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FACULTY OF ECONOMICS

DEPARTMENT OF PUBLIC ECONOMICS

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Faculty of Economics
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and

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DEVELOPMENT AND ADMINISTRATION OF BORDER AREAS OF THE CZECH REPUBLIC AND POLAND
SUPPORT FOR SUSTAINABLE DEVELOPMENT

Conference Proceedings

Editor

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DEVELOPMENT AND ADMINISTRATION OF BORDER AREAS OF THE CZECH REPUBLIC AND POLAND. SUPPORT FOR SUSTAINABLE DEVELOPMENT.

Conference Proceedings

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Prologue

Dear readers,

this is the Proceedings of papers that were presented at the 2nd International conference "Development and Administration of Border Areas of the Czech Republic and Poland - Support for Sustainable Development" organized by the Department of Public Economics, Faculty of Economics of the VŠB - Technical University of Ostrava.

Cooperation between the Czech Republic and Poland operates in many areas. Both countries are linked not only by common borders but also by common problems. The activities of researchers and academics from both sides of the border are focused on solving of economic and social problems, issues of sustainable development, reduction of air pollution, efficient waste management, ethnic minority issues, migration and cross-border cooperation.

Therefore VŠB - Technical University of Ostrava, Department of Public Economics, prepared in cooperation with the Statutory City of Ostrava the 2nd International scientific conference **„Development and Administration of Border Areas of the Czech Republic and Poland - Support for Sustainable Development".** The patronage of the conference was taken over by Iveta Vozňáková, Deputy Mayor of the Statutory City of Ostrava.

This proceedings of reviewed papers, that is including papers submitted to the conference, presents a summary of topics prepared for the conference meeting. The Conference Proceedings of the 1st International scientific conference „Development and Administration of Border Areas of the Czech Republic and Poland - Support for Sustainable Development" have been indexed in the Thomson Reuters Conference Proceedings Citation Index.

The second year of the conference aimes to contribute to the exchange of scientific knowledge and the development of informal contacts of experts from both sides of the border. I believe that the holding of this conference will help to the development of cooperation between both countries and will continue with joint projects in the coming years of the conference.

Ostrava, September 2018

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Content

Implementation of eGovernment in the Czech Republic and Poland and Evaluation of the Use of Selected eGovernment Services in the Czech Republic

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Abstract
Information and communication technologies (ICT) are a phenomenon of the present times, with great potential in many areas, including public administration. ICT has a large impact on the functioning of public administration, both at central and local level. The development of eGovernment and strengthening the public administration services provided to businesses and citizens by using available ICTs is currently very actual issue in all European countries. Functioning and quality eGovernment services are an integral part of contemporary modern public administration and bring undeniable benefits in terms of both time and cost savings, both for the citizen and for the public administration itself. This paper is focused on the comparison of eGovernment in two neighbour countries – Czech Republic and Poland, mainly on the national level. Special attention is paid to the evaluation of the use of selected eGovernment services in the Czech Republic related to the interest of the Czech citizens to use eGovernment services and satisfaction with their functioning.

Keywords: Czech Republic, eGovernment, Poland, public administration, services

JEL Classification: H10, H11, H80

1 Introduction

At present, the influence of ICT on the development of economics and public administration is undisputed, as stated by a number of authors (Jílek, 2002; Kelly, 2001; Volejníková, 2001; Lelek 2009). ICT is considered to be an effective public administration tool that creates new governance possibilities and strengthens democracy, see Lelek (2007). ICTs make many of previous activities more effective, especially the communication. It converts earlier, especially paper communication, into electronic form, in which information is processed faster, in larger capacity, and can be stored better and transferred to remote locations. They facilitate the functions of public administration and citizen´s involvement. The government of the Czech Republic and also governments of other European countries are paying a great attention to strengthening of public administration services provided to businesses and citizens by changing processes through the use of available ICT, as stated by the MPO ČR (2009).

In the last years, the European Union several times attempted to modernize public services. One of main Europa 2020 Strategie´s projects is the European Digital Agenda (Drab-Kurowska and Budziewicz-Guźlecka, 2015). The latest eGovernment benchmark report showed significant improvement on cross-border availability of digital public services and accessibility of public websites from mobile devices in EU countries (European Commission, 2017)

The aim of this paper is to provide the comparison of eGovernment in Czech Republic and Poland, mainly services of eGovernment provided on the national level. Special attention is paid to the evaluation of the use of

selected eGovernment services in the Czech Republic related to the interest of the Czech citizens to use eGovernment services and satisfaction with their functioning.

1.1 eGovernment Services in the Czech Republic

eGovernment concept focuses on the use of information and communication technologies (ICT) to facilitate the operation of government. eGovernment is a new way of dealing with any official matters, more easily and more accessibly, both for citizens and officials (Popiolek, 2013). According to Lelek (2007), eGovernment represents the transformation of internal and external relations of public administration through ICT in order to optimize internal processes. The aim is to achieve a faster, more reliable and cheaper provision of public administration services to the general public and to ensure greater openness of public administration towards its users. eGovernment includes all ICTs to support government operations, citizen engagement and government service delivery, a wide range of administrative and governmental projects, including eServices, eDemocracy, eVoting, eJustice even eEducation or eHealthcare (Špaček, 2012).

eGovernment services are a major issue within the European Union, see European Commission (2017). The digital transformation of governments across Europe is one of the cornerstones of achieving the Digital Single Market vision, as well as the broader EU2020 goals. According to Špaček (2012) or Kasprzyk (2011), we can distinguish the eGovernment services in eServices for the public and for the public administration. e-Services for the public include services for citizens and business. This forms are called government to government (G2G), government to citizens (G2C) and government to business (G2B). The current trend in the development of eGovernment services is so-called mGovernment, which uses mobile phones and other devices. Information is available to the client at any time and at any location.

