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# Education in V4 countries: a state of art

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## Abstract

This article deals with the issue of state of art of education in Visegrad countries. The nature of the article is mainly analytical, when provides initial basis for education system evaluation and policy and strategic documents formulation in relationship to education. The importance of education and human capital development for socio-economic conditions of particular countries, as well as missing common methodological approach and research on this topic, justify this type of contribution. The article provides findings of scholarly literature about importance of education, education system, its quality and evaluation, in relationship to public interventions and policies and strategies formulation. Consequently, the analytical results of chosen indicators are introduced, followed by recommendations formulation.

*Keywords: education; Visegrad Countries; Comparative Analysis; Education Policy*

## 1. Introduction

Education is one of the essential assumptions of development in all fields of human activities. In this regard, e.g. Apple (2013) points at relationship between education and socio-economic development of countries, issues like employment, respectively employment, poverty, social balance etc. Research realised on the topic of importance and influence of education on society and its sustainable development conclude following ideas:

- education and its character plays important role in prevention of socio-pathological behaviour (Johansson, Fogelberg-Dahm and Wadensten 2010),
- importance of education for success on the labour market and career development (Berntson, Sverke and Marklund 2006, Johansson, Fogelberg-Dahm and Wadensten 2010),
- essential is the role of education system and schools in processes of multicultural tolerance, developing multicultural society and support of social inclusion (Quinn and Rubb 2005),
- education and human capital development is important determinant of successful entrepreneurship (Unger et al. 2011, Arthur, Hisrich and Cabrera 2012),
- requirements on education system and outcomes are intensified by current economic processes converging to knowledge-based economy (Olssen and Peters 2007),

- it exists significant difference between education levels, characteristics and demands across countries according to their level of economic development (Handa 2002).

In the light of above-mentioned ideas, a state of art of educational system in Visegrad countries (V4 countries hereafter) is analysed in this article. Our target is to analyse the situation in education in V4 countries, using relevant indicators of numbers of students, teaching staff and expenditures spent on education. The nature of this article is to provide analytical fundamentals for further formulation of strategic documents and conceptions related to education and its development.

With respect to formulated target of the article, the consequent chapters introduce (1) theoretical background of the issue of education and its relevance for particular fields of human activities and also educational systems in V4 countries; (2) methodology, which we use to reach the article target; (3) state of art analysis of relevant indicators related to education in V4 countries, when this part represents the main research contribution of the article to research and praxis, especially to public bodies and political representation; (4) some headlines for education strategies and conceptions formulation.

## 2. Theoretical background

Attention paid to education, its system, outcomes, quality and development is unifying element of societies all over the world and affect all levels of spatial decomposition – from international to local levels (e.g. Ball 1998). Ball (1998) stresses also several important issues related to education system development in this regard:

- There is remarkable difference between education systems in particular countries, according to their different historical and socio-economic development, economic conditions and models of society-arrangements.
- Globalization is a process affecting not only current economy, but also education models and systems, which require harmonization of these phenomena. Without this harmonization, economies and societies are threatened by risks of social and educational problems.
- Because of national specifics in education, there is no universally applicable solution, but it is possible to recommend some general tools, like supporting of economy by better connectedness with education system; enhancing of students´ abilities and skills according to the needs of praxis; control of school colloquiums, optimization of costs, enhancement of community-based approach and engagement; optimization of school-influential systems.

Because education and its accessibility and systemization is perceived to be above all public affair, public authorities and political representation are key actors with power to change. Cheng and Tam (1997) highlight, that public authorities as well as public policies often fail in their attempts to improve education system and outcomes. The reason of this failure is ascribe to misunderstandings and incorrect interpretations of education complexity and measuring of its quality. Like stress Sifuna (2007) or Ball (1998), there should be accord between correct interpretation of indicators and utilization of good praxis examples with respect to national, prospectively regional specifics for designing education policies and strategies.

