe the competitiveness of regional level.

Method of the Logical Structure

One of the methods recommended in the LEED – Local Economic and Employment Development Programme developed by the OECD -Organization for Economic Co-operation and Development for the selection of the process evaluation factors is the logical structure.

The Logical Structure is a popular method for evaluation of project implementation by analysing the logical correlations that link the parts of the project. For the achievement of the economic objectives it is necessary to work with the flow of the chronological causes and consequences, thus showing the progress.

The SWOT Analysis for the Evaluation of the Regional Competitiveness

The SWOT Analysis is a systematic, general group-work method for the evaluation of the present situation and development. This method can be widely applied, whatever the circle of the analysed issues and participants. Depending on the conditions it can be differently modified. The analysis can be made in specific sectors or in the whole analysed territory.

In the *Methodological Guidelines for the Elaboration of the Development Programmes on the Regional and Local Level* developed by the Ministry of Regional Development and Local Government the SWOT Analysis is mentioned as one of the mandatory applied tools for the situation description and analysis in the region. The SWOT Analysis allows effective evaluation of capabilities, strengths and weaknesses of each region and thus to develop the appropriate development strategy. It can be noted that the weakness of the method in the competitiveness evaluation is that this method does not allow to obtain a specific

competitiveness indicator that could be used for the further analysis of the regional comparison, defining of development tendencies etc.

Strategic Planning Model

The application of the Strategic Planning Model is one more mode how the regional competitiveness can be defined. In the basis of this model there is evaluation of the existing competitiveness and identification of competitiveness factors unique for each region in the process of strategic planning. This is a comprehensive model, which structure depends on the chosen regional competitiveness factors and on the capability of the region to implement the developed policies and programmes.

The analysis of the Strategic Planning Model shows that a united, equal for all regions strategy does not exist. During the planning process it is very important to find specific, certain regional-type characterising factors, to compare regions with their main competitor and to develop the competitiveness strategy for the specific region.

The evaluation of the regional competitiveness by emphasising the advantages and competitiveness influencing factors of the exact region is the advantage of this method. As one of the weaknesses the lack of specific competitiveness indicators that could be used for the further analysis of the regional comparison, defining of development tendencies etc. can again be mentioned.

The Application of the Ranking Method

The main advantage of the Ranking Method is that it is very easy to apply the method without special econometric programmes. It is also easily understandable and allows to compare the regions among themselves. It is obvious which region ranks first in terms of competitiveness and which region is less competitive.

However also this method does not give a specific competitiveness indicator, against which the influence of each factor on the overall regional competitiveness could be evaluated. The Ranking Method does not allow to compare the regions among themselves and the development of competitiveness over years simultaneously. If one is interested in a particular region's competitiveness dynamics in a time period it is necessary to make a repeated ranking comparing years among themselves.

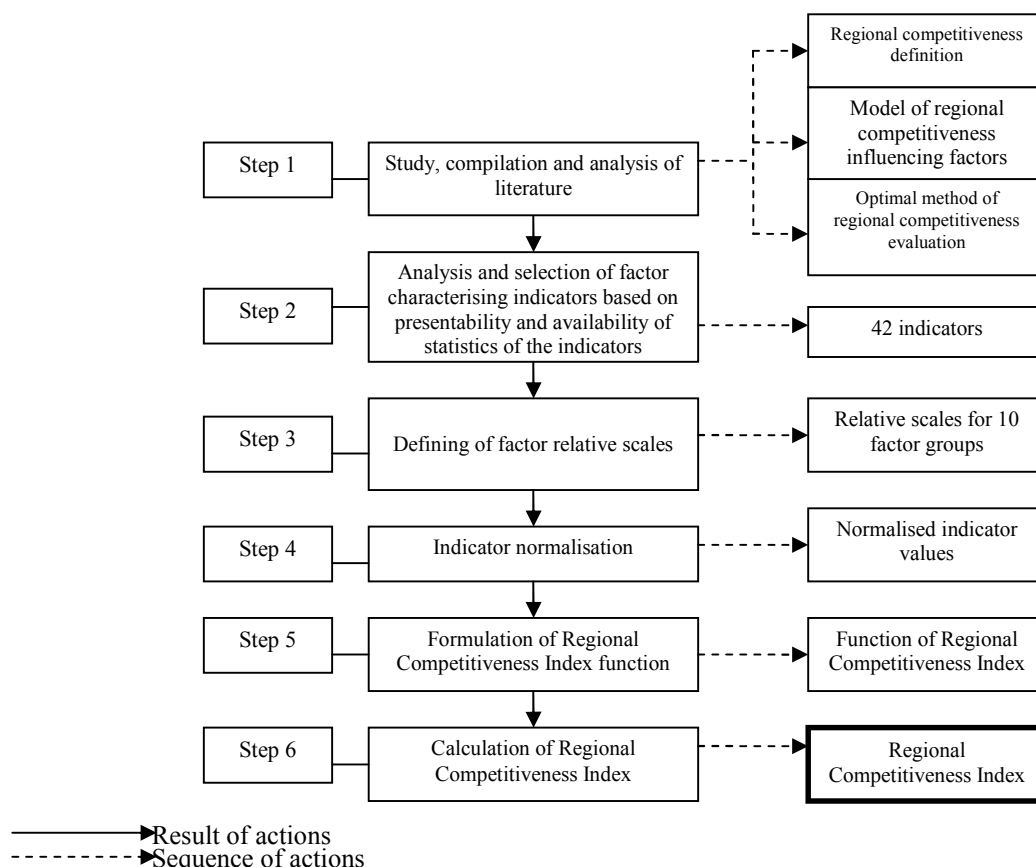
Summarising different evaluation methods of the regional competitiveness, their advantages and disadvantages it can be concluded that the choice of an appropriate method depends on the stated objective. If the objective is to find factors influencing the regional competitiveness, region's advantages and disadvantages the SWOT Analysis and the Strategic Planning Model can be applied. If the main aim is to evaluate which

group is more competitive and which less competitive then the Ranking Approach will be appropriate. If the regional resources, the efficiency of their usage and influence on the socio-economic development in the region have to be evaluated then the most appropriate will be the Method of Logical Structure.

However, none of the previously mentioned methods allows to evaluate the competitiveness of a certain region in a numerical expression. It could be done by calculating the synthetical competitiveness index in different factor groups. Therefore in the Doctoral Thesis the methodology for developing a complex competitiveness index was recommended and also the competitiveness of the Latvian regions was evaluated.

2.2. Development of the Competitiveness Index

After the analysis of the existing methods of the competitiveness evaluation it can be concluded that the development and competitiveness of different level and type territories are best described by a complex or generalised indicator – competitiveness index. The algorithm of development of the Regional Competitiveness Index (RCI) is shown in Picture 2.1.



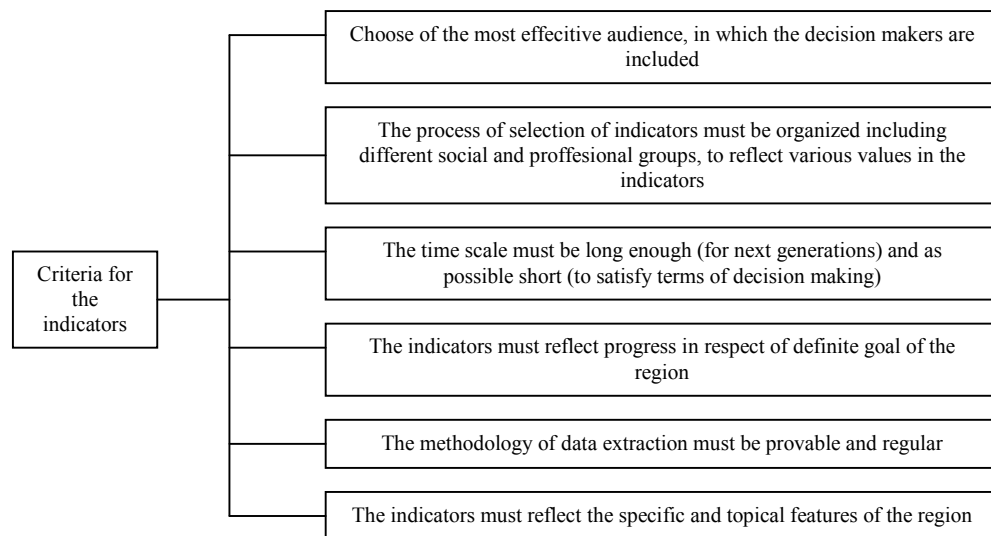
Pic. 2.1. Algorithm of Development and Calculation of the Regional Competitiveness Index
 [the author-made scheme]

In Picture 2.1 it can be seen that Step 1 and Step 2 are related to defining of the regional competitiveness influencing factors, the selection and analysis of the characterising indicators of these factors. In Chapter 1 of the Doctoral Thesis the model of factors influencing the regional competitiveness in Latvia was developed, while in this chapter the characterising indicators of the chosen factor groups were selected (Table 2.1.).

