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2 Inclusive growth of the CEE countries as a

determinant of sustainable development

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Abstract: Referring to the concept of inclusive growth, the authors analyse the transition economies of the Central and Eastern European countries, which are the current EU members (Bulgaria, Croatia, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia and Slovenia). That region was selected as the CEE countries characterized by comparable historic and economic background but now they seem to reach diversified stages of development. The objective of the study is to identify the level of inclusive growth among the CEE countries, taking into account indicators assigned to its seven pillars. The thesis is that the CEE countries represent socio and economic heterogeneity as well as different levels of sustainable development. The research methods involved the application of the principal components analysis and the multivariate analysis. For literature review, the bibliometric analysis was conducted with the visualization prepared by the VOSviewer software. The main findings suggest that Estonia, Slovenia and the Czech Republic seem to be the ones with the highest inclusive growth. On the other hand, Bulgaria and Romania represent the lowest level of inclusive growth indicators.

Keywords: inclusive growth; CEE countries; sustainable development; globalization; cohesion; public policy; factor analysis; principal component analysis; bibliometric analysis.

1. Introduction

Globalisation, digitalization, and demographic changes are transforming the present economies and societies [1, 2]. They provide new opportunities but, at the same time, they cause the growth of new, unpredictable forms of risk and an increase in social inequalities in a broad sense. In addition, the economic growth taking place as a result of new processes and phenomena can cause damage to the environment [3, 4]. Special attention should also be paid to issues related to the skills of tomorrow's workface, support for entrepreneurship while safeguarding job quality, social protection, the standard of living and trust in public institutions (with faith in public services).

The dynamically changing living conditions caused by the reasons indicated above imply the need to undertake activities that lead to sustainable development [5, 6]. In general, sustainability is a complex concept which is based on the rule of balance between satisfying not only the needs but also the aspirations of the present without compromising the needs and the aspirations of future generations [7] (pp. 41-43). The organizing principle of sustainability is sustainable development which is defined through at least three main, interconnected and equally important domains (pillars): economic growth, social well-being and care for the environment [8]. In other words, in this approach the development must be economically sustainable (which means: efficient), socially

desirable (which can be interpreted as inclusive) and ecologically prudent (in the sense of being balanced) [9].

Of course, these three pillars cannot be treated in the same way [10]. One of the consequences of this way of thinking is the concept of inclusive growth [11, 12, 13]. According to this model approach, the elimination of inequalities by making growth advantageous for all people is the best method to provide global prosperity in a long-term perspective. In the other hand it cannot also be understood as providing full equality [14]. These inequalities must be seen in three general contexts: income, wealth and opportunities (some authors also add a gender perspective [15]). It is crucial because, for example, an increase in the level of labour productivity has not always meant higher income for middle-class either. Therefore, the reduction of inequalities is not only the concern the poorest classes and cannot be associated only with poverty. It shows clearly the magnitude of the challenge.

Inclusive growth refers to the pace and pattern of economic growth which aims to improve the quality of life especially by mitigating the problems of increasing income disparity and poverty in the world [16]. According to the analysed concept, the support and, more equitably, the share the profits of economic growth should be obtained by acting in three dimensions: investing in people, supporting business development and creating proper conditions for life and doing business (including trusted governments with a number of responsive public institutions). What is also important, in the concept of inclusive growth everyone has the opportunity to participate in and benefit from economic growth or even in a wider perspective – economic development [17, 18]. And what is more, this kind of dividends should be understood both in monetary and non-monetary terms. However, this process requires a lot of involvement of individuals, business entities, other institutions, such as NGOs, and governments. From this point of view, inclusive growth can be seen as an important determinant of sustainable development.

The above indicated assumptions and goals of the concept of inclusive growth are extremely important in the Central and Eastern European (CEE) countries [19, 20]. In its usual meaning, the term CEE refers to the group of countries including Albania, Bulgaria, Croatia, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia and Slovenia. It can be said that these countries are connected by a common geographic location but also they are similar in terms of their common history strongly related to the communist system [21]. In the last decade of the 20th century and in the first years of the 21st century, the CEE countries experienced deep structural reforms together with the introduction of changes in an institutional framework and stabilization politics (related to the change of the political system). This leads to the observation of an extremely rapid economic growth and a profound transformation encompassing all areas of life and affecting all class of the society. However, this statement does not mean that all countries in the region have developed in the same way and have reached the same level. It must also be emphasized that these processes cannot be uncritically equated with sustainable development.

It has long been noted that focusing only on economic growth is not a good approach. It is actually the quintessence of inclusive growth. This concept is based on strong direct links between the micro- and macroeconomic determinants of economy and growth. In terms of the first kind of factors, special attention is devoted to the structural change in economic diversification and competition. In the macroeconomic perspective, an important role is assigned to the gross domestic product (GDP) and total factor productivity. But if the inclusive growth is to be perceived as

economic growth distributed across the whole society in a fair way and as creating opportunities for all people, it is only the starting point for the analysis. From this perspective, it can be clearly seen that GDP per capita (or similar indicator) cannot be the cardinal measure of the socio-economic development. With this regard several new approaches have been proposed. One of the examples of this way of thinking can be found in Europe 2020 [22]. This is a 10-year strategy proposed in 2010 by the European Commission for the development of the economy in the European Union. This strategy is focused on growth, which is supposed to be smart, sustainable and inclusive. Such a defined aim is translated into five headline targets related to: employment, investing in R&D, sources of the energy, education and poverty.

