ANALYSIS OF INCOME AND HUMAN DEVELOPMENT IN THE EU COUNTRIES

Daniela Gabriela COZMA*, Margareta BOCANCIA**

Abstract

For the past three decades there has been an increase in the inequality of the income of different countries, as a consequence of unequal progress. Starting from this issue, the objective of this study is an analysis of the tendency to inequality of income and human development, conducted by grouping the EU member countries in former communist countries and countries that did not have a communist regime between 1945 and 1990. The initial hypothesis is that there are significant disparities in the distribution of income between the former communist countries and non-communist countries during the above-mentioned time range, these states currently being members of the European Union. In our scientific endeavour, we used EUROSTAT and UNDP (United Nations Development Programme) databases, with the analysed period being 2009-2018. To process the data, we used the multivariate hierarchy building technique (dendogram), followed by clustering, considering the GINI and HDI values, based on measuring dissimilarity, to identify the existence of one of the two alternatives (dispersion or uniformity) for the distribution of the values of the two indexes. In the last part of the article we analyse the influence of the European geographical space and HDI on the COVID phenomenon, between 31.03.2020-30.08.2020.

Keywords: GINI index, HDI index, COVID phenomenon

Introduction

The measurement of the economic-social development is achieved with the help of some compound indices, the compounds attribute coming from the fact that these reunite in their formula variables selected based on the decision of the researcher by weighting. Their main meaning is that of quantitative variable, but there may also be a qualitative meaning (possibly of interpretation on the ordering scale) when the quantitative interpretation is not significant.

* Daniela Gabriela COZMA is PhD student at Alexandru Ioan Cuza University, Iasi, Romania; e-mail: dana17miruna@yahoo.com.

** Margareta BOCANCIA is PhD student at Alexandru Ioan Cuza University, Iasi, Romania; e-mail: mbocancia@yahoo.com.

ISBN 978-606-714-619-6 | ISSN 2393-2384 | ISSN-L 2392-8867

Certain indices measure different distributions of variables in different geographical areas (countries), but relatively few such indices capture the distributions over time. Despite all their limitations noticed in the literature, these indices cannot be reduced only to the expression of an ideological or social attitude. However, they remain a quick way to simplify a complicated economic reality. According to Todaro (1989), these indices are large-scale assessments of economic development under the effect of social, political or economic influences.

According to Sainz (1989), the socially motivated contradictory economic aspects in the countries of the world assume a deeply heterogeneous character, which, in the interpretation of the economic realities, forces the combination of both synthetic and analytical indicators. This justifies the opinions of some researchers who see only the usefulness of indices that independently measure the social situation, while other researchers see indices as contrasts between different economic realities Booysen (2002). In order to compare the well-being between different states, it is necessary to agree on a universal meaning of its components, but also to highlight some intercultural aspects. A certain standard of social development cannot ignore the perception at the level of a geographical region of the economic realities, universally valid, but perceived differently according to the customs, traditions, ethical and behavioural norms established in a certain area.

1. Literature review

A review of the specialized literature on inequality reveals divergent views of researchers. Thus, there are researchers who claim that there has been an increase in inequality over time (Wade, 2004), and researchers who report a reversal of the trend of inequality over time (Milanovic, 2005; Sala-i-Martin, 2006). The presence of inequality hinders the development of human capital, contributing to lower levels of confidence, skills, social mobility and physical health (Seery and Caistor, 2014) and represents a possible barrier to achieving a higher standard of living (Carsrud and Brännback, 2011). McCall and Percheski (2010) consider that social policy models the distribution of income in the form of tax structures, income transfer programmes and wage-setting institutions, Pathak and Muralidharan (2018) finds that income inequality increases the likelihood of individual involvement in social entrepreneurship, on the part of the affected persons, while, on the contrary, the income mobility decreases this likelihood of involvement.

In what regards the measurement of inequalities, the GINI coefficient remains the dominant choice (Sala-i-Martin, 2006), as this highlights the interval between a perfectly equal distribution (a GINI coefficient equal to 0) up to the maximum inequality in which case a person owns all the wealth (a GINI coefficient equal to 1), but makes interpretation difficult when engaging in transnational comparisons (Ravallion, 2003).

The HDI index is a composite index, which refers to the factors that monitor life expectancy, education and per capita income, indicators that shape the development of society, the extent to which we can speak of a progress of humanity.

The HDI concept has its origins in the documents developed in the context of the Human Development Report of United Nations Development Programme (UNDP). These were designed and launched by Pakistani economist Mahbub ul Haq in 1990 and were explicitly intended to "shift the focus of the development economy from national revenue accounting to people-centred policies." Among the leading economists whom Mahbub ul Haq turned to, important name in the economic literature can be cited, such as Paul Streeten, Frances Stewart, Gustav Ranis, Keith Griffin, Sudhir Anand and Meghnad Desai.

A shortcoming reported by several authors refers to the errors that accompany the data in health, education and income statistics, used to substantiate HDI. Thus, the following were identified as sources of error: (i) the timeliness of the data, (ii) the substantiation of the related formulas and (iii) the establishment of thresholds for assigning a certain degree of development that a country has.

It is suggested that the usual practice of the United Nations to rank countries according to the so-called "development basket" is incorrect, as it uses arbitrary limit values, turning the official statistics thus constructed into an indisputably deliberate benchmark which politicians, investors, charity providers and also the general public should refer to (Wolff *et al*., 2011).

2. Research methodology

The objectives we set ourselves were:

- identification of disparities in the distribution of income between European countries that were/were not communist based on the values of the GINI and HDI index, from 2009-2018, registered in 31 European countries;
- identification of the influence of the European geographical area and HDI values on the evolution of deaths registered between 31.03.2020-31.08.2020 in the 31 European countries subject to our study.

