Income inequality and human capital as factors influencing economic development of region – case study of Latvia

Svetlana Ivanova, Liga Kamola, Uldis Kamols
Institute of the Building Entrepreneurship and Real Estate Department of the Territorial Development Management and Urban Economics
Riga Technical University
Riga, Latvia
Svetlana.Ivanova_1@rtu.lv, Liga.Kamola@rtu.lv, Uldis.Kamols@rtu.lv

Abstract – if, regarding the available natural and capital resources, all the other conditions are equal, some regions are still able to provide a more rapid economic development. Even, if the resource base is less available, nevertheless there are regions which are developing rapidly. This is due to another available qualitative resource, namely, human capital. Inequality can be observed in different forms, but income inequality is one of the mostly used and important. Greater difference of income between inhabitants of region can create more expressed disparities in quality of life between members of society. At regional perspective, that can sufficiently affect different decisions of population and thereby – trends and options of social and economic development. Focus of research is to assess the impact of income inequality and human capital on economic development of Latvian regions in order to evaluate importance of human capital in Latvia. For this, correlation method is used. The results of the research lead to the conclusion that income inequality and human capital has significant impact on economic performance of region and income inequality is closely linked to economic development, too. The most important factors are number of population, education of inhabitants and at-risk-of-poverty rate in region.

Keywords – region, income inequality, economic development, GDP, human capital, Latvia.

I. INTRODUCTION

The issue of human being, as the central factor for ensuring and promotion of the economic development of Latvia, has been topical for several years. Although the tendency has existed already for at least 20 years, this issue has become extremely significant for state policy-makers, when faced with essential population decrease, in recent years. From the global point of view, it is quite a normal process, that, the regions and countries of the world, compete for human capital, thus providing a more stable and rapid economic development. However, all countries should analyze the processes involved for ensuring a favorable environment for their economic development.

In their studies, some of the authors propose opposite views about the effect of the volume of human capital and its characteristic indicators on the economic development. As the level of the economic development in Latvian regions and district is different (which is also seen as a significant issue in the national economic development), this study examines whether these differences can be explained by differences of income and human capital in regions.

Focus of research is to assess the impact of income inequality and human capital on economic development of Latvian regions in order to evaluate importance of human capital in Latvia. For this, correlation method is used. The results of the research lead to the conclusion that income inequality and human capital has significant impact on economic performance of region and income inequality is closely linked to economic development, too.

II. NATURE OF HUMAN CAPITAL AND THE DISTRICT

In the Strategy of Latvian Sustainable Development up to 2030 [1] human capital is defined as the average volume of knowledge, talent and ability of population, multiplied by the number of economically active people. The value of human capital is characterized by the knowledge, ability and talent base, its utilization and productivity. Investments in human capital are education, health care, professional training and other activities that make people more productive economically. When the number of people is decreasing, and the population is aging, it is essential to maintain the value of the human capital base in Latvia and increase its productivity.

Similarly, it is possible to define the human capital for other territorial units – region, municipality, city, etc.

Human capital and better options for its development and utilization are studied because their importance is constantly increasing. Human capital is one of the main determinants for regional growth. A high level of education promotes innovation in facilitating the creation of new knowledge and techniques and their rapid spread and acceptance. Consequently, the regional development is closely linked with the ability to create, retain and attract human capital, which in turn is linked to the region's educational quality and lifelong learning opportunities [2].
Evaluating the Latvian case, there are certain problems in this area. One of them is social inequality. Social inequality in the long run can significantly reduce the country's main resource - human capital - the economic potential and growth opportunities, so one of the Latvian sustainable development challenges is to reduce social and economic inequalities and poverty risks, promoting social integration and formation of stable middle class society [1].

One of the indicators used to evaluate human capital, is the number of the population in the region under consideration. As to the existing relationship between the number of people and well-being, the three approaches are as follows:

1. optimistic – the number of the population is a significant factor in the creation of knowledge that may lead to progress;
2. neutral – based on empirical research results about negligible impact of population growth on economic growth;
3. pessimistic – proposed by Thomas Malthus about the limited resources in the absence of technological progress. This approach is also justified by the situation that when the population is growing rapidly, most part of the wealth created by the progress is directed towards satisfying growing public needs and not towards increasing the welfare of the existing members of the society [3].