Another well-known approach to inclusive growth and sustainability is the OECD's "Framework for Policy Action on Inclusive Growth", which moves beyond the above factors, including simple GDP metrics and statistical averages. In this concept, the OECD emphasizes the well-being of the people who will be able to create and maintain (in a long-term perspective) sustainable growth in conditions favourable for inclusiveness. In theory, this aim can be achieved by actions addressing three types of receivers [23] (pp. 20-24):

- (1) investing in people and places that have been left behind (through solutions in e.g. childcare, healthcare, education, justice, housing and infrastructure as well as responsible environmental policy);
- (2) supporting business dynamism and inclusive labour markets (through e.g. technology diffusion, innovation, competition and entrepreneurship, access to jobs and fair contracts regardless of gender or origin, and support in adaptation to the future work);
- (3) building efficient and responsive governments (through e.g. aligned policy, integrity, inclusive policy-making and international coordination).

The World Economic Forum's System Initiative on Economic Growth and Social Inclusion prepared its own concept of framework. It is a holistic vision based on seven pillars and they are divided into a further fifteen sub-pillars (figure 1) [24]. It is important that the scores are received in each pillar and they do not collapse into index crossed specific pillars which could describe a new "inter-pillar"- the area independent of the previously defined pillars. The level of growth is calculated on the basis of an appropriate set of indicators. Each of the pillars is relevant in its own chance to achieve inclusive growth. Macroeconomics, trade, and financial policies are still important but there are also new factors which should be included in the calculation of the reached level of growth in specific countries or even in a broader sense – their sustainable development.

In the light of these considerations, the principal aim of the study is to identify the level of inclusive growth reached by the countries in the CEE region. This article focuses on those CEE countries which are currently the European Union members, i.e. Bulgaria, Croatia, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia and Slovenia. The analysis is based on the seven pillars of the Inclusive Growth and Development Framework of World Economic Forum. There is a proposal to use indicators, which can be assigned to the highlighted pillars and thanks to them it will be possible to indicate the level of growth in inclusive and sustainable terms. The new aspect of the authors concept is making an attempt to group indicators in key factors. This approach could help to conclude in which areas a higher level of development has been achieved and in which countries. To further deepen the analysis of data, two

years were used – 2006 and 2016. The general thesis is that the CEE countries represent socio and economic heterogeneity and a noticeably different level of sustainable development.

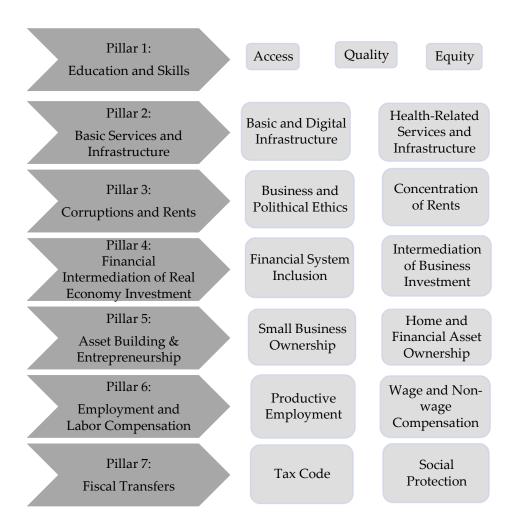


Figure 1. Inclusive Growth and Development Framework Source: according to the World Economic Forum.

The authors used a basic technique of the bibliometric analysis of scientific literature from the Scopus database to characterize the phenomenon of growth of the Central and Eastern European countries. The analysis of the occurrence of key terms was conducted at 3 stages – figure 2. The authors identified 1750 articles connected with the issue of the growth in the region of Central and Eastern Europe (the phrases 'Central and Eastern Europe' and 'growth' were identified in the articles' titles, abstracts and among keywords). The analysis was limited to the following subject areas: Social Sciences; Economics, Econometrics and Finance; Business, Management and Accounting; Environmental Science; Decision Sciences, which allowed for identification of 1138 scientific papers in the Scopus database.

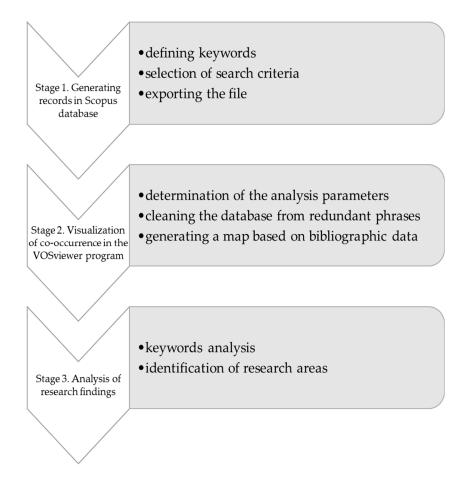


Figure 2. Stages of bibliometric analysis

Source: own study.

The tool used for ordering and presenting data was the VOSviewer program. This software is particularly useful in case of working with a sheer volume of data [25] (p. 250). It is a tool for constructing and visualizing bibliometric networks, which uses an advanced layout and clustering techniques to show the existing relationships between keywords characterizing articles from scientific databases. The program highlights the frequency and co-occurrence of keywords that appear in the network [26].

It the second stage, the analysis parameters were determined such as the minimum number of occurrences of a keyword, which were 5. As a result, the number of keywords to be selected was 73. Cleaning the database from redundant phrases allowed for removing repeatable words, the names of the countries and phrases that did not match thematically.

The prepared visualization was the map of research trends connected with the issue of growth in Central and Eastern Europe – figure 3. The main link was the economic growth of Central and Eastern Europe. However, the searched phrases also co-occurred with the majority of other areas of research interests. There was a field connected with the transition and development of the European Union. Another research trend was the influence of globalization in terms of competitiveness, trade as well as fertility, migration, poverty and inequality. The co-occurrence of keywords also identified the area of regional growth, which refers to the EU enlargement and regional disparities. Regionalism was also reflected in the connection of entrepreneurship with innovation, small business and transformation. The bibliometric analysis of the CEE growth

indicated the relationship of those phrases with convergence, sustainability, total factor productivity, economic development and tourism.