The quality of education in relationship to students´ achievements and consequent positive synergies in economy is in the heart of public interventions and policies or strategies formulation and realization (Cheng and Tam 1997, Sifuna 2007 or Ball 1998). Cheng and Tam (1997) see the most severe problems in reaching the education quality in inappropriate formulation of basic terms and indicators, Sifuna (2007) adds the issue of finance, when lots of

education systems face lack of teaching staff, material, technologies and infrastructure, but also insufficient teachers´ competencies. To solve these problems, scholars provide following ideas:

- Appropriate design and combination of approaches for education development and strategic management of education system and change, with simultaneous formation of links between the two systems (Cheng and Tam 1997).
- Realization of reforms in education with respect to national and regional specifics and broad discussion with relevant actors, like schools, students and parents, firms, institutions etc. (Cheng and Tam 1997 or Sifuna 2007).
- Creemer and Kyriakides (2013) find out the basis for quality achievements in development in schools themselves, linkage between effective education research and school development, creation of self-assessment mechanisms in schools, improving of schools environment and bullying prevention and, about high importance, formulation of suitable indicators and their measurability.
- Grauwe (2005) adds the issue of school-based management and its utilization in education policies and strategies formulation.

Because the issue of suitable indicators formulation, measurability and evaluation is crucial for intended effects of interventions (e.g. Creemer and Kyriakides 2013), let now turn our attention on this topic. Cave et al. (1997) concern the issue of performance indicators, usually used in private sector, and consider several findings in this regard:

- Utilization of performance indicators in public sectors is increasing, but it needs modification with respect to public sector specifics
- The common methodological framework is missing in most of the countries.
- Categorization of performance indicators should be based on input-output logics.
- It is possible to recommend several possible assessment approaches, according to the needs and intentions of particular education system, which are cost-benefit analysis, cost-effectiveness analysis (easier to introduced in public sector, compared to cost-benefit analysis), regression analysis and its tools, value-for-money approach or approach of three E´s (efficiency, economy and effectiveness) etc.

Cave et al. (1997) provide the experience form particular countries in Western Europe with performance indicators utilization in education system. In this regard, successful were Finland, Sweden, Netherlands or the United Kingdom; failure experienced Germany, mostly because of their highly formalized and rigid public and educational structures. Note, that Cave et al. (1997) concluded further research on this topic to be highly desirable, especially in case of Eastern Europe countries or developing countries of the world.

Scholars provide also the set of indicators, which provide suitable basis for mentioned methods and approaches for education systems evaluation (e.g. Cuttance 2006). Mayer, Mullens and Moore (2001) examine the indicators on the lowest (school) level related to teacher characteristics, classroom characteristics and school organizational characteristics. Oakes (1989), Callan et al. (2007), Cohen (2007), Hutmacher, Cochrane and Bottani (2002) or Wößmann (2003) suggest the utilization of indicators connected not only to students and school environment, but also to student-teacher ratio, class size and overall education system burden and financial requirements of education system.

## 3. Methodology

In this section of the article, we introduce our targets and methods. At the first place, let us point out the analytical nature of our contribution. In this regard, the target of the article of to provide analytical findings as a basis for further formulation of strategies and conceptions

related to education systems in the area of V4 countries. V4 countries – the Czech Republic, Slovakia, Poland and Hungary to be specific; were chosen because of their common history (Austria-Hungarian monarchy and socialistic block after the Second World War), which results into development of similar political and educational system, but also into similar traditions and attitudes. Secondly because of their similar economic conditions, including also the position within European Union and other international organizations.

Following our target idea, several indicators related to education and its state of art were analysed. Data about these indicators were collected from Eurostat database. The availability of relevant and official statistical data justifies our choice of year of the evaluation – year 2012, respectively year 2011 for data about expenditures on education. We use also the decomposition of education levels given by Eurostat – education system is divided into 9 ISCED levels (international classification for organising education programmes and related to qualification and levels by fields). ISCED levels classification includes level from 0 (early childhood education) to 8 (doctoral or equivalent education).

Construction of particular indicators is as follows:

- Number of students in V4 countries – the indicator uses total number of students at all ISCED levels, standardized by the total population of the country. This indicator is understood to be initial indicator about education system burden. Standardization is used to ensure comparability between particular V4countries. The gender decomposition is made.
- Number of teachers – the indicator is designed as total number of teaching staff, denominated according to full-time equivalents, standardized by the total number of students. Teaching staff on 0 – 4 ISCED levels is taken into account for this indicator. Higher levels of education are usually characterized by teachers or tutors, who are academics, researchers or experts from praxis – not teachers in straightforward way of understanding. Again, the gender decomposition is made.
- Student-teacher ratio – this indicator express the number of students per one teacher. Included are values for 1 to 3 ISCED levels, when especially in primary and secondary education is of high importance to ensure individual approach of the teacher to every student.
- Average size of the class – This indicator was evaluated for ISCED levels 1 and 2 separately, when again, the idea about the importance of individual approach to students is crucial on these education levels.
- Expenditures on education in current prices – Expenditures on education in current prices are expressed in million € and purchasing power standards (PPS hereafter) for year 2011, according to official data availability.
- Expenditures on education as a percentage of gross domestic product (GDP hereafter) – Another way how to express expenditures on education was included to our evaluation – in percentage of GDP to be specific. This indicator is constructed with traditionally used GDP values denominated according to Eurostat methodology.