The range of eGovernment services provided by the Czech public administration to the public is very wide. There are the services provided by the Financial Administration (Electronic Tax Return), the services provided by the Czech Social Security Administration (informative calculation of old-age pensions), the services provided by the Land Registry (seeing the Real Estate Cadastre) and many other services provided to citizens and entrepreneurs at all levels of public administration. The versatility of eServices varies considerably. We can distinguish eServices with an informative character and complex eServices. For example eServices with informative character are informing the public only, as websites of towns and municipalities. More developed eServices are for example the eServices of the Financial Administration, as filling in the tax return, sending it to the Financial Administration and then checking the progress of its execution.

According to eGOV (2014), there are over 700 different electronic services in the Czech Republic. The most common and most important eGovernment services in terms of possible practical use in the life of a citizen are summarized in Table 1.

Table 1 – The most important eGovernment services in the Czech Republic and their characteristics.

eGovernment service	Description of the service
CzechPOINT - Czech Submission Verification Information National Terminal	A network of contact points where a citizen can obtain and verify data from public and non-public information systems and officially verify documents.
Data boxes	Electronic storage that is used for communication between the public authorities and individuals and legal entities and between public authorities themselves.
Basic registers	Distribution of statements about the use of data from registers to data boxes of individuals and legal entities.
eSignature	Data that replaces a classic handwritten signature.
eID - Electronic identity cards	Cards are issued in two variants: with electronic chip and without chip. The variant with the chip is not obligatory and there is charged an additional fee of CZK 500.
ePortal of the CSSA	ePortal offers online services to citizens (insured, self-employed and employers) to facilitate communication with the CSSA.
Electronic submissions for financial management	Enables citizens to submit tax returns electronically through interactive forms.
Services of the Land Cadastre	It enables citizens to retrieve data on the ownership of parcels, buildings, units, building rights, etc.

| eMarketplace | Web application that enables electronic procurement. Since July 1, 2012, eMarketplace must be used by the Central Government Administration. Voluntarily can be used by other contracting authorities. |
| Public Administration Portal | The public administration portal provides information and services to citizens, entrepreneurs and tradesmen, foreigners living in the Czech Republic and public authorities. |

Source: eGOV (2014), own processing

1.2 eGovernment Services in Poland

As well as in the Czech Republic and other European Union countries, also in Poland is eGovernment a fundamental topic. In Poland, for the past several years various units were responsible for digitalization and development of electronic government (Popielok, 2013). Now it is the Ministry of Digital Affairs (MDA) of Poland. In 2016, MDA published the Strategic Action Priorities in computerization of public services. The strategy offers the vision and a range of concrete measures aiming to delivering a wide-reaching digital transformation of the state (European Commission, 2017). During the implementation of eGovernment projects, support from EU funds was used. Poland has encountered problems in this area. In 2012 the European Commission stopped the payments of funds for eGovernment development in Poland. The reason for this decision was the fact, that during the implementation of projects some failures were detected concerning the legality and regularity of expenditure (TVN24, 2016).

An important tool used by eGovernment in Poland is the ePUAP platform - electronic Platform of Public Administration Services. eServices platforms play a particular role in the process of adjusting IT systems to needs of the information society. They are the basis for solutions that enable interactive implementation of public and commercial tasks using electronic channels. ePUAP is a nationwide IT platform for public administration and institutions to provide electronic services. The platform provides them with relevant technological infrastructure (Drab-Kurowska and Budziewicz-Guźlecka, 2015).

The most popular eGovernment services in Poland are connected with economic activity of citizens, like company registration. But generally, the interest in eGovernment services is relatively small (eGOV, 2014). This may be associated with soft barriers (connected with citizens) of eGovernment development, lack of knowledge about the opportunities offered by eGovernment, low level of eSkills or lack of confidence in eOfices. All of this can create low interest in the new forms of administration (Kasprzyk, 2011). The basic and most popular eGovernment services in Poland are summarized in Table 2.

Table 2 – The most important eGovernment services in Poland and their characteristics.

eGovernment service	**Description of the service**
ePUAP portal - The Electronic Platform of Public Administration Services	System allowing public institutions to provide administrative services to the public via electronic communications channels.
Central registration and information on business	Fully operational portal where it is possible to run, sustain or stop a business online.
portal obywatel.gov.pl	Portal provides information and services to citizens. Nowadays there are available the most popular services provided by the public administration.
Unemployment benefits	Registration as an unemployed person is possible on-line. Also many other services are in place like: request a referral to training, request for organize the internship, an application for a certificate.
Passport	Personalised information about the status of document is available online.
eDeclarations system	Allows to submit the tax declaration electronically. There is no need to possess any signature to use this service.
Social contributions for employees	Online system using Public Key Infrastructure for sending social security monthly declarations – mandatory for all entities employing more than 5 persons.
Geoportal	The website is the central national access point for spatial

	information in Poland. Geoportal offers different spatial data services for citizens, business and public administration.
Public procurement / eProcurement	The portal of the Office of Public Procurement provides an official Public Procurement Bulletin with search engine, database of contract awards and an online tender publication system.
Mortgage register	Digitization of mortgage register (Electronic registration, Provide free access to mortgage register, secure real estate trading)

Source: Europen Commission (2015), own processing

2 Material and Methods

The first part of the research is devoted to the comparison of eGovernment level in the Czech Republic and Poland. The second part of the analysis is aimed at evaluating the use of ten selected eGovernment services in the Czech Republic based on a questionnaire survey.