In our approach, we conventionally divided the 31 states into two large zones, depending on the recent historical past of each country.

The two zones were represented, on the one hand, by the "former communist" countries (symbolized in fig. 1 by the abbreviation "yes"), members of the Warsaw Pact between 1955 and 1990, under the political influence of the former USSR, and on the other hand, by the countries that did not belong to this politico-military group, conventionally called "former non-communists". The initial hypothesis was that there are significant disparities in the distribution of income between the group of countries that were/were not communist in the mentioned interval, currently these states being members of the European Union. The databases, processed with SPSS software, belong to EUROSTAT, UNDP (United Nations Development Program) and World Bank Open Data. The multivariate technique of constructing a hierarchy in the form of a dendogram, as well as the establishment of clusters based on GINI and HDI values, allowed us to measure the dissimilarity in order to identify the dispersion or uniformity for the distribution of the two indices.

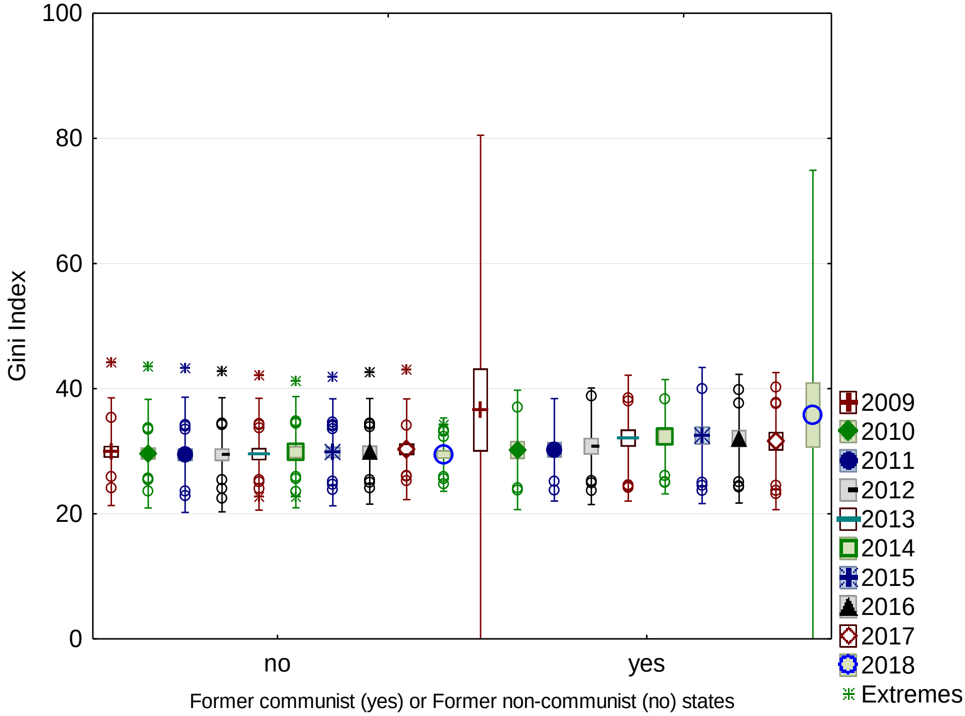
3. Results

3.1. The uniformity of the distributions of the GINI index values for the years 2009-2018, in the EU countries

The GINI coefficient is considered for the following reasons:
a) the perception of the population at the level of Romania is that of income inequality;
b) taking into account, according to EUROSTAT, only the monetary incomes, ignoring the incomes in kind. The consumption of agri-food products from the own resources of the rural household represents an important component of the consumption of the Romanian households, and therefore the failure to consider this component leads to an overestimation of the inequality in Romania.

The values of the Gini index for the years 2009-2018. Based on these Eurostat data, the data in Figure 1 result.

Figure 1. Distribution of the national mean values of the GINI index, by years, according to the recent historical past of the respective country.



Source: authors' representation

Figure 1 shows the distribution of the GINI index on an approximate segment between 20 and 40 percent, for each year, between 2009 and 2018, for the group of

European countries considered, conventionally divided into two large zones, depending on the recent historical past of each country, the two areas being represented, on the one hand, by the “former communist” countries (symbolized in figure 1 by the abbreviation “yes”), members of the Warsaw Pact between 1955 and 1990, under political influence of the former USSR, and on the other hand, by the countries that did not belong to this politico-military group, conventionally called “former non-communists” (symbolized in figure 1 by the abbreviation “no”). The “no” group massively records extreme values for all the years in the considered interval, while the “yes” group is not in this situation. In the “yes” group, the years 2009 and 2018 bring considerable extensions of the value ranges, exceeding the limit represented by the relation mean ± 2 * standard deviation. In other words, the mentioned years include relatively high values of GINI indices in this group, an aspect that no longer appears in the years 2010-2017.

3.2. Comparing the multiannual means of the GINI index in case of ad-hoc designated groups in European countries

Keeping the same grouping described in the previous section, the existence of possible significant differences of means is checked by tests t (Student) between independent samples (represented by the “yes” group compared to the “no” group), for the years 2009-2018. This inferential approach will determine whether there are differences between the GINI means of the countries in one group as compared to the similar means of the countries in the other group.

