SUSTAINABLE DEVELOPMENT, ECONOMIC GROWTH AND DIFFERENTIATION OF INCOMES OF LATVIAN POPULATION

Ilga Lavrinovich[1], Olga Lavrinenko[2], Nikolajs Jefimovs[3]

[1, 2, 3] Daugavpils University, LV-10225 Daugavpils, Latvia
E-mails: *[1]ilga.lavrinovica@du.lv, [2]olga.lavrinenko@du.lv, [3]geliogabal@inbox.lv*

Abstract. Economic growth and income differentiation problems are the most actual problems of modern research. The research is attributed to sustainable development research area. In a case of Latvian economy these problems have a huge actuality because of lack of researching works, where these parts of science are completely opened. Special interest causes question about the trajectory of economic growth and and uneven income. If GDP growth is connected with increasing income differentiation of population, then increasing income differentiation absorbs part of the effect on the growth of aggregate income. If GDP growth is on the background of lower income differentiation, the increase in total income is supplemented by regularity of revenue growth. Thus the social effect of economic growth increases significantly. What trends are taking place in income differentiation by regions and economic development of the regions in Latvia after the EU accession? What trends are taking place in interregional differentiation in income per household member, and in GDP? Is there a relationship between trajectories of economic growth and income differentiation in the regions of Latvia?

Keywords: economic growth, sustainable development, differentiation of incomes, economic development, inter-regional inequality, amplitude coefficient, coefficient of variation.

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JEL Classifications: A1, A10.

1. Introduction

At present the problem of uneven economic development of Latvia and other countries is becoming increasingly popular. However, most studies devoted to the uneven economic development, not tied to the main macroeconomic problem - the problem of economic growth. Recently this issue has been included into economic development or sustainable development research area (e.g. Torado, Smith 2009; Dudzevičiūtė 2012; Lankauskienė, Tvaronavičienė 2012). Unanimously, reducing of tremendous income inequality differences is seen as sustainable development target

In Central and Eastern Europe, large-scale reforms in the 1990s led to a deep recession, accompanied by increased inequality. Meanwhile, China's constant an-

nual growth of the Gini coefficient by 2 percentage points was observed during 1990-2001 in the background of a booming economy (Wei *et.al.* 2011). Thus, the income differentiation can occur on the background of economic recession, and on the background of economic growth. Localization of GDP growth in the small area means, that high rates of economic growth can come into conflict with the growing prosperity of the vast majority of the population.

Accordingly, high rates of economic growth may be accompanied by an enrichment of the rich contingent of the population against the depletion of other social groups. In this case, the usefulness of the economic growth can be questioned. Along with this, the opposite phenomenon could happen, when economic growth is accompanied by an equalization of

incomes (Fournier, Koske 2012). If GDP growth is accompanied by increasing income differentiation, the increase in income inequality absorbs part of the effect on the growth of common income. If GDP growth is on the background of lower income differentiation, the growth of common revenue is complemented by the increase of income uniformity. Thus, the social effect of economic growth is increasing.

The purpose of the article: to set trends in income differentiation of regions and regional economic development, that taking place in the period from 2004 to 2009, as well as to answer on question about their relationship.

Research object and methods: The problem of relationship of economic growth and changes in income inequality in Latvia has several aspects.

One of them is connected with the establishment of an econometric dependence between these two phenomena. However, this approach should be recognized as the unpromising, due primarily to the fact that the above trends have to be watched for a long period of time. But a long period of time is a period of economic recession and periods of economic growth, which makes impossible meaningful use of the correlation analysis of the two phenomena. Construction of multifactor econometric models is also impossible, since there is a lack of statistical data due to insufficient length of time series. In connection with the above-described problems, the authors will study the defined problem using methods of logical analysis.

Inter-regional inequality is estimated by the coefficient of scatter and coefficient of variation. In calculation formulas their form has a view:

$$K_R = \frac{X_{\max} - X_{\min}}{\overline{x}}; \qquad (1)$$

$$V_\delta = \frac{\sigma}{\overline{x}}. \qquad (2)$$

where, K_R – coefficient of sweeps, V_δ - coefficient of variation, $X_{\max}$ and $X_{\min}$ – the largest and smallest value of feature; $\overline{x}$ – medium value of feature.