2.1 Comparison of eGovernment in the Czech Republic and Poland

The comparison is based on data obtained from the United Nations database, see United Nations (2016). The research is followed by the EGDI (E-Government Developement Index). The EGDI index consists of three supporting indices having an equal share:

- Online Service Index

- Telecommunication Infrastructure Index

- The Human Capital Index

The EGDI value ranges from 0 to 1 and the countries are divided into countries with:

- very high EGDI (> 0.75)

- high EGDI (0.5-0.75)

- middle EGDI (0.25-0.5)

- low EGDI (<0.25)

The analysis compares the state of eGovernment in the Czech Republic and Poland and the development from 2008 to 2016.

2.2 Analysis of eGovernment Services in the Czech Republic

The evaluation was carried out on the basis of the results of a questionnaire survey, evaluating the satisfaction of citizens with eGovernment services in the Czech Republic, which was carried out in 2017, see Černická (2017). The questionnaire was completed by 182 citizens. Questionnaire survey was filled in by respondents via the Internet portal vyplnto.cz. To obtain a diverse sample of respondents and to meet respondents who are unable to connect to the Internet or unable to work with a PC, the questionnaires were also distributed in paper form. Of the total, 144 questionnaires were filled in via the Internet and 38 questionnaires in paper form. The questionnaire survey assessed the knowledge and use of selected eGovernment services and evaluated satisfaction with the services.

3 Results and Discussion

The outputs of the research are divided into two parts. The first part deals with the results of comparison of eGovernment status in the Czech Republic and Poland. The second part deals with the evaluation of selected eGovernment services in the Czech Republic in terms of their use by Czech citizens. This part is based on the results of the questionnaire survey.

3.1 Comparison of eGovernment in the Czech Republic and Poland

The state of eGovernment services is analyzed by usage of UN data describing the state of eGovernment in member countries (EDGI index), see United Nations (2016). The data are analyzed in the selected time period 2008 – 2016. The position of the Czech Republic and Poland in terms of eGovernment status in 2008 - 2016 is shown in Figure 1. For comparison, the United Kingdom is added to the chart that in terms of the level of eGovernment occupies the leading positions in the EU in long-term.

The Czech Republic is currently one of the worst rated countries in the EU, despite the fact that in 2008 eGovernment was rated on average in EU countries (14th position). Since then, however, development has stagnated, what is corresponding to a below average assessment in 2012 - the 24th place in the EU and even the 25th in 2014. Conversely, high dynamics is evident for Poland, which in 2010 still occupied 27th place and currently is placed at 18th position (2016).

Figure 1 – Ranking within EU countries in period 2008 - 2016. Source: United Nations (2016), own processing

	2008	2010	2012	2014	2016
Czech Republic	14	18	24	25	24
Poland	21	27	25	22	18
United Kingdom	5	1	2	3	1
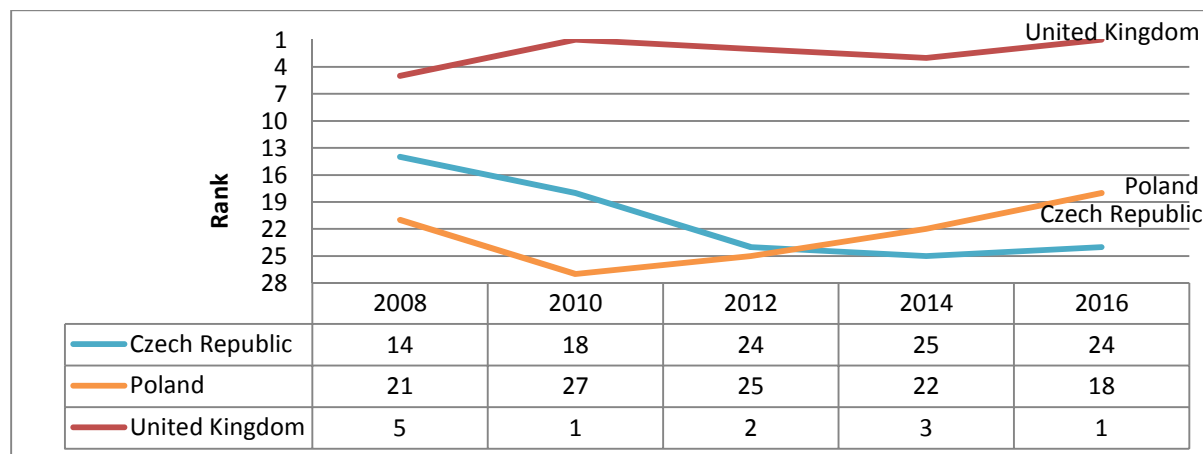
Figure 2 describes the state of eGovernment according to the EGDI index in the EU countries in 2014. The Czech Republic reached the value of 0.607. This value is below average compared to the EU countries, the Czech Republic ranked 25th position. By contrast, Poland reached the value of 0.6482 and ranked on the 22nd position among EU countries.