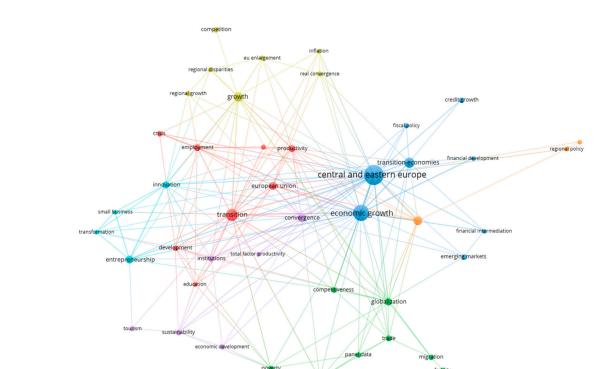


Figure 3. Map of research trends based on the co-occurrence of the authors' keywords in publications referring to growth in the Central and Eastern Europe from the Scopus database Source: own study based on the VOSviewer software.

Following the research areas identified by analysing scientific literature from the Scopus database, it can be concluded that the growth of the CEE countries is not only understood in an economic dimension. It is a multidimensional phenomenon that encompasses income, employment opportunity, economic security, and quality of life [27].

2. Research method

🔼 VOSviewer

The situation in the selected CEE countries in terms of inclusive growth was compared by the use of two multivariate techniques: factor analysis and principal components analysis.

Factor analysis, based on the principal components analysis, allowed for reducing a significant number of variables to a meaningful, interpretable, and manageable set of factors [28]. The main objective of the principal components analysis is mainly the analysis of the dependence structure, ensuring the simplicity of the description of that structure [29].

Manly [30] indicates that factor analysis is an interdependence technique that seeks group of variables that are similar in the sense that they "move together". The basic idea is to identify similar variables among a great number of indicators which were qualified to seven pillars of inclusive

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growth variables and group them together. Each group represents a key factor of the Central and Eastern Europe inclusive growth.

The application of those techniques fosters visual presentation of factors determining inclusive growth in the analysed region as 3D scatterplots. They present the position of selected countries in terms of extracted key factors. The countries with similar inclusive growth indicators can be grouped together. This will facilitate the possibility to see the position of each country in comparison with other CEE countries.

The research process went through three stages before the data were ready for analysis – figure 4.

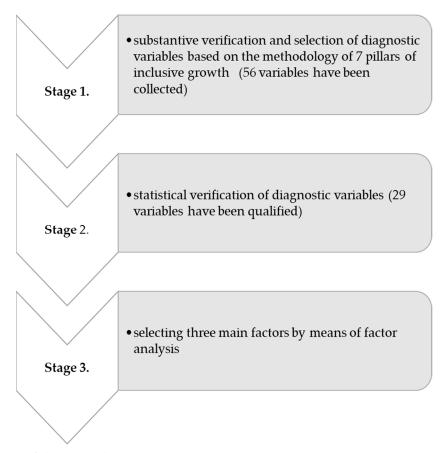


Figure 4. Stages of the research process

Source: own study.

from resources of Eurostat, Worldbank, OECD, International Monetary Fund, World Economic Forum and the Heritage Foundation ("Index of Economic Freedom") for eleven CEE countries in two years - 2006 and 2016. After substantive verification of data, 56 diagnostic variables were approved. The next stage of research process included statistical verification of diagnostic variables. The creation of a correlation matrix between variables allowed for the rejection of variables with a

During the first stage, the data assigned to seven pillars of inclusive growth were collected

correlation coefficient smaller than 0.3. As a result, 29 diagnostic variables have been qualified, the ones that in both 2006 and 2016 did not have a correlation coefficient below 0.3. Below the authors

present 29 variables that were finally taken for analysis.

The first pillar included the following variables:

214 X1: early leavers from education and training by sex as % of population aged 18 to 24, 215 X2: at least upper secondary educational attainment as % of population aged 25 to 64, 216 X5: underachievement in math as % of 15-year-old students failing to reach level 2 ('basic skills 217 level') on the PISA scale, 218 X6: underachievement in reading as % of 15-year-old students failing to reach level 2 ('basic 219 skills level') on the PISA scale, 220 X7: underachievement in science as % of 15-year-old students failing to reach level 2 ('basic skills 221 level') on the PISA scale, 222 X8: participation in learning % of population aged 25 to 64 who stated that they received formal 223 or non-formal education and training in the four weeks preceding the survey, 224 X9: general government expenditure for education as % of GDP. 225 The second pillar involved: 226 X10: population having neither a bath, nor a shower, nor indoor flushing toilet in their 227 household as % of population, 228 X12: percentage of households who have internet access at home, 229 X13: Internet use by individuals as % of individuals aged 16 to 74 ever used, 230 X17: self-reported unmet need for medical care by 'Financial reasons', 'Waiting list' and 'Too far 231 to travel' as % of population aged 16 and over. 232 The third pillar covered: 233 X19: public trust of politicians, 234 X20: ethical behaviour of firms, 235 X22: diversion of public funds, 236 X23: government integrity, 237 X24: intensity of local competition, 238 X25: favouritism in decisions of government officials. 239 The fourth pillar took into account: 240 X27: financing through local equity market, 241 X29: branches of commercial banks per 100 000 adults, 242 X31: venture capital availability, 243 X32: individuals using the Internet for Internet banking as % of individuals aged 16 to 74 within 244 the last 3 months before the survey. 245 The fifth pillar encompassed: 246 X37: property rights as an assessment of the ability of individuals to accumulate private 247 property, secured by clear laws that are fully enforced by the state per million inhabitants. 248 The sixth pillar took into account: 249 X42: NEET rate (%), 250 X44: youth unemployment rate (aged 15-24), 251 X45: employment rate (females) (%), 252 X46: employment rate (males) (%), 253 X48: monthly earnings in industry, construction and services (excluding public administration) 254 (mean earnings in euro). 255 The seventh pillar included: 256 X49: people at risk of income poverty after social transfers in %,

X50: reduction in percentage of the risk of poverty rate, due to social transfers (calculated comparing at-risk-of poverty rates before social transfers with those after transfers).