2.2.1. Selection of the Regional Competitiveness Influencing Indicators

For ensuring of a balanced regional competitiveness it is significant to develop approaches and criteria for the evaluation of the development character. Therefore one of the main objectives is selection of the characterising indicators of the regional competitiveness to reflect the positive aspects, efficiency and negative consequences of the development, as well as to allow evaluating the necessary changes in the actions. An optimal indicator system would allow to understand the regularities that define and influence the regional competitiveness, to predict the further directions of the regional competitiveness development and the required resources for this.

The main criteria for the indicator selection and choice are shown in Picture 2.2.



Pic. 2.2. Main Criteria of the Indicator Selection
[the author-made scheme]

Using the model of the regional competitiveness influencing factors developed by the author for each of the chosen factor groups a limited number of indicators will be selected according to the previously mentioned criteria of indicator selection. One more limitation is the usage of only the official statistical data excluding the qualitative indicators. As the target audience the employees of the local governments, regional devel

Ministry of Environmental Protection and Regional Development who need a detailed range of indicators were chosen. The developed indicator system for the regional competitiveness evaluation is shown in Table 2.1.

Table 2.1.

Indicator System for the Regional Competitiveness Evaluation in Latvia
[the author-made table]

Factors	Indicators
1. Human resources	1. Number of inhabitants, <i>people</i> 2. Proportion of population under working age, % 3. Proportion of population in working age, %
2. Social sphere	1. Unemployment rate, % 2. Average monthly gross wage of workers, <i>Ls</i> 3. Housing stock per inhabitant, <i>m²</i> 4. Proportion of guaranteed minimum income benefit recipients in total regional population, %
3. Education	1. Proportion of population with vocational education, secondary vocational education and general secondary education of the total regional population (15-74 years), % 2. Proportion of population with higher education of the total regional population (15-74 years), %
4. Culture	1. Public library readership, <i>people</i> 2. Number of museum visitors, <i>people</i> 3. Proportion of traditional culture and amateur art participants of the total regional population, %
5. Health	1. Number of doctors per 1000 inhabitants, <i>people</i> 2. Medical personnel with secondary medical education per 1000 inhabitants, <i>people</i> 3. Number of hospital beds, <i>beds</i> 4. Number of deaths per 1000 inhabitants, <i>people</i>
6. Accessibility	1. Distance from district centers to Riga, <i>km</i> 2. National road density, <i>km per 1000 km²</i> 3. Municipal road density, <i>km per 1000 km²</i> 4. Loaded and unloaded cargos in ports, <i>t</i> 5. Number of passengers arriving and leaving with passenger ships and ferries, <i>people</i> 6. Number of passengers arriving and leaving from airports, <i>people</i> 7. Availability of computers in households, % 8. Availability of Internet in households, %
7. Innovation and research	1. Proportion of enterprises performing research among active enterprises in the region, % 2. Proportion of employees in enterprises performing research of the total number of workers in the region, % 3. Total expenditure for research, <i>thousand Ls</i>
8. Economy and production	1. GDP per employee, <i>thousand Ls</i> 2. Economically active enterprises per 1000 inhabitants, <i>enterprises</i> 3. Non-financial investments per inhabitant, <i>mio.Ls</i> 4. Agricultural production yield, <i>cnt /ha</i> 5. Agricultural production in total yield per inhabitant, <i>t/ people</i> 6. Industrial production output per inhabitant, <i>thousand Ls</i> 7. Added value of service sector per inhabitant, <i>thousand Ls</i>
9. Natural resources	1. Territory, <i>thousand km²</i> 2. Sea border, <i>km</i> 3. Total stocks of construction materials, % 4. Forest cover, %
10. Ecology and environment	1. Household waste per 1 km ² , <i>t</i> 2. Hazardous waste per 1 km ² , <i>t</i> 3. Harmful emissions into the atmosphere, <i>t</i> 4. Polluted wastewater proportion of the total wastewater, %

From Table 2.1. it is obvious that in total 10 factors and 42 indicators have been selected. The choice of the number of indicators depended on the availability of statistics and the sector of the characterising indicators as it is important that the indicators do not overlap.

2.2.2. Defining of Factor Relative Scales and Normalisation of Indicators

For the evaluation of influence importance of the regional competitiveness influencing factors the method of the factor paired comparison will be applied, which by its nature is to be applied as an expert method, and it can be successfully used at evaluating the situation in the regions.

The factor relative scales were defined by surveying 8 experts of the economy and regional development field and the obtained results are shown in Table 2.2.

Table 2.2.

Relative Scales of Subindexes of the Regional Competitiveness Index (RCI)
[the author-made table after the experts' evaluations and the author's calculations]

Subindex	Relative scale
F_C - subindex of human resources	0,10
F_S - subindex of social sphere	0,09
F_{IZ} - subindex of education sector	0,13
F_K - subindex of culture sector	0,03
F_V - subindex of health care	0,09
F_P - subindex of accessibility	0,16
F_{IN} - subindex of innovation sector	0,10
F_R - subindex of economy and production	0,16
F_D - subindex of natural resources	0,06
F_E - subindex of ecology sector	0,08

In Table 2.2. it can be seen that the most significant factors influencing the regional competitiveness with the highest scale 0,16 according to the experts are its accessibility and the level of economy and production development. The second important aspect is education with the relative scale 0,13. The lowest relative scale (0,03) is for the development of the cultural sector, and relatively small (0,06) for the existence of natural resources in the region.

The main aim of the normalisation is to avoid the situation when one or more factors can dominate as the range of factor values can be completely different. The normalised indicators are calculated from the initial indicators that are expressed in pieces, %, km etc. In the result of normalisation the initial measurements disappear and thus different indicators become mutually comparable.

By analysing the most popular data normalisation methods the author selected the min-max normalisation $[-1;1]$ for the calculation of the Regional Competitiveness Index, because:

- the relations between the original data have been maintained;
- the regions have been compared not to the average value of the state but to the best and weakest indicators;
- the average size of the indicator value is 0 that is significant in the matrix composition of the competitiveness influencing factors;
- the obtained normalisation values are easily interpreted and understood.

The values of the Regional Competitiveness Index were selected in the interval from -1 to 1, thus the applied normalisation function for the calculation of the RCI is the following (Formula 2.1):

$$a'_i = 2 \frac{a_i - a_{\min}}{a_{\max} - a_{\min}} - 1, \quad (2.1)$$

where: a'_i - the normalised value of the indicator;

a_i - the real value of the indicator;

$a_{\min}$ and $a_{\max}$ - the minimum and maximum values of the indicator

Using Formula 2.1 the values of the Regional Competitiveness Index indicators will be in the interval from -1 to 1, where -1 is the worst indicator (the minimum indicator value among the planning regions) and 1 is the best indicator (the maximum indicator value among the planning regions).

