
International Journal
of Public Administration, Management
and Economic Development

Faculty of Administration and Economic Studies
in Uherské Hradiště; Jagiellonian College Toruń

www.fves.eu/ijpamed/

IJPAMED, 2018, VOL. 3, NO. 1

ISSN: 2533-4077

International Journal of Public Administration, Management and Economic Development

2018, Vol. 3, No. 1

ISSN 2533-4077

Publisher

Faculty of Administration and Economic Studies in Uherské Hradiště,
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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 V4 countries. 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.

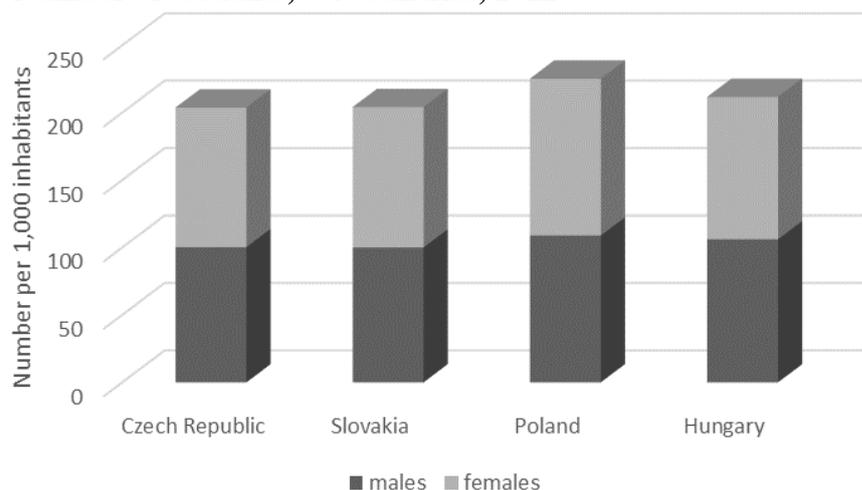
Because of the nature of this article, stressed in previous text, we use comparative and descriptive analytical methods to evaluate introduced indicators, related to education in V4 countries. Results of these methods are consequently used in final chapter of this article to provide some initial recommendations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

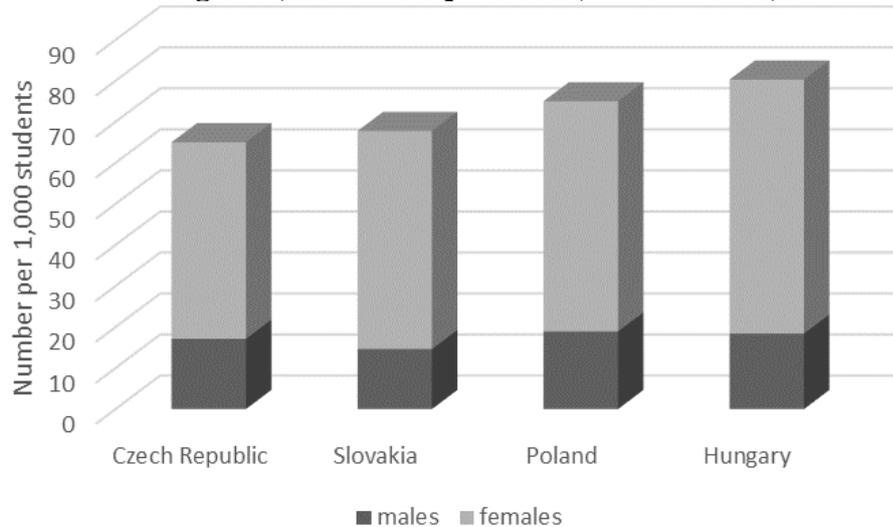


Source: Eurostat database

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

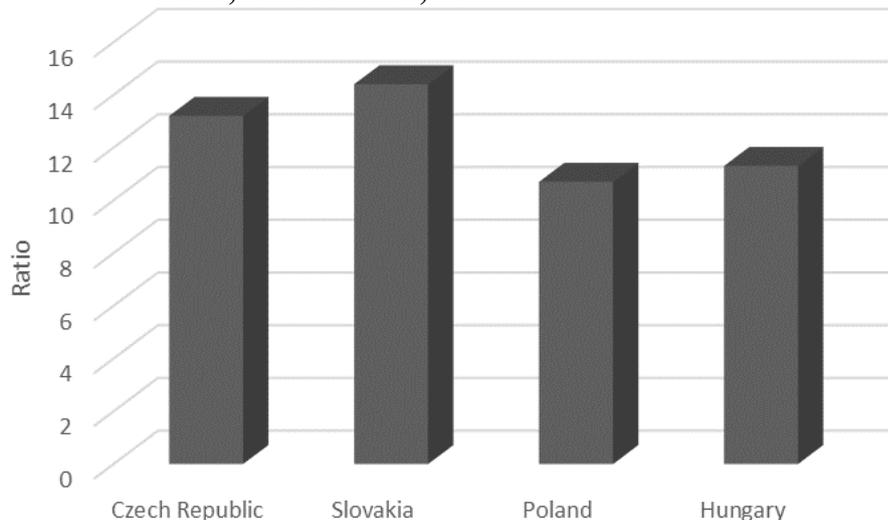


Source: Eurostat database

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 indicate 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).

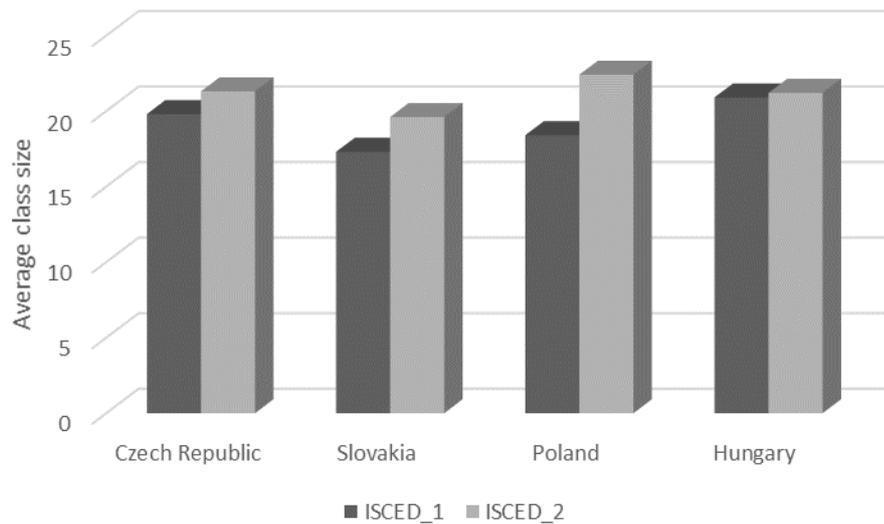
Figure 4 adds information about the average size of the class. The decomposition for ISCED levels 1 and 2 was made in this regard. Hungary and the Czech Republic indicate relatively higher average size of the class in primary education level. In case of the lower secondary education level, higher average 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

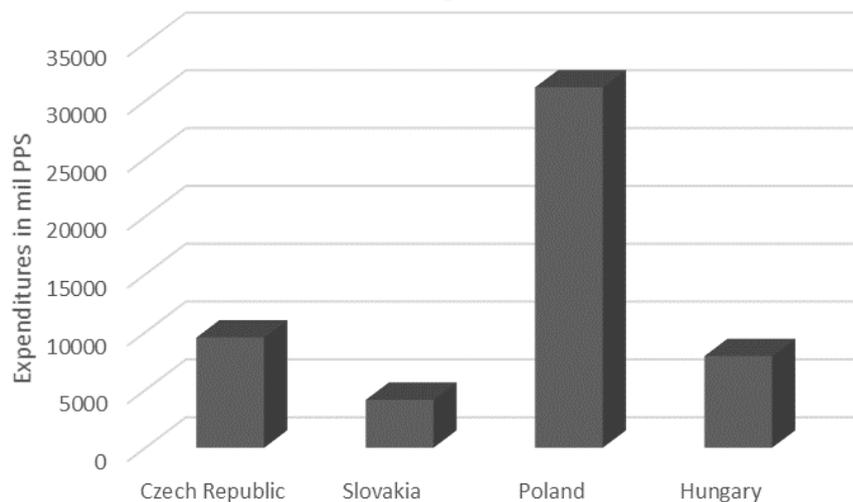
Figure 4: Average size of the class; V4 countries, 2012



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

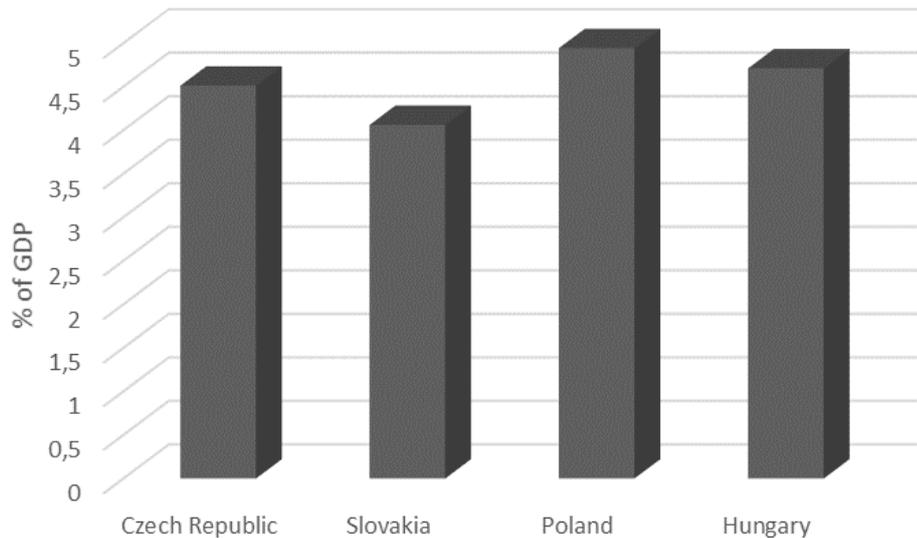


Source: Eurostat database

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 though, the ranking of the countries remains the same, led 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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Gender equality on labour market in the European Union

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Abstract

As far as the issue of gender equality is one of the cornerstones of European socio-economic policy, we focus the attention on the European labour market. The objective of the paper is to provide evidence about gender inequalities on the labour market of the European Union. Based on the findings of current literature, the paper evaluates indicators related to rates of male and female employment and unemployment in years 2006 and 2016. The analysis uses aggregate data about particular indicators for the European Union provided by Eurostat database. According to evaluation results, we formulated some conclusive remarks and policy recommendations on this topic.

Keywords: the European Union; Gender Equality, Employment, Unemployment

1. Introduction

This paper deals with the issue of gender equality on labour market in the European Union. The study is based on time-series data comparison of chosen relevant indicators related to position of males and females on the labour market. The main objective of the paper is to evaluate whether or not there is some evidence on gender inequalities in countries of European Union and consequently, how the situation changes through time. Following this objective, we use data about employment and unemployment in European Union, distinguished by gender, in period 2006 to 2016.

The relevance of research on gender equality, not only on the labour market but also in whole society is justified in many documents of European Union and in current literature. In this regard, European Commission stresses the importance of equal pay, gender balance in decision-making, increasing women participation in the workforce, including managerial and other higher positions, decreasing women isolation and discrimination on labour market. Altogether, the main objective of European Union is to end the gender gap existing on labour market throughout all member countries (Strategic Engagement for Gender Equality 2016 – 2019).

The research on gender equality on the labour market provides some evidence about existing inequalities. These can be summarized in ideas about existing gender gap in labour market opportunities and participation, different pay conditions, access to managerial or other prestigious or higher positions or problems with family and work life harmonization (see, e.g., Fortin 2005, Clarke 2001 or Gornick 1999). In addition, Gornick (1999) points at slowing tendencies of labour market equality achieving.