Consequently, in assessing the changes of the number of population and their impact on the economic development, there exist different approaches, thus without further in-depth analysis it is not possible to regard the situation of the Latvian demography as unambiguously bad.

Moreover, we should not limit ourselves to the quantitative analysis, assessing only the number of population. It is necessary to carry out the qualitative analysis too, by assessing the parameters such as:

1. the structural composition of the population by age (people under working age, those of working age and over the working age);
2. the level of education that describes the knowledge and skills to improve economic productivity and the level of economic prosperity; besides, education can have a positive impact on the cultural level, as well.

The region is defined as a meso-level political entity between the national or federal and the local level, having a certain cultural or historical homogeneity, but also having a minimum legal power to intervene and promote the economic development, especially innovations [4].

This definition provides a set of preconditions which are necessary for the establishment of the region, such as, defined area, available natural resources and population. Otherwise, cultural and historical development is not possible, and there is also no need for any governance. Consequently, the separation of the region is based on its territory.

In Latvia are six statistical regions based on the European Parliament and Council Regulation (EC) No. 1059/2003 approved on 26 May 2003 on the establishment of a common classification of territorial units for statistics (NUTS). Latvian statistical regions are as follows:

1. Riga (includes the city of Riga);
2. Pieriga (includes 28 municipalities and one major city - Jurmala);
3. Vidzeme (includes 25 municipalities and one republican city - Valmiera);
4. Kurzeme (includes 18 municipalities and two republican cities - Liepaja and Ventspils);
5. Zemgale (includes 20 municipalities and two republican cities - Jelgava and Jekabpils);
6. Latgale (includes 19 municipalities and two republican cities – Daugavpils and Rezekne) [5].

III. INCOME INEQUALITY

Inequality can be observed in different forms, but income inequality is one of the mostly used and important. Amount of income and level of income significantly determine quality of person’s life and opportunities. Greater difference of income between inhabitants of region can create more expressed disparities in quality of life between members of society. At regional perspective, that can sufficiently affect different decisions of population and thereby – trends and options of social and economic development.

Nature and character of income inequality can not be described unambiguously. Many indicators describing individuals or regions, such as education, health conditions, family situation, size of market, activity of business environment and other can be both – factors that create/ influence income inequality and result of income differences. Nevertheless, significance of income inequality in different fields of society’s life is undoubted. Research about 33 countries [6] shows, that income inequality is correlated with differences in trust, health expenditures, life expectancy and mortality.
Education expenditures impact inequality – greater contribution in human capital ensure greater possibility to reduce inequality. Still, in many developing countries there is no good result after increasing education expenditures. It can be explained by problems in effective usage of resources and ensuring qualitative education. [7]

Of course, income inequality is not only problem at individual/ regional level. It is significantly dependent on situation and decisions at national and global level. By example, research [8] concludes that income inequality in 10 Central- and East-European countries was promoted by:

1. increase of private sector;
2. decrease of influence of state redistribution system;
3. social exclusion of ethnical minorities;
4. rapid inflow of foreign capital.

Within the same country, it is topical issue why one region develops while some other region – not, if there is the same historical development and/ or the same political strategy.

There is also a discussion about impact of income inequality on economic development – whether it is stimulating or disincentive. Income inequality has a negative effect on economic growth in the early stage of economic development, but has a positive effect on economic growth near a steady stage. [9] That can partly explain different trends and level of development in regions within one country.

IV. ECONOMIC DEVELOPMENT

Before analyzing the concept of the economic development and the evaluation indicators of this process, the difference of the two concepts – the development and growth should be emphasized, because these terms are often used in describing the processes as identical. We understand the concept growth as the process of growth (or the result) of the amount, number, value, force, that is, extensively. The concept development is synonymous with evolution and progress – it includes a shift away from a simpler (lower) to a stronger, more mature, or more complex form or stage [10].

In the Latvian National Development Plan [11] the development is defined as benefiting for public process of improving the natural, cultural, social and economic environment. In turn, economic growth is defined narrowly as the increase in goods and services produced in the national economy. It is usually measured by the increase in real GDP. These definitions lead to two conclusions: firstly, the development of society as a whole is a favorable progress. However, there may be cases where any environment (natural, cultural, social or economic) development can only be beneficial for certain groups in society, without prejudice to the other groups, or even causing harm to their interests. In addition, the development of each individual environment can be a disturbing factor to the process of development of another direction (e.g., conflict between cost minimization in companies and the environment). Secondly, understanding economic growth just by real GDP growth is essentially equivalent to the process of favorable economic performance, in other words - economic growth is only one of the "components" of the concept development.