Increase of the amplitude coefficient and the coefficient of variation directly indicates the increase of feature variation in the examined aggregation. Thus, analyzing the dynamics of these factors in connection with key parameters it is possible to give a qualitative and quantitative characterization of the growth process of the existing differences. Inequality of in-

come per household member is assessed by the Gini coefficient. Empirical base of research are the data of Central Statistical Bureau of Latvia.

2. The discussion and results

The representatives of the *liberal economy* emphasize the dominant role of economic growth on income raising. Steady growth in the economy linked, in terms of liberal economy, with a free economy, increase worker productivity and reducing unemployment.

A wide range of studies illustrate the large beneficial effects of product market liberalisation on productivity, but the impact on labour income inequality is uncertain. Product market liberalisation generally raises employment, but this inequality-reducing effect could potentially be offset by a wider dispersion of earnings, though the evidence on the latter link is far from conclusive (Bourlès, 2010; Griffith *et.al.* 2007; Guadalupe 2007; Koske *et.al.* 2012).

Proponents of the liberal economy are considering free market as the most efficient economic system, which is as effective in solving social problems. Therefore, they do not approve state intervention as a method of reducing poverty and require the restriction of the welfare state. Generous social protection, in their opinion, is a disincentive to work and promotes the formation of single-parent families. The welfare state, in their view, can only for a short period of time to raise incomes, but in the future, because of its negative effects on the growth of the economy; finally it could lead only to a deepening of poverty. High social transfers stable the labor market and can't reduce taxation. Often, however, the growth of income inequality is often shaped by the increasing concentration of income at the top of the income distribution (Hoeller 2012). In many countries this fact is worsen by the decrease of taxes on capital incomes and inheritance. Indeed, capital income tends to be increasingly concentrated in the upper income brackets, as do wealth and inheritance, that's why, in the authors' opinion, the liberal approach deserves criticism (Piketty 2010; Fredriksen 2012).

Structural theory points to changes in the demographic structure, as a factor that increases the possibility of low-income (Lisauskaitė 2010). The researchers, based on this theory, usually take into account women's participation in the labor market, population

of elderly people, children in single mother families, immigration (Polityka Unii Europejskiej 2008; Stávková *et.al.* 2011). Although the relationship between women's participation in the labor market and low income, in the opinion of the authors, is not always clear. Skills of workers are also an important factor in income inequality in technological progress (Goos *et.al.* 2009).

Structural policies in the areas of education, labour and product markets influence labour income inequality by affecting *i*) the employment rate and *ii*) the dispersion of earnings among those that have a for a detailed discussion job (Koske *et.al.* 2012).

Institutional Economics points to institutional factors that generate differences in the amount of wealth (OECD 2011, 2012). Observed between states, as well as between social groups in the country the difference in income derived from the degree of income redistribution, which can be solved by the state, as well as the level of social transfers aimed at helping the poor. Supporters of the welfare state argue that the extension of social protection is the most important factor that reduces poverty (Rethinking Poverty… 2009). Low-income workers, working on temporary labour agreements, earn less than workers with similar professional skills on permanent labour agreements (Fournier, Koske 2012). Adequate protection for employees with temporary or permanent agreements can also reduce the income gap between immigrants and citizens (Causa, Jean 2007).

According to the American economist Paul Krugman[1] institutions, norms, and political environment mean for the distribution of income much more, than objective market forces: "a key role in increasing inequality (in the U.S. (note the authors of the article)) played the erosion of social norms and institutions that once supported the equality" (Krugman 2007).

Thus, economic growth in the regions and the distribution of its results, which involves the state, are deeply connected. Their optimal ratio (a condition of healthy development) including growth itself, without which, of course, would be nothing to distribute. The degree of income equality is influenced by many circumstances of the multiple factors. Here are property income, and the level, quality education, which, in contrast, reduces the differentiation, and finally, the level of employment, and much more. Equally important is the state - its social policy, if it is aimed at redistribution of incomes and increase of social spending.

Based on the objectives of the research, the authors identify emerging trends in the period from 2004 to 2008 in the inter-regional differentiation of the average income per household member and per capita GDP, as well as in the differentiation of income within each region.

