REGIONAL INEQUALITIES IN THE EUROPEAN UNION

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Abstract

Global inequalities between countries are large, wage inequalities between developed and developing countries are on the rise (Report of the European Commission, 2011). Attainable wages in Europe are approximately thirty times as high as the average in African countries. Income concentration, increase of economic inequalities are not just unfair but unbearable, too. The article will account for the objective status of economic inequalities within the European Union in the NUTS 2 regions. From an economics standpoint it can be proven, that migration between countries is currently a highly significant method of reducing the income differences.

Key words: *inequality, income concentration, center-periphery*

JEL Classification: I31, R11, O11

Introduction

Formulated images of poverty are important projections of a country's wealth culture. To advance the global combat and investigation of poverty, the International Bank of Research and Development (IBRD, World Bank) announced the formation of a new expert committe in 2015. Changes in income distribution, wealth perception of various social groups, poverty and social exclusion are major goal areas of the EU2020 strategy. Besides research on measuring poverty, its variation, its causes and consequences, work focusing on inequalities is relatively scarce, however it has already become the center of recent researches. Econo-political tasks in relation with this issue also demand investigation in the topic, in accordance with scientific requirements.

It is evident from an economics standpoint that migration (excluding refugees of war) is one of the most significant current methods of reducing wage inequalities. In the hope of a better life, people today don`t consider inner-country migration, but think about mobility between countries or even continents. In the majority of the world, social and economic segmentation is based on inequality and is rigid. However, the extent of this varies for countries, regions and areas. Inequality spreads to all social and economic aspects. Recent years have shown a definite increase in economic inequality, which – in my opinion – has yet to receive the attention it deserves in economic literature.

Material and Methods

Empirical study of inequality has first grasped the attention of sociologists and statisticians. At the beginning of industrialisation, inequalities have grown in Western countries, and even in Japan, too. Based on this, it was hypothesized that the cruel exploitation of poor social groups was a condition of growth (Myrdal, 1974). Following World War I, large-scale political ideas have been formed towards equality. These countries today are so-called wealthy countries. However it has also been proven through the example of socialism that complete equality is irrealistic and not realizable.

Nehru, the first prime minister of the independent India, has the following opinion on equality-inequality in The Discovery of India (1965): „To a certain extant, increased economic inequality is unavoidable in a growing economy. Steps, however, have to be taken to prevent it. If we let matters progress on their own, wealth grows to even more wealth." (Nehru, 1965). Inequality can have very different forms. Social and economic inequality can be differentiated. Economic inequality means the differences in wealth and income. Relationship between the two is quite close, however, since the social inequality is the major cause of economic inequality, although economic inequality supports social inequality. The economic theory of centrum-periphery (or dependence theory) is attributed to Raul Prebisch (Argentinian) and Hans Singer (German-English) economists. According to their thesis, the world can be divided into rich (centrum) and poor (periphery) countries (Toth, 2016). Wealth polarization means is the movement of the two ends of the social ladder from the average and the percentage of the rich and poor groups grows simultaneously in a region. The question arises: why are the social and economic gaps sustained, or even deepened? Maybe the answer is simple: a „growth point" created by an expansion phenomenon attracts other businesses, educated workforce and capital in the region. For these exact reasons, it has retroactive effects which do not let the periphery develop, or even, make it poorer. Prebisch's opinion is that all development centers affect countries on the periphery (Myrdal, 1974).

József Nemes Nagy, one of the most outstanding researchers of regional development, has defined unique regional types based on the coexistence of the geographical and developmental centrum-periphery relations.

Table 1 Region types in the geographical and developmental coexistence

Region types in the geographical and developmental coexistence		Developmental	
		Centrum	Periphery
Geographical	Centrum	**Central core**	**Inner periphery**
	Periphery	**Dynamic border**	**Outer periphery**

Source: Nemes Nagy J. (2009)

The centrum-periphery duo is a relative and multi-layered relation. It is evident from the table that some location, business unit, social group, institution playing a centrum role on a certain level, can be periphery in another relation system. Four region types were defined in the simple system: central core, inner periphery, dynamic border and outer periphery.

Multiple fields of science have noticed the problem of separation into levels in a geographical unit, a country or a society. Control over property, employment, patterns in income and distribution, different factors of influence all create bands. It is

to be noted though, that these structures are not constant, but changing with the social and economic situation. Not only is this change expressed in the appearance of new and in the disappearance of old bands, but also in the changes of the relative breadth of some social bands and in their social weight as well.