The last stage involved the identification of three key factors by means of factor analysis. They are synthetic indicators for groups of variables representing correlation equal or more than 0.7. There are two groups of synthetic indicators, because the article compares two years – 2006 and 2016. This approach can help to capture differences in the analysed periods.

3. Results

The key factors have been extracted for two years – 2006 and 2016. The first one selected out of the analysed years was the period of economic prosperity, two years after joining 10 new members to the EU (including eight CEE countries like the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia). The most current data was possible to obtain for the year of 2016, when all the analysed CEE countries already drew advantages from belonging to the EU.

With regard to factor analysis based on data from 2006, three factors were extracted:

Factor 1 "State-created conditions for quality of life" included: pillar 1 (X6: underachievement in reading; X9: general government expenditure for education); pillar 2 (X12: percentage of households who have Internet access at home); pillar 3 (X19: public trust of politicians; X22: diversion of public funds; X25: favouritism in decisions of government officials); pillar 4 (X27: financing through local equity market); pillar 6 (X42: NEET rate; X48: monthly earnings in industry, construction and services (excluding public administration)).

Factor 2 "Social inclusion" covered: pillar 1 (X1: early leavers from education and training); pillar 2 (X10: population having neither a bath, nor a shower, nor indoor flushing toilet in their household; X17: self-reported unmet need for medical care); pillar 7 (X49: people at risk of income poverty after social transfers, X50: reduction in percentage of the risk of poverty rate, due to social transfers).

Factor 3 "Labour market situation and digitalization" gathered: pillar 4 (X32: individuals using the Internet for Internet banking); pillar 6 (X44: youth unemployment rate, X45: employment rate (females), X46: employment rate (males)).

The above factors covered 80% of variation among data. They included the selected variables from seven pillars of inclusive growth (out of the ones which were positively statistically verified). It can be noticed that the variables from the fifth pillar have not been represented in any of the key factors.

Table 1. Factor Scores in the CEE countries in 2006

Country	Factor Scores			
	Rotation: Varimax raw			
	Extraction: Principal components			
	Factor 1	Factor 2	Factor 3	
Bulgaria	-1,48920	-1,13317	-0,28343	
Croatia	1,08153	-0,03318	-1,82593	
Czech Republic	-1,01503	1,67672	0,54650	

Estonia	1,01930	-0,55856	1,89377
Hungary	-0,21119	0,72712	-0,16347
Latvia	0,16724	-0,89125	0,75436
Lithuania	0,21466	-0,43986	0,71442
Poland	0,56053	0,25342	-1,05276
Romania	-0,91748	-1,42735	-0,68387
Slovakia	-0,94913	1,30427	0,13214
Slovenia	1,53878	0,52183	-0,03174

Source: own study.

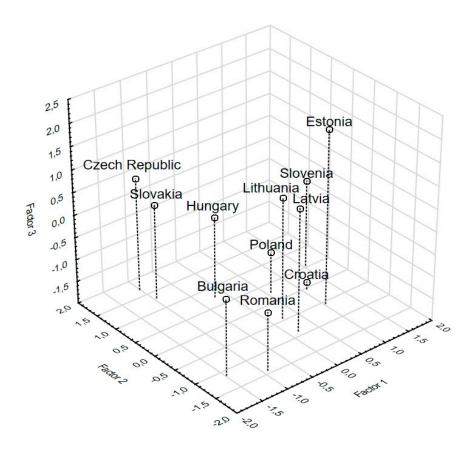


Figure 5. Conceptual map – distribution of countries according to the selected factors (2006) Source: own study.

The analysis of the key factors proves a high level of heterogeneity among the CEE countries – table 1, figure 5. The first factor, which refers to state-created conditions for quality of life, in 2006 indicated that in Slovenia, Latvia, Croatia and Estonia there is a high level of public support. At the same time, the lowest state care when it comes to the education, Internet access or level of salaries in the first out of the two analysed years took place in Bulgaria, the Czech Republic, Slovakia and Romania. It can be surprising to see the Czech Republic participate in that group, which is a country that from the moment of joining the EU has represented a relatively better position among the new member states.

The second key factor referred to social inclusion. It shows that in 2006 the most socially excluded countries were Romania, Bulgaria and Latvia. It mainly results from a significant share of

early leavers from education and training in the population aged 18 to 24 and the unmet need for medical care. In those countries there is a high level of risk of income poverty after social transfers and, at the same time, the impact of social transfers on poverty reduction is a low. Additionally, for Romania there was a significantly high share of population without a bath, or a shower, or indoor flushing toilet in their households. At the same time, the largest number of inclusive conditions for education or health issues existed in the Czech Republic and Slovakia. The level of development in those countries can be one of the reasons for lower state-support indicated by the first factor.

The third factor refers to the labour market situation and digitalization. Estonia was the leader out of the CEE countries when it comes to the level of factor 3. A favourable labour market situation seems to be a long-term phenomenon, which took place also before entering the EU [31]. Additionally, that country represented the highest share of population using the Internet for Internet banking. The worst labour market situation and digitalization took place in Croatia, which at that time did not belong to the EU.

Poland, Hungary and Lithuania represented an average situation among the CEE countries in terms of all three factors.

