

The Role of Income Inequality in Human Development

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Abstract

The aim of the research was to compare human development indicators in the Baltic States with indicators in other countries, and to find the relationship between the indicators and income inequality. Data for the research were drawn from the international databases: World Factbook, The Heritage Foundation web site, and others. The Baltic States have high human development and economic freedom indices, but an average Gini Index and Corruption perception Index. Low income inequality is associated with high human development, high PISA test scores, low corruption and thin government. Some opportunities for reducing the Gini Index and raising the Human Development Index are discussed.

Key words: human development, Gini Index, economic freedom, Baltic States, international comparison.

Introduction

The **problem of the study** comes from the economic situation in the Baltic States. These independent states have enjoyed freedom of enterprise for more than fifteen years. Many people have experienced success, while others not so much. Inequality among people has increased. Is this good or not?

Economic inequality among people is most often characterised by the Gini Index. The Gini Index is zero if all people have an income of the same size. The Gini Index is one when one person receives all the income and the others receive no income. The real situation in every country is somewhere in between these two extremes. The higher the index, the larger the differences among people's incomes.

A detailed discussion of the Gini Index concept and the formulae for calculating it are given, for example, by S. Subramanian (2002). There are somewhat different ways to calculate the relative income of people in different countries (Dowrick, Akmal, 2005). X. Qian and R. Smyth (2008) have applied the idea of the Gini Index to educational inequality and R. Fort (2007) to land inequality as well.

Relevance of the study is based on its practical value and international research traditions. Interest in income inequality among researchers in recent

decades has increased. Researchers have studied the consequences of high inequality in society, changes in the Gini Index over time and possible causes for the changing inequality. Most of the data reveals that inequality is increasing in the world (Breau, 2007; Meisenberg, 2007; Meisenberg, 2008). Only S. Dowrick and M. Akmal (2005) have found that the Penn World Table Income indexes result in a falling Gini Coefficient in the last thirty years.

Many studies have shown that relative equality in income is related to better health. The lower the Gini Index the higher the life expectancy for people in that country, and the lower infant mortality, the murder rate, and the instance of depressive episodes (Babones, 2008; Cifuentes et al. 2008). Increases in the Gini coefficient are associated with a rise in social spending (Schwabish, 2008) and a reduction in self-reported happiness levels (Napier and Jost, 2008).

Countries with relative equality among incomes have higher per capita Gross Domestic Product (GDP) and higher levels of literacy (Lynn & Vanhannen, 2006). Land inequality is negatively associated with the economic growth (Fort, 2007). However, these important relationships do not reveal the reason for this or the consequences.

It is very difficult to find a basis for the causes for the changes in income inequality; however, many explanations have been given. Some of them are listed below.

S. Breau (2007) has studied economic and other reasons for income inequality and concludes that international trade, technological change, unemployment rates and de-industrialisation have raised income inequality in Canada over a twenty-year period. J. Gourdon, N. Maystre, and J. de Melo (2008) have also found that trade liberalisation in poor countries raises inequality. The inclusion of a female labour force has reduced inequality (Breau, 2007). The conclusions about state taxes are contradictory: G. Meisenberg (2008) writes that redistributive policy of a state reduces inequality, but A. Leigh (2008) has found that state taxes have no relationship to inequality.

Educational heterogeneity leads to income inequality (Breau, 2007) and even more: "A well deve-

loped educational system in a poor country is associated with a high Gini Index, presumably because education creates elites that redistribute the limited national wealth for their own benefit” (Meisenberg, 2008, p. 19). High disparities in access to education raise the Gini Index (Qian and Smyth, 2008).

Right party power usually increases inequality (Brady and Leicht, 2008) and communist rule has reduced it (Meisenberg, 2008). Conservatives are happier than liberals because they have adopted some kind of rationalisation of inequality (Napier and Jost, 2008).

Racial diversity in society increases the Gini Index (Meisenberg, 2007; Meisenberg, 2008). It is psychologically easier to share goods with people like you and not with people from other races. Ethnic and religious diversity in a country are not related to income inequality (Meisenberg, 2007).

The review above indicates the importance of the Gini Index in many aspects of human life. Therefore, **the aim of this study** was to explore the role of income inequality in the Baltic States. To achieve the aim, two **goals** were proposed: 1) to compare the Gini Index in the Baltic States and neighbouring countries, and 2) to find the correlation between income inequality and quality of human life using an international comparison. The study highlights some potential for reducing income inequality.

The object of the study is data on income inequality and different aspects of human development and economic freedom in 129 countries. The data for the study were taken from international databases.

