Income Differences in Regions of Latvia – Problems and Challenges

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Abstract

Income differences in regions of Latvia is becoming a greater problem for families as there are made decisions for emigration, for municipalities as there are significant reductions in tax (income and property) payers and for entrepreneurs as there are less customers for their products and services: those aspects are on great importance but not enough researched and discussed in academic research.

Purpose of the study is to analyse income differences in the regions of Latvia.

The tasks of the study:
1. to review theoretical background of income differences in context of regional development;
2. to review existing research of income differences in the regions in EU;
3. to analyse problems of income differences in the regions of Latvia.

Research methods used in preparation of the paper: scientific publication and previous conducted research results analysis, analysis of EU-SILC results (in 2014-2017) and European Central Bank conducted survey on Household income and expenses survey results, results are compared with the results of other Eurozone countries. Survey results are analysed using indicators of descriptive statistics (indicators of central tendency or location - arithmetic mean, mode, median), indicators of variability (indicators of dispersion - range, standard deviation and standard error of mean), cross-tabulations for regions in Latvia, for household members, for urban – rural living and analysis of variance - ANOVA are used. The results of analysis have indicated different challenges for decision makers on different levels.

KEYWORDS: income differences, regional development, Latvia

Introduction

The analysis of the regional inequality is essential for a country and it is also an important question whether the inequalities are growing or decreasing – such aspects are important for academic researchers - paper which deal with temporal change of spatial income and development differences (Dusek, et. al., 2014), it is stressed also that macroeconomic stability is on great importance (Daugelene, 2016).

According to the statistics, more than 600 thousand people left Latvia since 1991 (CSB of Republic of Latvia, 2019). Especially dramatic situation is in the regions. One of the reasons that may affect the population is income difference – income gap between the richest and the poorest cause economic tension.
Taking into account all mentioned before, the purpose of the study is to analyse income differences in the regions of Latvia.

In order to achieve the purpose, the tasks are formulated as follows:
1. to review theoretical background of income differences in context of regional development;
2. to review existing research of income differences in the regions in EU;
3. to analyse problems of income indifferences in the regions of Latvia.

Research methods used: scientific publications and previous conducted research results analysis, analysis of “The European Union Statistics on Income and Living Conditions” (EU-SILC) results (in 2014-2017) and European Central Bank conducted survey on Household income and expenses survey results (HFCS), results are compared with the results of other Eurozone countries. For statistical data analysis there are used main indicators of descriptive statistics (arithmetic means, standard deviations and standard error of means), t – test for testing differences of means by two independent characteristics – territories (cities and rural areas) and for testing differences of arithmetic means by six independent characteristics – regions of Latvia was used one of the most often used multivariate analysis method: analysis of variance – ANOVA.

Income differences have been analysed before as well as the origins of income inequalities. The oldest theory states that income inequality appears due to modernization, as the economies shift from low-income agricultures to higher-income non-agricultural economies. This hypothesis was first adapted in 1950s by economist Simon Kuznets, later followed by various studies conducted by other researchers up to this day. The Kuznets curve (Kuznets, 1955) describes a situation that happens due to industrialization – laborers leaving less developed areas of the country and moving to urban cities, therefore causing inequality gap between pay and welfare state. Since then Kuznets’ theory has been referred to other research agendas, e.g., when analysing regional dispersion of income inequality in Norway (Modalsli, 2018). Kuznets’ theory suggests that a rich economy should also be less unequal and the economic growth must be sustainable to reduce the levels of inequality. There has also been criticism on this theory, indicating it has become old-fashioned and nowadays the inequality can be reduced when coordinating international policies (Lyubimov, 2017).

Regional inequalities are being studied by international organisations (like, OECD, 2019) and by academic researchers in many countries, for example, regional differences in context of intelligence have been studied in twelve regions of Turkey, stating there are regional differences between west and east regions, as well as differences in educational attainment (Lynn, Sakar & Cheng, 2015). In a research conducted in Sub-Saharan Africa, it has been concluded that urbanization and income inequality in the region are positively correlated (Sulemana, et al., 2019). Long-term evolution of regional inequality throughout years 1860 – 2010 have been studied across Spanish provinces (Tirado, et. al., 2016).