3. Trends in average income per household member in Latvia and by region

The study found that there is a tendency of increase in average income per household member in Latvia during the period from 2004 to 2008: medium income increased from 100 lats to 253 lats (153% increase), but the inflation index in the same period (January) increased only to 42.2%. In the period from 2008 to 2009 due to the crisis, the average income per household member in Latvia decreased from 253 to 213 lats (16% decrease), the inflation index in the same period increased by 9.8%. Similar trends were observed across regions.

The medium income per household member in Latvia in 2000 was 78% of the minimum consumer basket; medium income in 2005 equaled the value of the minimum consumer basket. In the period from 2006 to 2009 average income per household member grew much faster than the value of the minimum consumer basket and signs of the crisis were not noticeable. Talking about families in which each member of the household accounts less than a set of minimum consumer basket, their number decreased from 81% of all Latvian households in 2000, to 65% - in 2005, to 56% - in 2007, to 47% in 2008, and up to 40% in 2009 (Voronov, Lavrinenko 2011).

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[1] The central theme of Krugman's statements as a theorist and publicist - study the reasons why, since the mid-'70s, the U.S. has intensified the uneven distribution of income between the participants of production before and after its redistribution through the state. The author traces the impact of this trend on the political system and social situation in the country. He also asks that the state can do in order to return to the position of a relatively more even distribution of income created by "New Course" of Roosevelt, and lasted for more than thirty years.
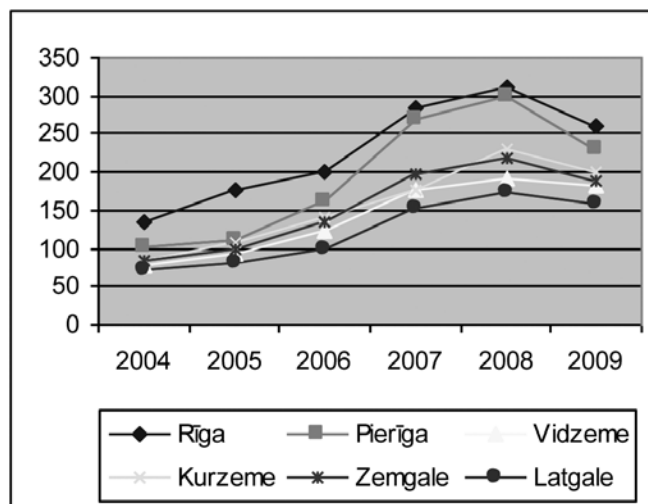
Fig. 1. Average incomes per household member by region in 2004-2009

Source: CSB.

The lowest average incomes per household member, during the entire research period, were in Latgale: in 2004 - 73 lats in 2009 - 159 lats (Fig.1). The highest average income per household member, during the entire research period, were observed in the Riga region 135 lats in 2004, and 260 lats in 2009 (see Fig.1).Trends in income inequality in the average per household member in Latvia, between and within regions.

The value of the Gini coefficient in Latvia during the period from 2004 to 2007 increased by 1.6 percentage points (from 36.4% to 37.7%), and the beginning of the crisis period is characterized by a decrease of the Gini coefficient to the level of 2004.How the inter-regional disparities in income per household member has changed? Calculated by formulas (1) and (2) coefficient of scatter and coefficient of variation, we have in the Table 1.

Table 1. The coefficients of scatter and the variation in income average per household member between the regions of Latvia in 2004-2009

	2004	2005	2006	2007	2008	2009
K_R	0,66	0,86	0,71	0,63	0,57	0,50
$K_{R\%}$ (2004 г.=100%)	100	130	107	95	85	75
V_δ	0,25	0,30	0,25	0,26	0,23	0,18
$V_\delta\%$ (2004 г.=100%)	100	122	99	104	94	72

Source: authors', CSB.

Thus, it was found that the inter-regional differentiation of income average per household member in the period from 2004 to 2009 decreases: the coefficient of scatter is reducing by 25%, coefficient of variation - 28%.