Research method

The Gini Index was taken from The World Factbook composed by the US Central Intelligence Agency and available at its web site (<https://www.cia.gov/library/publications/the-world-factbook/>). Data were often not available for 2008, but mostly they were gathered in the last decade.

The Human Development Index depicts three basic dimensions of the quality of human life: 1) a good standard of living, 2) health and longevity of life, and 3) level of education. The index changes from 0 (extremely bad) to 1 (very high quality of life). The data were taken from UNDP Human Development Report web site (http://hdr.undp.org/en/media/hdr_20072008_table_1.pdf). The Human Development Index was given for 2005.

The most often used index of the standard of living is per capita Gross Domestic Product (GDP per capita (PPP)). This is measured in US dollars. The values for GDP per capita (PPP) were taken from The World Factbook mentioned above. GDP estimations were mostly given in The World Factbook for 2007.

The second composite of HDI is usually measured by the life expectancy at birth (LE). The life expectancy is the number of years a child is expected to live if the living conditions remain the same as at his/her birth. The data were taken from The World Factbook. All the estimations of LE were given in 2008.

The level of education is usually characterised by the percentage of adult people (over 15 years) who can read and write a simple text. Corresponding data for countries have been taken from The World Factbook. Most of the literacy estimations were given for 2000 – 2005.

In 2006, the OECD carried out a science competency survey in 56 countries. Besides science, results are also available for reading and mathematics at the OECD web page (http://www.pisa.oecd.org/document/2/0,3343,en_32252351_32236191_39718850_1_1_1_1,00.html). The average result for these three areas is used in this study in addition to the adult literacy level. The results are given on College Scale with the average result equal in theory to 500 and the standard deviation equal to 100.

Three indicators for describing the economic situation in countries are also included in the analysis. The first is Economic Freedom as given on The Heritage Foundation web page (<http://www.heritage.org/research/features/index/downloads/2008PastScores.xls>). The Economic Freedom Score is composed of ten specific indicators; for example Business Freedom, Trade Freedom, Labour Freedom, etc. Two of these components are included in our analysis as separate characteristics. The Economic Freedom Score ranges from 0 (no freedom) to 100 (full freedom).

The Corruption Perception Index (CPI) is determined by expert assessments and opinion surveys. It ranges from 0 (fully corrupt economy) to 10 (no corruption at all). So, a higher index means less corruption (the index is sometimes called Freedom from Corruption). The CPI values have been taken from the Transparency International web page (http://www.transparency.org/policy_research/surveys_indices/cpi/2007), and were given for 2007.

Government Size is measured as the percentage of government expenditures from GDP for each country. Data on revenue generated by state-owned enterprises were not considered because these data were of inconsistent quality and availability. Government expenditures have been calculated using a special formula representing the total amount of government spending at all levels (http://www.heritage.org/research/features/index/chapters/pdf/Index2008_Chap4.pdf). The values were taken from The Heritage Foundation web page (<http://www.heritage.org/research/features/index/downloads/2008PastScores.xls>). The table was given for 2008, but the years of the estima-

tions were not specified for different countries.

All the web pages were visited in summer 2008. The data were available for 129 countries except for PISA tests, which were carried out in 53 countries in our sample. The values for the different characteristics in different countries were evaluated in different years, but the values of the characteristics change slowly over time and this makes the comparison possible. All the values for one characteristic were taken from one database, and that also forms the basis for the comparability of the data.

Research results and discussion

All three Baltic States (Estonia, Latvia, and Lithuania) are similar in the indices for development.

Therefore, the Baltic States are given together in Table 1. The average values of their development indices are then compared to neighbouring Scandinavian states (Finland, Sweden and Norway) and neighbouring countries in the former Eastern Bloc (Russia, Poland and Belarus). For comparison, the average values of the characteristics for high, medium and low Human Development Index are given in the table. The division of the countries into the three groups is taken from the UNDP Human Development Report web site indicated above. There were altogether 54 highly developed countries (HDI over 0.8), 58 medium developed countries (HDI between 0.5 and 0.8) and 17 poorly developed countries (HDI between 0.33 and 0.5).