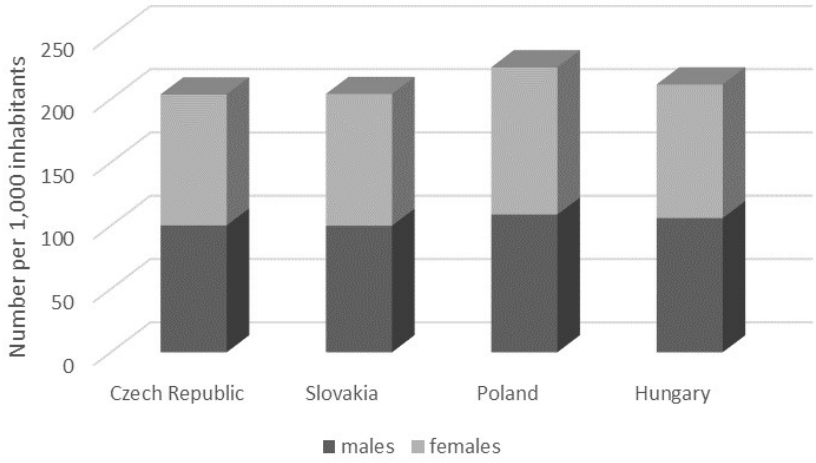
Because of the nature of this article, stressed in previous text, we use comparative and descriptive analytical methods to evaluate introduced indicators, related to education in V4 countries. Results of these methods are consequently used in final chapter of this article to provide some initial recommendations for relevant authorities. In this regard, deductive methods are used.

## 4. State of art analysis of education in V4 countries

This chapter represents the main idea of the article. We try to analyse basic relevant indicators related to education in V4 countries to provide basis for education strategies and conceptions formulation.

Firstly, we analysed the numbers of students in education systems of all V4 countries. This indicator represents the "clients" of education system in each country. The standardization of the total number of students, described in previous chapter enable the mutual comparison between countries and speak about the burdens on particular education systems. Figure 1 is relevant at this point. According to given data, there is the higher amount of students in Poland and Hungary, compared to other two countries. The gender decomposition show that there is not significant disproportion between males and females, comparing the total numbers of students on all education levels (all ISCED levels). The gender decomposition in education systems follows overall gender decomposition in whole population.

**Figure 1: Number of students; V4 countries, 2012**

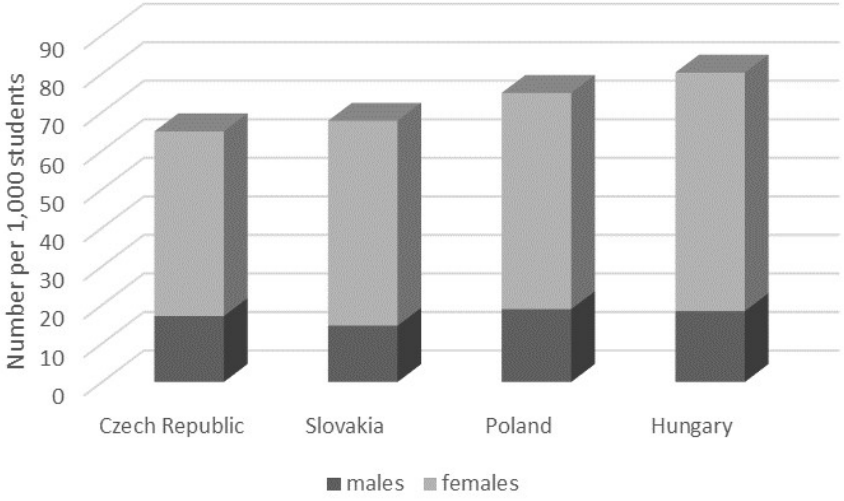



Source: Eurostat database

After the initial comparison of total numbers of students on all education levels, figure 2 indicates the numbers of teacher staff, denominated according to full-time equivalents per 1,000 of students. According to given data, there is again the higher number of teaching staff in Hungary and Poland, now with reversed ranking. The smallest number of teaching staff was indicated in case of the Czech Republic, in spite that there is was not indicated the smallest number of students.