2.2.4. Formulation of the Regional Competitiveness Index Function and Evaluation of the Competitiveness Level

The Regional Competitiveness Index includes the factor groups influencing the regional competitiveness and their relative scales. In general terms the Regional Competitiveness Index is a function from the sum of multiples of factors and their relative scales, which tends to maximum:

$$RCI = f(F_1, F_2, \dots, F_n) \rightarrow \max, \quad (2.2)$$

where: RCI – the Regional Competitiveness Index;

$F_1 \dots F_n$ - factors influencing the regional competitiveness;

The Regional Competitiveness Index for the author's developed regional competitiveness model with 10 competitiveness influencing factor groups and relative weights is expressed by Formula 2.3:

$$RCI = (\alpha_1 F_C + \alpha_2 F_S + \alpha_3 F_{IZ} + \alpha_4 F_K + \alpha_5 F_V + \alpha_6 F_P + \alpha_7 F_{IN} + \alpha_8 F_R + \alpha_9 F_D + \alpha_{10} F_E) \rightarrow 1, \quad (2.3)$$

where: RCI – the Regional Competitiveness Index;

$\alpha_1 \dots \alpha_7$ - the relative scales of the factors;

F_C - subindex of human resources;

F_S - subindex of social sphere;

F_{IZ} - subindex of education sector;

F_K - subindex of culture sector;

F_V - subindex of health care;

F_P - subindex of accessibility;

F_{IN} - subindex of innovation sector;

F_R - subindex of economy and production;

F_D - subindex of natural resources;

F_E - subindex of ecology sector

In Formula 2.3 the Regional Competitiveness Index tends to 1 as for the data normalisation the min-max normalisation [-1;1] was applied meaning that the maximum value that the Regional Competitiveness Index can reach is 1.

The subindex F_n of each factor group is calculated by taking into account the characterising indicators of the group, applying the above mentioned min-max normalisation [-1;1]. In order to maintain the value of the index in the interval from -1 to 1 the arithmetic average of certain factor group influencing indicators is calculated.

$$F_n = \frac{1}{N} \left((2 * \frac{f_1 - f_{\min_1}}{f_{\max_1} - f_{\min_1}} - 1) + (2 * \frac{f_2 - f_{\min_2}}{f_{\max_2} - f_{\min_2}} - 1) + \dots + (2 * \frac{f_n - f_{\min_n}}{f_{\max_n} - f_{\min_n}} - 1) \right), \quad (2.4)$$

where: F_n - subindex of the regional competitiveness influencing factors;

$f_1 \dots f_n$ - the real values of the factor characterising indicators;

$f_{\min}, f_{\max}$ - the minimum and maximum values of the factor characterising indicators;

N - the number of the factor characterising indicators.

For calculating the RCI, first the subindexes F_n of each factor group will be calculated. For the evaluation of the competitiveness level the RCI criteria shown in Table 2.3 will be used.

Table 2.3.

The RCI Criteria for Evaluation of the Regional Competitiveness Level
[the author-made table]

RCI values	Competitiveness level
-1 – -0,61	Low (L)
-0,6 – -0,21	Below average (BA)
-0,2 – 0,19	Average (A)
0,2 – 0,59	Above average (AA)
0,6-1	High (H)

In the analysis of the competitiveness level it is very important which of the competitiveness level influencing indicators is competitiveness facilitating or on the contrary hinders the increase of the competitiveness level in the region. In order to determine whether the indicator is competitiveness facilitating or hindering both its development tendencies (whether the situation in the region improves or declines) and the region's place among other regions according to the specific indicator have to be defined. In order to evaluate this, the F_n value of a specific region was compared to the average value 0 and the average growth rate of each indicator of the selected time period was calculated by using Formula 2.5:

$$T_n = \frac{1}{n} \left(\frac{f_1 - f_0}{f_0} + \frac{f_2 - f_1}{f_1} + \dots + \frac{f_n - f_{n-1}}{f_{n-1}} \right), \quad (2.5)$$

where: T_n - the growth rate of the specific factor;

f_n - the real value of the factor characterising indicators in the current year, $f_n \neq 0$;

f_{n-1} - the real value of the factor characterising indicators in the previous year;

n – number of years;

For the basis of development of the matrix for competitiveness level and indicator growth rate the matrix of “The Market Share / Growth Rate” developed by the scientists of the Boston Group was used, which for defining the regional competitiveness is shown in Picture 2.3.

<i>Competitiveness level</i>		1	COMPETITIVENESS POTENTIALLY HINDERING FACTOR	COMPETITIVENESS CURRENTLY ENSURING FACTOR
	$-\infty$	0	COMPETITIVENESS CURRENTLY DECREASING FACTOR	COMPETITIVENESS POTENTIALLY FACILITATING FACTOR
		-1		
		<i>Growth rate</i>		

Pic. 2.3. Matrix of the Competitiveness Influencing Factors for the Planning Regions
[the author-made picture]

In Picture 2.3 it can be seen that *competitiveness currently ensuring* are those factors that have been with a positive growth and have ensured the region's indicator above the average competitiveness level.

Competitiveness currently decreasing are those factors that showed a negative growth and determined the region's ranking below the average competitiveness level.

If the competitiveness influencing factor in the planning region is above the average compared to other regions but its development tendency is negative then in future if this tendency continues to be the same the region can become incompetitive. Such factors are *competitiveness potentially hindering*.

If the competitiveness influencing indicator is comparatively low (below the average level) but with a tendency to improve then in future if this tendency persists the given factor can become competitiveness facilitating. Such factors are *competitiveness potentially facilitating*.

In Chapter 3 of the Doctoral Thesis the Regional Competitiveness Index will be calculated by using the methodology described in Chapter 2, as well as its evaluation will be carried out for the planning regions of Latvia for the period 2000-2009.

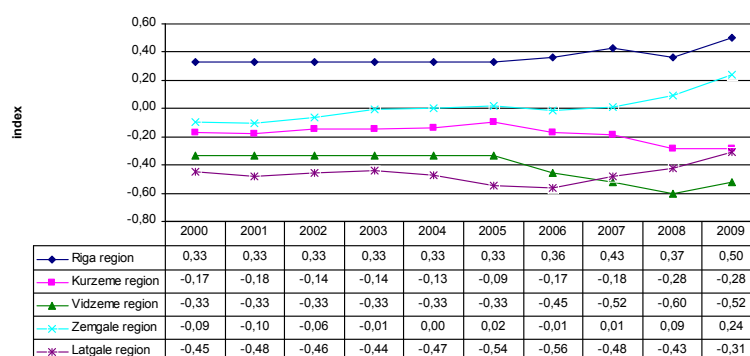
3. COMPETITIVENESS INDEXES OF LATVIAN REGIONS AND REGIONAL DEVELOPMENT POSSIBILITIES

3.1. The Regional Competitiveness Characterising Subindexes

The methodology recommended in the Doctoral Thesis envisages to determine the Regional Competitiveness Index on the basis of 10 main factor groups. As each of these factors influences the regional competitiveness a separate subindex will be calculated for its evaluation. While the overall Regional Competitiveness Index will be formed as a complex indicator from the mentioned subindexes.

3.1.1. Subindex of Human Resources

Using the selected indicators charactering the human resources (see Table 2.1) and Formula 2.4 the Subindex of Human Resources was calculated as shown in Picture 3.1.



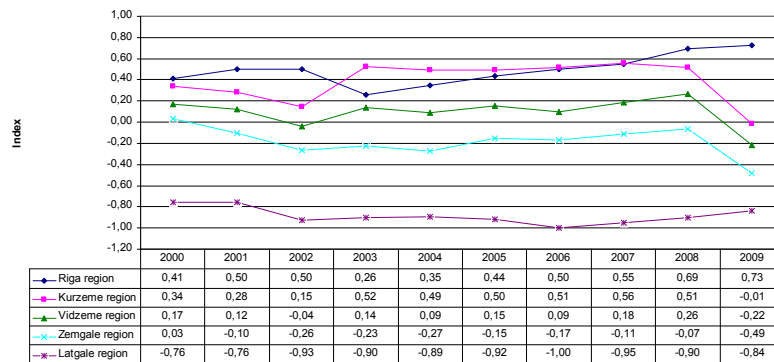
Pic. 3.1. Subindex of Human Resources F_C for the Latvian Planning Regions
[the author's calculations]

In terms of human resources the region of Riga was the most competitive, where the Subindex of Human Resources F_C was higher than for the rest planning regions. In the last place Vidzeme region ranked. The only region showing no improvement of the Subindex of Human Resources in 2009 was Kurzeme region.