Having examined the trends in the Gini coefficient within the regions we can say, that they have different directions (see Fig.2).
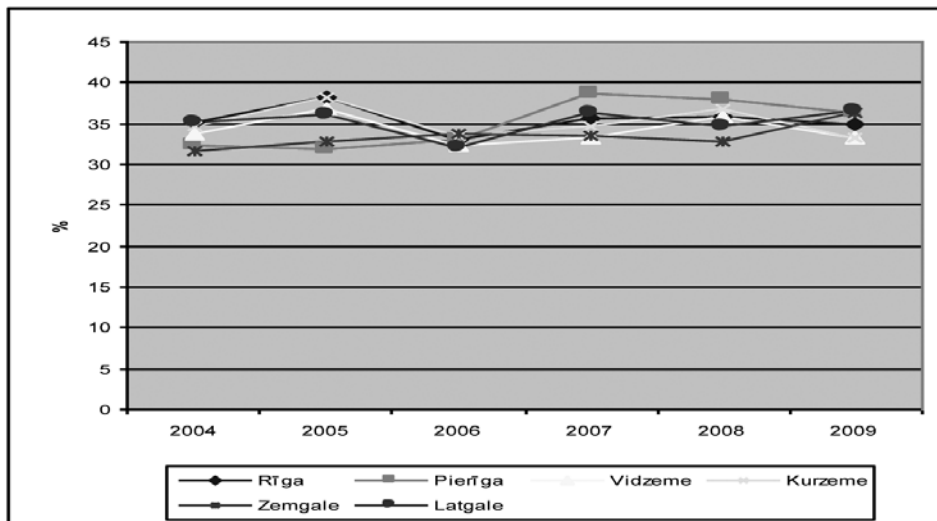
Fig. 2. The Gini coefficient within the regions of Latvia (%)

Source: CSB.

Trend of increasing Gini coefficient in the period from 2004 to 2009 took a place in Pierigas, Zemgale and Latgale regions: in Pierigas region the rate increased by 3.9 percentage points (from 32.4% to 36.3%), in the region of Zemgale - by 4.7 percentage points (from 31.7% to 36.4%), in Latgale – by 1.3 percentage points (from 35.2% to 36.5%). In contrast, in region of Riga, Vidzeme and Kurzeme, the Gini coefficient had a trend of slight decrease: in the Riga region by 0.2 percentage points (from 35.1% to 34.9%), in Vidzeme - by 0.5 percentage points (from 33.8% to 33.3%), in Kurzeme - by 1.3 percentage points (from 34.6% to 33.3%).

In all likelihood, in the case of a regional discrepancy of incomes the following rule applies: the level of irregularity should not be too high, and it should not be too low. For example, the empirical analysis shows that the Gini coefficient in the developed countries, as a rule, does not fall below 0.20, while exceeding the mark of 0.45 indicates a crisis in the social sphere. Thus, the policy of state regulation should not be designed to achieve full equalization of incomes. At the same time it must not be implemented without any understanding that as a result can cause huge differences in incomes.

4. Economic growth in Latvia and regions

In general, it is observed the increase of GDP in Latvia from LVL 7,434,454 in 2004 to LVL 16,188,232 in 2008. Analyzing the economic development of regions, it is noted, that in all observed regions the value trend of the gross domestic product is increasing. In the Riga region, according to the financial data of 2008, the GDP makes more than a half of common state GDP - 54.1%, in Pierigas region - 12.7%, in Kurzeme - 10.4% in Latgale - 8.4%, in Zemgale - 7.6 %, in Vidzeme - 6.6%. However, the situation differs, considering the per capita GDP by regions. The region with the lowest GDP per capita is the Latgale region (3926 lats in 2008), slightly higher GDP in the region of Zemgale (4378 lats in 2008), then in Vidzeme region (4503 lats in 2008), then - Pierigas region (5370 lats in 2008), then – region of Kurzeme (5579 lats in 2008), and the leader, of course, is the Riga region - 12 234 lats per capita in 2008.