Looking at the gender decomposition of teaching staff, all four countries indicate significantly smaller numbers of males-teachers, compared to female-teachers. This difference is approximately 1:10 in favour of female-teachers.

**Figure 2: Number of teaching staff, full-time equivalents; V4 countries, 2012**

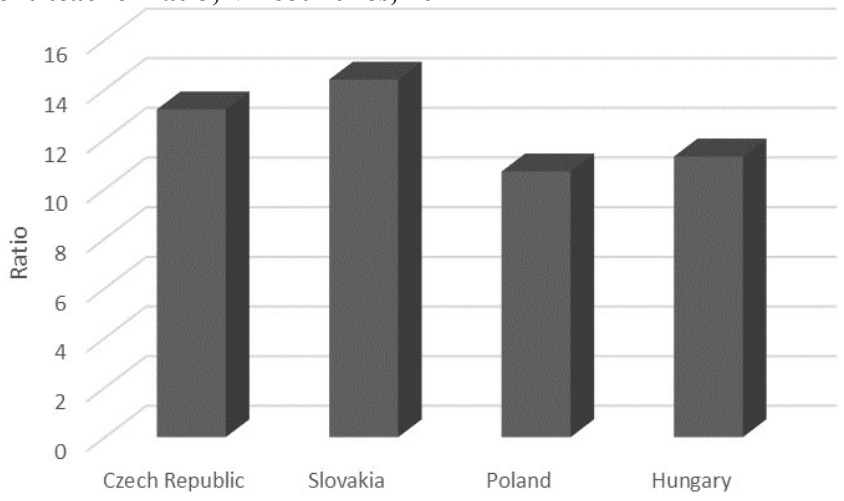



Source: Eurostat database

Total numbers of students and teaching staff in education system lead us to the issue of student-teacher ratio and average size of the class. These two indicators are considered as crucial for the quality of education and educational results of students in general. Firstly, let us look at the student-teacher ratio (see figure 3). It is obvious, that there is the highest student-teacher ratio in case of Slovakia and the Czech Republic. These two countries indicates also smaller number of teaching staff (see figure 2). On the contrary, Poland has the smallest value of this indicator, despite its highest number of students in education system (see figure 1).

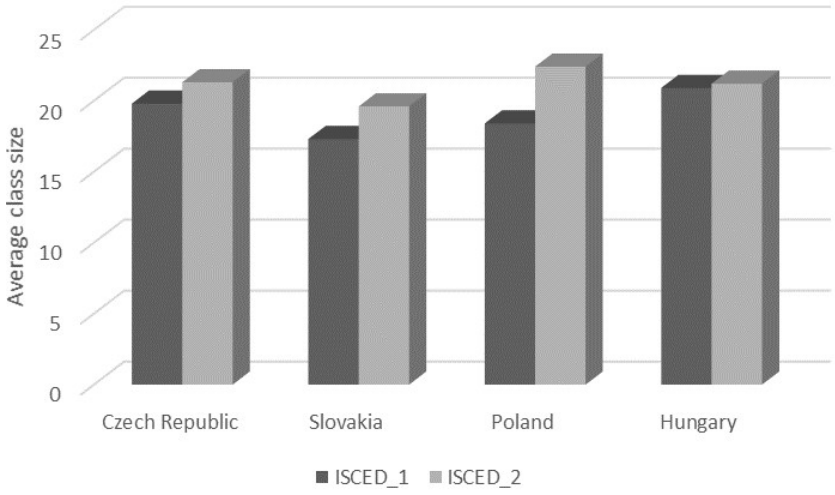
Figure 4 adds information about the average size of the class. The decomposition for ISCED levels 1 and 2 was made in this regard. Hungary and the Czech Republic indicate relatively higher average size of the class in primary education level. In case of the lower secondary education level, higher average size of the class can be observed in case of Poland and the Czech Republic again. The result of Poland is interesting, considering its previous results concerning student-teacher ratio and total number of teaching staff. Hungary indicates in this regard consistent average size of the class on both evaluated education levels.