Figure 2 – Comparison of eGovernment in EU countries in 2014. Source: United Nations (2016), own processing
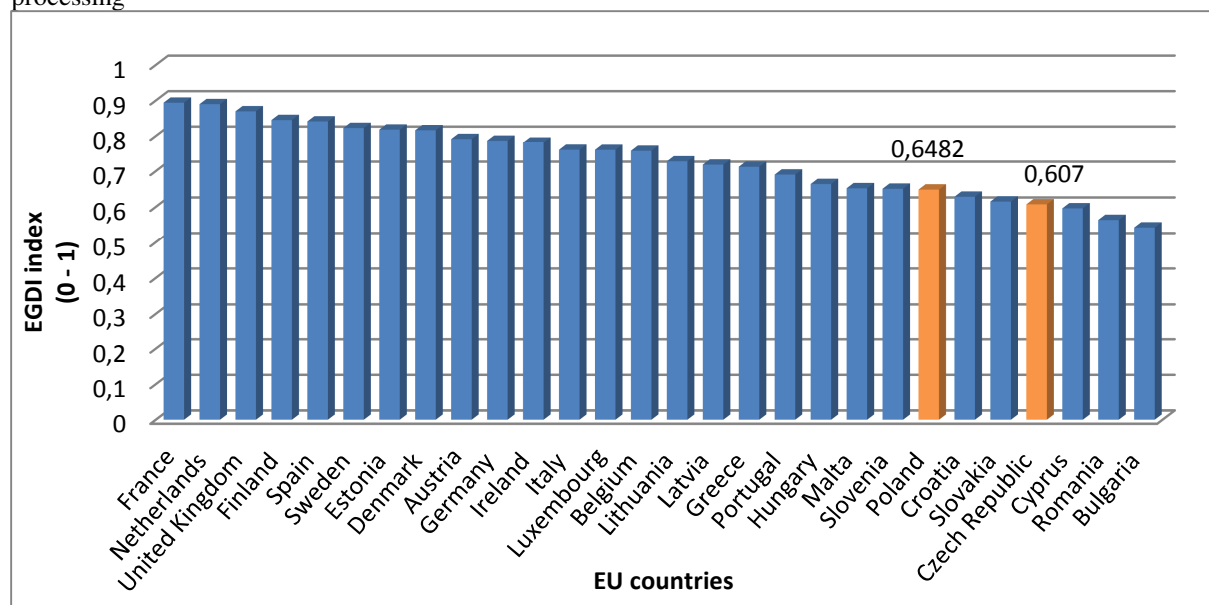
Figure 3 illustrates the state of eGovernment according to the EGDI index in EU countries in 2016. The Czech Republic reached the value of 0.6373, what is a slight improvement over the previous period. However, this value is still poor within the EU countries and the Czech Republic ranked on the 24th position. Poland reached in the year 2016 the value of 0.7211 and ranked on the 18th position among EU countries. This was great improvement over the previous period.

Figure 3 – Comparison of eGovernment in EU countries in 2016. Source: United Nations (2016), own processing
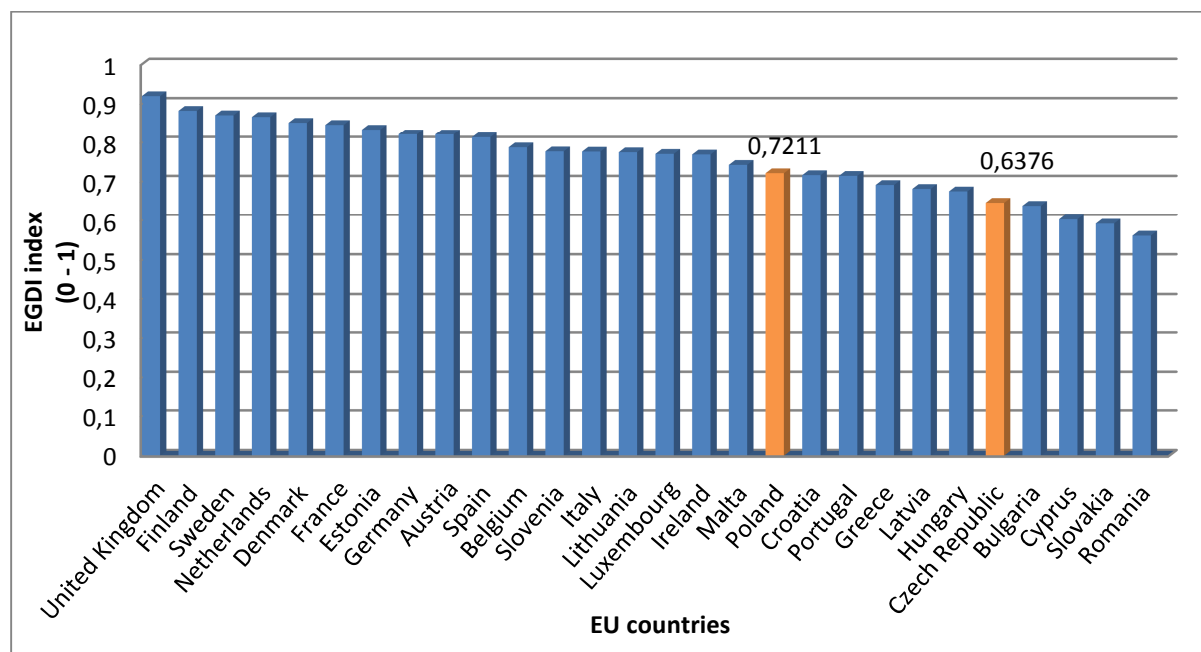
3.2 Evaluation of the Use of eGovernment Services in the Czech Republic

The questionnaire survey among citizens of the Czech Republic, see Černická (2017), revealed that "electronic public administration" or "eGovernment" are well-known and used terms in the Czech Republic. 76 % of respondents (138 respondents) know the term "electronic of public administration", 64 % of respondents (116 respondents) know the term "eGovernment". This implies that citizens of the Czech Republic are informed about the existence of electronization of public administration, and also the adopted term "eGovernment" has already been domesticated in the Czech Republic. However, electronic communication with public administration in the Czech Republic is not routine. 59 % of respondents (108 respondents in total) said they did not communicate electronically with the public administration, which is a very high percentage.