Table 1

Comparison of human development in the Baltic States, its neighbours and other countries

HDI level	Region	Gini Index	Human Development Index (HDI)	GDP-per capita (PPP)	Life expectancy at birth	Adult Literacy	Economic Freedom Score	Corruption perception Index	Government size
High	Scandinavian	25.7	0.959	41600	79.79	99.7	71.4	9.1	26.4
High	Baltic	35.9	0.859	18733	73.04	99.7	72.3	5.4	63.2
High	East Block	35.7	0.825	13967	70.56	99.6	51.4	2.9	56.2
High	All	35,1	0,894	26298	77,27	97,2	69,0	6,2	53,7
Medium	All	44,4	0,670	4629	65,18	79,8	57,0	2,9	75,0
Low	All	44,1	0,419	1100	47,93	48,7	53,7	2,6	78,8

The Baltic States and their neighbours belong to the high HDI countries; however, the differences in the values of some characteristics are considerable. We see that income inequality is lowest in the Scandinavian countries; in the Baltic States it is at the same level as in neighbouring Eastern Bloc countries. Fortunately, we are on the same level as high HDI countries on average, but to reach the level of the Scandinavian countries we have to reduce income inequality of our people.

GDP per capita in the Baltic States is higher than in neighbouring former Eastern Bloc countries; however, we are far behind the Scandinavian countries, as in the Gini Index. GDP per capita for people in the Baltic States is lower than the average in high HDI countries.

Life expectancy changes in the same way as HDI. This is understandable because life expectancy is a part of HDI. People in high HDI countries live long, but in the Baltic States even four years less than in high HDI countries on average.

Almost all people in highly developed countries can read and write, while the literacy level in the Baltic States is higher than in high HDI countries on average. However, the level of literacy diminishes

rapidly if we look at medium and low HDI countries. Education can be seen as one of the key issues in human development.

Economic freedom in the Baltic States is as high as in the Scandinavian countries. In this aspect, we differ favourably from the other countries in Table 1. Economic freedom in neighbouring Eastern Bloc countries is even lower than in poorly developed countries.

The Scandinavian countries are almost free of corruption. The Baltic States have a slightly lower level of corruption than the average in the countries under consideration. Corruption in the former Eastern Bloc countries is on the same high level as corruption in medium and poorly developed countries. Reducing corruption is one way to raise human development and reduce income inequality.

The percentage of government expenditures from GDP is highest in medium and poorly developed countries. Expenditures are rather high in the Baltic (63%) and Eastern Bloc (56%) countries. Government expenditures are smallest in the Scandinavian countries, which are the best-developed countries with the lowest Gini Index.

Another way to look at the role of income inequality in human development is to calculate the correlation coefficients between the Gini Index and HDI and other indices of human development. The corre-

lation coefficients are given in Table 2. Most of the correlations are negative, which means that higher inequality is related to lower human development in this inter-country comparison.

Table 2

Correlation coefficients between income inequality, human development, and other characteristics of countries

Characteristic of counties	Correlation with Gini Index
Human Development Index (HDI)	-.42
GDP per capita (PPP)	-.42
Life Expectancy at birth	-.46
Adult Literacy	-.30
PISA 2006 average	-.45
Economic Freedom Score	-.23
Corruption Perception Index	-.35
Government Size	.52

The lower inequality among incomes, the higher the Human Development Index ($r = -.42$). To explain this association we may assume that in the case of large disparities in income, some people with low income may not be motivated to work at full input. On the other hand, in countries with low HDI, some people may aim to get a very high salary independently of a low salary of many other people. If the two characteristics are in this kind of reciprocal dependence, then lowering the Gini Index may lead to some raising of HDI.

GDP per capita is lower in countries with higher income inequality ($r = -.42$). R. Lynn and T. Vanhanen (2006, p. 196) have found the same relationship. G. Meisenberg (2008, 9) has used a logarithm of GDP and reached the correlation coefficient $-.45$. These correlation coefficients indicate that the Gini Index explains 15 – 20% of the variance in GDP per capita.

High inequality in income is considered to worsen the population's health. We can see this in Table 2 as well: life expectancy at birth is lower in countries with large disparities in people's income ($r = -.46$). Correlation coefficients of approximately the same value have been found by S. J. Babones (2008) and R. Lynn and T. Vanhanen (2006, p. 196). S. J. Babones (2008, 1614) also found some evidence that high inequality is a reason for poor health.

Adult literacy levels had a weak but statistically significant correlation with the Gini Index ($r = -.30$). G. Meisenberg (2008) also used other measures of the educational level (average years of schooling, combined enrolment ratio in primary, secondary and tertiary schools) and reached a correlation coefficient of $-.44$. The higher the educational level in a country, the lower inequality among incomes is.

However, good education for a part of the population in a country only leads to higher inequality (Breau, 2007).

PISA test results gave a correlation of $r = -.45$ with the Gini Index. The higher the level of education in schools, the lower economic inequality. The last two indicators of the educational level had an inter-correlation of only .48, which means that both of them are important in a country's development.

