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Income Differences in
Regions of Latvia –
Problems and
Challenges

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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 indifferences 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 (Daugeliene, 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 indifferences 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 rela-

Income differences in regions: theoretical framework

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 United 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 especially 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-metropolitan 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 comparison to higher inequality clusters, the low inequality clusters have poorer demographic outcomes, such as more single-headed families, more people without a high school education, fewer 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-communist 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.

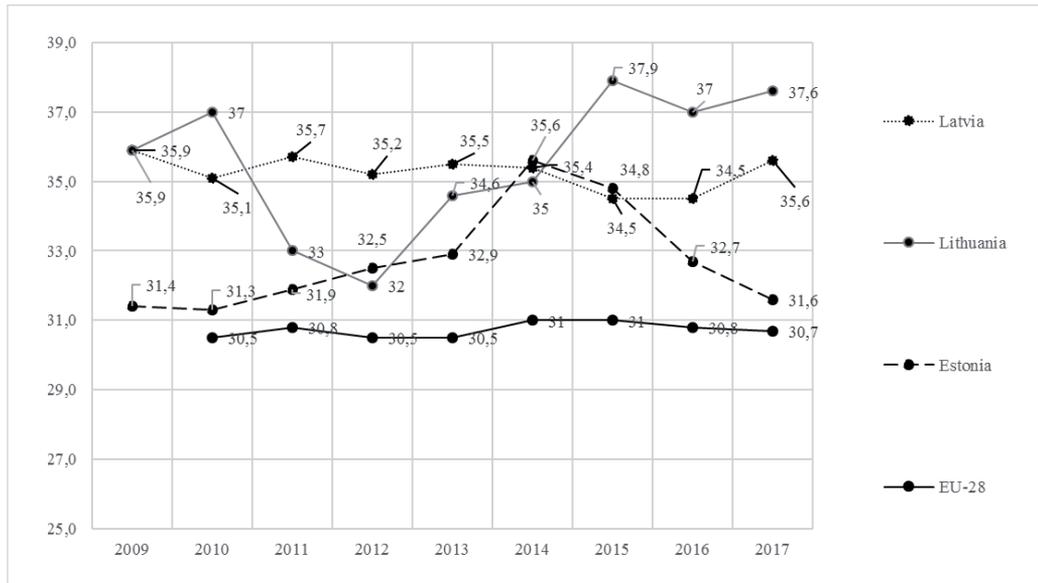
Empirical research results

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, Household Questionnaire Form and Individual Questionnaire Form.

One of the main study objects of the EU-SILC is annual income of a household – their composition 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 (persons) - 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 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.



Income differences in the regions in EU

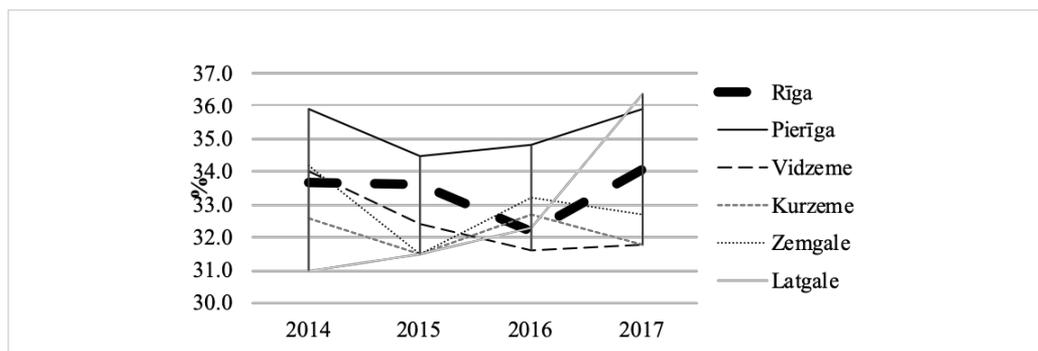
Figure 1

Gini coefficient (%) in the Baltic States and EU-28 in 2009-2017 (Authors construction based on data bases of CSB)

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: Rīga, 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).