The questionnaire survey also evaluated the knowledge and use of eGovernment services and the satisfaction with the services. Respondents, among other things, stated on eGovernment services whether they know and use the service. Satisfaction with the services was only evaluated by respondents who said they were using the service. For selected services, more than ¾ of respondents said they were satisfied or very satisfied with the services.

Figure 4 shows that selected eGovernment services are known among Czech citizens. For 7 of the 10 services mentioned, there is a higher number of respondents who know the service than they do not know. Best of all, the services of CzechPOINT, Data Boxes, eSignature and Real Estate Cadastre are leading in this direction. At Czech POINT, even 172 respondents from 182 respondents said they knew this service. Conversely, as a result of the survey, the less known by citizens is eMarketplace (only 30 out of 182 respondents). The ignorance of the eMarketplace service is certainly related to the fact that this service is mainly used by entrepreneurs who answered only 13 in the survey.

Figure 4 – Knowledge of selected electronic services. Source: Černická (2017), own processing

	Czech POINT	Data boxes	Base registers	eSignature	eID	ePortal CSSZ	Tax portal	Cadastre	eMarketplace	Public Administration Portal
Don´t know	10	22	87	9	94	97	61	29	152	60
Know	172	160	95	173	88	85	121	153	30	122
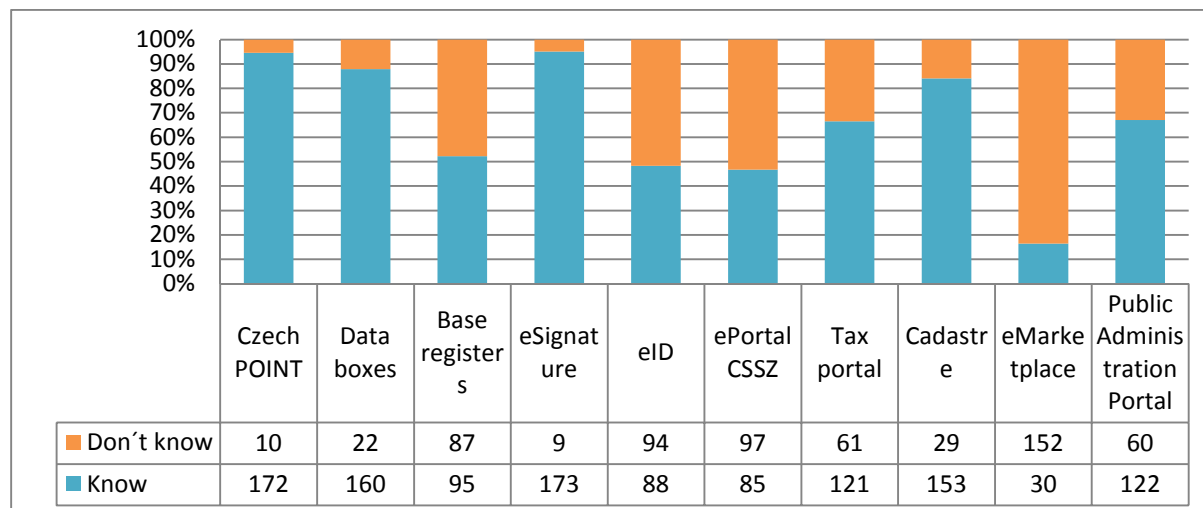
Although selected eGovernment services are known among citizens, their real use is lower. As can be seen from Figure 5, the most used services include Real Estate Cadastre (55 % of respondents) and Czech POINT (52 % of respondents). However, other services are already very little used - each in less than a quarter of the cases, the worst performing is eID, which is used by only 3 % of respondents.

Figure 5 – Use of selected electronic services. Source: Černická (2017), own processing
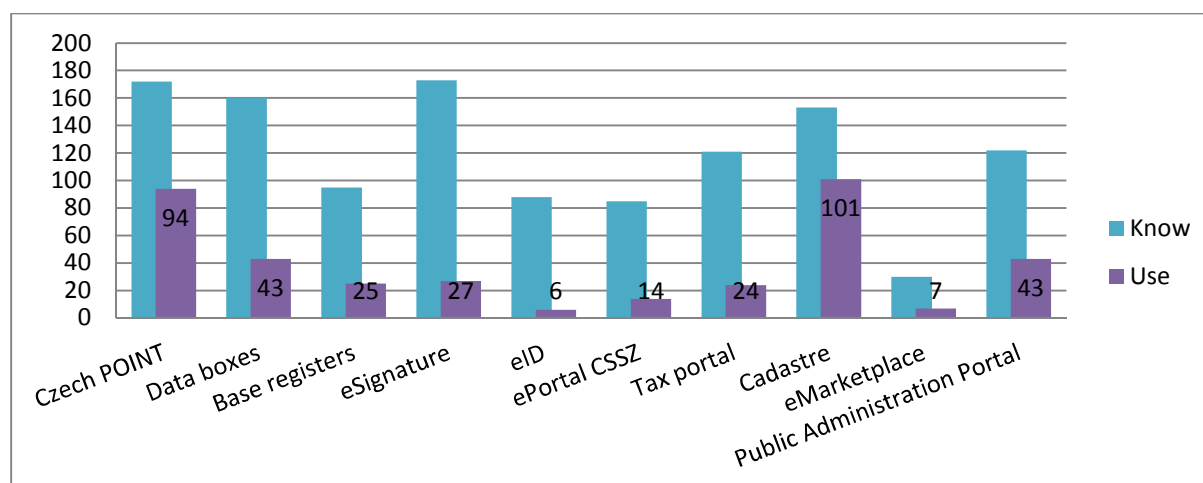
Source: Černická (2017), own processing