According to the position of human resources sector influencing factors for the Latvian planning regions in the Competitiveness Influencing Factor Matrix it can be concluded that the population of working age in the regions of Riga, Zemgale and Latgale is a competitiveness facilitating factor, as this indicator in the mentioned regions in average in years 2000-2009 has been above the average competitiveness level and with growing tendency. The proportion of population in working age is comparatively low in the planning regions of Kurzeme and Vidzeme but as it has a strongly positive development tendency the mentioned factor might become a competitiveness facilitating factor. The number of inhabitants in the planning regions of Latgale, Vidzeme, Kurzeme and Zemgale is a competitiveness hindering factor, as the mentioned indicators are low and with a negative development tendency. The number of inhabitants in Riga region is comparatively high but with a negative development tendency, thus there is a possibility that it could become a competitiveness hindering factor. The planning regions of Riga and Latgale have comparatively small proportion of population under working age and this age group has a tendency to decrease, thus in the mentioned planning regions it can be considered as a competitiveness hindering factor.

3.1.2. Subindex of Social Sphere

Social problems worsen the living standard and hinder the development of human resources and thus decrease the regional competitiveness. The Subindex of Social Sphere is shown in Picture 3.2.



Pic. 3.2. Subindex of Social Sphere F_S in the Planning Regions
[the author's calculations]

By analysing the Subindex of Social Sphere in the planning regions of Latvia it can be concluded that the regions of Riga and Kurzeme are the most competitive regions in the social sphere. The weakest region in years 2000-2009 was Latgale region, which Subindex of Social Sphere was significantly lower than for the rest Latvian planning regions. By studying the competitiveness in dynamics it can be concluded that the differences between the regions in the social sphere have increased, but this increase is not significant. Hence the regional competitiveness in the social sphere is not a significant cause for the irregular development increase in the regions.

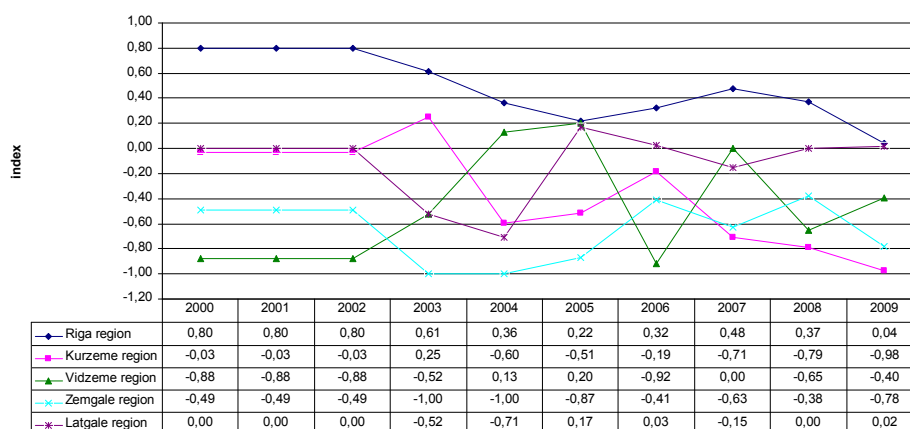
In the social sector as competitiveness facilitating factors the following should be emphasised:

- unemployment rate (its low level and decrease) – in the regions of Riga, Vidzeme, Kurzeme and Zemgale;
- average monthly gross wage of workers – in Riga region;
- housing stock per inhabitant – in the regions of Vidzeme and Kurzeme.

These indicators in the mentioned regions are above the average competitiveness level and with an improvement tendency. There were no competitiveness currently decreasing factors in the social sphere in the planning regions of Latvia. However the regions of Riga, Vidzeme, Kurzeme and Zemgale according to the indicator as the proportion of the GMI benefit recipients deployed in a quadrant with a comparatively high competitiveness level but with a negative development tendency. This means that there was a risk that the mentioned indicator could have become competitiveness hindering that was proved by the following years.

3.1.3. Subindex of Education Sector

Education opportunities, the amount of different cultural events and possibility to participate in them, as well as possibility to do sports and actively spend free time are one of the characterising factors of the region's appeal that influence the region's competitiveness in general. The more opportunities to participate in any of these spheres, the more fully the needs of the citizens will be met and more citizens will want to live and work in the given region. The Subindex of Education Sector is shown in Picture 3.3.



Pic. 3.3. Subindex of Education Sector F_{IZ} in the Planning Regions
[the author's calculations]

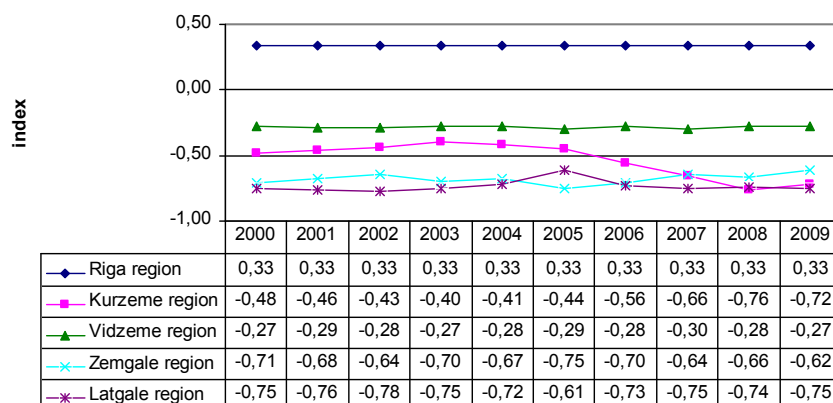
By analysing the Subindex of Education Sector in the planning regions of Latvia it can be concluded that the most competitive region in this sector is Riga region, which ranked in the first place from 2002 to 2009. The last place in the education sphere was ranked by Kurzeme region from 2007-2009. While the competitiveness in the education sector in the regions of Vidzeme and Latgale has increased in 2009.

The currently ensuring factors of the education sector competitiveness are the proportion of population with higher education in Riga planning region. The increase of the proportion of people having gained the higher education can potentially promote the competitiveness of the regions of Kurzeme, Vidzeme, Zemgale and Latgale. As the currently decreasing factors of the competitiveness the low proportion of population having secondary education in the regions of Vidzeme and Zemgale can be noted. While in the planning regions of Riga and Kurzeme the increase of the proportion of population with the secondary education can promote the competitiveness of these regions in future.

3.1.4. Subindex of Culture Sector

The development of the culture sector and opportunity to participate in different amateur activities also characterise the appeal of the territory, hence

the satisfaction level of the citizens' needs. The Subindex of Culture Sector is shown in Picture 3.4.



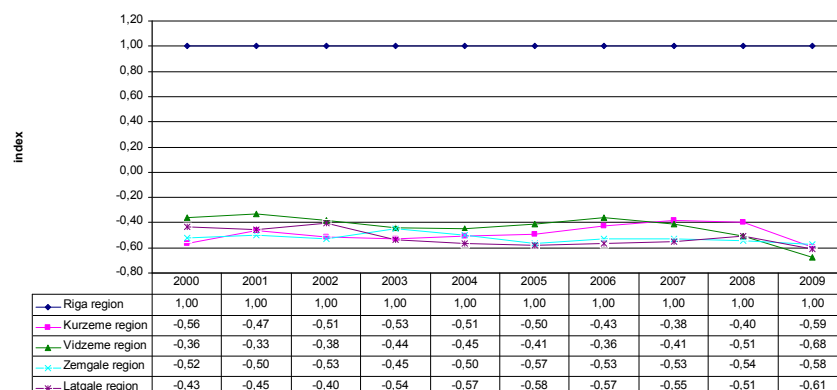
Pic. 3.4. Subindex of Culture Sector F_K in the Planning Regions of Latvia
[the author's calculations]

In the cultural sector the most competitive region from 2000-2009 was Riga planning region, which Subindex of Culture Sector is above the average level of competitiveness. In the second place convincingly ranked Vidzeme planning region, but the last places in years 2008 and 2009 were divided by the planning regions of Kurzeme and Latgale.

In Riga region the competitiveness facilitating factor in the cultural sector is the increase of public library readership and museum visitors. While competitiveness hindering factors are the decrease of public library readership in the regions of Kurzeme, Latgale, Zemgale and Vidzeme. The number of museum visitors in these regions is comparatively low but with a positive tendency, thus it can become a competitiveness facilitating factor. It is obviously explained by the ability to attract the interest of tourists. In the planning regions of Vidzeme and Kurzeme the competitiveness level according to the number of amateur art participants is high, but as the number of participants is with a tendency to decrease, then this factor in future can hinder the increase of the competitiveness level in the mentioned regions.