However it is also evident that previous centrum regions have become or are becoming part of the periphery and have separated from their previous agglomeration (or from a part thereof).

Inequalities on various regional levels:
- Global inequalities
- Differentiation in the EU
- Regional differences within countries
- Articulation within settlements (village-city duality)
- Segregation within settlements
- Personal level

Development map of the European Union is very colorful. Within the EU, both between each country and within the countries themselves, huge developmental differences can be found. The richest, most dynamically developing, most populated and most urbanized region of the EU is the so-called „Blue Banana". Spanning from London through the Benelux states, the Ruhr-region and Southern Germany to Milan, the region is characterized by high rates of employment and a high income level as well.

The study is based on the 2. level of the NUTS (Nomenclature des Unités Territoriales Statistiques - Nomenclature of Territorial Units for Statistics) system, which was formed as a system of planning and statistical regions to aid the integration into the European Union's regional politics. Geographical regions formed by the EU are comparable in population size. In the hierarchical system currently 3 levels are defined, the NUTS 2 discussed here means the second level of regional division within the countries. This is an investigative study, focusing on the understanding and analysis of mechanisms behind the regional differences.

Foundation of the study is the Eurostat database. Their most recent findings are the source of the qouted data. 28 EU countries have created the database. Last year's average economic development indicator, the GDP has been collected. The following table shows the statistical indicators of local inequalities, which are capable of investigating multiple phenomena. There are three main groups: local polarization indicators, standard deviation type indicators and regional distribution difference indices. „Some of the indicators require absolute data, while others need specific, however from a measurement level point of view most require data on a relative scale" (Makszim, 2012).

Table 2 Grouping of statistical indicators of local inequalities

Index of regional polarization	Spread type indices	Indices measuring regional spreads
Dataset range	Spread	Koncentration-index (Hirschman-Herfindahl)
Spread range	Relative spread	Koncentration ratio
Relative range	Middle-difference	Redundance-indicator (Theil-index)
Interquartal range	Absolute mean difference	GINI-index
Quartal difference	Regional difference	Boldrini-index
Dual-index (Éltető-Frigyes index)	Logarithmic spread	Hoover-index (special case: Robin Hood index)

Source: Makszim (2012)

Data preparation and calculation of basic statistical indicators (average, standad deviation, maxima, minima) was carried out in Microsoft Office Excel 2007. SPSS 23.0 statistical program bundle was used for further data analysis.

Goal of the study is the exact investigation of inequalities between the NUTS 2 regions within the EU, as well as the complex evaluation of results. Formulated hypothesis in relation with the study of macroeconomic processes affecting local inequalities is, that large-scale economic inequalities can be seen betwen the regions in the European Union.

Results and Discussion

Looking out into the world, we are witnessing a very unique phenomenon: international wage inequality has been on the rise for a while now, and it is still growing.

The study was looking for the answer to see how economic inequality is developed in the European Union's NUTS 2 regions. Since quality of life can be compared more easily using a common exchange base currency, the so-called Purchasing Power Standards (PPS) – which measures the price of a select number of goods and services against the available income in the countries in question – PPS was used in many of the calculations. Comparison of income measured on PPS provides an overview of the differences in standards of living within the EU.

Table 3 Éltető-Frigyes index

Indicator	GDP (million PPS)
Average wage below the average	23 531
Average wage above the average	101 577
Éltető-Frigyes index	4,3