Table 1. T-tests mean of Gini index; Group 1: no Group 2: yes, Former communist (yes) or Former non-communist (no) states

Year	Mean - no	Mean - yes	t-value	df	p	Valid N - no	Valid N - yes	Std.Dev. - no	Std.Dev. - yes
2009	29.919	36.582	-1.361	30	0.184	21	11	4.302	21.963
2010	29.605	30.209	-0.362	30	0.720	21	11	4.344	4.768
2011	29.419	30.218	-0.484	30	0.632	21	11	4.603	4.094
2012	29.429	30.792	-0.820	31	0.419	21	12	4.558	4.660
2013	29.529	32.093	-1.581	33	0.123	21	14	4.470	5.032
2014	29.843	32.307	-1.589	33	0.122	21	14	4.446	4.568
2015	29.824	32.507	-1.630	33	0.113	21	14	4.279	5.442
2016	29.981	32.007	-1.275	33	0.211	21	14	4.221	5.144
2017	30.315	31.607	-0.794	32	0.433	20	14	4.024	5.477
2018	29.458	35.771	-1.393	31	0.173	19	14	2.935	19.565

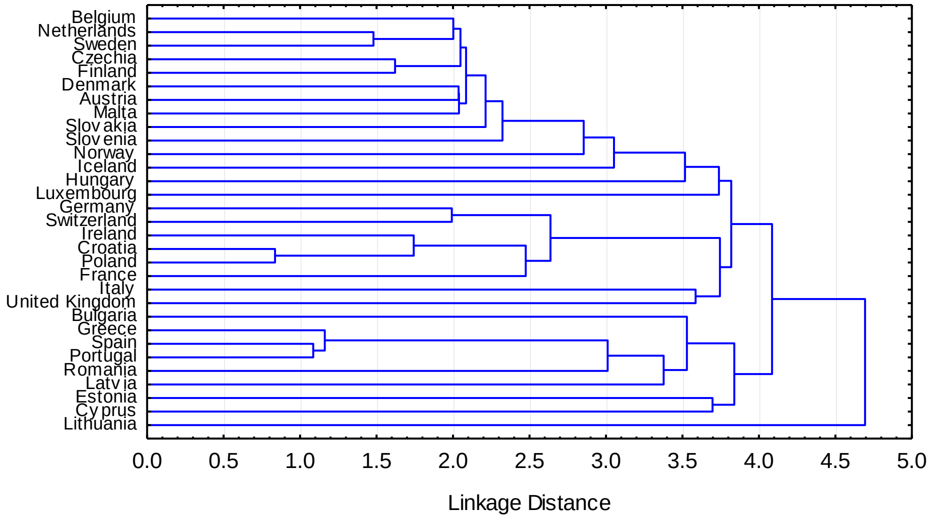
Source: authors’ representation

In none of the years in case of which comparisons were made, was there a statistically significant difference between the means of the GINI indices between the “yes” and “no” groups. As such, although there are differences in the distribution of the values studied between the countries in the two reference groups, these are not statistically significant, so for none of the years indicated in table 1 we can see any difference due to the former political regime taken as reference ($p<0.05$)

3.3. Creating clusters by agglomerating the variables "GINI Index" and HDI indices

Cluster analysis is a multivariate analysis technique based on the interpretation of numerical variables, mainly their grouping into entities called clusters, established based on hierarchical classification and the distance between cluster environments. Eurostat data are used for the 2 categories of data. Euclidean distance is the hierarchical classification criterion used in the following considerations.

Figure 2 Gini Index-Tree Diagram for all 31 Variables, Single Linkage, Euclidean distances.



Source: authors' representation

The GINI values of Croatia and Poland (fig.2) show the greatest "similarity", as these combine in the first cluster at a short connection distance of about 1 conventional unit, while the GINI values of Lithuania enter the last cluster created, at the longest connection distance, of over 4.5 conventional units. The values in case of Lithuania show the most accentuated "dissimilarity", a size that is the opposite of "similarity". The similarity of Poland and Croatia is also given by the fact that both countries have a high level of human development, with Poland being the only country that did not enter the recession, while Croatia is classified by the World Bank as a country with a high-income economy. We structure the clusters (tab.2) according to the values of the means and standard deviations of the GINI index.

Tabel 2. Values of the means and standard deviations for GINI indices at the level of each country

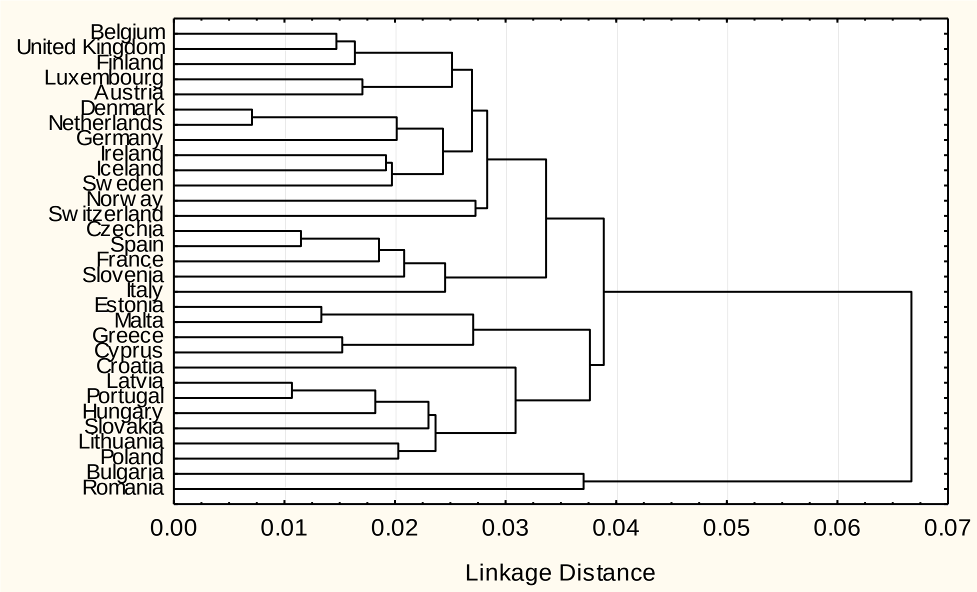
Case	Mean	Std.Dev.	Case	Mean	Std.Dev.
Belgium	26.243	0.270	**Hungary**	27.357	1.565
Bulgaria	35.329	1.636	**Malta**	27.900	0.606
Czechia	24.971	0.198	**Netherlands**	25.943	0.680
Denmark	27.086	0.508	**Austria**	27.471	0.427
Germany	29.514	0.771	**Poland**	30.714	0.445
Estonia	33.100	1.548	**Portugal**	34.143	0.299
Ireland	30.286	0.587	**Romania**	34.671	1.339
Greece	34.014	0.590	**Slovenia**	24.229	0.479
Spain	34.171	0.461	**Slovakia**	25.029	0.950
France	29.843	0.650	**Finland**	25.529	0.250
Croatia	30.714	0.618	**Sweden**	26.386	0.715
Italy	32.471	0.431	**United Kingdom**	31.843	0.995
Cyprus	31.886	1.955	**Iceland**	24.114	0.926
Latvia	35.329	0.457	**Norway**	23.443	0.856
Lithuania	35.214	2.208	**Switzerland**	29.300	0.462
Luxembourg	28.814	1.385			