3.1.5. Subindex of Health Care

One of the regional competitiveness influencing factors is the available resources and capital for ensuring the population's health characterised by the health care indicators. For describing the health care the resource indicators have been selected that mark the regional competitiveness in terms of health care ensuring opportunities, as well as such indicator as the number of deaths per 1000 inhabitants. The Subindex of Health Care is shown in Picture 3.5.



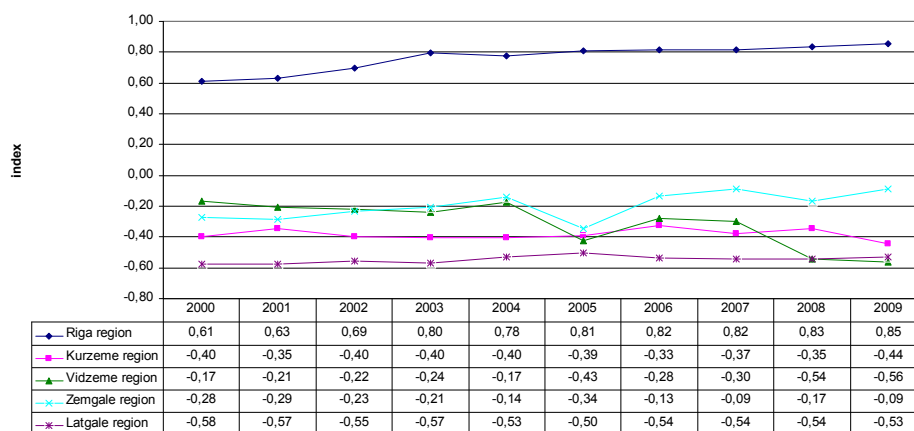
Pic. 3.5. Subindex of Health Care F_V in the Planning Regions
[the author's calculations]

By analysing the Subindex of Health Care it can be concluded that the most competitive region in the health sector is Riga region that ranks the first place among other planning regions in the whole analysed period from year 2000 to 2009. The index of Riga region in the health sector is the maximum possible, meaning that in all selected indicators Riga region has been the most competitive. The competitiveness of other planning regions in the health sector significantly lags behind Riga planning region. It should be noted that also the health care is not the main cause for increase of regional differences, as the differences between the health care indexes from 2000-2009 have not changed significantly.

The competitiveness facilitating factors in the health sector in Riga region are the number of medical personnel with the secondary education per 1000 inhabitants and comparatively low number of deaths per 1000 inhabitants. The late indicator is comparatively low and with a decreasing tendency also in Zemgale region. In the health sector there are several regional competitiveness hindering factors – comparatively small number of hospital beds and number of doctors in the regions of Latgale, Vidzeme, Zemgales and Kurzeme that continue to decrease, as well as the number of medical personnel with secondary education in the planning regions of Vidzeme, Kurzeme and Zemgale.

3.1.6. Subindex of Accessibility

For the description of regional accessibility the indicators were selected that mainly cover such spheres as the existence and operation of roads, ports and airports, as well as communication field. Of course, an important factor for the competitiveness evaluation is also the regional location – whether it is a central region through which all main roads lead or it is country outskirts. One of the most significant indicators nowadays is the availability of computers and Internet in households. The Subindex of Accessibility



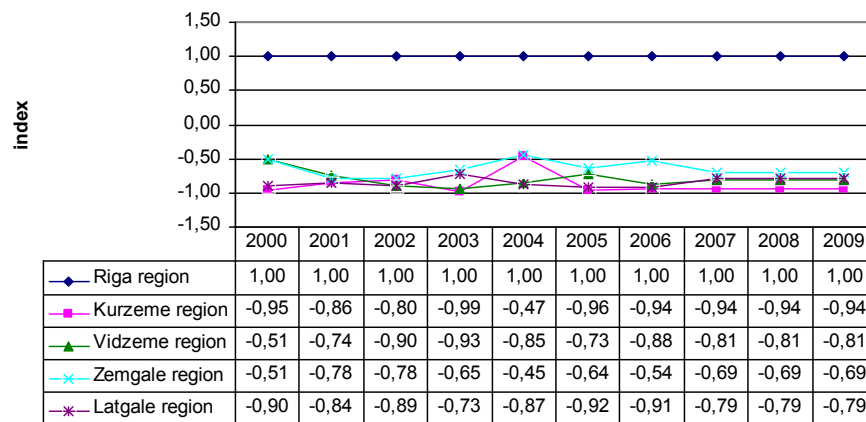
Pic. 3.6. Subindex of Accessibility F_p in the Planning Regions
[the author's calculations]

In terms of territory accessibility, openness the most competitive region in the whole reference period was Riga region, which index is significantly higher than the Accessibility Index of other planning regions of Latvia. Comparing years 2000 and 2009 the accessibility of Riga region has improved. The least open and most difficult to access is Latgale region, which Accessibility Index until 2007 was the lowest among other Latvian planning regions. However it should be noted that indicators of Vidzeme region in years 2008 and 2009 have also decreased and the region's Accessibility Index in Vidzeme region in 2009 was the lowest.

As the competitiveness currently facilitating factors in terms of accessibility the national road density in Zemgale region; the loaded and unloaded cargos, the number of arriving and leaving passengers in ports, as well as the number of arriving and leaving passengers in the airport in Riga region; the availability of computers in the regions of Riga and Vidzeme; the Internet availability in the regions of Riga, Vidzeme and Kurzeme can be emphasised. As the competitiveness currently decreasing factors the comparatively small national road density in Kurzeme region and municipal road density in Vidzeme region can be emphasised. The region's closeness to Riga as the most developed state center is competitiveness facilitating in the regions of Riga, Zemgale and Vidzeme. Furthest from Riga is Latgale region.

3.1.7. Subindex of Innovation Sector

In order to increase the total state competitiveness it has to be increased in each planning region by implementing a targeted innovation policy and facilitating the development of new knowledge-based industries and production of goods with high added value. The Subindex of Innovation Sector is shown in Picture 3.7.



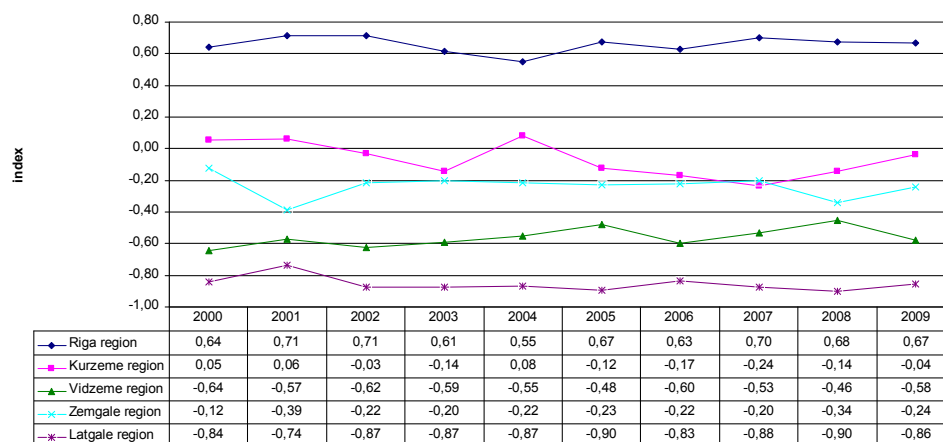
Pic. 3.7. Subindex of Innovation Sector F_{IN} in the Planning Regions
[the author's calculations]

In the innovation sector Riga region is convincingly the most competitive that ranked the first place in all indicators characterising the innovation sector, thus in all years the innovation index for Riga region was the maximum possible. The indicators of other planning regions significantly lag behind Riga region. By analysing the Innovation Index of the planning regions in dynamics it can be concluded that the Innovation Index does not have an expressed tendency to increase or decrease. It shows that in the innovation sector there is no significant increase or decrease of differences between the regions.

In the innovation and research sector in Riga region all selected indicators are competitiveness facilitating. The competitiveness hindering factors are the small number of employees of innovative enterprises that continues to decrease in Zemgale planning region and small proportion of the innovative enterprises continuing to decrease in Vidzeme region. The rest factors are currently competitiveness hindering but with a positive development tendency meaning that in future they could become competitiveness facilitating.