Introduced issues are in the middle of attention of this paper. Our evaluation of gender equality on labour market of European Union is followed by the paper structure. Firstly, we

provide the ideas of current literature about gender equalities on labour market. Secondly, the methodology is introduced. Thirdly, we summarize fundamental findings of our research. Finally, in the last section of the paper we pay attention about discussion on gender equality on labour market of the European Union.

2. Theoretical background

In this section of the paper, we introduce the main ideas about gender equality on the labour market, which provides current literature and research.

Gender equality throw-out whole society is one of the key topics of European Union strategies and policies. Thus, the main objectives of the European Commission are as follows (see, e.g., Strategic Engagement for Gender Equality 2016 – 2019):

- promote equal economic independence for men and women,
- close gender gap in earnings,
- advance gender balance in decision-making,
- end gender-based violence,
- promote overall gender equality in the European Union.

The major challenges for European policies in the nearest future are based on current situation of gender equality. Even though the women employment rates are going up after the economic crisis, there is still lack of women in decision-making positions that reach about 21 %, including private but also public sector and politics. The Strategic Engagement for Gender Equality 2016 – 2019 indicates also high likeliness of young women to be economically inactive, compared to young men, slow overcoming of gender stereotypes in society, high income and economic inequalities and high likeliness of women to face gender-based violence and discrimination on the labour market.

Fortin (2005) examined the issue of gender attitudes and labour market outcome of women across OECD countries. Findings of this research confirm the existence of certain level of gender inequalities and gender-based discrimination on the labour market. Furthermore, Fortin (2005) revealed that these inequalities depend on both, gender-based discrimination and women's misinterpretation of own abilities and position on the labour market. Vella (1994) pointed at strong influence of traditional attitudes of women's family and local society on their future labour force participation. Fernandez et al. (2004) added the ideas about women participation on labour market in relationship with men's attitudes to working women, their willingness to participate on house-works and their experience with working mothers. Fortin (2005) confirmed also the task of path-dependency of the female inequalities on the labour market, with weakening of this phenomenon in time. On the contrary, the impact of stereotypes in family life design and female role in society remains.

Evans (2002) stressed the importance of public policies and firm's attitudes to women employment and concluded the importance of their role, especially in relationship to issues of lifetime cycle of women – maternity leave, affordable or on-site day care, flexible work hours etc. According to Fortin (2005), questionable is issue of part-time job supply. Thus, women on one hand utilize this tool to participate on labour market, improve economic position of the family and keep up with their profession. On the other hand, the remaining time after household keeping women often dedicate to voluntary activities in culture, religion or altruism rather than part-time work.

Noteworthy is the question of definition of gender equality on the labour market itself. Gornick (1999) summarized three aspects of this question – (1) gender difference forms and multiple aspects interplay, including working preferences or income differences, (2) difference

in economic theories approaches, including gender biases, and (3) conceptualization of gender equality, including feminism or natural gender specifics.

Despite some problematic issues related to research on gender equality on the labour market, it exists strong evidence about inequalities between men and women. These inequalities come from access to labour market, representation of women on decision-making positions across all sectors of national economy, income inequalities or society biases (see, e.g., Gornick 1999, Fortin 2005 or Evans 2002 for complex discussion). What is noteworthy, the gender inequality can be observed in countries worldwide. Thus, the theoretical evidence justifies further research on this topic and provides relevant basis for public strategies and actions.

3. Methodology

Methodology of this paper is based mainly on comparison of time-series data. This approach was chosen because fits the best to defined objective of the paper. The main objective of the paper is to evaluate gender equality on labour market of the European Union and its changes in time.

Table 1: Evaluated indicators

| Indicator | Construction |
|---|---|
| Employment rate | Percentage of employed population on total economically active population |
| Employment rate of population with low education | Percentage of employed population on total economically active population with less than primary, primary and lower secondary education |
| Employment rate of population with high education | Percentage of employed population on total economically active population with tertiary education |
| Unemployment rate | Percentage of unemployed population on economically active population |
| Long-term unemployment rate | Percentage of unemployed population (more than one year) on economically active population |
| Part-time employment rate | Percentage of employed population working on part-time job on economically active population |

Note: Economically active population between 15 and 64 years of age

Source: Eurostat database

The methodology is designed in several steps:

1. Data identification – for our evaluation, we use official data from Eurostat database. Thus, we extracted data about indicators related to gender equality on the European labour market for years 2006 and 2016. This period was chosen to ensure wider overview about changes on the labour market. We can also evaluate the changes of the situation, avoiding the immediate influence of economic crisis after 2008. For our

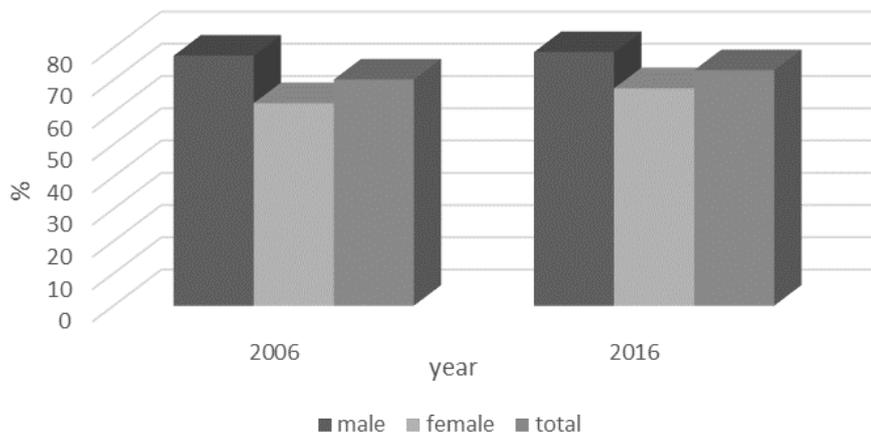
evaluation, we use aggregate data for European Union, denominated according to current composition of the alliance.

2. Construction of the indicators – to evaluate gender equality on the labour market of the European Union, indicators about employment and unemployment were taken into account. The overview of indicators provides table 1, including also information about indicator construction.
3. Time-series data analysis – in the next step of methodological framework of this paper, we evaluated abovementioned indicators. In this regard, values of particular indicators were compared for male and female, additionally for the total value of the indicator. Accordingly, values of all indicators were compared for year 2006 and 2016. The empirical results of the evaluation were introduced graphically.
4. Formulation of conclusive remarks – final part of our methodology is formulation of conclusions and some basic recommendations for achieving gender equality on the labour market of the European Union.

4. Empirical findings

In this section, we summarize the empirical findings of our evaluation. We use graphical illustration of the situation in graphs, which we consider the most appropriate solution. Let us begin with initial information about employment rate in the European Union in two evaluated years. Figure 1 provides this information, when distinguish between employment rates of males, females and shows the total employment rate in both years.

Figure 1: Employment rate; European Union, years 2006 and 2016



Source: Eurostat database

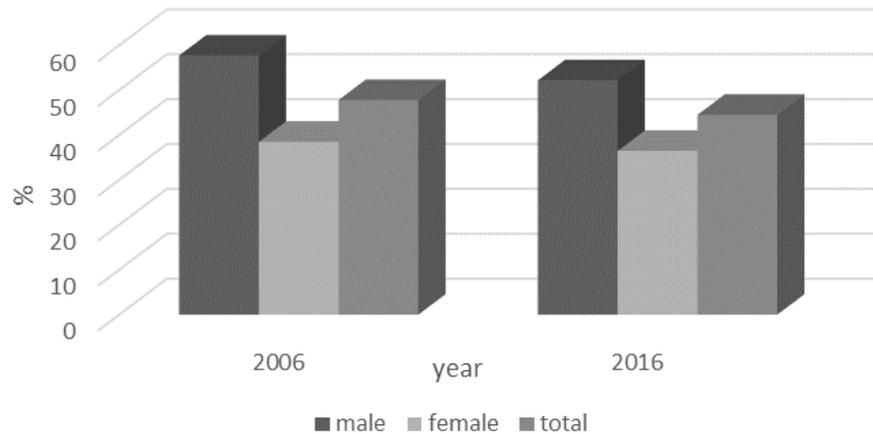
We can see relatively big different between employment rates of males and females, especially in year 2006 (approximately 15 percentage points). This gap closed slightly in the second evaluated year, but still reaches approximately 9 %).

Next, we evaluated the employment rates of males and females considering their level of education. Thus, figures 2 and 3 provide information about employment rates of population with low and high education (see table 1 for detailed information about indicators construction). Overall employment of population with lowest levels of education is relatively low, under 50 %, in both evaluated years with additional decrease in year 2016. The situation seems to be more positive for males, when their employment goes over 50 %, with decrease in the second

year of evaluation. On the contrary, the employment rate of females is under 40 %, again with further decrease in year 2016.

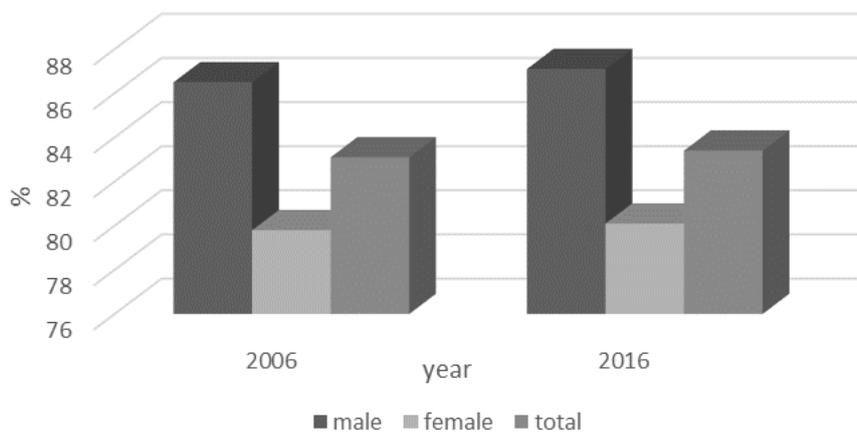
The employment rate of population with tertiary education is relatively stable in time. Regarding situation depicted in figure 3, the total employment rate is on the 83% level. Again, the better is situation of males (86 and 87 %), compared with female employment rates (79 and 80 %) in both years.

Figure 2: Employment rate of population with low education; European Union, years 2006 and 2016



Source: Eurostat database

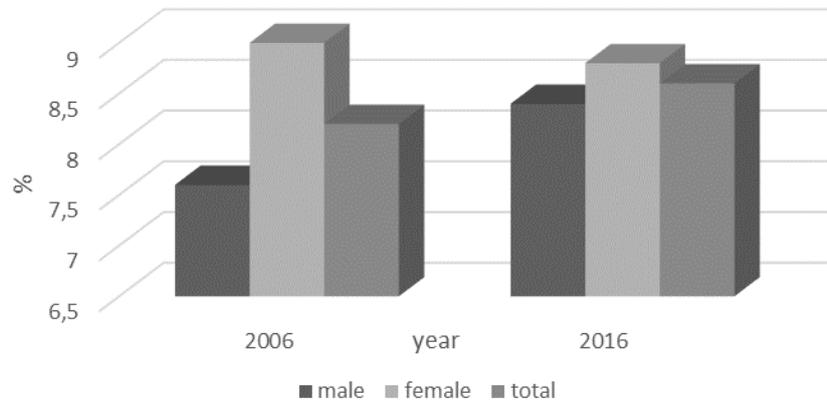
Figure 3: Employment rate of population with high education; European Union, years 2006 and 2016



Source: Eurostat database

Let move our attention to evaluation of gender unemployment throughout the labour market of the European Union now. Figure 4 provide us the initial unemployment information. Overall level of unemployment rate differs between the two evaluated years from 8.2 % in 2006 to 8.6 % in 2016. Interesting is the development of unemployment rate according to gender. While in case of males, the unemployment rate raised from 7.6 to 8.4 % over analysed period, the opposite is true for female unemployment rate. Female unemployment rate decreased from 9.0 % to 8.8 %, to be specific.