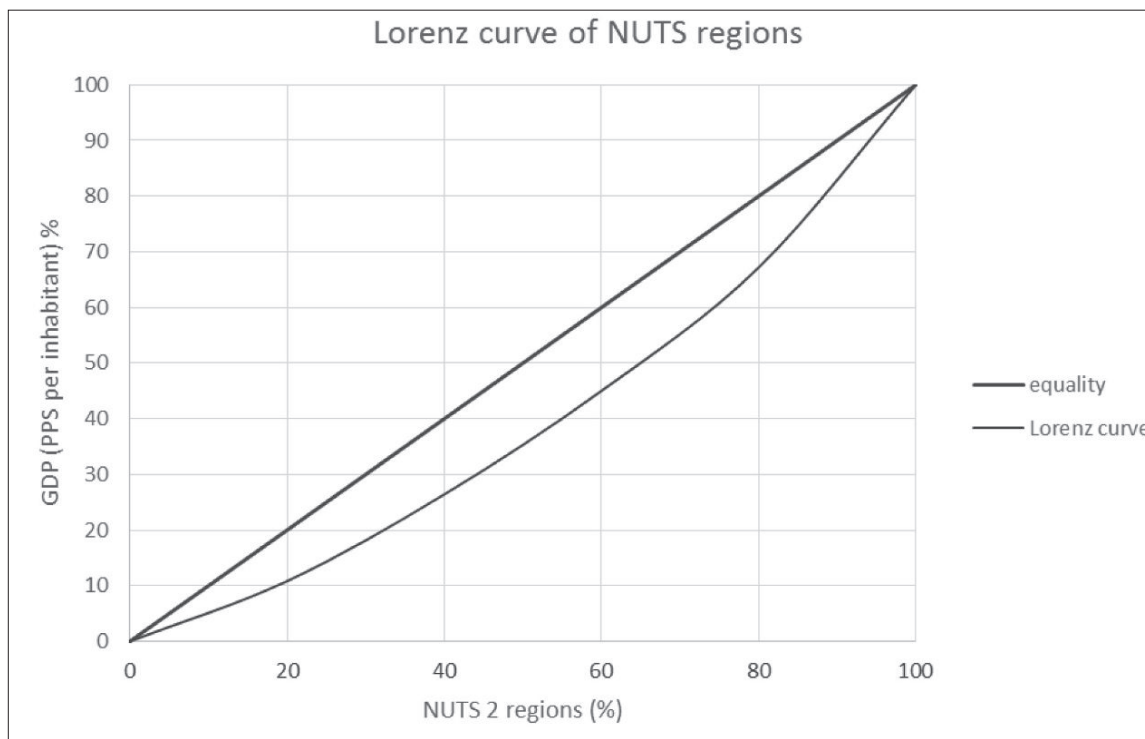*Source: own compilation based on Eurostat data*

The Éltető-Frigyes index shows that the average wage of those above the average is almost four times as much than that of those living under the average. This could also mean that the standard of living of those above the average is more than 300% higher than the standard of living of those under the average in the EU.

With an improved version of the index, the relations of the wages in different quantiles within the EU was studied. While the average income of the top fifth (GDP per inhabitant, PPS) is 2.9 times as much as it is in the regions in the lowest fifth, the ratio of the top and bottom decile is 4.1 – therefore, the wage difference is more than four-fold.