ICTs created a possibility for more efficient and effective functioning of the public administration. Czech Republic and Poland are still among countries of unsatisfactory level of eGovernment comparing with other EU countries. this corresponds to the conclusions of other authors, like Drab-Kurowska and Budziewicz-Guźlecka (2015), Oleków-Szłapka and Przybylska (2008), Śledziewska, Levai, and Zieba (2016), Ardielli (2015). The poor results of these countries have also been achieved in eHealth assessment, see Ardielli (2016).

4 Conclusion

The deployment of information technology represents a significant area of public administration modernization and eGovernment is perceived as an important tool contributing to the improvement of public administration performance. Despite the fact that in the Czech Republic there is a large number of eGovernment services available the Czech Republic is ranked in terms of the extent and quality of eGovernment services on the 24th place (according to the current UN ranking) among the European Union states. eGovernment services in the Czech Republic are not provided in a comprehensive way, there is a lack of interdependence between authorities and services provided by the authorities, they are not of the same level. When looking abroad, a service of electronic identity, which is already fully operational, for example, in Estonia, which is presented as a model of functioning eGovernment, appears to be the key service to move the Czech Republic to a better position in the UN ranking. Also the state of eGovernment development in Poland is still not satisfactory. Many countries in

Central Europe are developing better in this regard. The most worrying issues are various improprieties in the implementation of eGovernment. Particularly when it comes to corruption or problems with the use of funds from the EU. To improve the demand for eGovernment services in both countries, it is necessary to extend the range of eGovernment services, to inform citizens about eGovernment services and eGovernment services to provide citizens free of charge.

Acknowledgements

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Dates on Real Estate Market in the Czech-Polish Borderland: Spatial Analysis in the Segment of Apartments in Ostrava Region

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Abstract

Apartments market represents an important segment of the real estate market. It becomes a subject of frequent scientific studies and analyses used not only for purposes of professionals but also public. It is possible to describe, compare and analyse the apartments and their market prices based on many attributes. The paper is focused on the evaluation of real estate dates in segment of apartments, including capitalization rates, in the Ostrava Region because of its specifics. Ostrava region has a close connection to the Czech-Polish border, culture and history and is currently one of the fastest growing regions in the Czech Republic. In the paper, there is theoretical described the issue of information collection and data mining about apartment´s prices and locations in selected area and the related design and development of real estate database. The important part of the paper is dedicated to the spatial analysis of the acquired dates. The output of the research is also the calculation of the capitalization rates in individual districts of Ostrava Region.

Keywords: apartments, capitalization rate, Ostrava, real estate market, spatial distribution

JEL Classification: G110, R310, R210

1 Introduction

In the recent years, on both the Czech and the Polish sides of the border a raising interest in mutual contacts has been observed, connected with many cross-border projects (Tománek, 2016). There is very obvious the migration of people across borders in order to get better job opportunities, see Niewiadomska (2016) or Platkowska-Prokopczyk (2016). These people are often looking for housing in bigger border towns and thus the issue of the real estate market in the border area becomes very actual. The market price of apartments is based on many attributes. A significant factor is the localization of the apartment by region, see Mackmin (1999), Gelbtuch (2011) or Janasová, Slavata and Ardielli (2014).

Ostrava is an integral part of the Czech-Polish border area, historic and culturally connected with this area. It is dealing with similar problems as other major industrial cities such as Katowice on Polish side, with population outflows and structural changes. However, Ostrava is currently experiencing inflows of investment projects and foreign employers, which make the site more attractive for the inhabitants' lives and the inflow of new jobs, see Stavební fórum (2018). Large foreign employers attract not only local inhabitants but also foreigners, mainly Poles living on the Polish side of the Czech-Polish border, for which these offers are accessible and attractive. There is growing interest in accommodation in Ostrava in the form of subleases and the purchase of housing for short and also long periods. The greatest interest is recorded in the demand for apartments in Ostrava (Statistický úřad, 2016).

This paper is focused on the issue of specification of real estate market in Ostrava Region in the segment of apartments. This information can be useful for anyone interested in renting or buying a flat in Ostrava and also for the seller and lessor of flats. The aim of the paper is to conduct the evaluation of real estate dates in Ostrava region in segment of apartments, including calculation of gross capitalization rates, specification of the return of investment of flats and evaluation of marketability and ability of flats to be rent.

1.1 Specifics of the Czech-Polish Borderland

The Czech-Polish border is separated and connected at the same time by countries with similar political and social structure as well as economic potential. The Czech-Polish borderland is situated along the mountain range of the Sudety and Beskid Śląski and its border with a length of 796 km represents 22.7 % of the total length of Poland's borders, and 34.2% of the total length of the borders of the Czech Republic. On the Polish part the border with the Czech Republic runs through three voivodships: Dolnośląskie, Opolskie, Śląskie, and on the Czech part along five regions: Liberecký, Královéhradecký, Pardubický, Olomoucký and Moravskoslezský (Statistický úřad, 2016).