With regard to factor analysis based on data from 2016 three key factors were also extracted. However, they were slightly different in the composition of variables compared with 2006, so they covered a bit different research areas:

Factor 1 "Education expenditures, unsatisfactory medical services and state transparency": pillar 1 (X9: general government expenditure for education); pillar 2 (X17: self-reported unmet need for medical care); pillar 3 (X19: public trust of politicians; X20: ethical behaviour of firms; X22: diversion of public funds; X23: government integrity; X25: favouritism in decisions of government officials).

Factor 2 "Social inclusion": pillar 1 (X1: early leavers from education and training; X6: underachievement in reading;); pillar 2 (X10: population having neither a bath, nor a shower, nor indoor flushing toilet in their household); pillar 6 (X42: NEET rate; X48: monthly earnings in industry, construction and services (excluding public administration)); pillar 7 (X49: people at risk of income poverty after social transfers; X50: reduction in percentage of the risk of poverty rate, due to social transfers).

Factor 3 "Labour market situation": pillar 4 (X31: venture capital availability); pillar 6 (X44: youth unemployment rate; X46: employment rate (males)).

The above factors covered 78% of variation among data. In 2016, similarly to 2006, almost all pillars have been represented in the created key factors, apart from the variables from the fifth pillar. The CEE countries did not also create a homogeneous group – table 2, figure 6.

Table 2. Factor Scores in the CEE countries in 2016

Country	ountry Factor Scores			
	Rotation: Varima	Rotation: Varimax raw		
	Extraction: Principal components			
	Factor 1	Factor 2	Factor 3	
Bulgaria	-0,54674	-1,75005	-0,12468	
Croatia	-0,24492	0,90488	-1,89935	

-0,67167	0,58361	1,73115
2,18931	-0,27064	1,04816
-1,11135	0,10867	0,78649
0,74781	-0,00817	-0,36573
0,78607	-0,22144	0,02214
0,46723	0,45429	-0,31417
-0,47095	-1,75542	-0,83097
-1,23921	0,50478	0,58092
0,09441	1,44950	-0,63396
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346 Source: own study.

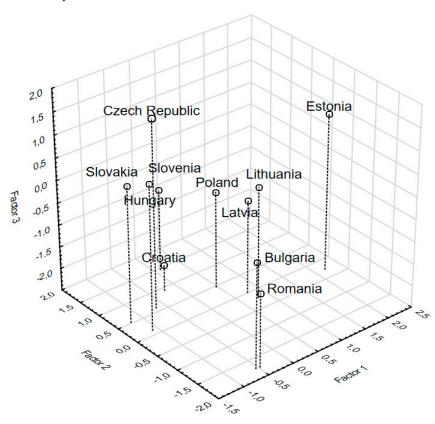


Figure 6. Conceptual map – distribution of countries according to the selected factors (2016) Source: own study.

Estonia was an undeniable leader at the first factor level, which concerned education expenditures, unsatisfactory medical services and state transparency. However, it was mainly because of a significantly high, self-reported and unmet need for medical care in that country in 2016. On the other hand, the lowest level of that factor was in Slovakia and Hungary, mainly because of a low level of educational expenditure but with satisfactory medical services and low favouritism in decisions made by government officials.

The second factor, also in 2016, referring to social inclusion, was the highest in Slovenia, as characterized by an inclusive educational and training system for youths, good sanitary living conditions and the highest earnings. The lowest social inclusion, after ten years still was in Bulgaria and Romania.

The labour market situation (the third factor) both on the demand and supply side was the best in the Czech Republic. That country has also improved the labour market situation in 2016 in comparison to 2006 to the greatest extent. However, it is worth mentioning that the employment rate of females, which in the Czech Republic is relatively low, has been removed from the third factor in 2016. The worst labour market situation, the same as in 2006, was in Croatia.

4. Discussion

The main purpose of this article was to identify the level of inclusive growth reached by the countries in Central and Eastern Europe. The literature suggests that, in general, despite the similarities (especially in common history of political and related economic transformations) the CEE countries cannot be treated as a homogenous group and they represent different levels of sustainable development [32, 33]. This statement finds confirmation also in our analysis. The differences occur in both years taken into consideration – in 2006 and in 2016.

Interesting conclusions can be drawn from the information about variables qualified to synthetic key factors and the formed groups. In both years the key factors which describe the level of inclusive growth in the CEE countries are similar but not identical.

In case of the first key factor in 2006 the variables are related to the conditions for quality of life, like education, access to Internet, earnings, public trust or favouritism in decisions made by the government, etc. Ten years later, in the analogous factor there is no variable connected with e.g. the Internet but there are the other ones – for example: ethics in firms or government integrity. This phenomenon indirectly could confirm the transition of countries to the next stage of economic development. Above all, in this area correlation is visible between variables related to the quality of public environment and the ethics in the institutions (public and private). It can be assumed that these issues have become even more important after the global socio-economic crisis from 2007.

The second key factor in both years concerned social inclusion and the variables were related mainly to broadly understood poverty or the risk of poverty and a share of early leavers from education and training. This shows a very important aspect of inclusive growth which is social inclusion. Additionally, it is a special issue in the CEE countries because they have experienced rapid changes in their political and economic systems that have also affected societies. As a result, in this region it could often be observed a dynamic rate of economic growth which entailed not only positive effects but also brought negative phenomena such as widening social gaps or poverty risk. In their study, the authors observe this situation especially after comparing the analysed factor in 2006 and 2016.

The last extracted key factor refers mostly to the labour market. What is interesting, in 2006 this factor included a variable describing the use of the Internet for online banking. This requires deeper research but perhaps it is related to a higher level of financial inclusion in the CEE countries in 2016 [34, 35]. Another issue in case of which it is necessary to conduct further research is a lack of a variable describing a female employment rate in 2016. This is also important information for the proper interpretation of the results of the authors' study.