Income inequality between provinces has become a major concern in China, where provinces are converging into either low or high income regions (Tian, et. al., 2016) and the reasons are low investment in physical and human capital, as well as not enough support from the governments to the low income regions. Income differences are counted as barriers and the transition to modern growth is a big challenge in the number of countries (Ngai, 2004). Intangible capital and international income differences in rich countries and poor countries are actual research topics by researchers worldwide (Hashmi, 2013; Sujianto & Suryanto, 2018; Waugh, 2010) with different solution approaches.

Income convergence and the catch-up index that measures rich-poor country income convergence and comparing it to within group convergence (so called β-convergence), defining relat-
tive convergence as decrease in rich-poor country income ratio and absolute convergence as
decrease in rich-poor country income gap has been created and applied by researcher in Unit-
ed States C. Kant (Kant, 2019). Marital status is investigated to measure income differences of
mothers by family status in Germany during decades (Neuberger, Schutter & Preisner, 2019).
A recent study on dynamics of regional divergence conducted in Harvard University (Manduca,
2019) describes that regions in the United States are pulling apart and the gap between rich and
poor is expanding dramatically. In addition, if it were roughly 12 percent of people living in espe-
cially rich or poor regions by 1980, then by 2013 it was over 30 percent. This shift is not only due
to geographical concentration, e.g., high-paying jobs being situated in certain regions, but also
related to income growth of the richest people and the areas they have been living in – by getting
a larger income they are „dragging their cities along with them“.
A study conducted on high and low inequality clusters of rural regions (non-metropoleitian areas)
situated in the US (Peters, 2011) suggests that people living in poor places can be highly equal in
terms of income distribution, but those living in prosperous places are highly unequal. In com-
parison to higher inequality clusters, the low inequality clusters have poorer demographic out-
comes, such as more single-headed families, more people without a high school education, few-
er college graduates, lower labor force participation rates, higher levels of poverty, lower median
household incomes. In high inequality places people tend to be more educated, wealthy and highly
skilled, as well as these places have more growth in economic context between various sectors.
Relationship between income inequality and level of corruption have been studied in post-com-
munist countries in Europe (Basna, in-press) as well as in Africa (Sulemana, Kpienbaareh, 2018).
Study in Brazil has been analysing the effect of informal employment and corruption on income
level revealing that the size of informal economy has a negative effect on income levels (Bologna,
2016) but those are not only influencing factors – also others have to be examined.
Widely discussed topic is income differences between male and female. Study in France analyses
self-employed female physician earnings revealing that female physicians have lower annual
income and that depends on family structure. (Mikol, 2019; Pena-Boquete, et.al. 2010) have been
analysing income differences in Italy and Spain, (Oczki, 2016) in Poland revealing that gender pay
gap in Poland was very low.
Situation is different in India, because within economic globalization many women are going to
be employed for the first time and there are evidence that increase in female income weakens
family ties to the traditional economy and ancestral community (Luke, Munshi, 2011).
In the next section the empirical research results of household income in Latvia by different
characteristics are reviewed.

Empirical research results

EU-SILC is the most complete harmonised survey on household income in Europe. EU-SILC
survey is conducted annually in line with Eurostat methodology in all European Union countries.
In order to acquire information four questionnaires were developed: Household Register, House-
hold Questionnaire Form and Individual Questionnaire Form.
One of the main study objects of the EU-SILC is annual income of a household – their com-
position and level, in 2017 sample size of EU-SILC in Republic of Latvia - 8 087 randomly selected
respondents; Completed questionnaire sets were of 6014 households; individual interviews (per-
sons) - 11 304; non-response rate - 25.6% (CSB of Republic of Latvia, 2019).
It is important that anonymised data sets are available in SPSS files for more detailed statistical data
analysis – by statistical regions, by territories (cities or rural areas), by household size and by other
indicators important for research and further for practical recommendations for decision making.
Gini coefficient is a measure of statistical dispersion intended to represent the income or wealth distribution of a nation’s residents, and is the most commonly used measurement of inequality. «0» – perfect equality; «100» – maximal inequality – results of Gini coefficients in Baltic countries are included in Figure 1.