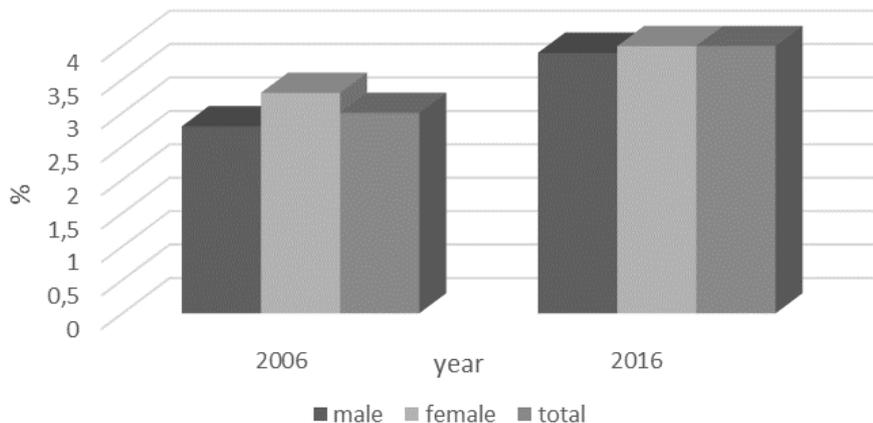
Figure 4: Unemployment rate; European Union, years 2006 and 2016



Source: Eurostat database

Figure 5 adds more information about long-term unemployment and its development over period 2006 to 2016. Again, there is distinguished between total long-term unemployment rate and long-term unemployment rate of males and females. In this regard, the numbers speak about increase of all three indicators. The worst situation can be observed in case of male long-term unemployment that increased for more than 1 %. Female long-term unemployment rate indicates slightly better results, when increased for 0.7 %.

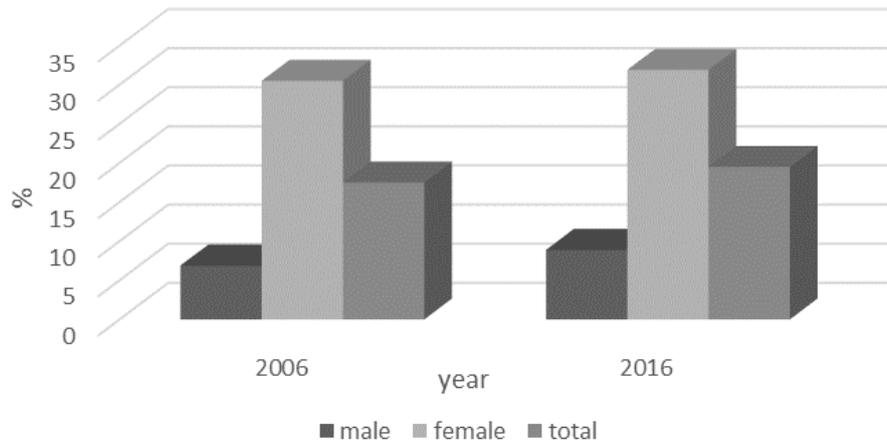
Figure 5: Long-term unemployment rate; European Union, years 2006 and 2016



Source: Eurostat database

Finally, figure 6 provides additional information about employment of men and women based on part-time job. We included this indicator to our evaluation to follow the idea about family and work life harmonization. In this regard, part-time jobs can help especially women to participate on labour market, keep up with trends in their specialization and take care about family as well. Lack of this possibility is often labelled as one of the most severe obstacles of employment and labour market participation for women. Total percentage of population employed on part-time basis increased between years 2006 and 2016 for 2 percentage points. The percentage of males working on part-time job is significantly lower than in case of females. Thus, the male part-time employment rate increased from almost 7 % to almost 9 %. In case of female part-time employment rate, the increase was from 30.5 % in 2006 to 31.9 % in 2016.

Figure 6: Part-time employment rate; European Union, years 2006 and 2016



Source: Eurostat database

5. Discussion of the results

In this section of the paper, we are going to conclude main findings of our evaluation and bring some initial recommendations for closing the gap between men and women on the labour market in the European Union. First, we can observe that it exists relatively significant inequality between men and women on the European labour market. We revealed the gap either in case of indicators related to employment either in case of indicators related to unemployment. The employment rates of women lag behind male employment rates in general, but also in evaluation of two groups according to educational level. The worst is the situation in case of population with low levels of education, but there is a significant female lagging in case of population with tertiary education as well. The situation of well-educated women, especially, could have major impact on willingness of women to study and work on their professional development. There is the question for further research, whether weaker female participation on labour market is voluntary, or whether there exists some kind of gender discrimination.

Previous findings were consequently confronted with evaluation of male and female unemployment. Regardless the economic recovery after crisis after year 2008, the overall unemployment rate in the European Union increased. Nevertheless, this increase was pushed by significant increase of male unemployment. Vice versa the situation of women. On the other hand, we observed relatively strong increase of long-term unemployment rates in general. This type of unemployment is considered to be dangerous for socio-economic development of countries and regions. People who are out of the labour market for the long time can lose positive working habits, fall into deprivation and isolation, suffer from poverty threat etc. All of these negative points are even stronger in case of women.

One of the possibilities how to push up the active participation of women on the labour market is to offer part-time employment. The number of people working on part-time increased slightly between years 2006 and 2016, but there is a huge different between men and women. Part-time female employment is three time higher than male part-time employment. This reality is closely connected with traditional family life design in European society but also with some stereotypes in thinking of employers. There is an issue for further research, whether women

really prefer the part-time employment, or it is the only option for them how to work and grow professionally.

Because the issue of gender equality on labour market belongs to key topics of European Union social policy, we can formulate following recommendations for its design. The first recommendation is oriented on the issue of employment rates of men and women across the European Union. Severe social and economic impact of female lagging in employment are obvious. The activities of European public authorities should target to pushing the female employment forward to balance. On the other hand, the positive discrimination, which could be used, has to reach an optimal level with no negative incidences.

Another recommendation for European authorities is connected with women willingness to work and issue of family and work-life harmonization. Thus, public authorities should provide the possibilities to work on part-time and to have flexible working time not only for women, but also for men. Another tool how to support this harmonization is to overcome stereotypes in thinking of society about family life design or women work performance.

Highly relevant question for European authorities is also the danger of long-term unemployment of women and relatively lower female employment rate in case of population with tertiary education. The first task hides the danger of further female isolation and deprivation in relationship with labour activity. The second task asks women willingness to study and develop professionally. Both of these problems could jeopardize the targets of the European Union about employment, position of women in society and on the labour market and about education as well.

Finally yet importantly is also the support of right self-assessment of women and ability to correctly evaluate their value on the labour market. Furthermore, this issue stays closely also to women willingness to work and its enhancement.

Our research on gender equality on the labour market of the European Union targeted to provide the initial evidence about possible gender gap. Thus, we conclude that the paper revealed some important and potentially dangerous issues and asks some questions to be answered in further research.

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Attractiveness of the Czech regions: Does economic and social welfare matter?

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Abstract

The main objective of this paper targets to the relationship between attractiveness of the Czech regions for living on one hand and economic and social conditions of the Czech regions on the other. In accord with this objective, the net migration scores of the regions is evaluated, as well as three indicators related to economic and social welfare – employment rate, criminality rate and quality of housing. Methodological approach is based on descriptive, comparative and correlation analyses and PCA analysis. The empirical results provide some evidence on the positive relationship between net migration scores and employment rate. The other empirical results are ambiguous.

Keywords: Region; Economic and Social Welfare; Net Migration; Regional Attractiveness; the Czech Republic

1. Introduction

The issue of regional attractiveness for living is in the centre of this paper. Thus, we evaluate the relationship between regional net migration, which is understood as the indicator of regional attractiveness for living, and particular regional characteristics connected to economic and social welfare. The main objective of this evaluation is to reveal, whether the most attractive regions, respectively regions with highest net migration, tend to have the best economic and social welfare scores.

Regional attractiveness for living, in other words the ability of regions to attract new inhabitants, is broadly considered as one of the important assumptions of regional development from all viewpoints – economic, social, environmental and institutional (Capello and Nijkamp 2010). The question is, whether it exists a relationship between regional attractiveness, expressed by net migration score, and economic and social welfare provided by the region. In other words, have the regions with the best scores of economic and social welfare also the highest immigration scores? The answer to that question is not clearly formulated so far.

Outlined problem attracts the attention of academics, as well as the politicians and public authorities, whose aim is to build regions with the best living conditions and attract new inhabitants. Consequently, the regional development targets are followed and aspired. On the other hand, the practical realization of such goals requires high embeddedness and knowledge of factors, which influence migration processes and regional development as a whole.

Above-mentioned issues are essential for this paper, which tries to contribute to these phenomena and enhance the relevant knowledge.

Structure of the paper is designed as follows:

- first part focuses on theoretical framework of the real estate market issues
- second part introduces methodology
- third part examines the results of empirical analysis of the real estate market of Olomouc and Zlín regions from broader perspective
- the final part of the paper concludes

2. Theoretical framework

In this part of the paper, theoretical framework is introduced. Attention is paid especially to the issues related to regional development and its sources – regional attractiveness for living, and economic and social welfare, which enable inhabitant in-flows and accelerate further processes of sustainable development of regions (e.g. Wennekens et al. 2005 or Benneworth 2004 or Fritsch 2007). Thus, the research topic of the paper is justified.

In this paper, the proxy variable of regional attractiveness is expressed as net migration. The ability of particular region to attract the interest of potential inhabitants is essential in this regard. Many of scholars agree the connection between net migration scores and regional socio-economic conditions and development (e.g., Delfmann et al. 2013, Wagner and Sternberg 2004). This is also premise adopted in this paper. Regions with positive net migration scores indicates good economic and social status, utilize agglomeration economies and provide prominent living conditions, compared to other regions.

Current research on regional development usually postulate following ideas, in relationship to inter-regional migration:

- Negative net migration is indicated in lagging regions with remarkable development problems. The opposite is true for regions with positive migration outcome (e.g. Delfmann et al. 2013; Fotopoulos 2013 or Lee, Florida and Acs 2004).
- Reasons for inter-regional migration usually lay in two dimensions – economic dimension and living conditions dimension. Economic dimension is connected with regional wage rate (Wyrwich 2012 or Bishop 2012), opportunities on labour market and utilization of agglomeration economies (see, e.g. Audretsch and Fritsch 1994; Armington and Acs 2002 or Delfmann et al. 2013 for further discussion). The dimension of living conditions is usually connected with quality of particular services, like education, health and social care, quality of housing, possibilities of leisure time activities and quality of community life. All of these motives can be considered as economic and social welfare. For discussion of these factors, see Davidsson and Wiklund (1997) or Delfmann et al. (2014)
- Particular authors stress, that the issue is much more complex and point at migration in opposite direction, it means into lagging regions or regions with poorer economic and social conditions (Delfmann et al. 2014; Audretsch, Dohse and Niebuhr 2010 or Malecki 1994). Motives for this migration can lay in lower costs of living in this type of regions or opportunities resulting from lower level of socio-economic development, such as entrepreneurial opportunities in specific industry fields, absence of competitors, lower real-estate prices and service prices etc.

Now let turn the attention to particular factors, which influence the inhabitants' willingness and likeliness to live in particular region. It is possible to summarize these factors as economic and social welfare indicators. From the both mentioned viewpoints, the indicators connected to regional employment, respectively unemployment, are usually evaluated

(Delfmann et al. 2013; Armington and Acs 2002; Bishop 2012; Audretsch and Fritsch 1994 and others). In economic perspective, rates of employment and unemployment indicates the performance of regional economy and regional wealth. These indicators are correlated also with regional GDP values, which are other traditionally used indicators of economic performance and health of regions (Delfmann et al. 2014). High scores in employment rates, respectively low unemployment rates, are able to attract not only potential inhabitants but also other actors, like entrepreneurs or firms, big corporations prospectively (e.g. Armington and Acs or Bishop 2012). Thus, the regional output and economic performance is furtherly accelerated. The whole process has cycled character. From social perspective, employment, respectively unemployment rates indicates also welfare and social status of the inhabitants. Delfmann et al. (2014) conclude, that regions with high employment rates, respectively low unemployment rates, tend to attract more attention between potential inhabitants and provide overall better living conditions. Note, that many authors consider high unemployment rate to be one of the most important indicator of social deprivation and exclusion of the area (e.g. Gallie, Paugam and Jacobs 2003).