On the Lorenz-curve above the regional income inequalities are displayed. It shows the cumulative regions from the direction of lower wages and their r elationship to the owned capital fraction. In case of a perfect equality, the graph would show a 450 straight line. Generally, the farther the Lorenz-curve is from the diagonal, the bigger the scale of wage inequality. Based on the curve, 60% of the regions owns only 40% of the total capital. The Lorenz-curve is one of the most common analysis and display tools of relative concentration, where the bigger the concentration, the further the curve is from the straight diagonal. One of the disadvantages of this method is that there is no accepted value, based on which the obtained result could be evaluated.
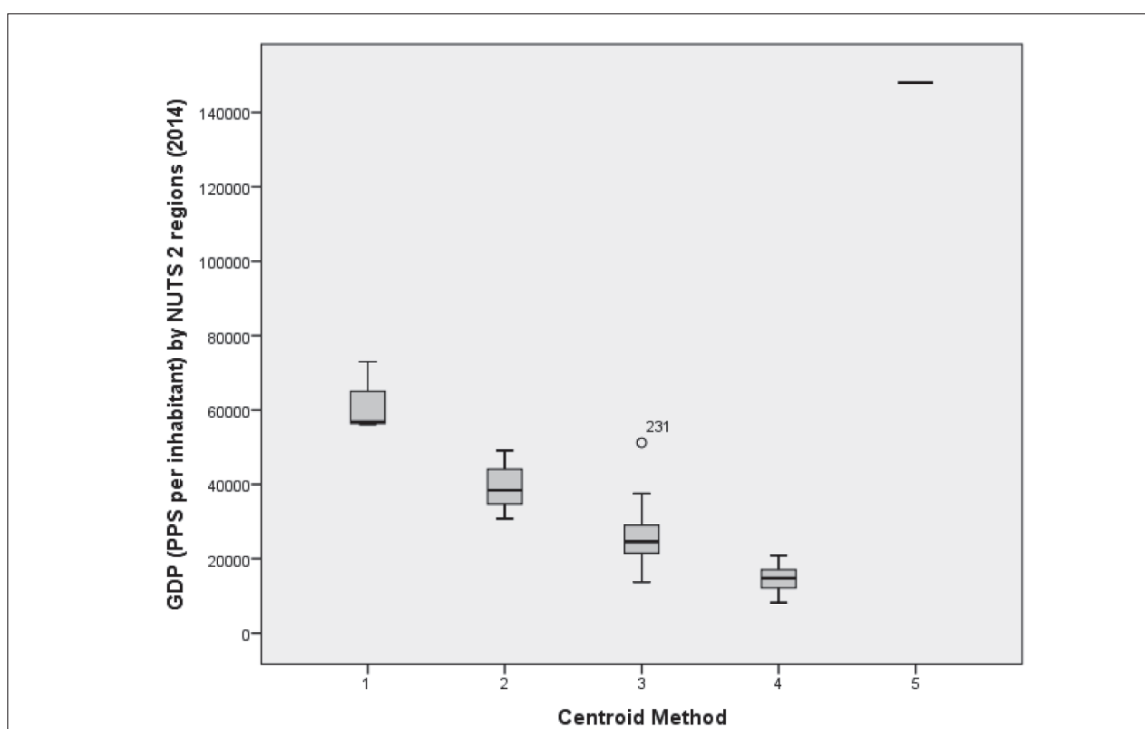
With the help of cluster analysis, the larger section of the obtained data could be grouped into smaller units, with which the centrum-periphery relation could be determined.

Graf 1 Lorentz-curve of NUTS 2 regions

Source: own graph based on Eurostat data

Graf 2 Clusters in the NUTS 2 regions of the European Union

Source: own graph based on Eurostat data

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Graf 2 shows the box-plot of the clusters, clearly presenting the differences between the groups. The following table collects the most important basic statistical indices for the five groups.

Table 4 Basic statistical indicators of the clusters and the Centrum-periphery relation (PPS)

Cluster	N	Average	Median	Minimum	Maximum	Other details	Centrum-periphery relation
1	4	60675	56800	56100	73000	Inner-London East, Old Bruxelles/ Brussels Gewest, Hamburg, Luxembourg	Central core
2	38	39274	38400	30800	49100	-	Dynamic border
3	189	25249	24600	13700	51200	-	Inner periphery
4	44	14705	14800	8200	20900	-	Outer periphery
5	1	148000	Inner London - West	Central core			

Source: own table based on Eurostat data

In my view, the dependance relations creating the centrum-periphery relationships is a valid model for the description of the geographical organisation of the global economy. Obtained results will be evaluated based on this model in the following paragraphs.

Results of the investigation's statistics show that there is a significant inequality on a regional level in the EU. The Inner London-West region is well known to be the richest region in Europe, where the GDP per capita is 148 000 PPS. With over 200 000 businesses and around 2 000 000 employees, as part of the „Blue Banana" it really plays a central core role in the EU's life. It is a unique region with such exceptionally high levels of indicators. In the previous box plot it was also evident that the economic indices of cluster 1. are significantly higher compared to the other groups. The four regions – Inner-London East, Old Bruxelles/Brussels Gewest, Hamburg, Luxembourg – show not only within Europe, but globally too, one of the largest concentrations in population, capital and industry, so within the EU it can clearly be called a central core region. Cluster 2 is a dynamic border, located near „growth locations", attracting other businesses, skilled workforce and capital into the region. Clusters 3 and 4 with their smallest economic power are defined as periphery. While Wallerstein differentiates semi-periphery, J. Nemes Nagy inner- and outer periphery. Inner periphery can be cluster 3, while cluster 4, the outer periphery is exemplified by eastern regions.

Difference between the mean and median is also worth analysing. Median is a notable local middle value in statistic, it is the value separating our ordered data into two equal parts, meaning that not more than 50 % of the data is either smaller or larger than this value. For almost all of the clusters calculated, median is smaller than

the average, meaning that there are more regions below the average.