The statistics shows that income differences in the Baltic States are higher than in average in EU. The most stable Gini coefficient is in Latvia. In Lithuania the Gini coefficient is the highest, namely, income differences in Lithuania are the most substantial. At the same time, the gap between richest and poorest is the least essential in Estonia – it is approaching the average level of EU-28.

According to the administrative breakdown, there are 6 regions in Latvia: Riga, Pierīga, Vidzeme, Kurzeme, Zemgale and Latgale. In Figure 2 is revealed the income differences in the regions of Latvia. Highest Gini coefficients in 2014-2017 are in Pierīga and Latgale regions, but lowest – in Kurzeme and Vidzeme regions. During last years the coefficient has grown rapidly in Latgale region – eastern part of Republic of Latvia.

S80/S20 quintile share ratio index (see Fig.3) - ratio of total equalised disposable income received by the 20% of the country’s population with the highest equalised disposable income (top quintile) to that received by the 20% of the country’s population with the lowest equalised disposable income (bottom quintile).
Analysing the difference between lowest needed income and total disposable income (see Fig.4), the greatest difference is in Kurzeme and Vidzeme regions, the smallest difference – in Rīga and Pierīga regions. At the same time, in all regions of Latvia the lowest needed income is higher than total disposable income.

In addition, statistics shows that lowest needed income is the highest in Rīga and Kurzeme regions; the lowest – in Latgale region (lowest needed income is almost 1.5 times smaller than in Rīga). Differences are also noticeable in other regions.

Distribution of average income per households in 2017 by regions in Republic of Latvia is reflected in Table 1.

<table>
<thead>
<tr>
<th>Latvia Statical Regions</th>
<th>Mean</th>
<th>N</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rīga</td>
<td>13070,6908</td>
<td>1913</td>
<td>11086,9079</td>
</tr>
<tr>
<td>Pierīga</td>
<td>13082,9956</td>
<td>859</td>
<td>11693,2841</td>
</tr>
<tr>
<td>Vidzeme</td>
<td>9400,8466</td>
<td>579</td>
<td>7772,2967</td>
</tr>
<tr>
<td>Kurzeme</td>
<td>10772,9881</td>
<td>927</td>
<td>9345,3650</td>
</tr>
<tr>
<td>Zemgale</td>
<td>10305,0636</td>
<td>857</td>
<td>9337,6389</td>
</tr>
<tr>
<td>Latgale</td>
<td>7658,4507</td>
<td>879</td>
<td>6552,0053</td>
</tr>
<tr>
<td>Total</td>
<td>11179,8123</td>
<td>6014</td>
<td>10021,9934</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations based on EU-SILC data, in 2017, available on CSB, n=6014
Data of table 1 indicate that there are differences in annual income of households in different regions in Latvia. To evaluate – are annual income of households in Latvia by regions – annual income are compared using analysis of variance (ANOVA). Results of ANOVA are included in Table 2.

| Source: Authors’ calculations based on EU-SILC data, in 2017, available on CSB, n=6014 |

<table>
<thead>
<tr>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>2,349E10</td>
<td>5</td>
<td>4,698E9</td>
<td>48,631</td>
</tr>
<tr>
<td>Within Groups</td>
<td>5,805E11</td>
<td>6008</td>
<td>9,661E7</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6,039E11</td>
<td>6013</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data of table 2 (results of ANOVA) indicate that there are differences in annual income of households in different regions in Latvia and they are statistically significant (sig. 0.000).