Another indicator, representing social conditions of the regions, is the level of criminality. Thus, scholarly literature mention the relationship between poor social status of areas and higher rates of criminality (see, e.g. Brantingham and Brantingham 1995 for broad discussion). On the other hand, Gribanova and Vulfovich (2017) mention, that higher criminality rates indicates also regions, usually considered as economically strongest, such as biggest agglomerations and economic hotspots. This phenomenon is related to high population density and agglomeration economies theory and represents the dark side of the issue. Overall, criminality is understood as undesirable societal feature, which is negatively correlated with regional attractiveness for living (Brantingham and Brantingham 1995).

Regional attractiveness of living can be remarkably affected by the housing conditions and quality of housing units (Keall et al. 2010). This indicator provides evidence about both, economic and social conditions of the region. The first issue is related to status of regional economy and purchasing power of inhabitants. The second issue is related to social status of regional population but also the condition of local public authorities, which hold remarkable share of housing units in the Czech Republic and have the power to influence housing portfolio (e.g. Salet, Thornley and Kreukels 2003). Thus, regions with poor quality of housing units are usually less likely to attract interest of potential inhabitants – in other words tend to have low migration scores. Further discussion about this issue provide Keall et al. (2010) or Harrison (2003).

3. Methodology

The chapter introduces methodological framework of this paper. The main objective of the research is to recognize, whether it exists relationship between positive migration on one hand and indicators connected with economic and social welfare of the regions on the other. For this study, administrative districts of the Czech Republic were used as a regional decomposition level (regions hereafter). Because of official data availability for particular indicators construction, year 2011 was chosen. Thus, official statistical data form Census 2011 of the Czech Statistical Office (CSO hereafter) were used.

Based on abovementioned literature review, indicators related to migration and economic and social welfare were constructed. The logics of variables construction is given in table 1. Hypotheses about mutual relationships between dependent and independent variables are indicated as well.

Table 1: Variables construction and rationale

| Variable | Type | Rationale | Construction | Hypotheses |
|--------------------|-------------|---|---|--|
| Net migration | Dependent | Net migration is used as a proxy variable indicating overall attractiveness of the region for living. Thus, regions with negative values of net migration are considered to be less attractive than the others. | Variation between incoming and out-coming inhabitants | Not applicable |
| Employment rate | Independent | Employment rate is used as a proxy variable representing economic and social conditions of the region. Thus, higher employment rate indicates better economic and social conditions. | Total employed economically active population per total population of the region. | Positive relationship between dependent variable and employment rate. |
| Criminality rate | Independent | Criminality rate is used as a proxy variable related to social welfare in the region. Thus, the regions with lower criminality rate are considered to have better social conditions. | Amount of registered delicts per thousand inhabitants of the region. | Inverse relationship between dependent variable and criminality rate. |
| Quality of housing | Independent | Quality of housing is used as a proxy variable representing social and economic conditions of the regions. Thus, the better is the quality of housing, the better are regional economy and social welfare. | Ration between housing units of standard quality and housing units with poor quality. Defined by the CSO. | Positive relationship between dependent variable and quality of housing ratio. |

Source: own elaboration

For evaluation of attractiveness of particular regions of the Czech Republic, the comparative, descriptive and correlation analysis were employed. Methodological approach followed this steps:

- 1) Analysis of regions according to the values of dependent variable was developed in the first step. In this regard, the ranking of regions with the best and the worst values was made. The results of this analysis were illustrated in tables.
- 2) In the second step, the descriptive statistics of particular variables was applied. Thus, values of weighted average, standard deviation and variation coefficient were calculated, the highest and the lowest values are indicated. The results of this analysis were illustrated in tables.
- 3) The third step of methodological approach targeted to relationships between dependent variable and particular independent variables. Regarding this idea, correlation analysis was employed. Values of Pearson's coefficient and Spearman's rho were calculated (e.g. Field 2009 for more details). The results of this analysis were illustrated in tables.
- 4) In the final step of methodological approach, it was evaluated, whether or not the regions with the best scores of net migration have also anticipated scores of

independent variables and vice versa. The component of economic and social welfare was extracted from three indicators introduced above. It was used PCA analysis with varimax rotation for this extraction (see, e.g. Janssens et al. 2008 for details). After that step, correlation analysis was applied to reveal relationship between dependent variable and economic and social welfare component. Pearson's coefficient and Spearman's rho were calculated. The results of the analysis were illustrated in tables. With this step of methodological approach, the main objective of the paper is going to be fulfilled.

Considering the relevance of analyses results, Prague was excluded from the evaluation because of its outlying values of particular indicators.

Correlation coefficients and PCA analysis component were computed using statistical programme SPSS.

4. Empirical results

The fourth section of the paper synthesises the main empirical results of developed analyses. We introduce main results in order to methodological approach described in previous part of the paper.

Table 2: Net migration ranking – the best and worst values; year 2011

| Region | The best scores | Region | The worst scores |
|------------------|-----------------|-----------------|------------------|
| Praha – východ | 3,684 | Karviná | -1,574 |
| Praha – západ | 3,106 | Brno – město | -1,459 |
| Brno – venkov | 2,217 | Ostrava – město | -1,365 |
| Beroun | 1,051 | Ústí nad Labem | -550 |
| Kladno | 928 | Třebíč | -353 |
| Nymburk | 809 | Český Krumlov | -288 |
| Mladá Boleslav | 769 | Děčín | -282 |
| České Budějovice | 711 | Česká Lípa | -276 |
| Frýdek – Místek | 686 | Přerov | -250 |
| Benešov | 634 | Bruntál | -246 |

Source: own elaboration based on CSO data

Firstly, the initial evaluation of regions with the best and the worst scores of net migration – dependent variable in other words - was made. Table 2 represents the results. The best scores reach regions in surrounding of largest agglomerations of the Czech Republic – Prague and Brno. The opposite is true for regions of large cities, Brno and Ostrava and some other regions in economically lagging areas of the Czech Republic.

Table 3 indicates results of applied descriptive analysis of particular variables. Regarding the character of dependent and independent variables, weighted averages, standard deviations, variation coefficients were calculated. Information about the highest and the lowest values of particular variables are introduced as well to better picture the situation. Relatively significant differences in net migration, criminality rates, employment rates or quality of housing between the Czech regions can be observed.

Table 3: Descriptive statistics of variables; year 2011

| Variable | Net migration | Variable | Criminality rate |
|-----------------------|-----------------|-----------------------|--------------------|
| Indicator | Value | Indicator | Value |
| Weighted average | 147 | Weighted average | 24.57 |
| Standard deviation | 734 | Standard deviation | 8.35 |
| Variation coefficient | 0.19 | Variation coefficient | 2.94 |
| Highest value | 3,684 | Highest value | 56.44 |
| Lowest value | -1,574 | Lowest value | 13.92 |
| Variable | Employment rate | Variable | Quality of housing |
| Indicator | Value | Indicator | Value |
| Weighted average | 0.43 | Weighted average | 17.29 |
| Standard deviation | 0.03 | Standard deviation | 3.23 |
| Variation coefficient | 14.33 | Variation coefficient | 5.35 |
| Highest value | 0.50 | Highest value | 24.13 |
| Lowest value | 0.36 | Lowest value | 11.33 |

Source: own elaboration based on CSO data

With respect to methodological approach, table 4 illustrates the results of correlation analysis. The relationship between dependent variable, represented by net migration, and three independent variables, represented by employment rate, criminality rate and quality of housing, was explored. Both applied types of correlation indicate positive and statistically significant relationship between net migration and employment rate on 1% level of statistical significance. Criminality rate seems not to have clear positive or inverse relationship with dependent variable. Quality of housing indicates negative relationship to dependent variable. However, both of these relationships have no statistical significance according to either Pearson's correlation either Spearman's rho.

The results of the final step of methodological approach are presented in table 5. In this step, the relationship between extracted component of economic and social welfare of the Czech regions on one hand and net migration on the other was evaluated. In this regard, the results of correlations do not provide straightforward answer. Considering values of both correlation coefficients, which oscillate about zero point, and unidentified statistical significance, it is not

possible to conclude that there is or is not positive or inverse relationship between both variables.

Table 4: Correlation analysis – dependent and independent variables; year 2011

| Pearson's correlation | | | |
|--------------------------------|-----------------|------------------|--------------------|
| | Employment rate | Criminality rate | Quality of housing |
| Net migration | 0.59 | -0.05 | -0.19 |
| Statistical significance level | 0.01 | Not identified | Not identified |
| Spearman's rho | | | |
| | Employment rate | Criminality rate | Quality of housing |
| Net migration | 0.59 | 0.06 | -0.16 |
| Statistical significance level | 0.01 | Not identified | Not identified |

Source: own elaboration based on CSO data

Table 5: Correlation analysis – net migration and extracted component; year 2011

| Economic and social welfare | | |
|--------------------------------|-----------------------|----------------|
| | Pearson's correlation | Spearman's rho |
| Net migration | 0.009 | -0.002 |
| Statistical significance level | Not identified | Not identified |

Source: own elaboration based on CSO data

5. Conclusion and discussion

Regarding the results of analyses introduced in previous part of this paper, the fifth part provides conclusions about defined hypotheses and further remarks to the topic of regional attractiveness.

The first hypothesis looked at the relationship between net migration and employment rate as a proxy indicator of economic and social conditions of the region. Thus, positive relationship was anticipated. The results of correlation analysis confirm this hypothesis at 1% level of statistical significance.

The second hypotheses anticipated inverse relationship between net migration on one hand and criminality rate on the other, when this variable represents poor social conditions of the region. The two calculated correlation coefficients provide ambivalent results. However,

the values of Pearson's correlation and Spearman's rho are both close to zero point; moreover do not indicate statistical significance. Thus, second hypothesis cannot be accepted or rejected.

The hypothesis related to the third independent variable – quality of housing, cannot be evaluated in straightforward way. Anticipated positive relationship between net migration and quality of housing was not proven, when both correlations indicates inverse relationship between the two variables. The statistical significance wasn't indicated. In this regard, it is not possible to unambiguously reject the third hypothesis.

The main objective of the paper is to evaluate, whether or not regions with the best scores of economic and social welfare indicate also the best scores of net migration. In other words, whether regions with the best economic and social conditions are the most attractive for living and have the highest immigration. For that evaluation, the extracted component of economic and social welfare was calculated. Its relationship to the net migration was not clearly identified. The values of Pearson's correlation and Spearman's rho provide opposite results, but oscillate about the zero point. Moreover, statistical significance was not indicated. Regarding these results of correlation analysis, the initial question of the paper cannot be answered in straightforward way. To the better overview of the situation, table 6 gives additional information about ranking of the regions with the best, respectively the worst, values of extracted component of economic and social welfare. According to computed ranking, it is obvious that there is not clear connection between regions with the highest scores of net migration and the highest scores of economic and social welfare component. This can be affected by relatively higher criminality rates in most densely populated regions (also regions with the highest scores of net migration) and their uneven quality of housing units. On the other hand, the situation of regions with the poorest results is slightly different. Relatively lots of regions with the lowest scores of net migration are also regions with the worsts scores of economic and social welfare component.