The Czech-Polish border area have industrial character, there are operating industrial centres of diversified production profile. However, the favourable climatic and soil conditions determine the use of a large part of the region for agricultural activities. A characteristic feature of the Czech-Polish borderland is the diversity of the landscape. Great natural, scenic qualities and the cultural richness of the Czech-Polish borderland constitute a significant developmental potential of this area.

The Ostrava Region is the national centre for the iron and steel industry in which the entire production of hard coal in the Czech Republic is concentrated, but from year to year the amount of the extracted raw material is decreasing. In addition to the traditional, smelting sector, the automotive, chemical and pharmaceutical industries are located there. The predominance of industrial activity and the restructuring conducted in the area have caused many problems, including a significant pollution of the environment, especially of the soil, groundwater, surface water and the air as well as a high level of long-term unemployed persons. Nonetheless, the location of the Ostrava Region along the border creates the possibility of effective cooperation, among others, in the sphere of production, infrastructure development and environmental protection.

The Ostrava city is the third largest city in the Czech Republic with an area of 214 km^2 and a population of around 300 000 inhabitants. The city is located in the north-eastern part of Czech Republic in the Odra river basin, it is the part of the Czech borderland (Povodí Odry, 2018), see figure 1.

Figure 1 –The Moravian-Silesian Region. Source: www.pod.cz

1.2 Real Estate Market in Ostrava Region

The real estate market in the Ostrava region is specific within the Czech Republic. The North Moravian Region has always been one of the areas with lower real estate prices. Regarding real estate prices developments, in the spring of 2008, property prices rose very fast. However, the economic recession, which begins in September 2008, has slowed down the rise in property prices, and has begun a major price reduction during 2009 - 2014. It turned out that the real estate market in the Ostrava region was very sensitive to the recession. The prices of some apartments gradually reached up to half their original value. By mid of the year 2014, the situation has begun to improve. The price drop has stopped and the bid prices have gradually started to rise. To a large extent, the change in the situation was played by banks, which provided very favorable housing loan conditions. In the autumn of 2016, however, the Czech National Bank started to regulate (cancellation of 100 % of mortgages, etc.). But even those price developments were not affected. For example, in Ostrava region, there was an increase in prices for all categories of flats from February 2017 to February 2018 (Reality Morava, 2018). The prices of flats 1 + 1 in Ostrava rose by 7.38 %, prices of flats 2 + 1 by 12.8 % and flats 3 + 1 are now more expensive than a year ago by 5.74 %. In 2018 the flats prices are stagnating (Stavební fórum, 2018).

There has begun a period when the real estate market in Ostrava region is more interested also for investors. Prices were low, interest rates on mortgage loans ranged between 1.5 and 2 %, so there was no reason to neglect the housing market. The return of housing is still very good in the region. Regarding the best locations in Ostrava region based on the ratio of prices and rents, the proportion to the purchase price of the apartment vs. rent, especially for a flat of 1 + 1 is best in Karviná, Ostrava center and Ostrava Poruba. The cheapest apartments are in Havířov and Frýdek – Místek (Reality Morava, 2018).

While in Prague or Brno foreign buyers participate on demand for real estate (in some locations up to 30 %) the situation in Ostrava is different. In Ostrava there is not recorded the strengthening of foreigners' interest in buying real estate. Growing demand is more concerned with rents, especially on the part of migrant labor force that came with the car manufacturer Hyundai and other foreign companies (Stavební fórum, 2018).

1.3 Real Estate Database

The basis for the analysis of the real estate market is to obtain suitable data. It is needed to acquire data continually in long term, see Bradáč et al. (2009). We were searching for the data on the location of the property and their prices (rental price and selling price. One of the key objectives was to find a good source of information about real estate. The assumptions were as follows. The source should contain at least the type of property, price of the property, its location, area size and in case of buildings also further information. The information from source should preferably be collected continuously, automatically and should be properly stored. Such requirements can be fulfilled in current time by electronic resources only. For needs of our work the sufficient resource was based loosely on the Internet in the form of real estate offers, which are offered by estate agents.

First, the extended list of various providers of real estates was created. All of them were evaluated using criteria of minimal needs of provided information and consideration was also given to another individual specifications. The data source for real estate database is information obtained from the website: "Sreality.cz". It is one of the largest real estate offers on the web in the CR and most visited site in this field. It was also selected because it offers RSS feed (see below) unlike the competition. Sreality.cz is internet site that offer space for all those who sell, rent or buy property. Real estates are sorted in categories and subcategories: Lands (garden, forest, farmland, land for housing, permanent grassland, and land for commercial development), new developments, houses (low energy, family, wooden), other (garage, cottages), see sReality (2016). It's also possible to do sub sorting according to location – region, city. Advertisements of property offered on the web site are of a temporary nature. Advertisements are removed from the offer at the time of sale or at the time of updating the content of the advertisement so that the original version of the advertisement is no longer available, and only modified version are offered.