Thus, it is concluded, that the per capita GDP trend in the period from 2004 to 2008 has an increasing rate (Fig. 3).
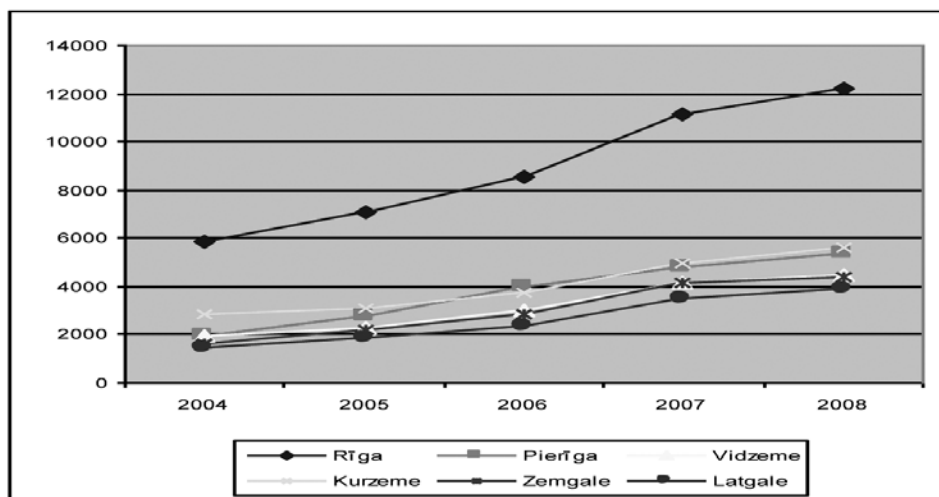
Fig. 3. GDP per capita by regions in 2004-2008 (lats).

Source: data from CSB.

In Riga region there was an increase of per capita GDP in the analyzed period by 108%, in Pierigas region – by 171%, in Vidzeme - by 135%, in Kurzeme - by 96%, in Zemgale - by 163%, in Latgale - by 163% (2004=100%)

The authors found that there are decreasing trends in the differentiation of the regions in per capita GDP in the researched period. It is evidenced by decreased values of the coefficient of variation and the coefficient of scatter - 18% and 17% respectively (see Table 2).

Table 2. The coefficients of scatter and the variation of GDP per capita between the regions of Latvia in 2004-2009

	2004	2005	2006	2007	2008
K_R	1,67	1,61	1,52	1,41	1,39
K_R % (2004 г.=100%)	100	96	91	84	83
V_δ	0,63	0,60	0,56	0,52	0,52
V_δ % (2004 г.=100%)	100	95	88	83	82

Source: authors', CSB.

Thus, the investigation of the trajectories of economic growth (GDP per capita) and the dynamics of differentiation of the medium income for a household member between the regions indicates, that inter-regional differentiation of medium income per household member and per capita GDP in Latvia decreased in the period from 2004 to 2008. Regarding to income inequality per household member in each region, it could be stated that there are opposite tendencies In some regions (Riga, Vidzeme, Kurzeme) on the background of increasing GDP per capita, level of income differentiation by one household member is reducing, that is increase of total income is complemented by the equality of income growth, which in turn increases the social impact of economic growth. In other regions (Pieriga, Zemgale, Latgale) the increase of total income is supplemented by the uneven growth of income, which reduces the social impact of economic growth.

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Conclusions

The research found that there is a tendency of increase in average income per household member in Latvia during the period from 2004 to 2008, during the period from 2008 to 2009 due to the crisis the average income per household member in Latvia decreased. Similar trends were observed by regions.

The lowest average income per household member during the entire research period was in Latgale, the highest average income per household member during the entire research period was observed in the Riga region.

The value of the Gini coefficient in Latvia during the period from 2004 to 2007 increased by 1.6 percentage points (from 36.4% to 37.7%), and the beginning of the crisis period is characterized by a decrease of the Gini coefficient to the level of 2004.

Having examined the trends of the Gini coefficient by regions we can say that they have different directions. In the period from 2004 to 2009 trend of increasing Gini coefficient is common for Pierigas, Zemgale and Latgale regions. In contrast, in Riga, Vidzeme and Kurzeme region, there was a trend of slight decrease of the Gini coefficient.

The per capita GDP has a tendency to increase in the period from 2004 to 2008.

The region differentiation of per capita GDP has a tendency to reduce in the required period.

Interregional differentiation in Latvia of average income per household member and per capita GDP decreased in the period from 2004 to 2008.

Regarding income inequality per household member in each region it could be stated, that there are opposite tendencies. In some regions (Riga, Vidzeme, Kurzeme) on the background of increasing GDP per capita, level of income inequality by one household member is reducing, that is increase of total income is complemented by the equality of income growth, which, in turn, increases the social impact of economic growth. In other regions (Pieriga, Zemgale, Latgale) the increase of total income is supplemented by the uneven growth of income, thereby reducing the social impact of economic growth.

Thus, we can not conclude that the increase in total income mediates the increase in income inequality within regions during the period from 2004 to 2008.

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