Table 6: Economic and social welfare ranking – the best and worst values; year 2011

| Region | The best scores | Region | The worst scores |
|------------------|-----------------|-----------------|------------------|
| Havlíčkův Brod | 1.69 | Ostrava – město | -2.29 |
| Třebíč | 1.56 | Chomutov | -2.09 |
| Žďár nad Sázavou | 1.54 | Ústí nad Labem | -2.03 |
| Pelhřimov | 1.53 | Teplice | -1.90 |
| Opava | 1.45 | Most | -1.80 |
| Uherské Hradiště | 1.42 | Děčín | -1.79 |
| Kroměříž | 1.20 | Česká Lípa | -1.76 |
| Tábor | 1.17 | Litoměřice | -1.46 |
| Ústí nad Orlicí | 1.16 | Cheb | -1.35 |
| Blansko | 1.14 | Karlovy Vary | -1.17 |

Source: own elaboration based on CSO data

Considering all the above-mentioned findings, it is possible to conclude some remarks for further discussion and more intensive research. Firstly, it is possible to observe relatively intensive connection between regions with highest values of net migration and the suburbanization processes in the Czech Republic. Thus, regions surrounding the largest cities of the Czech Republic, Prague, Brno and Ostrava, have the highest immigration in evaluated moment (see table 2 – regions Praha – východ, Praha – západ, Brno – venkov and others). The strongest is this connection in case of broader surrounding of the capital city Prague. On the contrary, the core regions of the largest cities of the Czech Republic, except Prague – Brno – město and Ostrava – město, have the lowest values of net migration. This fact is in accord with the idea of suburbanization processes in the Czech Republic.

From the viewpoint of attractiveness of regions for living and regional ability to attract new inhabitants, the poorest position indicate region, which are traditionally considered to be economically weak and structurally affected. These regions, e.g. some regions in Northern Moravia, Southern and North-western Bohemia, or regions on the inner periphery between Bohemia and Moravia, have both, the lowest values of net migration and the worst values of particular independent variables and economic and social welfare component as well. Thus, the ideas about their development disadvantages are justified.

Which is also noteworthy, it exists relatively significant difference in values of all variables across particular regions (see table 3). In this regard, it can be concluded that the area of the Czech Republic has heterogeneous character with cross-regional differences influencing its harmonious and balanced development. This is the challenge for public authorities, which should consider the inter-regional differences, when formulating regional development strategies. What should be highlighted is, that because of these differences and specifics, there is no one-size-fit-all development solution.

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Localization potential of the Czech regions

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Abstract

The article examines the entrepreneurial potential of the administrative districts of the Czech Republic. This potential is measured by theoretically adjusted localization factors of entrepreneurship, which are related to labour force characteristics, location's characteristics and entrepreneurial climate characteristics. Cluster analysis is employed to indicate groups of districts with similar entrepreneurial potential. Although the issue of entrepreneurial activity seems to be crucial for regional development and growth, the relevant research on entrepreneurial potential of regions is rather scarce in the post-communist countries. Findings of the article provide several important conclusions for decision-making of firms, public authorities, but also for further research.

Keywords: Entrepreneurial activity; Localization factors, Cluster analysis; Administrative districts

1. Introduction

The article targets to issues related to regional characteristics influencing localization of entrepreneurial activity. Administrative districts of the Czech Republic (districts in further text) are used as basis of regional decomposition. To reveal the assumptions of particular districts to attract entrepreneurial activity, the article uses traditional localization factors indicated in research works. Localization of entrepreneurial activity is crucial question for many economic and regional theories throughout history (e.g., Damborský and Wokoun 2010 for further discussion), but also for public authorities facing the development or structural doubts. From another point of view, choice of location is essential for entrepreneurial entities as well, influencing significantly their success on the market (e.g., Batnagar and Sohal 2005).

Considering abovementioned ideas, the article tries to indicate entrepreneurial activity localization potential of defined districts, based on relevant localization factors. The article structure follows consequent structure:

- the first part draws theoretical cornerstones of the localization of entrepreneurial activity and localization factors,
- the second part is dedicated to applied methodology,
- the third part summarizes main empirical results,
- the final part concludes and provide discussion.

2. Theoretical background

The history of research on localization of economic activities goes to the 19th century. The first famous theories considered transportation costs and distance from production factors or markets to be the most important localization factors (e.g., Weber 1928 or von Thünen 1826). Following theories of localization examined various localization factors and their impact on entrepreneurial activity and success. The review of these theories provide Damborský and Wokoun (2010). In addition, actual research agreed on the importance of further localization factors examination. The entrepreneurial activity localization is now more than ever influenced by modern economic processes, such as globalization, cluster issues, agglomeration economies, changes in customer preferences, public sources limitations and so on (see, e.g., Pavelková and Jirčíková 2008; Waxell and Malmberg 2007; Phelps 2004; Chakrabarti 2001 or Hájek 2011 for more details).

Blažek and Uhlíř (2011) provides basic definition of localization factor. Thus, in this article it is understood as characteristics of the region that influences the location of economic activity. These characteristics have, according to Batnagar and Sohal (2005), impact on only on the sole location of entrepreneurial entity, but also on its competitiveness or market success. Fisher and Nijkamp (2009) add that entrepreneurial activity and success is essential condition for regional development as a whole. Knowledge of presence and impact of particular localization factors in regions is obviously important for entrepreneurial entities and their management as well (see, e.g., Porvazník and Ladová 2010).

Following abovementioned ideas, the regional decomposition is important task for localization factors impact examination. According Dicken (2007), we can distinguish between three levels of entrepreneurial activity localization – (1) macro-level, (2) mezzo- level and (3) micro-level. Considering (1), entrepreneurial entities choose the country or other macro-region for their localization; usually these are supranational corporations (see, e.g., Dimitropolou et al. 2013 for more detailed review). Considering (2), entrepreneurial entities choose intra-national regions for their localization (see, e.g., Ellram et al. 2013 for more detailed review). Considering (3), entrepreneurial entities choose the particular location, such as industry zone (Koll-Schretzenmayr 2000) or choose between greenfield or brownfield location solution (Novosák 2009).

As far as the subject of this article aims on mezzo-level of entrepreneurial activity localization, it has been examined several groups of relevant localization factors. These groups are indicated as follows:

- spatial proximity of entrepreneurial entities and agglomeration economies (e.g., Krugman 1998 or Phelps 2004),
- transport accessibility (Weber 1928),
- market characteristics (Krugman 1998),
- labour-force characteristics (Laabas and Weshah 2011 or Lucas 1990),
- location's characteristics (Adams et al. 2001 or Novosák 2009).

Introduced research concepts provide the theoretical background for further examination in this article. Note, that the research on impact of localization factors on entrepreneurial activity and potential of regions to attract entrepreneurial activity is rather limited in post-communist countries (see, e.g. Wyrwich, 2014). Thus, the article tries to contribute to filling this research gap.

3. Methodology

In this section is introduced applied methodology. The main purpose of the article is to reveal the various potential of the Czech regions to attract entrepreneurial activity. Regarding theoretical support, the 77 administrative districts are used for regional decomposition for the evaluation of entrepreneurial activity localization potential. These districts are defined by the Czech Statistical Office (CSO in further text). The article uses the Czech Republic as a case study. Thus, the choice is in accord with the idea about entrepreneurial specifics of post-communist countries.

Table 1: Groups of localization factors

| Group | Localization factors | Impact on entrepreneurial activity localization |
|------------------------------|---|---|
| Labour force characteristics | Share of persons with tertiary education on district population | + |
| | Share of persons with primary education on district population | - |
| | Share of persons older than 65 years on economically active district population | - |
| | Share of persons commuting to different municipality on economically active district population | + |
| Location's characteristics | Transport accessibility of district | + |
| | Unemployment rate | - |
| | Economically active population | + |
| | Average size of parcel | + |
| | Average price of parcel | - |
| Entrepreneurial climate | Awarded investment allowances per district population | + |
| | Awarded foreign direct investments per district population | + |
| | Share of entrepreneurial entities on economically active district population | + |

Source: CSO, CNB, CzechInvest

Table 1 brings the information about localization factors used for entrepreneurial activity potential evaluation. Note that these factors were chosen according to relevance and according to the availability of official data. The source of particular data is CSO - Census 2011, regional statistical almanacs to be specific; data of Czech National Bank (CNB hereafter) and data of CzechInvest Agency. The data were aggregated for particular districts and for the period

2000 – 2011. Afterwards, it was made the standardization of the data to ensure their comparability between districts. Consequently, the data were modified according to their positive or negative impact on entrepreneurial activity attractiveness of district.

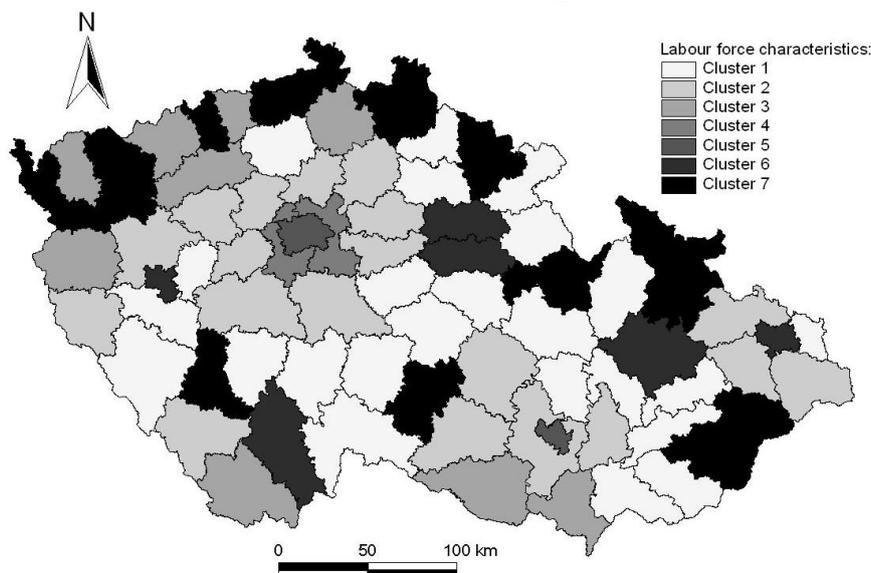
For evaluation of entrepreneurial activity location potential of particular districts was applied cluster analysis. Cluster analysis determines groups of districts with similar localization characteristics, which are simultaneously maximally different from each other. Cluster analysis was applied either for each group of location factors separately (see table 1) and either for the whole set of localization factors. For particular groups of localization factors were identified clusters of districts with better $(0;\infty)$ or worse $(-\infty;0)$ values of particular indicators. Consequently, the absolute ranking of districts according to localization factors values was appointed as well.

For cluster analysis was used SPSS Statistics software. The results were afterwards visualized in ArcGIS software. The best values are in figures indicated as the darkest; the opposite is true for the worst values, thinking about entrepreneurial activity potential.

4. Empirical results

Using above described methodology, this section summarizes the main empirical results of the evaluation of entrepreneurial activity localization potential of particular Czech districts. Figure 1 illustrates identified clusters of the Czech districts according to labour force characteristics. Regarding the evaluation results, districts near the main agglomerations of the Czech Republic – Prague and Brno, have the best potential to attract entrepreneurial activity. Larger agglomeration area of these two cities and districts surrounding the Ostrava city reach good results as well. The worst potential is indicated for districts in North-western Bohemia, Northern and Eastern Moravia.

Figure 1: Clusters of the Czech districts according to labour force characteristics

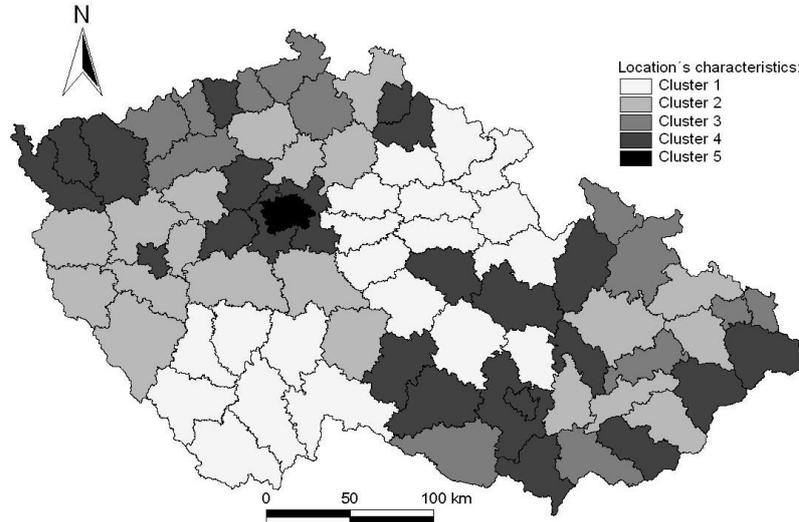


Source: own elaboration based on CSO, CNB, CzechInvest

Figure 2 visualizes the evaluation of districts according to location's characteristics. In this regard, the situation is rather different compared to the first evaluated group of localization factors. From this point of view, the most attractive districts are located in Plzeňský region

(district of Plzeň-město is exemption), districts in Southern and Eastern Bohemia, districts surrounding regional capitals in Moravia and the district of capital city Prague. Similarly to the previous evaluation, the districts in North-western Bohemia and also Eastern Moravia indicate the worst entrepreneurial activity potential, thinking about location's characteristics.