In the following, the Gini-index will be introduced in relation to Graf 3 as the economic indicator measuring the distribution of income and wealth. It measures the equalities of the statistical distributions, therefore is an ideal tool in research pertaining income inequalities. Its value can be between 0 and 1. When 0 (meaning 0%), all members of the populations possess equal income, thereby there is a perfect equality. If it is 1 (100 %), on the other hand, then all income is concentrated in the hands of a single person, meaning complete inequality. A value of 0.4 is normally understood as significant inequality. The smaller the index's value, the less income inequality is in a country. In light of the above, the current investigation aims to provide some comparison based on the Gini-index about the income differences between various countries.

*Graf 3 GDP and GINI-index in EU countries, 2014*
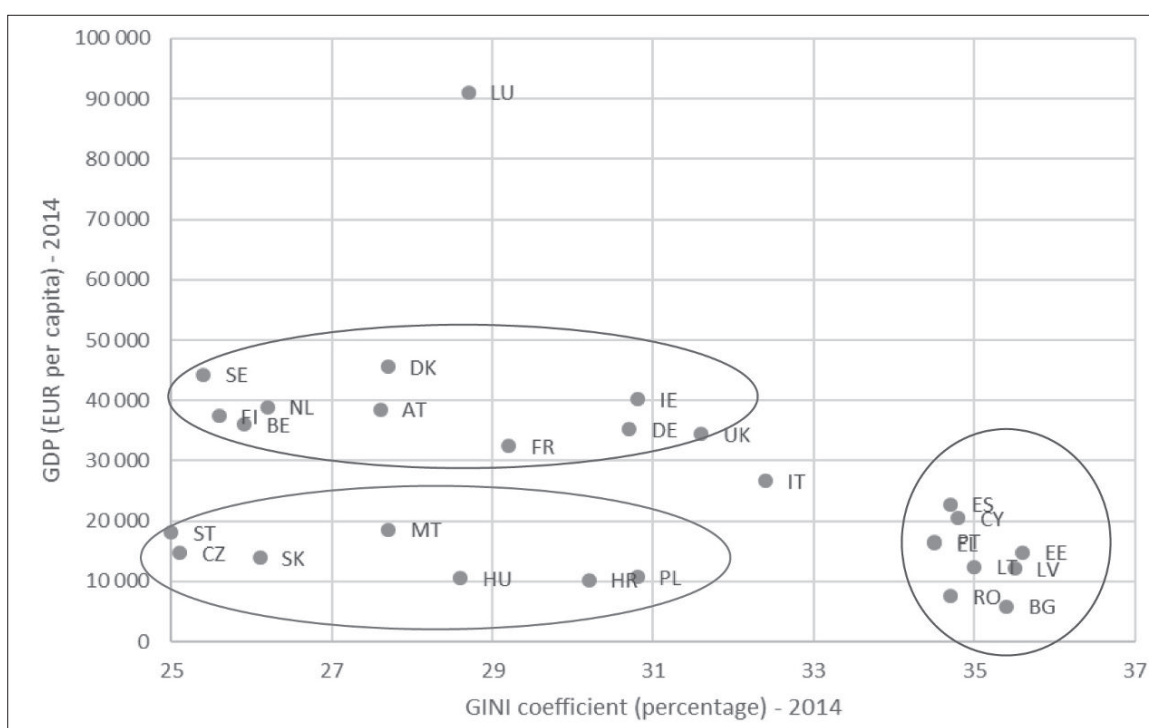
Source: own chart based on Eurostat data

Graf 3 shows the GDP per capita and the Gini-index in the European Union. Some countries have low GDP per capita and low Gini-index (green marking), whereas others realize more than twice as much income with the same Gini-index (red marking). Another group is formed by countries with low GDP and above average wage inequalities (blue marking).

Graf 4 shows a summarizing picture about the current income status of the geographical units within the European Union, calculated on PPS. Noticeable tendency with poor countries is that regional differences in income distribution are larger, than in richer countries. In the most developed countries, these differences are mostly decreasing because the higher the standards of living, downstream effects become stronger and the reactions weaker.