3.1.8. Subindex of Economy and Production

If the indicators described until now were mainly resource characterising, then for the evaluation of economy development several efficient indicators will be applied. One of the most important indicators for the economic development is productivity that will be described by such indicator as GDP per employee. In order to define which sectors in each region are developed it would be useful to select such indicator as the added value in division by sectors – agriculture, industry, services. As this indicator in several regions is confidential other characterising indicators for the sector evaluation were selected. The Subindex of Economy and production is shown in Picture 3.8.



Pic. 3.8. Subindex of Economy and Production F_R in the Planning Regions
[the author's calculations]

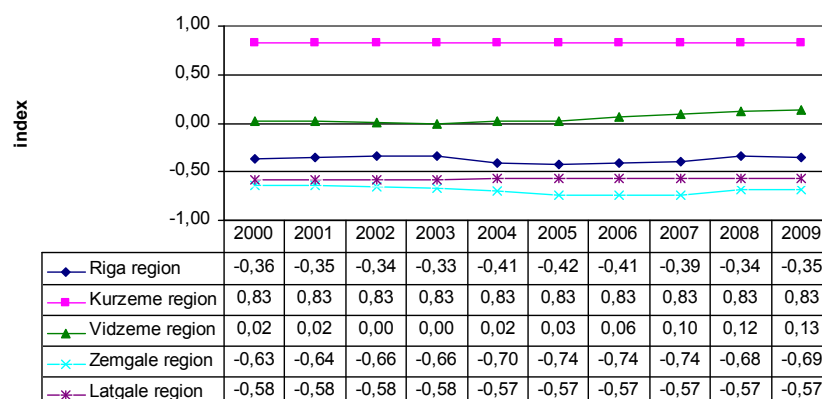
Riga region ranks the first place in terms of economic development, being the most competitive in the whole reference period. The competitiveness of Riga region in terms of economy and production has not particularly improved comparing years 2000 and 2009. The second most competitive region was Kurzeme planning region, but Latgale planning region ranked the last place. Thus it can be concluded that Latgale region lags back from the rest planning regions also in terms of production.

The productivity (GDP/inhabit.) in Riga region, the number of economically active enterprises per 1000 inhabitants in Riga region, the amount of non-financial investments per inhabitant in the regions of Riga and Zemgale, the agricultural production yield in the regions of Riga, Zemgale and Kurzeme are the competitiveness facilitating factors with high level and positive development rate. The amount of agricultural production yield per inhabitant promotes the increase of competitiveness level in the regions of Zemgale, Kurzeme and Vidzeme, while in terms of the industrial product output per inhabitant the regions of Riga and Kurzeme are competitive. In Riga region also the high level of the added value created by the service sector is a competitiveness facilitating factor. None of the factors of economy and production sector is competitiveness hindering in any of planning regions of Latvia, and none of them have a tendency to become such.

3.1.9. Subindex of Natural Resources

One of the advantages of the regional competitiveness is of course the existence of natural resources in the region and their sustainable use and restoration, as well as maintenance of the region's biodiversity. The indicators of a clean environment and

reduction of pollution to the level that the air, water and soil can absorb it and process are also important. A clean environment is a precondition for the preservation of human health. The Subindex of Human Resources in the planning regions of Latvia is shown in Picture 3.9.



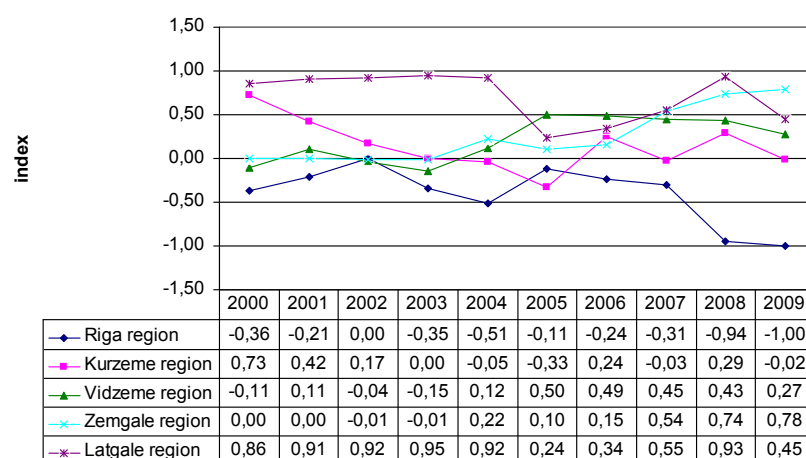
Pic. 3.9. Subindex of Natural Resources F_D in the Planning Regions
[the author's calculations]

It should be noted that the amount of natural resources is a defined indicator that principally cannot be significantly changed. Thus making the regional development strategy this indicator should be considered, but one should reckon that it is not possible to significantly improve it. Therefore the effective usage of the resources is very important. In Picture 3.9 it can be seen that in terms of natural resources Kurzeme region is the most competitive. The second place in terms of natural resource existence is Vidzeme region. The least competitive in terms of natural resources in 2000-2009 was Zemgale region.

As all natural resources existing in the region are the regional competitiveness facilitating factors, regardless their amount in the region, the competitiveness facilitating, hindering or neutral factors for the competitiveness index of natural resources will not be distinguished.

3.1.10. Subindex of Ecology Sector

The technological progress has undoubtedly improved the human welfare; however this welfare has not come without its problems. Gradually the environment quality has worsened and the biodiversity has decreased. The preservation of clean environment and biodiversity is one of the fundamental problems of any developed country, also in Latvia. The Subindex of Ecology Sector is shown in Picture 3.10.



Pic. 3.10. Subindex of Ecology Sector F_E in the Planning Regions
[the author's calculations]

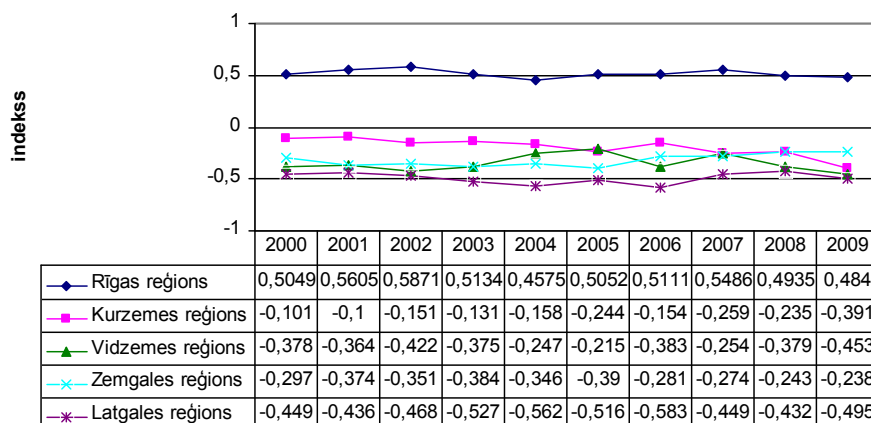
In terms of ecology Riga region is not the most competitive region anymore, it ranks in the fifth place among other planning regions. The main reason for such reduction of leader position is the developed industry and production sector in this region related to higher pollution and environment protection problems. The most competitive region in terms of ecology is Latgale region but starting with 2005 it has lost its position to Vidzeme region. Zemgale region is the only planning region in Latvia showing continuous improvement of the competitiveness index of ecology sector in period 2000-2009.

The competitiveness facilitating factor is only comparatively low proportion of polluted wastewater in the total amount of wastewater in Vidzeme region. As competitiveness hindering factors in the ecology sector both the high amount of household waste that continues to grow in the regions of Riga, Kurzeme and Zemgale, and the amount of hazardous waste and its increase in Vidzeme region, as well as the amount and increase of harmful emissions in Riga region can be noted. As household waste has a tendency to grow in the regions of Vidzeme and Latgale, hazardous waste – in the regions of Vidzeme, Zemgale and Riga, harmful emissions in the regions of Zemgale, Latgale, Vidzeme and Kurzeme, as well as proportion of polluted wastewater in Latgale region, then the mentioned factors can become competitiveness hindering factors in the respective planning regions.

3.2. Defining of the Regional Competitiveness Index and its Practical Application

After calculation of the competitiveness index of each factor it is possible to define also the overall competitiveness index RCI for each planning region. Using in Chapter 2

recommended formula for index calculation (see Formula 2.3) and factor scales set by the experts (see Table 2.2) the Regional Competitiveness Index will be calculated for all planning regions in Latvia. The obtained results are shown in Picture 3.11.