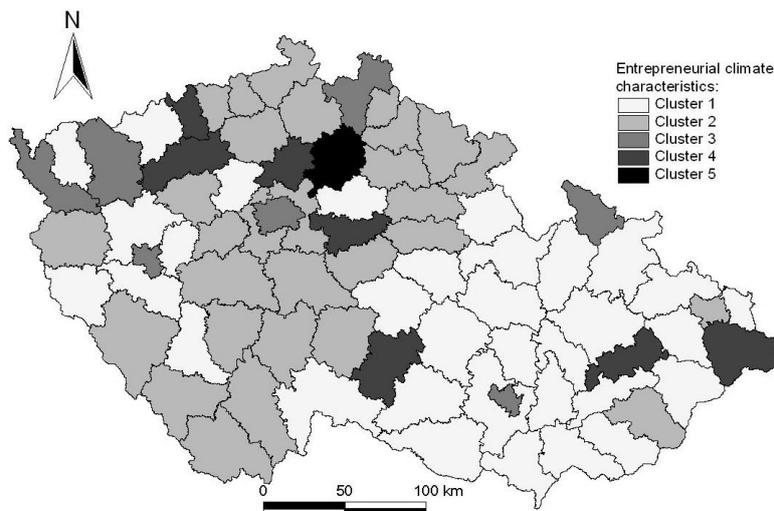
Figure 2: Clusters of the Czech districts according to location's characteristics



Source: own elaboration based on CSO, CNB, CzechInvest

Entrepreneurial activity potential of the Czech districts, evaluating entrepreneurial climate, seems to be the best in Mladá Boleslav district (especially because of the best values of foreign direct investments and investment allowances), and consequently in districts of Prague, Plzeň and Brno. Almost all of the Moravian districts reach the worst results (see figure 3).

Figure 3: Clusters of the Czech districts according to entrepreneurial climate characteristics



Source: own elaboration based on CSO, CNB, CzechInvest

Clustering of the Czech districts according to aggregate values of entrepreneurial potential reveals following - districts with relatively best values are Prague and its surroundings,

Plzeň and Brno. The worst entrepreneurial activity potential indicate districts in North-western Bohemia and districts in Northern and Eastern Moravia. Table 2 provides additional information about district ranking with the best, respectively the worst, aggregated standardized index of entrepreneurial activity potential.

Table 2: Absolute ranking of districts

| District ranking | Aggregated standardized index | District ranking | Aggregated standardized index |
|---------------------|-------------------------------|------------------|-------------------------------|
| 1. Mladá Boleslav | 15,15 | 68. Šumperk | - 3,98 |
| 2. Praha - západ | 12,06 | 69. Znojmo | - 4,14 |
| 3. Praha - východ | 10,70 | 70. Karviná | - 4,99 |
| 4. Praha | 10,39 | 71. Chrudim | - 5,07 |
| 5. Beroun | 5,02 | 72. Třebíč | - 5,70 |
| 6. Plzeň – město | 4,94 | 73. Děčín | - 5,84 |
| 7. Brno – město | 4,90 | 74. Svitavy | - 5,93 |
| 8. České Budějovice | 4,80 | 75. Bruntál | - 6,75 |
| 9. Kolín | 4,39 | 76. Sokolov | - 7,37 |
| 10. Liberec | 4,20 | 77. Jeseník | - 8,24 |

Source: own elaboration based on CSO, CNB, CzechInvest

Tables 3 to 5 add information about aggregate standardized indexes of particular identified district clusters, according to evaluation of labour force characteristics, location's characteristics and entrepreneurial climate characteristics, respectively.

Table 3: Ranking of districts according to labour force characteristics

| District cluster | Aggregated standardized index |
|------------------|-------------------------------|
| Cluster 1 | 9,89 |
| Cluster 2 | 3,92 |
| Cluster 3 | 1,12 |
| Cluster 4 | 0,98 |
| Cluster 5 | -0,88 |
| Cluster 6 | -1,26 |
| Cluster 7 | -1,48 |

Source: own elaboration based on CSO, CNB, CzechInvest

Table 4: Ranking of districts according to location's characteristics

| District ranking | Aggregated standardized index |
|------------------|-------------------------------|
| Cluster 1 | 2,92 |
| Cluster 2 | 1,92 |
| Cluster 3 | -0,26 |
| Cluster 4 | -0,88 |
| Cluster 5 | -1,07 |

Source: own elaboration based on CSO, CNB, CzechInvest

Table 5: Ranking of districts according to entrepreneurial climate characteristics

| District ranking | Aggregated standardized index |
|------------------|-------------------------------|
| Cluster 1 | 9,57 |
| Cluster 2 | 2,11 |
| Cluster 3 | 2,06 |
| Cluster 4 | 0,38 |
| Cluster 5 | -1,51 |

Source: own elaboration based on CSO, CNB, CzechInvest

4. Conclusion

The final chapter of the article provides some conclusive remarks on topic entrepreneurial activity potential of the Czech districts. These remarks are based on realized evaluation and are related to broader socio-economic climate of the Czech Republic in post-communist era. Potential of the Czech districts to attract entrepreneurial activity was evaluated through the identification and classification of localization factors, adjusted in current research work. The entrepreneurial activity potential evaluation of the districts can provide following findings and recommendations. These findings are relevant for entrepreneurial entities on one hand and for public bodies on the other, when give headings for strategic and development documents formulation.

It is possible to sum up these findings in following theses:

- Relatively best values of evaluated indicators perform districts on west-eastern axis of cities Plzeň – Prague – Brno.
- Considering entrepreneurial activity potential of the Czech districts from the viewpoint of labour force characteristics, the weakest position indicate border districts, especially in Northern part of the Czech Republic.
- Considering entrepreneurial activity potential of the Czech districts from the viewpoint of location's characteristics, the strongest is position of districts in Western and middle part of Bohemia and districts surrounding the capital cities of

Moravia. Altogether, the Czech Republic as a whole can be perceived as macro-region with favourable location's characteristics.

- Considering entrepreneurial activity potential of the Czech districts from the viewpoint of entrepreneurial climate, the strongest position occupy particular districts in Northern part of the Czech Republic and districts of capital city of Prague, Brno and Plzeň.

The recommendations for public policies formulation can be considered from two opposite viewpoints. The first is the viewpoint of growth poles support. Prague, Brno, Plzeň and Ostrava cities can be labelled as the main growth poles, in the conditions of the Czech Republic. Regarding the growth pole strategy and realized evaluation, the public support should concentrate mainly on human resource development. Furthermore, this support should be designed in accord with entrepreneurial entities needs. In case of the Ostrava city, the public support should pay attention also to entrepreneurial climate enhancement.

The second viewpoint targets on lagging regions support. In this regard, the attention of public authorities should be oriented on entrepreneurial climate support and human resource development. The entrepreneurial climate support should target also to infrastructure facilities and investment attraction to accelerate entrepreneurial activity. The public support of human resource development is justified mainly in border regions of the Czech Republic, based on realized evaluation.

Realized evaluation of entrepreneurial activity potential of the Czech administrative districts provide initial information, which deserve further examination. Thus, one direction of research could focus on enhanced basis of theoretically justified localization factors. The other direction could focus on industry decomposition. The preferences of investors and potential entrepreneurs can vary significantly according to the industry. Nevertheless, the article revealed some important issues for entrepreneurial activity location potential of the Czech districts with significant implications for entrepreneurial entities and public authorities as well.

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Real estate market in the Czech Republic – case study of Olomouc and Zlín region

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Abstract

This paper is embedded into the issue of regional real estate market situation of the Czech Republic. The paper uses Olomouc and Zlín region as a case study and examines the period 2007 to 2017. The main objective of the paper is to reveal whether or not the real estate markets of chosen regions pass through the “golden age” in current economic expansion of the Czech economy. The evaluation is based on official data of the Czech Statistical Office and the Czech National Bank. Thus, indicators about real estate market, regional and national economy and monetary policy are employed. Concept of the paper follows, among other, the threat of real estate bubble birth and bursting in current Czech environment.

Keywords: Real Estate; Market; Bank Rate; Regional Economy; the Czech Republic

1. Introduction

Real estate market in the Czech Republic passes through a turbulent development in last years. Thus, prices of real estate are rising since economic crisis recovery after year 2010. The supply and demand on real estate market are searching for new equilibrium; people are able and compliant to pay higher prices; mortgages are affordable even though rising bank rates. Moreover, the whole economy rises significantly, including GDP or incomes. It is possible to say that real estate market witnesses the “golden age” nowadays.

On the other hand, there are some risks hidden behind. Thus, the Czech National Bank tries to cool down the warming economy using its monetary policy tools. Affordability of mortgages was customized to avoid pay back inability. Additionally, the question of possible real estate bubble bursting is on the table.

Considering abovementioned ideas, the paper examines the situation of the Czech real estate market when uses the Olomouc and Zlín region as a case study. The main objective of the paper is to provide information about regional real estate market and its development in years 2007 to 2017. The paper focuses on the question whether or not there exists rise of real estate market during the last years in Olomouc and Zlín regions.

Structure of the paper is designed as follows:

- first part focuses on theoretical framework of the real estate market issues
- second part introduces methodology
- third part examines the results of empirical analysis of the real estate market of Olomouc and Zlín regions from broader perspective
- the final part of the paper concludes

2. Theoretical framework

The second chapter of the paper focuses on theoretical fundamentals of real estate market issue. Let us start with some fundamental paradigms and characteristics of the real estate markets, given by scholars. Gatzlaff and Tirtifoğlu (1995) provided relatively detailed review of theoretical works about real estate markets and their efficiency. According to this review, they postulated following statements:

- Real estate represents crucial part of national wealth and changes on the real estate markets influence significantly national and regional economy (also Shuping 2006). Regarding this, Govil and Rashmi (2013) mention market globalization issue, which results into ideas about influencing economies between countries by the changes on particular real estate market as well.
- The most remarkable part of the households' wealth lays in real estates. Thus, the relevance and importance of real estate market for the economy is intensified.
- Works focusing on real estate market research employ the issue of its efficiency. Efficiency, understood from economic theory viewpoint, is state of art when another allocation of sources does not bring increase of one's utility without simultaneous decrease of other's utility (see, e.g., Grossman and Stiglitz 1976). The general efficiency assumption, used in economic theory, seems to be inappropriate for the real estate market. Among others, Gau (1987) points that efficiency on the real estate market is oxymoron from the real estate market nature. Moreover, Gatzlaff and Tirtifoğlu (1995) stress the need of segmentation of the real estate market when examining its efficiency and distinguishing long and short time-period. Gatzlaff and Tirtifoğlu (1995) and Gau (1987) also agreed the problem of relevant data accessibility.

The issue of prices on the real estate markets explored, among others, Genesove and Mayer (1993). Because of the specifics of the real estate market and doubtful issue of efficiency, they concluded following remarks:

- It exists significant variation in volumes of realized transactions and prices on the real estate market over time. This variation is much higher than in case of other macroeconomic values (e.g., unemployment or inflation).
- Similarly to Stein (1993) or Case and Shiller (1988), there is positive correlation between real estate prices and amount, in contrast to general economic theory (e.g., Grossman and Stiglitz 1976). Case and Shiller (1988) provide explanation in fact, that real estate owners are less likely to sell them for low prices.
- The price and amount of real estate on the market is additionally influenced by unique character of particular real estate objects.
- Lastly, mention also idea about influence and price of information on the real estate market, when Levitt and Syreson (2008) stress this point.