The research "Methodological solutions for assessment of the regional policy and territorial development" [12] describes the development using four dimensions, see Fig.1.

**Fig.1 Dimensions of sustainable development and links with them [12]**
Consequently, if sustainable development is planned (i.e., one that has no negative impact on the potential development of future generations), an integrated approach is needed. Both economic and social, environmental and institutional dimensions are significant. One should take into account another essential aspect that the overall development does not depend only on the success of various dimensions, since the development of dimensions is mutually dependent, too. Thus, the social dimension, which includes human capital, is affected by the environmental dimension, for example, human health. The institutional dimension may affect the creativity and performance incentives through the activities of administration, in turn, the economic dimension may leave an impact, for example, through the level of welfare and its influence on human development and improvement opportunities.

The concept of "economic development" can be defined by looking at the various processes contained therein:
1. development in the economy from the agricultural production making use of simple technologies to industrial production and a wide range of services using advanced technologies;
2. cumulative (accumulative) per capita income growth accompanied by structural and institutional changes [13].

Economic development together with the changes in production growth as a whole or per capita includes fundamental changes in the economic structure. The main economic players are residents of a particular country. If only a small part of the population benefit from the growth, we should not regard it as development [13].

Evaluating the development of the Latvian economy, Latvian Ministry of Economics uses the following parameters [14]:
1. Gross Domestic Product (divided into groups - private consumption, government consumption, gross fixed capital formation, export, import);
2. consumer prices;
3. general government balance (relative to GDP);
4. general government debt (relative to GDP);
5. employment trends;
6. unemployment rate (unemployment rate of the economically active population).

In addition to the indicators mentioned above, to describe the economic situation in the country and by regions the Latvian State Regional Development Agency also uses indicators such as:
1. total value added by kind of activity;
2. non-financial investments;
3. economically active market sector statistical units by business forms, size groups and activities;
4. economically active individual merchants and commercial companies;
5. personal income tax revenue in local government budgets [15].

Similarly as in Fig. 1, the above mentioned evaluation methodologies of the economic development use different types of indicators, thus emphasizing the complex nature of the economic development, different manifestations of variations and the vast range of influencing factors.

V. DEVELOPMENT TRENDS OF LATVIAN REGIONS

In Latvia, there are substantial differences between statistical regions in terms of social and economic development. In table 1 is collected data about 4 indicators, describing situation in regions, and average dynamics of changes is calculated.

Level of social and economic development of regions in Latvia is very different. In Latvia, as well as in all regions except Priekuļi, number of inhabitants is decreasing, (in average in the period under consideration). The most economically active region is Riga region – there is highest GDP per capita and highest gross wages and salaries. At the same time, in Riga region is also high income inequality that could mean some social problems in this region.

The most rapid decrease of number of inhabitants is in Latgale region. As it can be seen, in this region are lowest GDP per capita (although average changes are the greatest, still, dynamics is not enough fast to change range of region) and lowest gross wages and salaries. In year 2004 in Latgale region is the highest GINI coefficient, but it is unevenly changing in the period under consideration in all regions. So, in year 2013, in Latgale region GINI coefficient is the lowest one comparing with other regions. This situation cannot be perceived as great improvement, as income inequality is relative indicator and lower income inequality in the region with low average income may mean decrease of income in the highest income groups. At the same
time, there is high income inequality in Latvia that shows wide gap between poor and rich people, as well as between regions, as there is steady the same range of regions in the terms of income.