Economic freedom had the lowest association with income inequality ($r = -.23$). G. Meisenberg (2008, 9) used Economic Freedom data for 25 years and obtained a correlation of $-.40$ with the Gini Index. The higher the economic freedom, the more equal incomes are. The relationship is weak (only 5% joint variability), but statistically significant at the .01 level.

One of the components of economic freedom is the Corruption Perception Index or Freedom from Corruption. This characteristic had a slightly stronger relationship with income inequality ($r = -.35$) than economic freedom in general. The less corruption in a country, the lower inequality among people and the higher human development. Lowering the level of corruption can be seen as one of the ways to reach higher human development in a country.

The highest correlation with income inequality in Table 2 had the Government Size ($r = .52$). The lower the government expenditures, the lower the Gini Index. Reducing government expenditures (and income) should reduce inequality and raise human development.

Summarising the results we can state that higher inequality in income is related to lower human development in an inter-country comparison. Lower inequality is better, but is there some low level of ine-

quality that would lead to worsening of human development in the process of overcoming it? The question is based on the assumption that some inequality is the stimulus of human development. To find the answer, non-linear models were composed to describe the relationships between the Gini Index and the characteristics in Table 2. None of the non-linear models was significantly better than the corresponding linear model. The countries in our selection have not yet reached overly high equality in income.

It would be better to have lower inequality. Some ways to reduce the Gini Index have been discussed in literature review: having an egalitarian system of education and left party power. Some others have been found in the research: reducing corruption and government size. These ways are closely related to the value system in the country in question: some values support income equality more than the others.

People have adopted many rules and laws to prevent behaviour that is harmful to others. This may be the time to think about the acceptable level of inequality in a country. For example, is it useful to have some maximal level of salary besides the minimum salary level? Or which percentage of profit is ethical for an entrepreneur?

In poorly developing countries, GDP per capita and the Gini Index are both rising year after year. It may seem that increases in inequality is good for a country, but this inter-country comparison reveals the opposite. The rising Gini Index should be stopped at some level and turned towards a decrease. What are the causes for these changes in the development of countries? It has been proposed that some people have to raise their income to the level needed for full satisfaction of all their needs and only then will the other people have the same opportunity. However, the desired level of satisfaction depends on people's value system. Values are also important in reaching a low Gini Index and high human development as we have seen above.

Conclusions

The Baltic States belong to high human development countries; however, income inequality in the Baltic States is as large as in medium developed countries of our world. Adult literacy and economic freedom in the Baltic States are as high as in the most developed countries in the world, but government expenditures and corruption in the Baltic States are much higher than in the Scandinavian countries. The Baltic States differ favourably from neighbouring former Eastern Bloc countries in terms of Gross Domestic Product per capita and the Corruption Perception Index.

The high level of income inequality is related to the low Human Development Index and its compo-

nents: Gross Domestic Product per capita, Life Expectancy and Adult Literacy levels. Economic Freedom and especially freedom from corruption and thin government are favourable for equality of income. The aspects of economic freedom, left party ruling and education, can be seen as opportunities for reducing income inequality and raising human development.

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The Role of Income Inequality in Human Development

Summary

The problem of the study came from the rising inequality in people's income. Previous research has shown that inequality was related to people's health, per capita Gross Domestic Product, literacy levels, etc. Right party power and educational inequality have been seen as facilitators of inequality of income.

The aim of the study was to explore the role of income inequality in the Baltic States. Two goals were pursued: 1) to compare income inequality in the Baltic States and neighbouring countries, and 2) to find the correlation coefficients between income inequality and different aspects of the quality of human life using international comparison. The object of the study was data on income inequality and different aspects of human development and economic freedom in 129 countries. Correlation analysis and comparison of the average values of the indices for the different groups of countries were used.

The results of the study indicate that the Baltic States belong to the group of high human development coun-

tries, but income inequality is higher than in the Scandinavian States. Gross Domestic Product is higher in the Baltic States than in neighbouring former Eastern Bloc countries. Economic freedom in the Baltic States is as high as in the Scandinavian States, but corruption in the Baltic States is on the average level of the 129 countries studied.

The more equal people's income in a country, the higher the Human Development Index, per capita Gross Domestic Product, literacy levels, PISA test results, and the better the health of its citizens. Further, the equality of income was related to high economic freedom, low levels of corruption and low government expenditures.

Lower inequality is related to higher human development. The study highlights some ways to reduce inequality: having an egalitarian system of education, reducing corruption and the size of the government. These methods are closely related to the value system in society and stress the importance of values education.