Pic. 3.11. Regional Competitiveness Index RCI in the Planning Regions
[the author's calculations]

From Picture 3.1 it can be seen that the most competitive is Riga planning region, which RCI in 2009 was 0,484. The indicator of Riga region significantly differs from the rest planning regions. The regional competitiveness comparing years 2009 and 2000 has slightly increased only in Zemgale planning region. However we can not talk of significant increase of differences between Riga and other planning regions.

The level of regional competitiveness can be seen in Table 3.1.

Table 3.1.

Level of the Regional Competitiveness of Planning Regions in Latvia
[the author-made table]

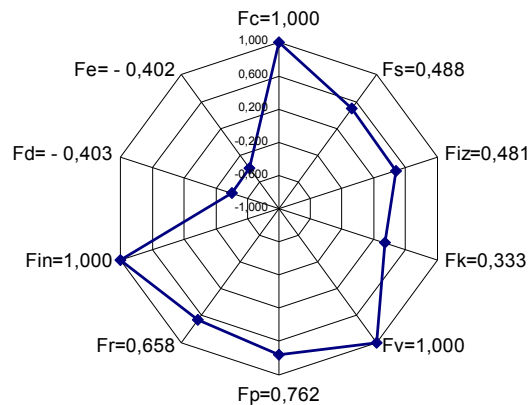
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Rīga region	AA	AA	AA	AA	AA	AA	AA	AA	AA	AA
Kurzeme region	A	A	A	A	A	BA	A	BA	BA	BA
Vidzeme region	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA
Zemgale region	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA
Latgale region	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA

In Table 3.1 it can be seen that in Riga region the competitiveness level is above the average, in Kurzeme region until 2006 an average competitiveness level, but in all the rest planning regions it is below the average level. It reaffirms that there are distinct regional differences between Riga region and the rest planning regions in Latvia.

However the performed analysis of the RCI subindexes reveals that each planning region has both competitiveness facilitating and competitiveness hindering factors.

Riga Planning Region

The average competitiveness level of Riga planning region in the period 2000-2009 by the RCI subindexes is shown in Picture 3.12.

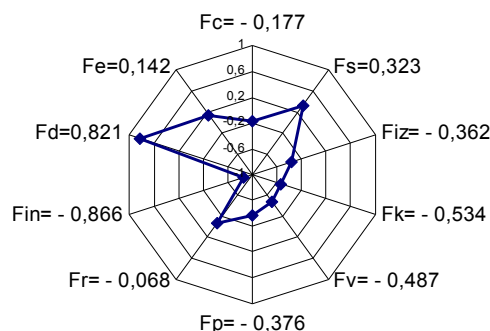


Pic. 3.12. Average Competitiveness Level of Riga Planning Region by the RCI Subindexes in 2000-2009
[the author's calculations]

From Picture 3.12 it can be seen that Riga region has high competitiveness level in sectors of human resources, health, accessibility, economy and research. In sectors of social sphere, education and culture the competitiveness of Riga region is above the average level, but in sectors of natural resources and ecology the competitiveness level is below average.

Kurzeme Planning Region

The average competitiveness level of Kurzeme planning region in the period 2000-2009 by the RCI subindexes is shown in Picture 3.13.

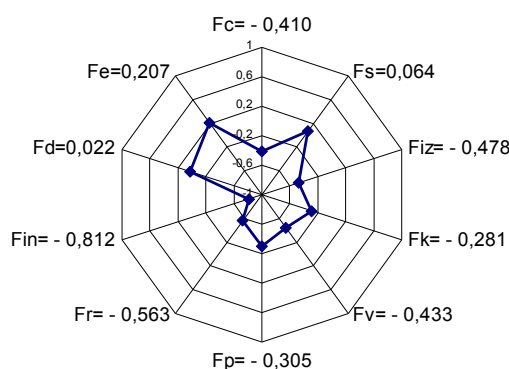


Pic. 3.13. Average Competitiveness Level of Kurzeme Planning Region by the RCI Subindexes in 2000-2009
[the author's calculations]

From Picture 3.13 it can be seen that Kurzeme region has high competitiveness level in the natural resource sector, as well as the competitiveness level is above the average in the social sphere sector. In sectors of education, culture, health and accessibility the competitiveness level in Kurzeme region is below the average level. In the economy and ecology sector the competitiveness level in Kurzeme region is average, but the competitiveness is low in the innovation sector.

Vidzeme Planning Region

The average competitiveness level of Vidzeme planning region in the period 2000-2009 by the RCI subindexes is shown in Picture 3.14.

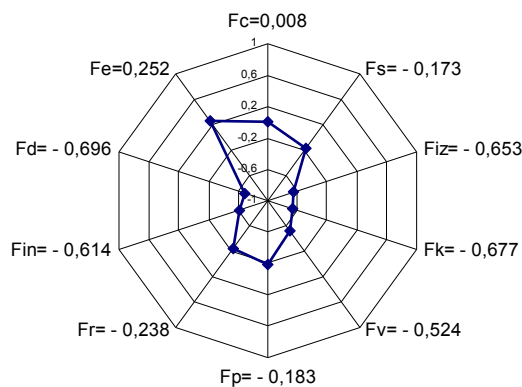


Pic. 3.14. Average Competitiveness Level of Vidzeme Planning Region by the RCI Subindexes in 2000-2009
[the author's calculations]

From Picture 3.14 it can be concluded that Vidzeme planning region has high competitiveness level in none of the sectors. Only in the ecology sector the competitiveness level is slightly above the average. There is an average competitiveness level in the sectors of natural resources and social sphere, but mostly the competitiveness level of Vidzeme planning region is below the average – in sectors of education, culture, health, accessibility, economy. The competitiveness level in the innovation sector can be noted as distinctly low.

Zemgale Planning Region

The average competitiveness level of Zemgale planning region in the period 2000-2009 by the RCI subindexes is shown in Picture 3.15.

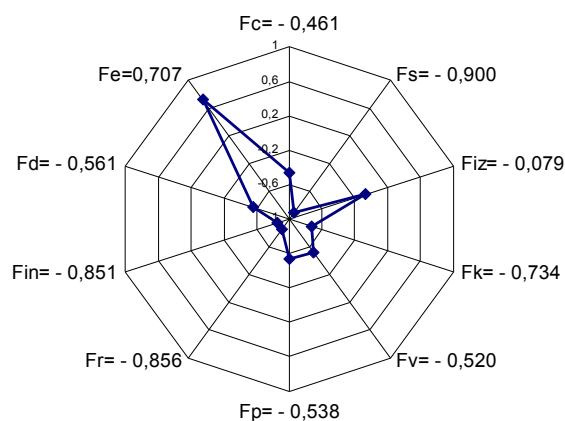


Pic. 3.15. Average Competitiveness Level of Zemgale Planning Region by the RCI Subindexes in 2000-2009
[the author's calculations]

Also in Zemgale planning region there is no sphere with a high competitiveness level (see Picture 3.15). The only sector with a competitiveness level above the average is ecology. In part of indicators (human resources, social sphere, accessibility) the competitiveness level of Zemgale planning region is average, but in the economy sector it is slightly below the average. In four indicators Zemgale region has a low competitiveness level – education, culture, innovation and existence of natural resources.

Latgale Planning Region

The average competitiveness level of Latgale planning region in the period 2000-2009 by the RCI subindexes is shown in Picture 3.16.



Pic. 3.16. Average Competitiveness Level of Latgale Planning Region by the RCI Subindexes in 2000-2009
[the author's calculations]

Latgale planning region stands out with one competitive sector – ecology, which competitiveness level is high. It can be of course explained by the comparative backwardness of economic development. As one of the competitive sectors of Latgale region the education level of people can also be noted, in this sector the competitiveness level of Latgale region is average. In other sectors the competitiveness of Latgale planning region is below the average including the low competitiveness level in sectors of social sphere, culture, economy and innovation. However also Latgale region has its own competitiveness facilitating factors.

Following the indicator analysis performed in Chapter 3 it was concluded that competitiveness influencing factors can leave various influence on different regions. Thus planning the regional development strategy a special attention should be turned to the factors mostly hindering the development of the given region.