**Figure 3: Student-teacher ratio; V4 countries, 2012**




Source: Eurostat database

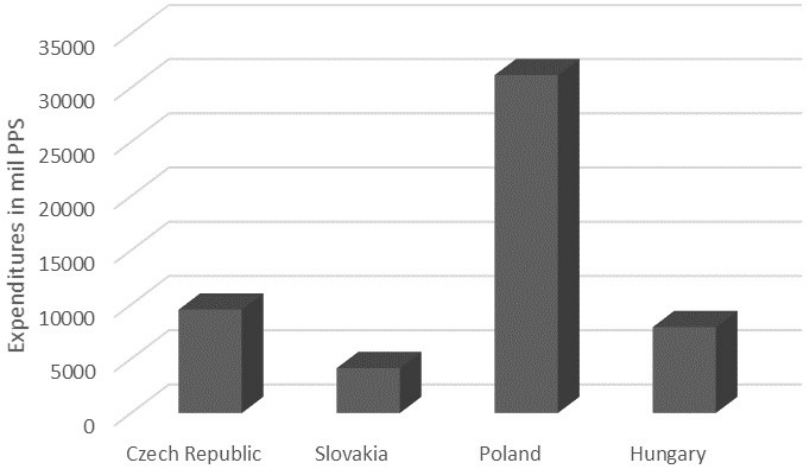
**Figure 4: Average size of the class; V4 countries, 2012**




Source: Eurostat database

Because the financing is the essential issue when speaking about education, its quality and educational results of students, following analysis is targeting on this topic. Figure 5 shows the expenditures on education, expressed in current prices and PPS. Poland indicates significantly higher amount of expenditures on education, compared to the other countries. The second place is occupied by the Czech Republic. On the contrary, the smallest amount of expenditures on education can be observed in case of Slovakia.

**Figure 5: Expenditures on education in current prices and PPS; V4 countries, 2011**

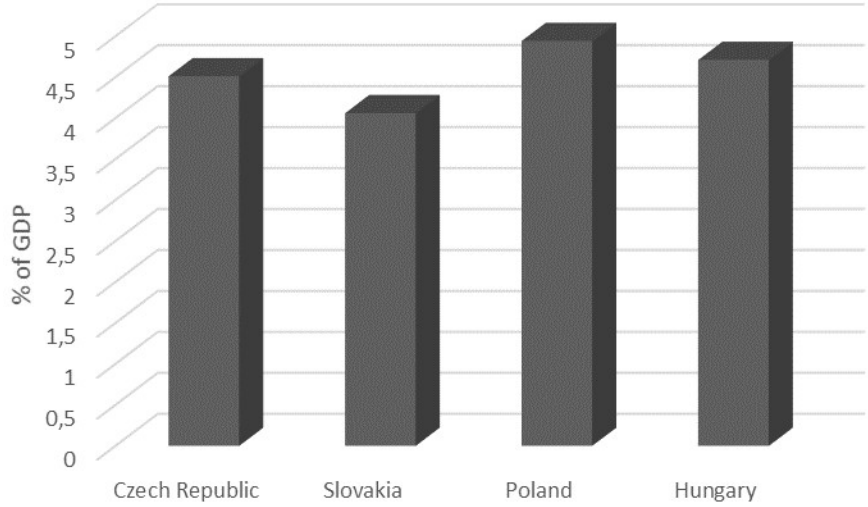



Source: Eurostat database

Previous figures are enhanced by the information about the share of expenditures on education on GDP (figure 6). Using this indicator, the results of particular countries are more balanced than in case of the previous indicator construction (see figure 5). Even thought, the ranking of the countries remains the same, leaded by Poland, followed by the Czech Republic, Hungary and finally Slovakia. We can observe, that the percentage of expenditures on education

on GDP in particular countries flows from less than 4 % in case of Slovakia, to almost 5 % in case of Poland.

**Figure 6: Expenditures on education in % of GDP; V4 countries, 2011**




Source: Eurostat database

## 5. Recommendations based on analytical results

At this point of the article, we would like to outline some recommendations and headings for relevant actors, like policy and strategies makers. Because education express important part of society and in V4 area has prominent position in public sector, these recommendations and headings are formulated especially to meet the needs of public bodies or politicians. Realized analyses pointed especially at issues discussed in following text.