Source: authors' representation

Countries with relatively high GINI values may have different values of the standard deviation. For example, Bulgaria, Romania, with a GINI mean of over 34, but with standard deviations of over 1.3, on the one hand and on the other Latvia or Spain with high values of the Gini index also, still over 34, but with standard deviations below 0.5, mark two distinct situations. The relatively high value of the Gini index leads to the idea of an inequality in income distribution, but the closer the standard deviation is to zero, the more frequent the mean value in the sample. Therefore, a situation would be in Spain, where the mean of 34.17 reinforces the assumption of a somewhat unequal distribution of income with a relatively high weight in the population, while in Romania the mean of 34.67 does not have the same weight as the value of 34.17 in Spain, due to the higher dispersion (standard deviation) in Romania, as compared to Spain.

Regarding the HDI index, we can find large differences in the order of entry into clusters (fig.3) as compared to the GINI index, the obvious proof that they measure different realities, but, to some extent, comparable. Moreover, the Romania and Bulgaria group enters the clustering at the latest, remaining distinct from the rest of European countries up to the connection distance of around 0.04. The much smaller values of the connection distances are noticeable, given the sizes (sub-humid here, as compared to values between 30-40 in the case of the GINI index).

Figure 3. HDI Index-Tree Diagram for all 31 Variables, Single Linkage, Euclidean distances.



Source: authors' representation

Tabel 3. Distribution on 2 clusters, of European countries, according to HDI values

Cluster.1.HDI	Distance
Bulgaria	0.051
Czechia	0.028
Estonia	0.017
Greece	0.017
Spain	0.032
Croatia	0.023
Italy	0.030
Cyprus	0.014
Latvia	0.012
Lithuania	0.006
Hungary	0.014
Malta	0.019
Poland	0.006
Portugal	0.011
Romania	0.043
Slovakia	0.004

Cluster.2.HDI	Distance
Belgium	0.006
Denmark	0.010
Germany	0.015
Ireland	0.011
France	0.032
Luxembourg	0.018
Netherlands	0.009
Austria	0.013
Slovenia	0.028
Finland	0.001
Sweden	0.009
United Kingdom	0.005
Iceland	0.008
Norway	0.032
Switzerland	0.024

Source: authors' representation

From the point of view of the HDI index (tab.3), Romania belongs to cluster 1, which includes only two economically strong countries in Europe, where there is also a massive community of Romanians (Spain and Italy) or Baltic countries, or from the east and centre of the continent, and between which there are, in economic and social terms, certain connections and affinities.

The other cluster, the one conventionally denoted by 2, includes either traditional Western European countries, or Great Britain, which, although in a post-Brexit period, remains a redoubtable economy, so the hierarchies produced by means of the conventional cluster analysis, as well as the dendrogram-like hierarchy produce results that complement each other well, each providing economic information, but with a strong social touch.

3.4. Research of the influences exerted by the HDI variable on the effects produced by the COVID variable

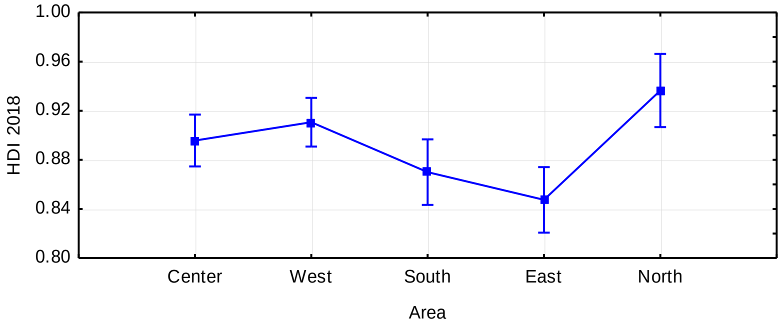
We chose the database consisting of the 31 states in the European geographical area, the same states the HDI values of which have already been discussed. These states are grouped into 5 geographical regions in Europe (East, West, South, North, Centre), assuming that the geographical specificity and socio-economic realities differ depending on the area. With regard to the COVID variable, the following quantitative aspects were taken into account for March 31, 2020 and August 31, 2020, respectively:

a) total number of people who have the infection with the new coronavirus, Sars Cov 2;
b) the number of deceased persons, due to the complications suffered as a result of the infection with the mentioned virus;
c) the percentage of deceased persons calculated from the total number of persons infected with this virus.

The influence of zoning (geographical area of the country) on HDI, respectively, of the percentage of deaths due to COVID, separately for March 31, 2020 and August 31, 2020, respectively.

We applied a one-way ANOVA test, in which the quantitative variable is represented by the HDI values /the percentage of deaths due to COVID (Figure .4), and the factor-variable is given by the geographical area of the respective country.