<table>
<thead>
<tr>
<th>TERRITORY</th>
<th>N</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Standard Error of Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities</td>
<td>4162</td>
<td>11593,9122</td>
<td>10069,91239</td>
<td>156,08985</td>
</tr>
<tr>
<td>Rural Area</td>
<td>1852</td>
<td>10249,2057</td>
<td>9852,82873</td>
<td>228,94989</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations based on EU-SILC data, in 2017, available on CSB, n=6014

Data of table 3 indicate that there are differences in annual income of households in different territories in Latvia. To evaluate – are annual income of households in Latvia by territories – annual income are compared using t-test. Results of t-test analysis are included in Table 4.

<table>
<thead>
<tr>
<th>Levene’s Test for Equality of Variances</th>
<th>t-test for Equality of Means</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Sig.</td>
<td>T</td>
</tr>
<tr>
<td>---</td>
<td>------</td>
<td>---</td>
</tr>
<tr>
<td>Equal variances assumed</td>
<td>4,444</td>
<td>0,035</td>
</tr>
<tr>
<td>Equal variances not assumed</td>
<td>4,853</td>
<td>0,000</td>
</tr>
</tbody>
</table>

Source: Authors’ calculations based on EU-SILC data, in 2017, available on CSB, n=6014

Data of table 4 (results of t-test) indicate that there are differences in annual income of households by territories (cities or rural areas) in Latvia and they are statistically significant (sig. 0.000). In context of income distribution, the correlation between education level and income level was reviewed. In Latvia, there is tendency that the lower the education level, the more likely to be at risk of poverty. According to the CSB, in 2017 45.8% of male and 39.7% with pre-primary, primary and lower secondary education are at the risk of poverty (share of persons with an equivalised disposable income below 60% of the national median equivalised disposable income), while 10.6% of male and 9.9% of female with higher education are at the risk of the poverty.
Also, the statistics shows that in context of citizenship in 2017 almost one third of the non-citizens of Latvia is at the risk of the poverty, while only 22% of citizens of Latvia and 29.5% of citizens of other countries face with the same problem (CSB, 2019).

At the end, in the context of comparison between household lowest net income necessary to make ends meet and household disposable income, in the most favourable position are couples without children (difference between lowest needed income and total disposal income – 44.62 EUR) and couples with one child (difference – 40.94 EUR) and at least favourable position are single person households (difference - 194.75 EUR) and one adult with children (difference 137.95 EUR) (CSB, 2019).

However, these breakdowns are not available for regions of Latvia, but the statistic show that in less favourable positions are: male with low education level, persons who live alone or with children, and non-citizens of Latvia.

**Conclusion**

- The analysis of theoretical research showed that income differences in regions are significant problem during the last decades in many countries. Researchers focus on the income differences between male and female, the income differences in context of corruption, urbanizations, level of education, family status, etc.
- Gini coefficient shows that the income difference is the Baltic States is higher than in EU-28. The highest income differences in the context of Baltic States are in Lithuania, the lowest – in Estonia. In case of Latvia, the Gini coefficient is rather stable.
- In case of regions of Latvia, Gini coefficient shows that in Latgale and Pierīga regions the income differences are the most significant. The lowest income gap between richest and poorest inhabitants is the lowest in Vidzeme and Kurzeme regions.
- Special concern is about Latgale region there the income difference become mayor problem during last years but the differences were for many decades. The statistics shows that total disposable income in Latgale is 299.56 EUR while in Rīga region it is 527.68 EUR.
- In context of social characteristics, in less favourable position regarding income indifference are male with low level of education, persons who live alone or with children, and non-citizens of Latvia.
- There are differences in annual income of households in different regions in Latvia and they are statistically significant with very high probability or very low significance level (sig. 0.000).
- There are differences in annual income of households by territories (cities or rural areas) in Latvia and they are statistically significant with very high probability or very low significance level (sig. 0.000).

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