The behaviour of real estate market subjects is affected by their experience with real estate transactions (Genesove and Mayer 1993). Stein (1993) mentions difference between behaviour of people who buy the first real estate object and people who are already owners of any. Englehardt (1992) adds that behaviour of real estate subjects and intended realization of real estate market transactions impact their behaviour on the other markets of national economy. To give an example, the intended real estate purchase causes decrease of current consumption of the subject on other markets (e.g., clothes or electronics market).

Trends on real estate market are connected to economy development, like was mentioned above. In time of economic expansion, the issue of real estate bubble and its bursting often occurs (e.g., Case and Shiller 2003). Real estate bubbles can be defined as excessive

public expectations about future real estate prices increase, which result into their real growth. Thus, real estate bubbles are affected by expectations of real estate market subjects about future expenses and real estate affordability (e.g., Zhou and Sornette 2008). Research of Case and Shiller (2003) about real estate bubbles pointed at several facts:

- Media significantly contribute to the speculations about real estate bubbles. Such speculations can create the uneven environment on the real estate markets and cause real crisis.
- Not only expectations about future real estate prices plays its role in real estate bubble birth. The risk perception is other important contribution. In this regard, real estate subjects tend to perceive current risks related to real estate purchase to be lower than it would be in the future (because of expected price increase). Thus, the current risks connected with pay back capability tends to be underestimated.
- Another issues contributing to real estate bubble birth are market sustainability and actual strength of future expectations and its capability to motivate real estate transactions realization.
- There is a strong interconnection between real estate bubbles birth and bursting on one hand and trends in wage levels and bank or interest rates levels.
- Real estate bubble bursting occurs when the expectations about future real estate prices increase. After that, the actual prices of real estate fall down, bank interest and real value of mortgages rise and real estate value falls. This can cause severe economic problems.

Zhou and Sornette (2003) add to the discussion about real estate bubbles that they can but do not have to affect interconnected national economies – like real estate market and economic crisis in the United Kingdom between 2000 and 2003, which did not have the straightforward impact on the US economy. Additionally, Shuping (2006), examined the real estate market bubble and consequent crisis which affected only particular regional economies in China, but not national economy as a whole. Let us note one closing remark to the real estate bubbles issue – many authors stress that the identification of real estate bubble is uneven between researchers and depends on research design (e.g., Zhou and Sornette 2008 or Case and Shiller 2003).

3. Methodology

In this chapter, applied methodology is introduced. For real estate market analysis and evaluation of its state of art, the Olomouc and Zlín regions we use as a case study. The main objective of this paper is to evaluate whether or not there is a positive development of real estate market in particular regions, in accord with current economic expansion and welfare.

Evaluation employs relevant and officially reachable statistical data from the Czech Statistical Office (CSO hereafter) and the Czech National Bank (CNB hereafter). Next, time-series analysis examines the development of real estate market in period 2007 to 2017. The following text introduces the indicators construction and relevance of their utilization.

First employed indicators – number of finished and initiated flats - evidences the development on real estate market on the supply side. Thus, data about finished and initiated flats are collected from CSO for period 2007 to 2017 and for both regions.

Next, the indicator of real estate market price index is analysed. For the construction of the index, the average prices of real estate in total are used. Value of the index in year 2010 is taken as a basis. The index is constructed for Olomouc and Zlín region, additionally for the Czech Republic as a whole for comparison. Consequently, real estate market price indexes were constructed for particular types of real estate as well. Repeatedly, data from CSO about real

estate prices were taken. This indicator shows the change of equilibrium on the real estate market and affordability of real estate for consumers.

Time-series data about average wages and GDP growth in Olomouc and Zlín regions were analysed next. Data were taken from CSO for period 2007 to 2017. Interconnection between regional and national economy and real estate market justifies evaluation of these indicators. Wage level and GDP growth influence the purchase power of households, their affinity to create savings and likeliness of firms or public sector to invest into real estate infrastructure.

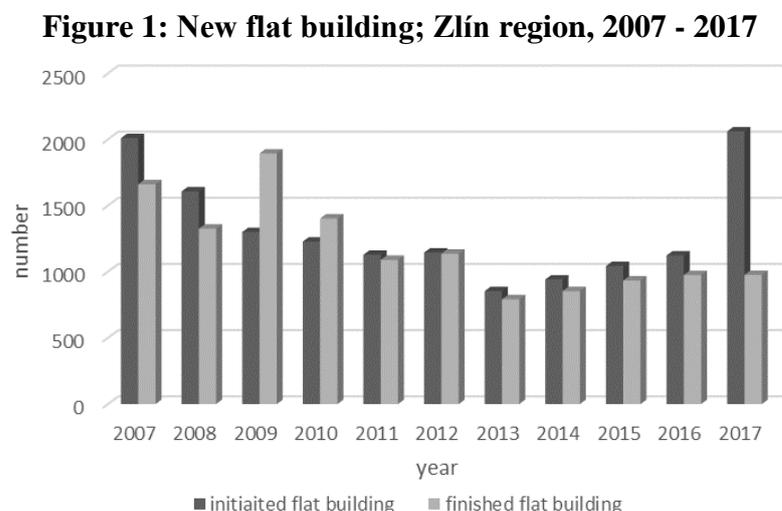
Purchase power or likeliness of real estate investments are related also to bank rates and their development. In this regard, we employed data about bank rates in period 2014 to 2017. Because there is no difference between bank rates based on regions, the data for the Czech Republic from CNB were taken. The decomposition on banks and saving institution was used to provide broader insight into the issue.

Finally, the data about numbers of real estate agents on the market of Olomouc and Zlín regions were analysed. Thus, the indicator expresses the market saturation, market opportunities supply and its potential to attract new market agents. Values of the indicators in particular regions were compared to the average number of real estate market agents in regions of the Czech Republic. To avoid influence of outliers, Prague was excluded from the construction of average real estate market agents indicator.

4. Real estate market analysis

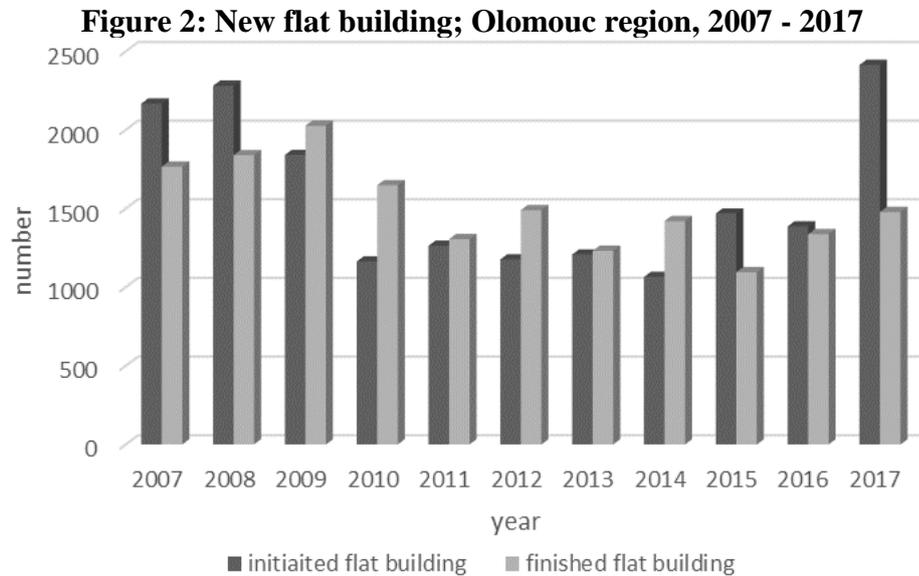
This chapter of the paper examines the relevant indicators related to real estate market in Olomouc and Zlín regions. The analysis is developed for both regions between years 2007 and 2017. Additionally, the analysis looks at some indicators which are important for real estate market and which are the same for the Czech Republic as a whole, like bank rates or GDP growth predictions.

The first part of the analysis focuses on the realization of new flat building. Figure 1 shows the situation of the Zlín region, with decomposition to initiated and finished flat building in particular years. The initiated flat building curve has a “U” shape with enormous increase in year 2017. Finished flat building follow the development of initiated flat building with anticipated delay.



Source: own elaboration based on CSO data

Figure 2 gives the same information about new flat building in case of Olomouc region. Again, there is relatively high increase of initiated flat building from year 2015, the strongest in last year of evaluation. The development of finished flat buildings again follows the development of initiated flat building in past. The total number of new flat buildings in Olomouc region is slightly higher than in Zlín region (see also figure 1).

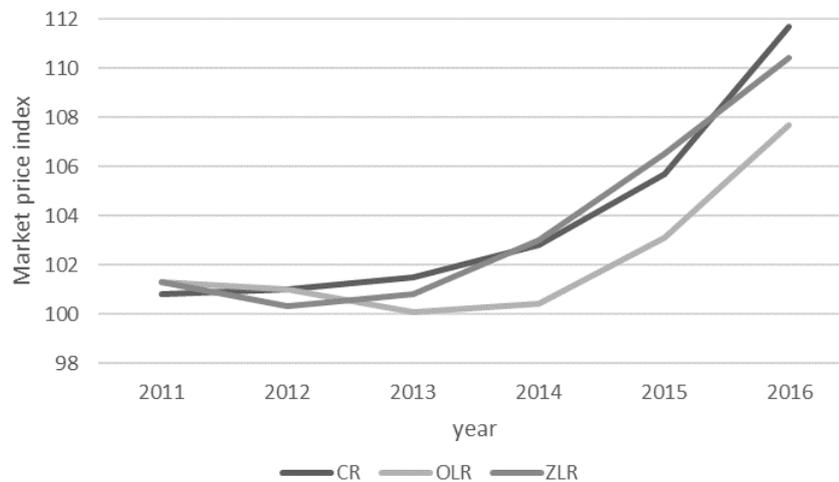


Source: own elaboration based on CSO data

Next part of real estate market analysis aims on real estate prices in particular regions. For this paper's purpose, figure 3 introduces information about overall real estate prices. The prices are expressed as index of market prices of real estate. The evaluation employed data from year 2011 to eliminate the influence of economic crisis after 2008. Particular lines in figure 3 represent index values for Olomouc and Zlín region, compared to its value for the whole Czech Republic. It is obvious, that market price of real estate are raising significantly in last years. The growth pace is uprising as well. Real estate price index is lower in case of Olomouc region, compared to Zlín region, although the initial situation in 2011 was similar. The curve representing real estate price index of Zlín region is more similar to overall index of the Czech Republic.

Preceding information is extended in table 1. This table mentions average price of real estate, distinguished by the type of real estate. Repeatedly, there is provided information about Olomouc and Zlín region and accordingly about the Czech Republic as a whole. Table 1 contains evaluation of two years – 2011 and 2016. The most remarkable increase in prices can be observed in case flats. Zlín region reaches 11% growth, Olomouc region even 23% growth. Average price of family houses decreased between the two years in Olomouc region, average price of flat buildings decreased in both regions. The overall real estate prices are slightly lower in both regions, compared to the Czech Republic average.