Analysing the level of inclusive growth in selected CEE countries, it can be seen that, in general, two countries represent the lowest level of inclusive growth in both 2006 and 2016. They are Bulgaria and Romania. The authors' results are confirmed by other analyses and research reports. Despite the improvement of some component factors, these countries clearly stand out from the rest of the countries from the analysed region. Their situation can be explained by a lower level of development before their accession to the European Union and the subsequent accession to the EU and, after 2006,

the impact of financial crisis [36] but only in part. Growth in Romania is constrained by weak commitment to policy implementation, unfavourable business environment and strong connections between politics and business often translating into corrupt behaviour [37, 38]. A similar problem with the level of corruption exists in Bulgaria [39]. There is also a strong pressure from local interest groups, a frequent lack of administrative capacity and a deficit of good governance. Another important factor common to both countries seems to be their geographical location. The location far from the highly developed neighbouring countries is an obstacle to the placement of companies or factories in these countries. A different situation takes place in the Czech Republic, where there are relatively many important factories, such as e.g.: Toyota, Volkswagen and Peugeot, which produce cars for customers all over the world. This contributes to better conditions to reach a higher level of sustainable development in this country which is visible especially in the authors' third key factor ("Labour market situation") of inclusive growth.

While it was not difficult to identify countries with the lowest level of achieved inclusive growth, it is not easy to distinguish the leaders. The examples of countries that occupy varied but rather better than average positions among other CEE countries in terms of the key factors of inclusive growth are Estonia and Slovenia [40]. It can be said that Estonia took advantage of a window of opportunity to reform its economy and entered the path of sustainable development [41]. This is the effect of many determinants, but, from this study's perspective, it is worth indicating: friendly business environment, high labour market participation, high educational attainment, well-educated and flexible labour force, a developed ICT sector and a good level of stability in public finances [42]. Yet, on the other hand, in comparison to the CEE countries (excluding Romania and Bulgaria), Estonia exhibits a high level of the income inequality - the gender pay gap is high and poverty remains elevated. Hence, it can be concluded that Estonia occupies a low position among the rest of the countries from the analysed region in the second key factor ("Social inclusion"). A completely different situation takes place in Slovenia. In this country the variables describing poverty and inequality are at a low level [43]. What is more, there is a significant improvement if the years 2016 and 2006 are to be compared. In case of the third key factor, Slovenia is at an average level although a deeper analysis of component determinants indicates worse values than the average. Analysing the first key factor, it must be stressed that the variables reached quite a high level (in comparison to the rest of the CEE countries) and in some cases they fell in 2016. But the specific reasons for that situation could be found after in-depth studies.

5. Conclusions

There is no doubt that the CEE countries went along similar paths in transforming from centrally planned to fully market-based economies. After the collapse of communism, they shared common experience in pursuing the growth model and integration with the EU standards. The long-term path of growth and joining the European Union were the most important issues as a way to bring the standard of living in the CEE countries in line with much better developed, Western countries. It means that the main objective of public policy makers in the first years of transformation was to provide conditions for sustainable development and inclusive growth. After the EU accession, the analysed countries made efforts to maintain the best pace of economic growth, keeping the principles of sustainability and inclusiveness.

However, already in 2006 the differences in terms of inclusive growth among the CEE countries were visible. There are studies based on which it can be said that country-specific factors mostly decided about different levels of growth. The analyses prove that specific macroeconomic policies during transformation were less decisive than the level of political stability, the quality of

values, the examples of which the authors present in discussion.

- 452 institutional framework and of informal institutions and the initial level of development [44]. 453 Heterogeneity is shown also in this study. But, the authors' analysis leads to the extraction of three 454 key factors that determine the level of inclusive growth in each analysed country. They were called: 455 "State-created conditions for quality of life", "Social inclusion" and "Labour market situation and 456 digitalization". This kind of clustering emphasizes which areas are particularly important from the 457 perspective of the contemporary approach to sustainable development. Thanks to factor analysis, it 458 was also possible to indicate leaders in each area and it showed that in 2006 there was no country 459 which managed to reach high levels in all three key factors. But then, only the comparison of the 460 results with the conclusions drawn from literature studies can explain the reasons for the obtained
 - The differences in the level of inclusive growth in all CEE countries existed also in 2016. In this case we can also observe an improvement of the general situation in most of the countries although it has not always occurred in each of the key factors. It should be emphasized that in 2016 inclusive growth variables were grouped into slightly different factors: "Education expenditures, unsatisfactory medical services and state transparency", "Social inclusion" and "Labour market situation". Additionally, the differences in both of the analysed years and among all countries could be now explained by three principal groups of determinants: factors related to each country individually, the benefits of belonging to the EU and resilience to the global economic crisis started in 2007.
- 472 **Author Contributions:** This article is the result of the joint work by both authors. E.C. and E.R.-S.
- 473 conceived, designed and carried out the methods selection, analysed the data, prepared the data
- 474 visualisation and wrote the paper. Both authors have discussed and agreed to submit the
- 475 manuscript.

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476 **Conflicts of Interest**: The authors declare no conflict of interest.