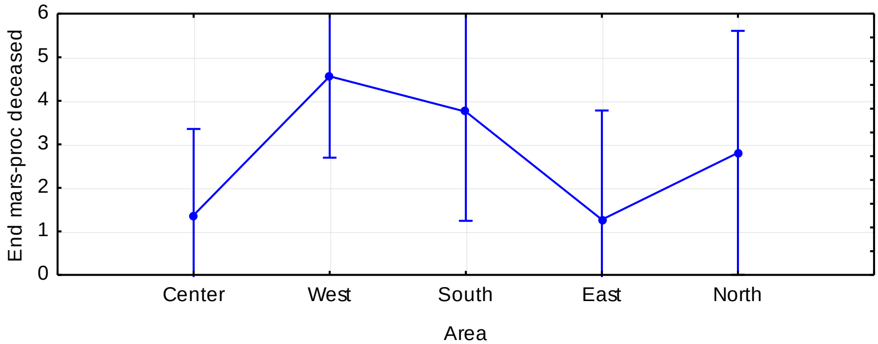
Figure 4. The influence of the area on HDI.



Source: authors' representation

The ANOVA test is statistically significant, F (4.26) = 6.9678, p = 0.0006, so between the means of the HDI values of the countries in the considered areas, the highest HDI is registered in Northern Europe, and the lowest in Eastern Europe.

Figure 5. The influence of the zone on the values of the percentage of deaths due to COVID on March 31, 2020.



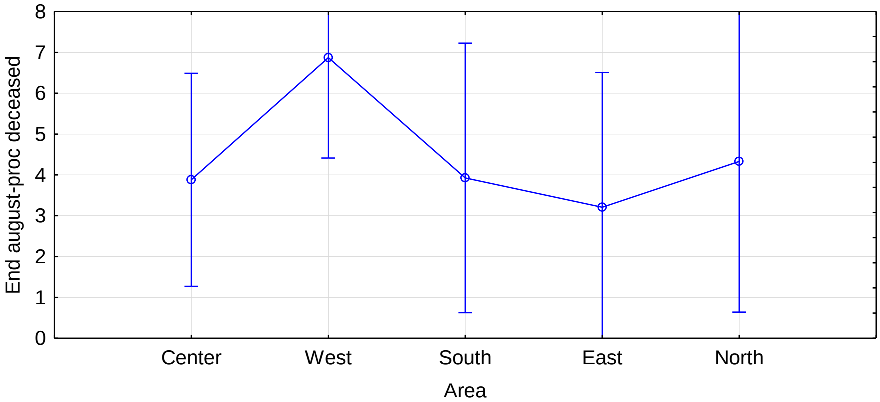
Source: authors' representation

Regarding the influence of the zone on the deaths due to COVID (figure 5) on 31.03.2020, the ANOVA test is statistically insignificant, F (4, 26) = 2.0310, p = 0.11943. It can therefore be stated that no legitimacy can be established between the means of the death rate values due to COVID, as was the case with the influence on HDI in the previous figure.

Even in this case, the undesirable mortality record in the southern and western countries of the continent can be observed, while in the eastern countries, this percentage is low, comparable to that of the central European countries.

Western and southern European countries, with well-developed medical systems, should have stopped the virus from spreading without problems, but, paradoxically, they were surprised by the scale of the phenomenon. Apparently, part of the population of these countries with a high HDI is more vulnerable than the population of countries with a lower HDI. An explanation of this paradox would be the fact that the authorities of the respective states realized relatively late the gravity of the COVID phenomenon, which explains the peaks found in the chart from figure 5, valid on 31.03.2020. 5 months later we find the existence of a peak of growth attributed to Western European countries (Figure 6) which could be due to the large number of tests performed in these countries, as compared to other European countries. In addition, the health systems in these countries serve a significant percentage of the elderly, people with severe chronic diseases and overweight people.

Figure 6. The influence of the zone on the values of the percentage of deaths due to COVID on August 31, 2020.



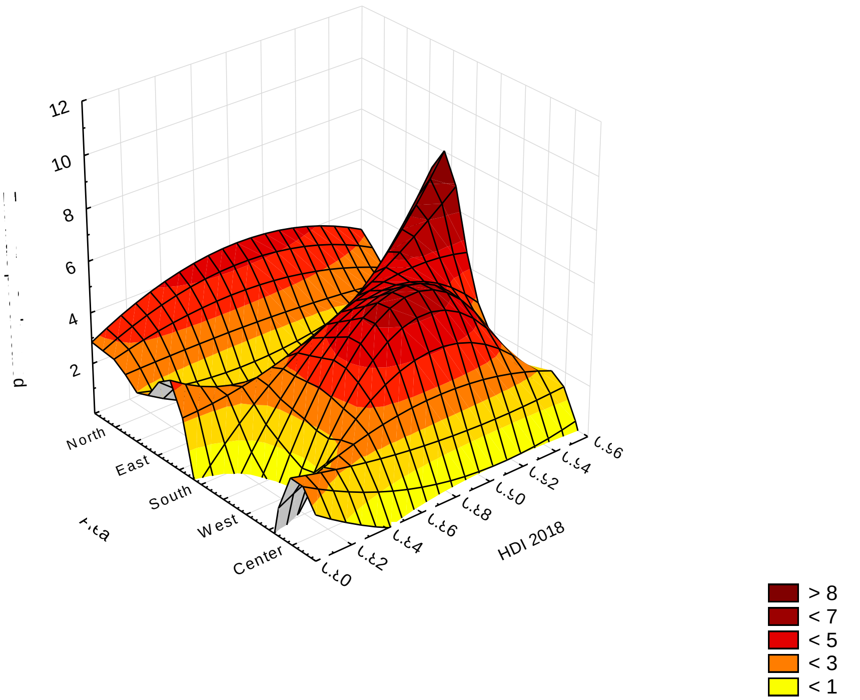
Source: own representation

As concerns the influence of the area on the deaths due to COVID (fig.6) on 31.08.2020, the ANOVA test is statistically insignificant, F (4, 26) = 1.2124, p = 0.32946. We state that no legitimacy can be established between the means of values of death rates due to COVID, as was the case of the influence on HDI in Figure 4. In conclusion, the effects measured by Test F (one-way ANOVA) are obviously distinct, namely incomparable, between HDI and COVID.