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of inhabitants</th>
<th>GDP per capita, EUR</th>
<th>Gross wages and salaries, EUR</th>
<th>GINI coefficient, %</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>At the beginning of year 2000</td>
<td>Average changes per year (period 2000 - 2015), %</td>
<td>Year 2000</td>
<td>Average changes per year (period 2000 - 2012), %</td>
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<tr>
<td>Riga</td>
<td>766381</td>
<td>-1.18</td>
<td>4786</td>
<td>11.56</td>
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<tr>
<td>Pieriga</td>
<td>358099</td>
<td>0.17</td>
<td>2237</td>
<td>12.00</td>
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<td>Vidzeme</td>
<td>256087</td>
<td>-1.67</td>
<td>1775</td>
<td>11.48</td>
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<tr>
<td>Kurzeme</td>
<td>322221</td>
<td>-1.55</td>
<td>2535</td>
<td>10.70</td>
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<tr>
<td>Zemgale</td>
<td>293267</td>
<td>-1.27</td>
<td>1816</td>
<td>12.34</td>
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<td>Largs</td>
<td>385660</td>
<td>-2.08</td>
<td>1414</td>
<td>13.07</td>
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<tr>
<td>LATVIJA</td>
<td>2381715</td>
<td>-1.20</td>
<td>2863</td>
<td>11.73</td>
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In the situation of such different level and dynamics of social and economic development of Latvian regions, there are many topical questions – what creates these differences, how they affect development of country and how to change the situation in less developed regions?

VI. ROLE OF INCOME INEQUALITY AND HUMAN CAPITAL IN THE ECONOMIC DEVELOPMENT OF REGION

Since the economic development is mainly assessed by the indicators of added value, generated in the economy, the factors required for the development of production (in the broad sense, including the service industry), namely, land, labour and capital affect the promotion of the economy. Accordingly, we should also take into account the demand driving factors. Today, however, human capital is of paramount importance.

Economic analysis easily explains the sustainable economic development in the long run, in a number of countries. In these countries, the income per capita has increased due to the growth of land and physical capital (per worker), which reduced the return on the additional capital and land resources, and ultimately excluded further growth. However, over the last 100 years or more, the income per capita has steadily increased in several European countries, as well as, in the U.S. and Japan. Perhaps, this can be explained by the positive impact of scientific and technological knowledge on the productivity and other resources necessary for the production. Use of knowledge to develop production has significantly increased the value of education, technical training and internship training. The countries that have seen a constant rise in incomes have increased investment in training workforce. Japan, Taiwan and the other Asian economies have shown how essential role of the human capital is for the economic growth. In spite of the scarce natural resources and discrimination from Western countries, these countries provided quick economic development due to well-trained, educated, hard-working and conscientious workforce. Significant evidence of a link between human capital and technology can be seen in farming. In countries with the traditional economic systems, the agricultural workers are the least educated part of the labor force. However, in the developed countries, the farmers are as well-educated as industrial workers; because, education helps them quickly adopt the new technologies [16].

This part of the study analyzes the situation in Latvian regions to determine whether the income inequality and human capital affects the level of their economic development, or in other words, whether the disparities of the economic development among regions are due to the differences in their human capital and income inequality. We selected the statistical regions because it was stated in the draft of the National Development Plan for 2014-2020, as well [17]. The inequality exists between regions and local governments, both in terms of their income and economic activity, as well as access to services, which creates a distinctly different quality of life for population in various territories. This situation contributes to the drain of the economically active population from less developed to more developed areas, which together with the low level of productivity further reduces the opportunities for growth and jobs in the less-developed areas.

The study uses a number of economic development performance indicators and evaluates their relationship (dependency) from a variety of indicators, characterizing the income inequality and human capital, in order to draw conclusions about the impact of income inequality and human capital on the sustainable economic development of the Latvian regions. The analysis of the following characteristic parameters of the economic development is presented:

1. GDP per capita is the indicator of the extent of the value created, taking into account the differences in the number of the population in regions to get a more objective comparison;
2. unemployment rate is the indicator of untapped human potential for value creation, leaving an impact on the level of welfare too;

3. demographic burden is the indicator of the region's public distribution by age groups. To calculate the indicator, we use the details about the number of people under working age, those of working age and over working age. It also characterizes the existing public burden imposed on the people of working age;

4. amount of non-financial investments is the indicator, characterizing the development opportunities, and it also shows the attractiveness of the region in the eyes of investors;

5. average monthly wages and salaries represents the level of the welfare of population, it is also bases for the personal income tax revenue that goes to local government budget and determine the local government development opportunities;

6. the number of the economically active statistical units characterizes economic activities in the region under consideration and also provides opportunities for the current (or the potential) job creation.

Fig. 2 presents the economic growth rates of the statistical region analyzed and our hypotheses about the factors affecting them.