In order to evaluate the advantages and disadvantages of the Regional Competitiveness Index an assessment of development of the Latvian planning regions was carried out by comparing the indicators often used for the territory development comparison – GDP and GDP per capita, as well as the Territory Development Index worked out by the SRDA and the RCI developed by the author of this Doctoral Thesis. According to the Regional Competitiveness Index and the Territory Development Index the planning regions of Latvia have distributed relatively equally, although a significant correlation between the mentioned indexes has not been stated.

According to both index methods Riga region convincingly ranks the first place, Kurzeme region and Zemgale region divide the 2nd- 3rd place, Vidzeme region ranks the penultimate place and Latgale region ranks the last place.

Comparing both regional development indexes and GDP it can be concluded that by evaluating the GDP development a significant increase of Riga region competitiveness can be observed until 2008, which indicates a substantial increase of regional difference between Riga planning region and the rest planning regions. According to the Regional Competitiveness Index and the Territory Development Index such conclusions can not be made. The second difference – planning regions have different ranks than for the application of GDP. Invariably the 1st place is maintained by Riga region, 2nd place is ranked by Kurzeme region, 3rd, 4th and 5th place is respectively for the planning regions of Latgale, Zemgale and Vidzeme.

Comparing also both indexes and GDP per capita it can be concluded that regional differences between Riga region and the rest planning regions increase. The 1st place is again

taken by Riga region, but 2nd place – Kurzeme planning region. The regions of Vidzeme and Zemgale divide the 3rd-4th place, but the last place is for Latgale planning region.

Thus the regional competitiveness can not be described only by such indicators as GDP and GDP per capita, as there are essential differences between the obtained results. As it was already emphasised in the Doctoral Thesis the regional competitiveness is influenced and defined by a wide range of interrelated factors that do not always influence exactly the amount of the gross domestic product. GDP does not reflect precisely the regional competitiveness from various aspects. The development of justified and efficient regional development strategy and regional development policy making should be based on the results provided by the Regional Competitiveness Index and their analysis.

CONCLUSIONS AND RECOMMENDATIONS

During the working out of the Doctoral Thesis the following *conclusions* have been made:

1. In the global and European scale there are no united definitions of the regional competitiveness that complicates the development of methodology for the regional competitiveness evaluation. However after the conducted analysis it is possible to conclude that among all competitiveness definitions an opinion raises in the center that the regional competitiveness depends on how high and stable the level of welfare is in the given region. Depending on how this is achieved, results in different interpretations of the regional competitiveness.
2. In the world practice there are very different approaches to defining the regional competitiveness influencing factors that can be summarised in two main ones:
 - Macroeconomic approach that considers only factors of state unions or state level;
 - Microeconomic approach that inspects also business activities of specific regions and the competitiveness influence on the regional competitiveness.
3. The regional competitiveness is mainly influenced by the quality of life, productivity and employment rate in the region. While these factors depend on the regional competitiveness influencing internal factors that is the interaction result of human resources, social sphere, culture, sport, infrastructure, research, innovation and production development. In the same way an important role in the regional competitiveness evaluation have also external factors that are the state political

stability, developed strategies, state participation in different international organisations and state unions etc. The regional competitiveness can be significantly influenced also by accidental events - natural disasters (floods, storms, earthquakes) etc.

4. Summarising different methods of the regional competitiveness evaluation, their advantages and disadvantages, it can be concluded that the choice of an appropriate method depends on the defined aim. If the objective is to find the regional competitiveness influencing factors, region's advantages or disadvantages, then the SWOT Analysis and the Strategic Planning Model can be applied. If the main aim is to evaluate which region in a certain factor group is more competitive, which is weaker, then the Ranking Approach will suit. If the region's resources, the efficiency of their usage and influence on the region's overall socio-economic development have to be evaluated the most appropriate will be the Method of the Logical Structure. However, none of the previously mentioned methods allows to evaluate competitiveness of a certain region in a numerical expression. It could be done by calculating the synthetical competitiveness index in different factor groups.
5. For the evaluation of the regional competitiveness in Latvia complex indexes are rarely calculated. One of the best known is the Territory Development Index calculated by the State Regional Development Agency, but the indicators used for the calculations do not completely cover all regional competitiveness influencing factors, thus the Territory Development Index does not reflect the advantages of the regional competition and the overall competitiveness.
6. As statistical data of lower levels than the state level are very limited in accessibility in Latvia, then for the calculation of the Regional Competitiveness Index the level of planning region has to be chosen, for which there are sufficient statistics. The Regional Competitiveness Index could be applied also in perspective of districts and big cities if the collection of statistics would be improved. In order to apply this index in the state level the efficiency of some indexes should be reviewed and more precise indicators accessible on state level should be used.
7. In order to analyse the regional competitiveness and its influencing factors more in detail 10 subindexes for the Regional Competitiveness Index should be calculated: sectors of human resources, social sphere, health, culture, education, innovation, economy and production, accessibility, natural resources and ecology.

8. According to the analysis of the Regional Competitiveness Index it can be concluded that the most competitive is Riga planning region, the regions of Kurzeme and Zemgale divide the 2nd-3rd place, Vidzeme region ranks the penultimate place and Latgale region ranks the last place. Evaluating according to the competitiveness level only Riga planning region has the competitiveness level above the average and the competitiveness level of Kurzeme region until 2006 was average, for the rest planning regions it is below the average.
9. Despite the different competitiveness levels of the planning regions each of them has their own competitiveness facilitating factors (strengths), competitiveness hindering factors (weaknesses), potential competitiveness hindering factors (threats) and potential competitiveness facilitating factors (possibilities). Riga planning region has most competitiveness facilitating factors, but Latgale planning region has the least.
10. The regional competitiveness cannot be characterised by such indicators as GDP or GDP per capita, as there are essential differences between the dynamics of these indicators and obtained results from the calculations of the Regional Competitiveness Index. The regional competitiveness is influenced and defined by a wide range of interrelated factors that do not always reflect exactly in the amounts of the gross domestic product.

Based on the results of the research conducted in this Doctoral Thesis the author of this Doctoral Thesis raises the following *recommendations*:

1. The Regional Competitiveness Index developed by the author would be advisable to apply in governmental institutions, which work is related to the regional development planning:
 - In the Ministry of Environmental Protection and Regional Development – for development and planning of the regional development policy, evaluation and analysis of the regional competitiveness;
 - In the State Regional Development Agency – for description, evaluation and analysis of the regional competitiveness and development;
 - In the development agencies of the planning regions – for development of justified regional development strategies, defining of appropriate main basic principles, objectives and priorities of longterm development for the planning region;

- In the local governments of districts – for evaluation of the district's competitiveness comparing with the average competitiveness level of the respective planning region. By conducting a deeper research it could be possible to apply the Regional Competitiveness Index for evaluation of the districts' competitiveness by selecting the competitiveness influencing factors corresponding to the district's level.
2. It is advisable to apply the Regional Competitiveness Index also in other ministries of the Republic of Latvia: Ministry of Welfare, Agriculture, Culture, Education, Transport, Economics, in order to evaluate competitiveness of planning regions of Latvia in a certain sector. The analysis of the RCI and its subindexes is advisable as a basis for the conduct of deeper studies on the respective sector competitiveness evaluation in the regions.
 3. It is advisable to make large scale renewal of data basis in the process of use of Regional Competitiveness Index, which includes latest statistical data.
 4. It is advisable to improve the accessibility of statistics on regional and district level in order to include in the Regional Competitiveness Index such important competitiveness aspects as international trade and number of the registered patents that would allow more complete evaluation of advantages and disadvantages of the regional competitiveness.
 5. It is advisable to integrate results of Promotional work in the studies of universities. For example, theoretical basis of competitiveness, its factors and evaluation models can be included in the subject "international competition". Basis of Regional Competitiveness Index calculation and system of regional competitiveness evaluation can be included in such subjects as "Economy of European Countries" – to compare different regions of Europe and analyse their competitiveness, as well as in the subject "Topicalities of EU economic policy"- to research and analyse regional policy of EU.
 6. It is advisable to improve the complex system of regional competitiveness evaluation, including more indicators to calculate Regional Competitiveness Index, in the same time it is necessary to continue to calculate the existing index to see the trend of regions development.