Figure 3: Real estate market price index; Czech Republic and Olomouc and Zlín region, 2011 - 2016



Note: CR – the Czech Republic, OLR – Olomouc region, ZLR – Zlín region
 Source: own elaboration based on CSO data

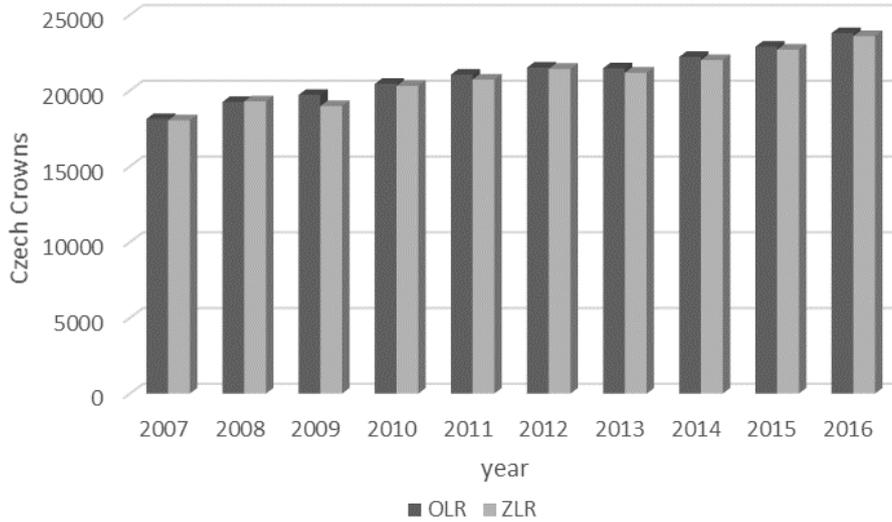
Table 1: Average real estate prices according to type; the Czech Republic and Olomouc and Zlín region, 2011 and 2016

| Area | Year 2011 | | | | | Year 2016 | | | | |
|------|-----------|---------------|-------|----------------|-------|-----------|---------------|-------|----------------|-------|
| | Total | Family houses | Flats | Flat buildings | Land | Total | Family houses | Flats | Flat buildings | Land |
| CR | 111.7 | 108.6 | 115 | 108.1 | 113.6 | 100.8 | 102.1 | 99.8 | 101.1 | 100.3 |
| OLR | 107.7 | 99.4 | 122.3 | 89.5 | 111 | 101.3 | 102.9 | 99.2 | 100.4 | 104 |
| ZLR | 110.4 | 111.1 | 111.7 | 96 | 109.8 | 101.3 | 102 | 100.4 | 103.7 | 100.8 |

Note: CR – the Czech Republic, OLR – Olomouc region, ZLR – Zlín region
 Source: own elaboration based on CSO data

The real estate market situation is driven significantly by national and regional economy development. Considering this point, the next part of this chapter evaluates chosen macroeconomic indicator. Figure 4 draws up the issue of average wages in Olomouc and Zlín region. Whole ten-year period indicates average wages growth. This is truth for both regions. It can be observed slight decrease only in year 2009 in Zlín region and in year 2013 in both regions, which could be caused by economy shocks in these years. In general, Olomouc region indicates higher average wages than Zlín region.

Figure 4: Average wage; Olomouc and Zlín region, 2007 - 2016

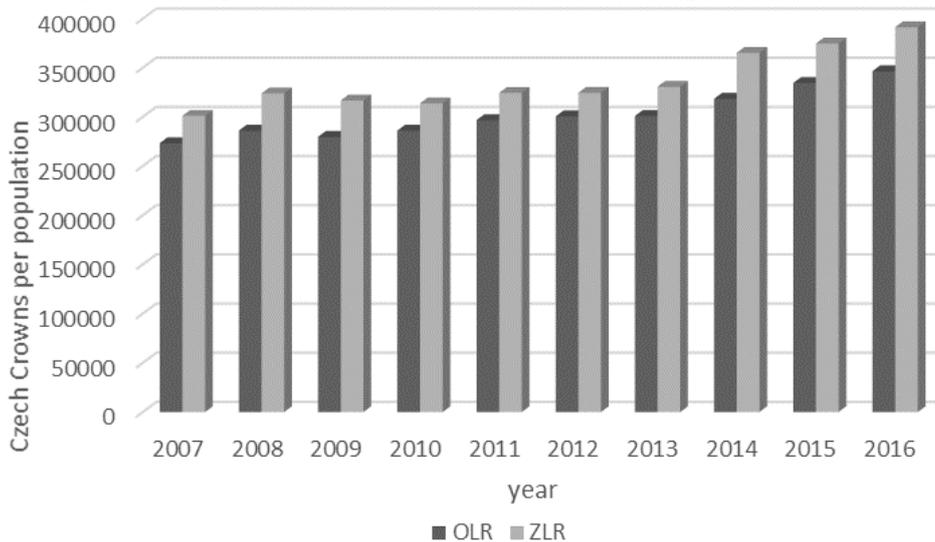


Note: OLR – Olomouc region, ZLR – Zlín region

Source: own elaboration based on CSO data

Regional GDP development is introduced in figure 5. Thus, the regional GDP of Zlín region is higher than in Olomouc region for the whole period. This is remarkable, compared to the average wage level in these regions (see figure 4). Positive economy development of the Czech Republic mirrors also rapid growth pace in regional GDP of both regions.

Figure 5: Regional GDP; Olomouc and Zlín region, 2007 - 2016



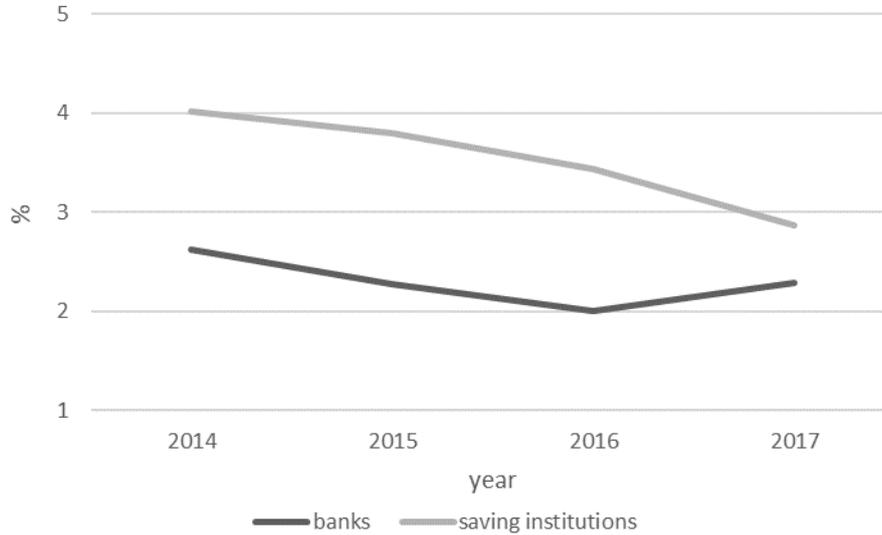
Note: OLR – Olomouc region, ZLR – Zlín region

Source: own elaboration based on CSO data

Crucial is the impact of interest rates on real estate market. It plays a role either in real estate pricing, either in mortgages and loan prices, respectively affordability, or in the real value of households assets. Keeping these points in mind, figure 6 gives an information about bank rates development either in case of banks and either in case of saving institutions. Attention is paid for period 2014 – 2017. Figure 6 indicates higher bank rates in case of saving institutions,

compared to banks; however, the gap is closing during time. On the other hand, saving institutions drives the bank rates down, while banks broke this trend in year 2017.

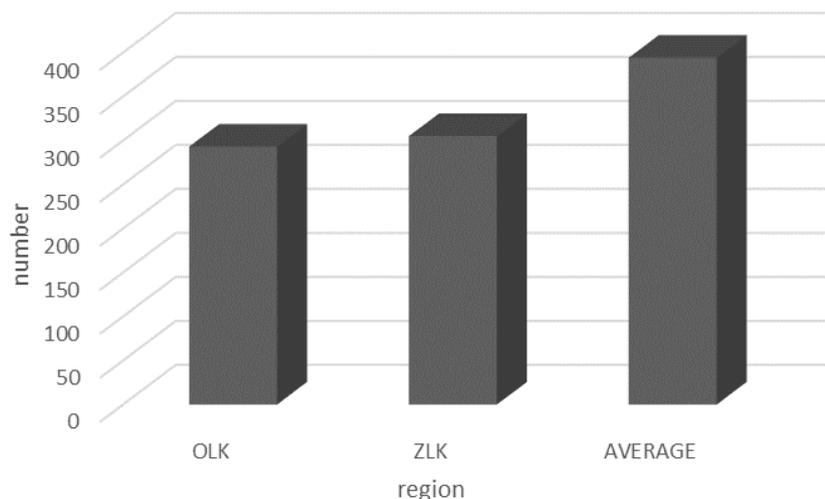
Figure 6: Bank rates; the Czech Republic, 2014 - 2017



Source: own elaboration based on CNB data

Final part of this chapter focuses on the number of real estate market agents in particular regions. This issue is connected with ideas about size and saturation of real estate market and with its health and ability to attract market subjects' attention. The numbers from Olomouc and Zlín region are compared to the average of all Czech regions. Prague was excluded from the analysis, because of its role as an outlier. From figure 7 is noticeable, that number of real estate market agents is under the average of the Czech Republic, even after Prague exclusion. Total number of real estate market agents is relatively higher in Zlín region.

Figure 7: Real estate market agents; Olomouc and Zlín region, 2017



Source: own elaboration based on CSO data and real estate agents websites

5. Conclusion

Based on previously introduced analysis of the real estate market of Olomouc and Zlín region, this chapter provides conclusion of the main findings. Conclusions can be summarized as follows:

- Building of the new flats indicates positive situation on real estate market of Olomouc and Zlín regions. In this regard, especially the number initiated buildings in last year of the evaluation shows that the real estate market will be saturated on the supply side.
- Current numbers of finished flat also indicates that the high demand could be satisfied in the near future.
- Positive prognoses about the numbers of real estate and market readiness could be disrupted by the threat of real estate bubble bursting. This threat is mentioned either by economic and real estate specialists. We witnessed similar processes in past as well. On the contrary, the future economic prognoses of national and international authorities remains optimistic. In addition, the policy of the Czech National Bank reflects the required changes by interest and bank rates and monetary policy modifications.
- Real estate market is significantly dependent on international, national and regional economy and its development. According to analysed macroeconomic indicators of national and regional economy, it can be concluded positive climate stimulating also real estate market. GDP growth and growth of average wages affects the purchase power of households, stimulates savings accumulation and creates investment possibilities. All these processes have positive impacts on real estate market as well. Households are more likely to invest into real estate and have better access to mortgages and loans. Firms are more likely to invest into new infrastructure, which includes also real estates.
- Abovementioned positive tasks related especially to real estate demand pressure on increase of bank rates. This growth cool down possible warming of the economy. On the other hand, it could be an obstacle for market subjects to reach mortgages and loans to purchase on the real estate market. Although this fact, it seems that the positive economic trends outweighs the possible negative influence of increasing bank rates. Moreover, more expensive mortgages and loans, and government restriction about maximum share of mortgage on total real estate price doesn't seem to slow down the purchase likeliness.
- In addition to introduced facts, table 2 adds information about the perspective of the Czech National Bank about bank rates and GDP growth for years 2018 and 2019. The economy seems to continue positive development when prognosis about GDP promises high pace over 3 percentage points each year. Together with GDP growth, it is relevant to expect also average wage growth and growth of purchase power of real estate market subjects. In case of bank rates, the Czech National Bank promise continual growth that raise even 1.7 % in 2019. This can be perceived as protection against economy warming.
- Growth of economy, its potential and purchase power, and growth of real estate market create opportunity for real estate agents activity in Olomouc and Zlín region. Because the numbers of real estate agents in both regions are under average of the Czech Republic, it is relevant to expect continual saturation of the market in future.

Table 2: GDP and bank rate growth prognosis

| Indicator | 2018 | 2019 |
|------------|---------|---------|
| GDP growth | + 3.6 % | + 3.2 % |
| Bank rate | + 0.9 % | + 1.7 % |

Source: own elaboration based on CNB data

Considering all the findings of realized analysis, it is possible to conclude that the real estate market in Olomouc and Zlín region goes through “golden age” nowadays. The economy is going well on regional, national and international level as well. All the positive processes related to this development overweigh the possible negatives. The public policies and actions of the Czech National Bank prevent the real estate bubble bursting. Regarding these findings, the paper fulfils its objective, defined in relevant chapter above. For further research, there is a space for evaluation of the situation on other regional real estate markets in the Czech Republic. Also, it would be interesting to provide the information about real estate market in other European, respectively non-European, economies.

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