We use the indicator of gross domestic product per capita, as this represents the value generated per capita of the relevant region, thus allowing to compare the situation in different regions, where the number of the population is different. We evaluated three essential aspects. The first aspect is as follows: Do income inequality affects economic activity and productivity of workers/ inhabitants? The second aspect: Does more population mean more opportunities for the development, or does the division of the value created per larger population lead to the decline of this index and, hence, to the decline of the level of economic development? The third aspect: Does human capital through better education provide and contribute to the economic development of the region? The analysis of vocational and higher education was also made.

Correlation between level of unemployment and two indicators, describing income inequality, can be viewed in both directions – are risk of poverty and income inequality factors influencing possibility/ volition to enter the labor market and/ or do unemployment affects poverty and widens the gap between income groups?

We analyze impact of number of population to different economic indicators, such as non-financial investments, gross wages and salaries and number of economically active statistical units to verify, does bigger regions (by population) are economically more active, attract more assets and can ensure better monetary situation for inhabitants. In other words – is there a positive synergy between bigger number of inhabitants?

To describe influence of income inequality on economic development of region, we analyze impact of income inequality on amount of non-financial investments, as the indicator of attractiveness of region. Also, impact of at-risk-of-poverty rate on gross wages and salaries and number of economically active statistical units was made.

By using indicator demographic burden we are indirectly characterizing structure of population in region that can cause different directions of development, as well as create some social and economical problems.
There is no significant correlation between unemployment rate and number of population, so we can leave hypothesis about greater competition between people as well as hypothesis about more opportunities in bigger social creations – they are not proved in cross section of Latvian regions. Also, unemployment rate is not significantly affected by at-risk-of-poverty rate. Income inequality (GINI coefficient) does not affect GDP per capita and amount of non-financial investments, so there is possibility of growth also in situation of unequal income. Number of population, as well as number of working age population do not affect demographic burden stable. That means that demographic burden in region is more dependent on number of people under working age and over working age.

In table II are compiled results of correlation analysis that was carried out by comparing situation in Latvian regions each year in the period under consideration (years from 2000 to 2013, but depends on the data availability). Table II contains only part of results – there are included only significant and stable correlations.

### Table II. Coefficients of Linear Correlation (Authors Compilation, Using [5])

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<tr>
<td>GDP per capita</td>
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<td>At-risk-of-poverty rate</td>
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<td>-</td>
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<td>Number of people having higher education</td>
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<td>Non-financial investments</td>
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<td>Average monthly gross wages and salaries</td>
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<td>Number of economically active statistical units</td>
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<td>At-risk-of-poverty rate</td>
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<td>-0.87</td>
<td>-0.72</td>
<td>-0.54</td>
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<td>Number of population</td>
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GDP per capita is strong and negatively correlated to at-risk-of-poverty rate. So, social and economic situation in region are very closely linked to each other. This correlation, as well as with average wages and salaries and number of economically active statistical units, can be discussed also as reversed – that at-risk-of-poverty rate is a result of economic situation in the region. Then the logical chain is as follows: small number of economically active statistical units – low GDP per capita – small average wages and salaries – high at-risk-of-poverty rate. But we should take into account also initial setting – people at-risk-of-poverty have less possibilities to start a business due to limited resources, knowledge, social network and other factors. Such restrictions can lead to smaller number of companies (especially SME) and not-created value (GDP). Also, continued status of being at-risk-of-poverty and understanding of it leads to feeling of inequality and affects people motivation to work/ work better and to start business. One more very important aspect is that greater share of lower-income population also changes the market and decreases possibility to receive higher profitability and that leads to lower economic activity.

During the entire period, the correlation coefficient between GDP per capita and number of population is positive and very close to 1. That means that the number of the population in the statistical region has a significant impact on the achieved level of the economic development and future opportunities. In addition, the significance of the effect of the sample period is increasing. Consequently, there is a negative trend in population changes in Latvia as a whole and also by regions, and the number of population leaves a more essential impact on the regional economic development. This may be due to the availability of labor in the region for value creation as well as the range of consumers and the available infrastructure, which may also be affected by the number of the population in the region.

Education is a factor increasing the quality of human capital – the higher level of education of people, the more knowledgeable they are, the better they understand processes and the more capable they are to produce products with higher added value and use better methods of work. The hypothesis is confirmed – the number of population with vocational or
secondary education is an essential factor – the higher it is in region, the higher GDP per capita. During the period under consideration, the increasing tendency in the number of people with higher education was observed in all statistical regions. This factor has had a positive effect on GDP per capita. An essential factor is also the direction of higher education and, of course, the level of the acquired knowledge and practical application skills.