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Graf 4 GDP and GINI-index in EU member countries, 2014
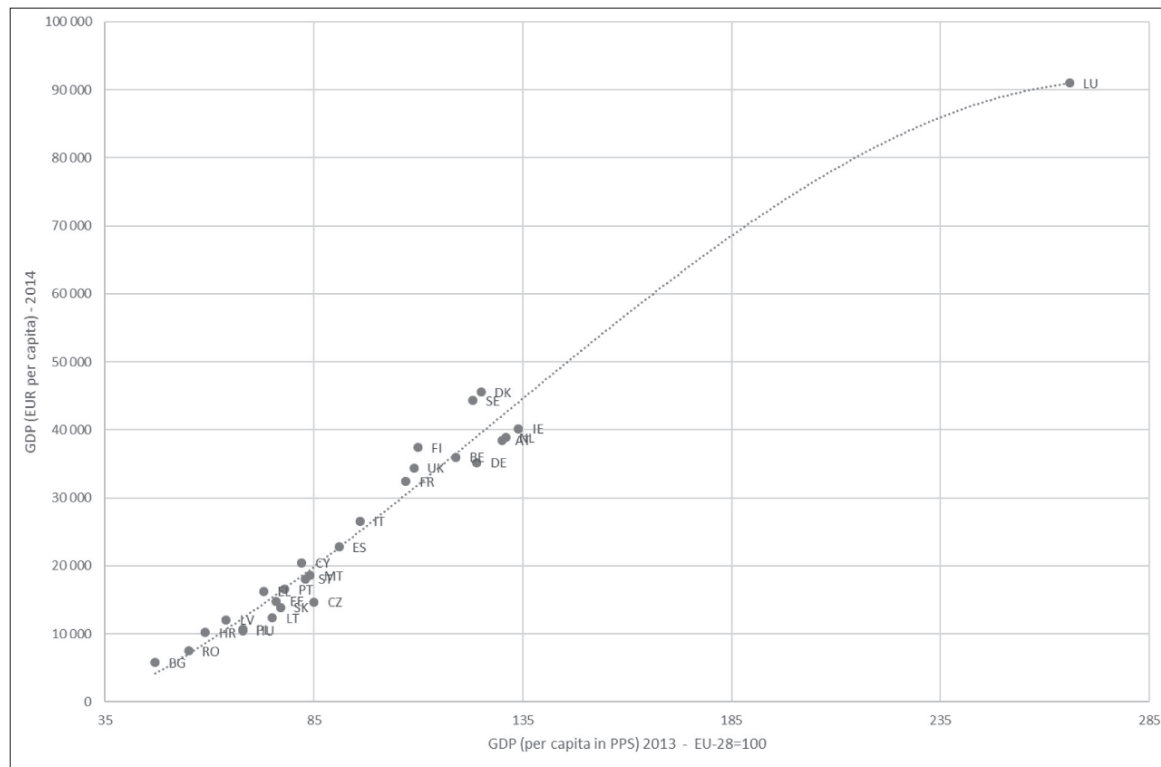
Source: own graph based on Eurostat data

In reference to the problems with global flow, numerous articles in journals and books discuss economic growth, and they mean that economic growth clearly requires a paradigm shift. Change is not easy, however. Arguments and counterarguments have lined up alongside each other. Mainstream directions unanimously prefer economic growth, governments in power support growth-oriented politics, because in the rich world, growth is needed for development, employment, while in the poor world, this growth is regarded as the only way out of poverty. Quite probably in the case of some countries and regions, slow and restricted growth has to take place, while some locations can benefit greatly from growth on any little scale.

Conclusion

Views regarding inequality have been oppressed in recent years by questions of economic growth, democratisation and standards of living. But today the world has reached a stage of social development, when discussion about equality and inequality has earned actuality with new content.

The article accounts for the objective relations of economic inequality within the European Union.

In my view, the current economic and social stratification is the product of history. Generally, poorer countries have a tendency to display greater levels of income disparity regionally, than in wealthier countries.

Today, developed countries are developed and solid politically partly because during recent historical event, they have directly intervened into the game of market powers, and formed politics that has counteracted and modified the disadvantages of these powers.

Current economic politics simply should have the task to avoid unreasonably large inequalities, since wealth concentration, growth of economic inequalities is not only unfair but also unbearable.

Real developments demanding greater equality need to be beneficial for the poorer masses. Wealthy citizens are highly „indebted" to their poorer compatriots, and this debt needs to be paid back somehow.

I believe that with reforms seeking social equality, the socioeconomic system can be improved and fairer, if and when science and politics collaborate strongly together.

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