There is significant dominance of women in teacher profession. This phenomenon can be observed across whole V4 area, when the overall share of male-teachers, according to full-time equivalent indicator, reaches approximately only 10 %. This situation results mostly from historical tradition, when teaching and education was supposed to be women´s domain. Now a days, it is highly desirable to break such lock-in from several reasons:

- It is about high importance to provide various approaches and models of behaviour for young generation. Education system plays significant role in this regard, when participates on personality recognition of young people. Thus, male- and female-teachers provide different viewpoint not only on education and learning processes and methods, but also on the whole reality.
- It is desirable for the society to work with stereotypes and prejudices connected with the role of women. Thus, the idea of woman whose position is mostly in social or caring services and employments should be overcome. In addition, let point at the issue of wages conditions in education, which tend to be under desirable levels in V4 countries in long-term view. This might be one of the reason, why education is not attracting the attention of men, who usually expect better financial conditions compared to their women counterparts.
- Related to previous point, it is also important to provide career-progress possibilities for female-teachers. This is true not only for education field, but for the economy as a whole, like public authorities on regional, national and also international level use

to stress. On the contrary, V4 countries witness the lack of women in managerial positions at schools, respectively educational institutions in general. Thus, the task for public bodies and political representations is to encourage women to achieve better working positions and conditions.

Another issue to discuss and solve in public and political circles is the question of average size of the class, student-teacher ratio respectively. As stress many researches, evaluations and strategic documents, these indicators are highly correlated to the quality of education. According to our analyses, the situation is the worst in case of the Czech Republic, which indicates both – relatively higher student-teacher ratio and high average size of the class. To justify our opinion about intervention requirements, here are given some relevant ideas:

- Lower education levels are essential for student´s personality recognition not only in relationship to education and learning itself, but also in relationship to life opinions, values and perceptions. Following this thesis, smaller classes seem to provide better environment for personality recognition and development, better access to professional feedback from the teacher, as well as space for better and deeper clarity of educational content.
- Smaller class size enables the teacher to pay proper attention to every student and give more personalized feedback. Consequently, it is easier to recognize special educational needs and requirements of particular students and design the lecture according to them. Moreover, the teacher in smaller class has better chance to identify potential and talents of students, respectively special educational needs or weaknesses, and recommend suitable precautions or educational solutions.

In the following text, let us pay attention about sensitive issue of financing of education. Because education is mostly public affair in area of V4 countries, represents the point of interest of policy makers and public authorities on all spatial levels in general. As far as education is financed from public budgets, which witness overall shortening in this time, and has also character of public goods with all benefits and risks, here are some important ideas to think about:

- The whole public sector is legally bounded by the requirements of good manager and so called rule of 3E – efficiency, economy and effectiveness in management of public finance. The main risk in this regard is vague definition of these terms, their unclear interpretation and practical achievement. Moreover, the indicators of efficiency, economy and effectiveness are not usually properly defined and measurable. Also long-term efforts of public authorities to solve this problems seem to fail. Altogether, the financing of education is threatened by underestimation of needs, risks of wasting or lack of money in general. This phenomenon is even strengthened by requirements on restructuralization of education systems, modernization of education process in accord with socio-economic changes and human resource requirements in quantitative and qualitative sense.
- Considering abovementioned conclusions, the question of effective education evaluation needs to be answered. Properly formulated measures and methods of education quality evaluation should be linked together with financing system (e.g. value for money concept) and system of strategies and conceptions formulations for further development of education in particular countries. In this regard, results of international testing of pupils and students could be utilized as a basis (e.g. results of PISA – Programme for International Student Assessment, PIRLS – Progress in International Reading Literacy Study, or TIMSS – Trends in International

Mathematics and Science Study, and others), supplemented with national system of students´ evaluation and testing.

- To provide better system of education financing in particular countries, the straightforward and consistent prioritization of education in hierarchy of public policies is required. This prioritization should affect all levels of public sector, from national to regional and local. Harmonization between particular levels should be matter of course.

The issue of education and its proper systematization, financing and realization is a complex issue. In this article, we tried to outline some highlights and most problematic points, according to analysis of relevant indicators related to education systems in V4 countries. Given findings and ideas have character of initial study, which is highly recommended to be enhanced and supported by further research. Also, the main ideas of the final part of our article are recommended to be discussed in public and political debates.

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