The simultaneous influence of zoning (geographical area of the country) on HDI and the percentage of deaths due to COVID, separately for March 31, 2020 and August 31, 2020, respectively

Three-dimensional Figure 7 shows the 5 conventional areas of affiliation of the countries in question, the death rates due to COVID and the latest HDI values. The combination of HDI and of the zone influence results in the finding of higher percentages for COVID mortality, on March 31, 2020, in Eastern and Southern European countries, a situation somewhat different from that reported in Figure 5.

Figure 7. Simultaneous influence of zoning (geographical area of the respective country) on HDI and the percentage of deaths due to COVID, for March 31, 2020.



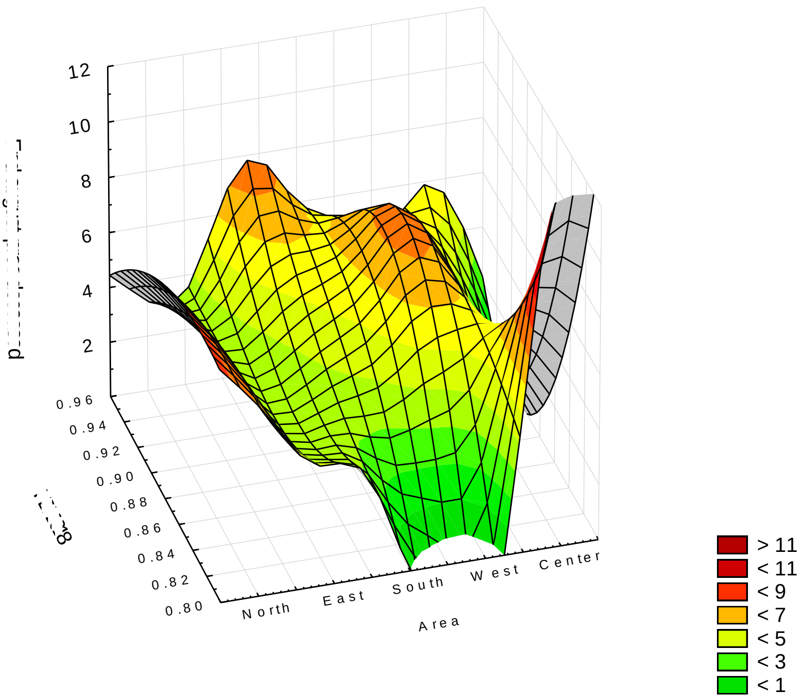
Source: authors' representation

In addition to the higher values of this time (end of August 2020), compared to the end of March 2020, one ca see a certain balance between conventionally delimited geographical areas, while maintaining a decrease in death rates for the North area, which, according to Figure 4, recorded in 2018, a mean of over 0.90 of the HDI index.

The following is an illustration by means of the cluster analysis (dendrogram) corresponding to the death rate assigned to COVID on March 31, 2020, the first notable moment of the pandemic spread, Figures 9 and 10.

We opted for the cluster analysis in order to identify a set of homogeneous countries, to detect similarities between the countries belonging to the same cluster. The formation of the groups of countries was based on the calculation of the Euclidean distance, the final form of representation of the groups being the dendrogram.

Figure 8. The influence exerted simultaneously by the zoning (the geographical area of the respective country) on HDI and the percentage of deaths due to COVID, on August 31, 2020.