Analyzing the non-financial investments over the years, depending on the number of population in the statistical region, the impact of factor in the whole period under consideration is direct and the relationship is strong. This means that the larger the population in the region, the higher financial investments is attracted. If the region has a larger number of the population, it is more attractive to investors. The amount of human capital in the region is a significant factor, when making the investment decisions. This relationship can be explained by the above-mentioned positive impact of number of population on infrastructure network and formation of bigger sales markets and other positive aspects.

The number of population leaves a direct and significant impact on the number of economically active statistical units. The higher number of population in the region, the more opportunities emerges for launching business activities there. These results can be interpreted as contradictory, when compared to the factors considered judging about the impact on the unemployment rate. It should mean that greater number of the economically active statistical units (which is positively affected by a higher number of the population) provides lower unemployment rate. However, we should take into account a number of key aspects, which reflect the actual situation. First, not all the economically active statistical units are the same – the economically active statistical units include both self-employed and individual merchants and commercial companies, both agricultural and fish farms. The capacity of these statistical units to provide jobs, hence to reduce the unemployment rate is different – both the kind and the size of the business unit are essential. Secondly, we should also take into account the possibility of the inter-regional labour migration without changing the place of residence, so the regions in which the number of the active statistical units is smaller, may still develop a lower unemployment rate than regions in which this number is greater. The third aspect is the indicator of the unemployment rate – number of the unemployed, the true extent of which, in most cases, causes a problem. Not all job seekers register officially and not all the unemployed, who officially register, are really unemployed in the full sense of this status (the reason could simply be the unwillingness to find a job, as well as the illegal employment).

VII. CONCLUSIONS

After the analysis carried out during the study, we can draw the following conclusions:

1. The economic development of the region is a process that involves changes of natural, cultural, economic and social environment favorable for the whole society. The concept of economic development is broader than the concept of economic growth, which is most often expressed by the product value. However, as the economic growth is part of the economic development process and can be measured quantitatively, it is often used in the evaluation of the economic development.

2. Income inequality influences economic development of region in different ways – changes market (demand and profitability), influences motivation and possibilities to increase labor productivity as well as decrease opportunities (financial, social and psychological) to start a business.

3. Number of population is very important factor that significantly influences such economic development indicators as GDP per capita, number of economically active statistical units, average gross wages and salaries, and amount of non-financial investments. Having regard to negative trends – reduction of number of population in regions, economic development of these can be treated or even impossible in the near future.

4. Importance of human capital to ensure economic development of region can be proved also by very strong and positive impact of number of educated people to GDP per capita.

It is critically important for regional development policy makers to understand very significant positive role of number of population and education of inhabitants, as well as negative impact of income inequality. To ensure sustainable economic development of region, it is highly relevant to provide favorable conditions for successful social development.

In general, it can be concluded that the role of income inequality and human capital for ensuring and/ or accelerating the economic development of region is significant. Of course, we should be aware that many, often very complex factors affect each of the above mentioned indicators for the development of the region.

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BIography

Svetlana Ivanova is lecturer at the Faculty of Engineering Economics and Management of Riga Technical University and at Riga Technical University Liepaja Affiliation. She received Master degree in International and Regional Economics at Riga Technical University in 2011. She research interests focus on regional development, income inequality, sustainable development and national economics. She teaches undergraduate and postgraduate courses in Statistics, Economic analysis and Economic forecasting at the Riga Technical University.

Liga Kamola is assistant professor at the Faculty of Engineering Economics and Management of Riga Technical University. She received Master Degree in Public Administration in University of Latvia in 2007 and Master Degree in Education Science in University of Latvia in 2005. She research interests focus on human capital development, urban economic, sustainable development, education and national economics. She teaches undergraduate and postgraduate courses in Introduction in study field, Research methodology and Macroeconomics at the Faculty of Engineering and Management in Riga Technical University.

Uldis Kamols is assistant professor at the Faculty of Engineering Economics and Management of Riga Technical University. He received Master Degree in Management and Entrepreneurship in Riga Technical University in 2007 and Master Degree in Economics in Riga Technical University in 2005. He research interests focus on city development, urbanization, city and national economics. He teaches undergraduate and postgraduate courses in Economics, European Union co-financed project management, Urban Economic and Social Environment at the Faculty of Engineering Economics and Management of Riga Technical University.

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