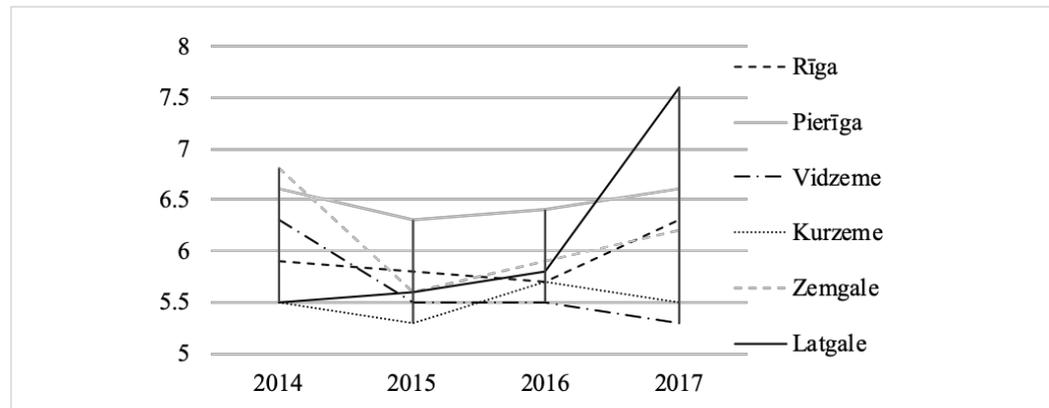
Problems and challenges of income differences: Case of Latvia

Figure 2

Gini coefficient by regions of Latvia (%) in 2014-2017 (Authors construction based on data bases of CSB)

Figure 3

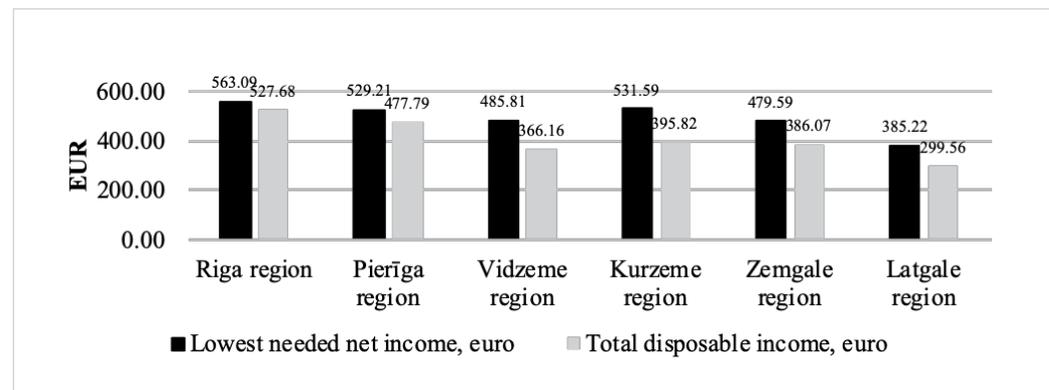
S80/S20 income quintile share ratio by regions of Latvia in 2014-2017 (Authors construction based on data bases of CSB)



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.

Figure 4

Comparison between household lowest net income necessary to make ends meet and household disposable income (euro) in the regions of Latvia in 2017 (Authors construction based on data bases of CSB)



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 1

Annual Household Disposable Income in 2017 by Regions in Latvia, EUR

Latvia Statical Regions	Mean	N	Standard Deviation
Rīga	13070,6908	1913	11086,90799
Pierīga	13082,9956	859	11693,28410
Vidzeme	9400,8446	579	7772,29679
Kurzeme	10772,9881	927	9345,36505
Zemgale	10305,0636	857	9337,63890
Latgale	7658,4507	879	6552,00538
Total	11179,8123	6014	10021,99343

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](#).

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2,349E10	5	4,698E9	48,631	0,000
Within Groups	5,805E11	6008	9,661E7		
Total	6,039E11	6013			

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

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).

TERRITORY	N	Mean	Standard Deviation	Standard Error of Mean
Cities	4162	11593,9122	10069,91239	156,08985
Rural Area	1852	10249,2057	9852,82873	228,94989

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](#).

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	4,444	0,035	4,812	6012	0,000	1344,70644	279,42518	796,93288	1892,48000
Equal variances not assumed			4,853	3623,368	0,000	1344,70644	277,09582	801,42714	1887,98575

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.

Table 2

Analysis of Variance (ANOVA) on Annual Household Disposable Income in 2017 by Regions in Latvia, EUR

Table 3

Main Statistical Indicators of Annual Household Disposable Income in 2017 by Territories in Latvia, EUR

Table 4

Analysis of Differences with t – test on Annual Household Disposable Income in 2017 by Territories in Latvia, EUR

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 in 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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