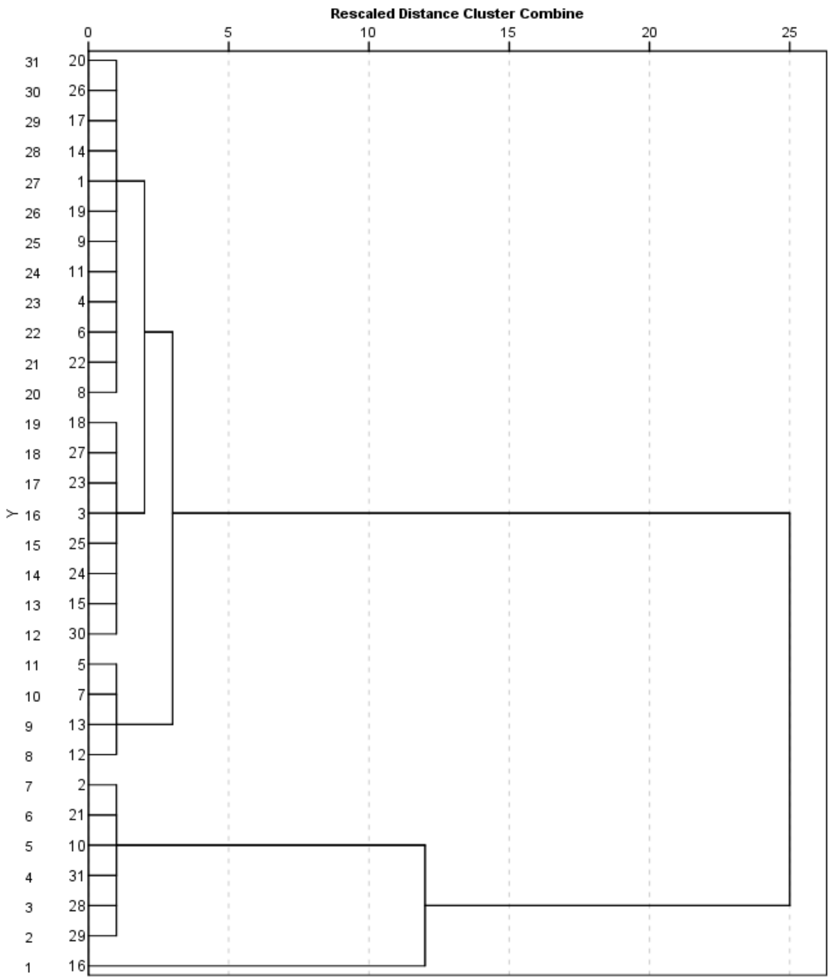
Source: authors' representation

The small Euclidean distance between the death rate values of a group of countries allowed us to combine them into a cluster.

States marked with codes 2,10, 21, 28, 29, 31 (are the ones with the highest death rates due to SARS Cov 2): Belgium, France, the Netherlands, Spain, Sweden, UK. These enter the clustering process at the latest, together with 16, Italy, combining, finally, with a cluster formed in stages of 3 groups, these including initially 8, 12, respectively 4 countries. Romania (code 25) has a more favourable evolution, being part of the group of 8 countries from an already cited cluster. Because the distances between the distant branches of the dendrograms in Figures 9 and 10 are high, as compared to the close branches, we interpret the grouping of countries with caution. However, as principles of grouping the previously mentioned states, we notice the temporal moment of the onset of the COVID 19 pandemic and the triggering cause. Thus, Belgium confirmed at the beginning of February 2020 the spread of the virus, and the authorities link this spread to the return of some tourists coming from northern Italy. France confirms the existence of the virus in early February 2020 and considers the annual meeting of the Christian Open Door

Church to be the key event that triggered the spread of the virus. The Netherlands confirms the virus at the end of February 2020, the triggering cause being considered a Dutch citizen returned from Italy, and Spain confirmed the spread of the virus in early February 2020. Sweden and the UK confirm the virus in late February 2020 and early March 2020. In Italy, the virus was first confirmed in early February 2020, when two Chinese tourists tested positive. Regarding Romania, the confirmation of the virus was made at the end of February and, as a peculiarity, the triggering cause was given by the people coming from Italy.

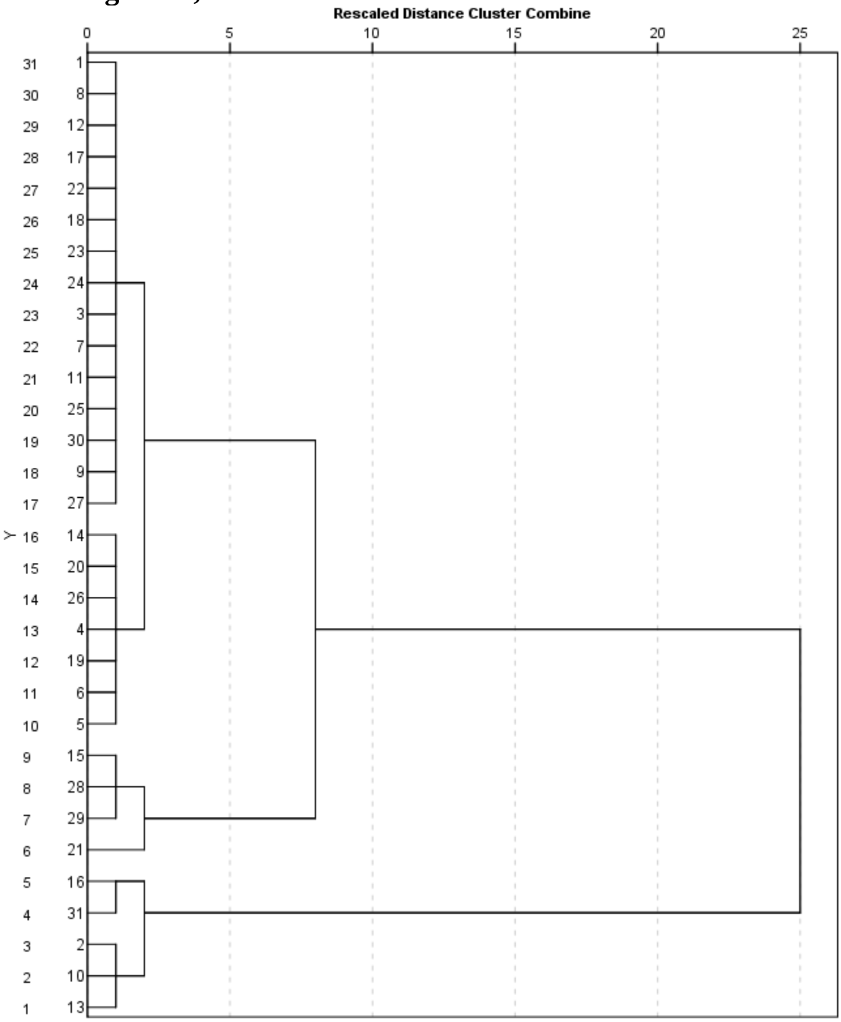
Figure 9. Dendrogram corresponding to the death rate assigned to COVID, on March 31, 2020.



Source: authors' representation

We show you the dendogram corresponding to the death rate, assigned to COVID at the most recent time, August 31, 2020.

Figure. 10 Dendrogram corresponding to the death rate assigned to COVID, from August 31, 2020.