477 References

- 1. Passaris, C. E. The Business of Globalization and the Globalization of Business. *Journal of Comparative International Management*. 2006, vol. 9, no 1, 3-18.
- 480 2. Diamond, P. How globalization is changing patterns of marginalization and inclusion in the UK. JRF programme
 481 paper: Globalisation. Joseph Rowntree Foundation, October 2010. Available online:
 482 https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/globalisation-marginalisation-inclusion-full.pd
 483 f (accessed on 04.07.2018).
- 484 3. Aşici, A. A. Economic Growth and its Impact on Environment: A Panel Data Analysis. *Ecological Indicators*. 2013, vol. 24, 324-333. DOI: 10.1016/j.ecolind.2012.06.019.
- 486 4. Panayotou, T. Economic Growth and the Environment. *Economic Survey of Europe*. 2003, no 2, 45-72.
 487 Available online: https://pdfs.semanticscholar.org/4d7a/fb0f3ed4b3770a68c04dc412086af4b45e97.pdf
 488 (accessed on 13.05.2018).
- 489 5. United Nations General Assembly. Resolution adopted by the General Assembly on 25 September 2015:
 490 Transforming our world: the 2030 agenda for sustainable development. A/RES/70/1. 2015. Available online:
 491 http://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A
 492 RES 70 1 E.pdf (accessed on 20.05.2018).
- 493 6. Hedlund-de Witt, A. Rethinking Sustainable Development: Considering How Different Worldviews 494 Envision "Development" and "Quality of Life". Sustainability. 2014, 6, 8310-8328. DOI: 10.3390/su6118310.
- 495 7. Brundtland Commission. *Our Common Future*. World Commission on Environment and Development. 496 Ofxord University Press. 1987. Available online: http://www.un-documents.net/our-common-future.pdf (accessed on 10.08.2018).

- 498 8. Kahn, M. A. Sustainable development: The key concepts, issues and implications. Keynote paper given at the international sustainable development research conference, 27–29 march 1995, Manchester, UK. Sustainable Development. 1995, vol. 3, issue 2, 63-69. DOI: 10.1002/sd.3460030203.
- 501 9. Romeiro, A. R. Sustainable development: an ecological economics perspective. *Estudos Avançados*. 2012, vol. 26, no 74, 65-92. DOI: 10.1590/S0103-40142012000100006.
- 503 10. Adams, W. M. The Future of Sustainability: Re-thinking Environment and Development in the Twenty-first Century. Report of the IUCN Renowned Thinkers Meeting, 29-31 January 2006. Available online: http://cmsdata.iucn.org/downloads/iucn future of sustanability.pdf (accessed on 10.08.2018).
- 506 11. Sun, C., Liu, L., Tang, Y. Measuring the Inclusive Growth of China's Coastal Regions. *Sustainability*. 2018, 10, 2863. DOI: 10.3390/su10082863.
- 508 12. Ali, I., Zhuang, J. *Inclusive Growth toward a Prosperous Asia: Policy Implications*. ERD Working Paper no 97.
 509 Asian Development Bank. July 2017. Available online:
 510 https://www.adb.org/sites/default/files/publication/28210/wp097.pdf (accessed on 12.08.2018).
- 511 13. Rauniyar, G., Kanbur, R. Inclusive growth and inclusive development: a review and synthesis of Asian Development Bank literature. *Journal of the Asia Pacific Economy*. 2010, vol. 15, issue 4, 455-469. DOI: 10.1080/13547860.2010.517680.
- 514 14. Doyle, M. W., Stiglitz, J. E. Eliminating Extreme Inequality: A Sustainable Development Goal, 2015–2030. 515 Ethics & International Affairs. Spring 2014, vol. 28, issue 1, 5-13. DOI: 10.1017/S0892679414000021.
- 516 15. Cabeza-García, L., Del Brio E. B., Oscanoa-Victorio, M. L. Gender Factors and Inclusive Economic Growth: The Silent Revolution, *Sustainability*. 2018, 10, 121. DOI: 10.3390/su10010121.
- 518 16. George, G., McGahan, A. M., Prabhu, J. Innovation for Inclusive Growth: Towards a Theoretical Framework and a Research Agenda. *Journal of Management Studies*. 2012, vol. 49, issue 4, 661-683. DOI: 10.1111/j.1467-6486.2012.01048.x.
- 521 17. Ianchovichina, E., Lundstrom, S. *Inclusive growth analytics: framework and application*. Policy Research Working Paper Series 4851, The World Bank. 2009. DOI: 10.1596/1813-9450-4851.
- 523 18. McKinley, T. Inclusive Growth Criteria and Indicators: An Inclusive Growth Index for Diagnosis of Country
 524 Progress. ADB Sustainable Development WP series No.14. 2010. Available online:
 525 https://www.adb.org/sites/default/files/publication/28493/adb-wp14-inclusive-growth-criteria.pdf
 526 (accessed on 10.08.2018).
- 527 19. Radulescu, M., Fedajev, A., Sinisi, C. I., Popescu, C., Iacob, S. E. Europe 2020 Implementation as Driver of Economic Performance and Competitiveness. Panel Analysis of CEE Countries. *Sustainability*. 2018, 10, 566. DOI: 10.3390/su10020566.
- 530 20. Grela, M., Majchrowska, A., Michałek, T., Mućk, J., Stążka-Gawrysiak, A., Tchorek, G., Wagner, M. *Is*531 *Central and Eastern Europe converging towards the EU-15?* NBP Working Paper No. 264. Economic Research
 532 Department. Warsaw. 2017.
- 533 21. Paprotny, D., Measuring Central and Eastern Europe's Socio-Economic Development Using Time Lags. Social Indicators Research. 2016, 127, 939-957. DOI: 10.1007/s11205-015-0991-9.
- 535 22. European Commission. EUROPE 2020. A strategy for smart, sustainable and inclusive growth. Brussels. 2010.