Source: authors' representation

Romania maintains its position from March 31, to be included in the first cluster, based on the Euclidean distance from its centre. Finally, the group of countries entering the clustering process at the latest consists of the countries marked with codes 2, 10, 13, 16, 31: Belgium, France, Hungary, Italy and the UK. As of August 31, 2020, the group of states with the highest death rate (latest in clustering) no longer has the same component as on March 31, 2020. In the group of "latest clustered" states there are only three of the countries that had the same position at the beginning of the pandemic: Belgium, France and the UK. A possible explanation could be that the respective countries are countries with a high individual freedom in relation to the state authorities, and the authorities have delayed the introduction of pandemic restriction measures.

Conclusions

In countries where there is a large income inequality, a multifaceted phenomenon, there is a significant influence on the economic and social environment, as there is a negative impact on economic growth, on the opportunities enjoyed by citizens of those countries and on the access to jobs and decent health services. In our study we tried to identify if there are significant disparities in terms of the distribution of income between the group of countries that were/were not communist, starting from the GINI and HDI indices, in the period 2009-2018.

The result was that, although there is a relatively widespread perception that income inequality in Eastern European countries with post-communist economies has a greater influence on socio-economic and political development as compared to non-communist countries in Europe, we did not identify significant differences between the two categories of states (noted in our study "yes" and "no") at the level of Gini indices means, in the period 2009-2018. This result is not accidental, as those years were the years of the pronounced economic crisis at the turn of the first two decades of the current century. Also, the "yes" group comes from countries that have had, for a long time, centralized economies, relatively uniform incomes and, in the years after the economic changes subsequent to the change of political regime, these countries have not yet registered the dispersion of incomes displayed by the countries in the "no" group.

As compared to non-communist countries, countries in the socialist system have recorded lower levels of income inequality, but have seen some increase in inequality after the fall of communism (Bandelj and Muhutga, 2010). The limits of our conclusion may result from the fact that the GINI index is a relative measure, which measures absolute wealth and not relative wealth, the use and interpretation thereof being controversial, because in a country with a developing economy the GINI index may increase (due to income inequality increase), while the number of people in absolute poverty may decrease (Mellor, 1989). Another limitation of the GINI index is that it is not an adequate measure of egalitarianism, because it only captures the dispersion of income in a country, as it only reflects the distribution of income independent of the GDP of that country.

Regarding the human development index (HDI) which is a composite statistical index of life expectancy, education and per capita income indicators, we found that the highest HDI is recorded in the countries of northern Europe, and the lowest index is in Eastern European countries.

Since COVID-19 triggered a crisis in human development, disrupting income, health and education system, we tried to capture in our study whether there is an influence of the European geographical area and the HDI index on the evolution of deaths recorded between 31.03.2020-31.08.2020 in the 31 European countries subject to our study.

The conclusions were:

- Regarding the influence of the zone on the deaths due to COVID on 31.03.2020, we did not find a positive correlation between the geographical area and the number of deaths;
- The combination between HDI influence and geographical area allowed us to identify higher percentages for COVID mortality, as of March 31, 2020, in Eastern and Southern European countries;
- On 31.08.2020, compared to 31.03.2020, we noticed a certain balance between the conventionally delimited geographical areas, with the maintenance of a decrease in the death rates for the North area.

We believe that this crisis brings many challenges to all countries that will cause them to balance public health policies with economic and social activities and force them to promote the inclusive human development in the coming years. Improving access to social protection for vulnerable low-income groups could reduce inequalities in human development and the efficient mobilization of economic resources will potentiate effective responses destined to counteract the effects of the COVID 19 pandemic.

References

Bandelj, N. and Mahutga, M. C. (2010), How Socio-Economic Changes Shape Income Inequality in Post-Socialist Europe, *Social Forces*, 88(5), pp. 2133-2161.

Booysen, F. (2002), An Overview and Evaluation of Composite Indices of Development, *Social Indicators Research*, 59(2), pp. 115-151.

Carsrud, A., Brännback, M., (2010), Entrepreneurial Motivations: What Do We Still Need to Know?, *Journal of Small Business Management*, 49(1), pp. 9-26.

McCall, L. and Percheski, C. (2010), Income Inequality: New Trends and Research Directions, *Annual Review of Sociology*, 36, pp. 329-347.

Mellor, J. W. (1989), Agricultural Development in the Third World: The Food, Poverty, Aid, Trade Nexus", *The Magazine of Food, Farm, and Resources issues, Agricultural and Applied Economics Association*, 4(1), pp. 1-5.

Milanovic, B. (2005), *Worlds Apart: Measuring International and Global Inequality*, Princeton, NJ: Princeton University Press.

Pathak, S. and Muralidharan, E. (2018), Economic Inequality and Social Entrepreneurship, *Business & Society*, 57(6), pp. 1150-1190.

Ravallion, M. (2003), *The debate on globalization, poverty and inequality: why measurement matters*, World Bank Policy Research Working Paper, 3038, Washington, D.C.

Sainz, P. (1989), An index of social welfare, in: *Towards a New Way to Measure*

Development. Report on the International Meeting on More Effective Development Indicators, pp. 156-60, Caracas, Venezuela: Office of the South Commission.

Sala-i-Martin, X. (2006), The world distribution of income: falling poverty and convergence period, *The Quarterly Journal of Economics*, 121(2), pp. 351–397.

Seery, E. and Caistor, A. E. (2014), *Even it Up: Time to End Extreme Inequality*, Oxfam GB.

Todaro, M. P. (1989), *Economic Development in the Third World*, Longman, New York, pp. 108–113.

Wade, R. H. (2004), Is globalization reducing poverty and inequality?, *World Development*, 32(3), pp. 567–589.

Wolff, H., Chong, H. and Auffhammer, M. (2011), Classification, Detection and Consequences of Data Error: Evidence from the Human Development Index, *The Economic Journal*, 121(553), pp. 843-870.