 536 Available online:

 537 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC2020&from=EN (accessed on 15.08.2018).
- 539 23. OECD. Opportunities for All: a Framework for Policy Action on Inclusive Growth. OECD Publishing, Paris. 2018.
 540 DOI: 10.1787/9789264301665-en. Available online:
 541 https://read.oecd-ilibrary.org/economics/opportunities-for-all-9789264301665-en#page12 (accessed on 15.08.2018).
- 543 24. Samans, R., Blanke, J., Corrigan, G., Drzeniek, M. *The Inclusive Growth and Development Report* 2015. World Economic Forum. Geneva. 2015. Available online: http://www3.weforum.org/docs/WEF Forum IncGrwth.pdf (accessed on 15.08.2018).
- 546 25. Gudanowska, A. E., Modern Research Trends within Technology Management in the Light of Selected Publications, *Procedia Engineering*. 2017, vol. 182. DOI: 10.21008/j.2083-4950.2017.7.5.4.
- 548 26. Siderska, J., Jadaan, K.S. Cloud manufacturing: a service-oriented manufacturing paradigm. A review paper. *Engineering Management in Production and Services*. 2018, 10 (1), 46-55. DOI: 10.1515/emj-2018-0002.
- 550 27. *The Inclusive Development Index 2018. Summary and Data Highlights.* World Economic Forum. Available online: http://www3.weforum.org/docs/WEF Forum IncGrwth 2018.pdf (accessed on 18.08.2018).

- 552 28. Myers, J. H., Mullet, G. M. *Managerial Applications of Multivariate Analysis in Marketing*. Chicago: American Marketing Association. 2003.
- 554 29. Balicki, A. *Statystyczna analiza wielowymiarowa i jej zastosowania społeczno-ekonomiczne*. Gdańsk: 555 Wydawnictwo Uniwersytetu Gdańskiego. 2009.
- 30. Manly. B. F. J. *Multivariate Statistical Methods A primer (3rd Edition izd.)*. New York: Chapman & Hall/CRC. 2005.
- 558 31. Rollnik-Sadowska, E., *Labour markets in the central and eastern Europe comparative analysis*. 21th International Scientific Conference: Economics and Management 2016: ICEM'2016: Proceeding of Selected Papers, Brno University of Technology. 2016, 387-393.
- 32. Grela, M., Majchrowska, A., Michałek, T., Mućk, J., Stążka-Gawrysiak, A., Tchorek, G., Wagner, M. Is
 562 Central and Eastern Europe converging towards the EU-15?, NBP Working Paper No. 264, Economic Research
 Development, Warsaw. 2017.
- 33. Hanousek, J., Kochanova, A. Bribery Environment and Firm Performance: Evidence from Central and Eastern
 European Countries. CEPR Discussion Paper No. DP10499. (March 2015). Available online:

 https://www.hhs.se/contentassets/7d17990209d94ae991036a603353014c/anna-kochanova.pdf (accessed on 22.08.2018).
- 34. Demirguc-Kunt, A., Klapper, L. *Measuring Financial Inclusion : The Global Findex Database*. Policy Research
 Working Paper no 6025. Washington, DC. World Bank 2012. Available online:

 https://openknowledge.worldbank.org/bitstream/handle/10986/6042/WPS6025.pdf?sequence=1&isAllowe
 d=y (accessed on 30.08.2018).
- 572 35. Demirguc-Kunt, A., Klapper, L., Singer, D., Ansar, S., Hess, J. *Global Findex Database* 2017: *Measuring*573 Financial Inclusion and the Fintech Revolution. Washington, DC: World Bank 2018. Available online:
 574 https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017%20Findex%20full%20report_0.p
 575 df (accessed on 30.08.2018).
- 576 36. Flamm, L. *The Crisis and Eurosceptism in Central and Eastern Europe*. L'Europe en formation. 2012, 2, no 364, 305-321.
- 37. World Bank. From Uneven Growth to Inclusive Development: Romania's Path to Shared Prosperity. Systematic
 Country Diagnostic; Washington, DC. 2018. Available online:
 https://openknowledge.worldbank.org/bitstream/handle/10986/29864/9781464813177.pdf?sequence=2&is
 Allowed=y (accessed on 22.08.2018).
- 582 38. Fleaca, E., Fleaca, B., Maiduc, S. Aligning Strategy with Sustainable Development Goals (SDGs): Process Scoping Diagram for Entrepreneurial Higher Education Institutions (HEIs). *Sustainability*. 2018, 10, 1032. DOI: 10.3390/su10041032.
- 585 39. Gawthorpe, S., *Unstable Membership: Bulgaria, Corruption, and Policy of the European Union*. New Voices in Public Policy. Spring 2010, vol. 4, no 2. DOI: 10.13021/nvpp.v4i2.20.
- 587 40. Lior, N., Radovanović, M., Filipović, S., Comparing sustainable development measurement based on different priorities: sustainable development goals, economics, and human well-being-Southeast Europe case. *Sustainability Science*. 2018, vol. 13, issue 4, 973-1000. DOI: 0.1007/s11625-018-0557-2.
- 590 41. Mikhaylov, A. S., Mikhaylova, A. A., National cohesion policies and the influence of interregional divergence gap on innovation sustainability. *Journal of Advanced Research in Law and Economics*, 2017, 8(6), 1854-1860. DOI: 10.14505/jarle.v8.6(28).20.
- 593 42. OECD. *OECD Economic Surveys: Estonia. Overview.* September 2017. Available online: 594 https://www.oecd.org/economy/surveys/Estonia-2017-OECD-economic-survey-overview.pdf (accessed on 22.08.2018).
- 596 43. OECD. OECD Economic Surveys: Slovenia. Overview. September 2017. Available online: 597 http://www.oecd.org/eco/surveys/Slovenia-2017-OECD-economic-survey-overview.pdf (accessed on 22.08.2018).
- 599 44. Rozmahel, P., Kouba, L., Grochová, L., Najman, N. Integration of Central and Eastern European Countries: 600 Working Paper no 9. June 2013. Heterogeneity? Available online: 601 fileadmin/documents/pdf/Workingpapers/WWWforEurope_WPS_no009_MS77.pdf (accessed on 602 22.08.2018).