Hand browse of offers on the Web is inoperative, time-consuming, difficult control of new and older advertisements, or case of unseen advertisements, which were shortly after the release removed. Therefore a tool is required that automatically downloads advertisements, by clear form displays them, clearly distinguishes the new and already visited advertisements. For these purposes you can use RSS services and software that can do with RSS feeds to work. RSS (Really Simple Syndication) is an XML (Extensible Markup Language) format for reading the news on the website - such as blog entries, news headlines, audio, and video – in a standardized format. RSS technology allows to Internet users to subscribe to news from a web site that offers RSS feed, also RSS channel. An RSS document includes full or summarized text plus metadata such as publishing dates and authorship. RSS document usually contains headlines and text of news and publishes them on a unique URI

(Uniform Resource Identifier) address. By its internal form of RSS document is a subset of XML (NotePage, 2011). Website Sreality.cz such possibility of RSS feed usage offers.

For reading RSS feeds are used the RSS readers in the form of plug-ins embedded in the web browser or special desktop software. The advantage is easy to view current advertisements, which are easy sorted into categories. Unfortunately both versions have the same drawback as viewing advertisements on the web site. It's not possible to display old, already removed advertisements. Desktop applications, unlike RSS readers built into web browsers, generally offer more options and are sophisticated, see Ardielli and Janasová (2011).

2 Material and Methods

The research monitors and evaluates the data on the Ostrava housing market. Based on the analysis and processing of input data, market rents from flats and market prices of flats are determined by individual types and locations of the city. The prerequisite for the research was the continuous monitoring of the offer prices of flats and the amount of the required rent from the flats in Ostrava. These input data were collected through an automated process, the output of which became a database of rents and sales. The data also included all updates of registered advertisements during the data collection. This means that the property was re-stored in the database more times, depending on how often an advertisement with incremental changes to the property was updated. This process of monitoring the ongoing updates ensured the acquisition of data inputs for the analysis of the sale of flats and the obtaining of the overview and changes of prices and flat rentals from the posting of the advertisement to its withdrawal (sale / found of the tenant of the property). These are, therefore, bid prices, which, however, in the time series converge to the cost of realization. For this reason, the reduction factor is not used at the price source, which is recommended in the literature of 0.85, see Bradáč et al. (2009). In case of the price of real estate advertising is taken into account regardless of the time series of the advertisement, it is appropriate to adjust the price to the selling price. However, prices quoted in the final price database are sales prices or very close to the prices at which the sale or lease was made.

For robust database processing and computation, it was necessary to design a suitable database structure in which the input data would be stored. The data had to be clearly recorded and should contain unique identification characters that ensure easy database orientation and unmistakable records.

The database structure was as follows:

• ID (unique record identifier)

• DATE

• TIME

• LINK (unique advertisement ID - groups of updated records)

• PRICE

• DIMENSION (m^2)

• SIZE (type / category of flat 1 + kk, 1 + 1 ...)

• CONSTRUCTION (panel, brick, assembled ...)

• FLOOR

• OWNERSHIP (cooperative, personal, other)

• MUNICIPALITY

• DISTRICT (or cadaster)

• STREET

Such a structured and prepared database has a multifaceted use, both from a practical point of view (when valuing flats) and from a theoretical point of view (when determining the relationship between housing prices and rents on the local market).

The research based on the data application from the database in the presented paper is aimed in following areas:

• Calculation of the yield value

Knowledge of sales prices and required rents can be directly applied for the calculation of gross capitalization rates. The required monthly rent is the basis for determining the gross annual yields available. It is necessary to take into account other factors in the calculation, such as failure to pay rent due to vacancy or other reasons. The

application of outputs of presented research is seen in specification of the capitalization rate for the calculation of the yield value of the property according to equation (1):

$$VH = \frac{CV}{R}$$, (1)

Where *VH*   – is the yield value of the thing,

    CV   – is the net rental income,

    R   – is the capitalization rate centesimal.

- Calculation of gross capitalization rates (rent to price ratio - RPR) and return of investment (price to rent ratio - PRR) of flats for individual locations

The ratio between the flat rent and the flat price is one of the basic aids in the case of an expert appraisal of the usual rent or in the case of determining the usual flat price by the yield method. According to Bradáč et al. (2009), there is a relatively close dependence between the price of the flat and the rent. Annual rents vary between 6-8 % of the market price of the apartment.

Calculation of the rent to price ratio (RPR) of flats follows according to equation (2):

$$RPR = \frac{r*100}{p}$$, in % (2)

Where *RPR*   – is the rent to price ratio (%)

    p   – is the average price of flat,

    r   – is the average gross year rent.

In case to get the return on investment, we are calculating the price to rent ratio (PRR) of flats that follows according to equation (3):

$$PRR = \frac{p}{r}$$ (3)

Where *PRR*   – is the price to rent ratio

    p   – is the average price of flat,

    r   – is the average gross year rent.

• Analysis of the marketability and ability of flats

Based on the process of monitoring the ongoing updates of registered advertisements in the database, it is possible to provide data for the analysis of the marketability / rent-ability of apartments according to individual types or districts of the city. It is also possible to monitor the movement of prices and rents of flats from the posting of the advertisement to its withdrawal, i.e. the final price at which the apartment is sold or leased. The analysis illustrates the overall view of the functioning of the apartment market in the given location.

3 Results and Discussion

Apartment market belongs to the important segments of real estate market. This is also the subject of frequent scientific analyses, see Parli (2008) or in Czech terms Komárek and Kubicová (2011). The discovery of market prices and market rents in presented paper was possible to be made on the basis of the monitoring of the gradual updating of the advertisements and the final prices contained therein as described in Ardielli and Janasová (2011). On the basis of information on the requirements for the first and last published property prices, it was possible to determine the amount of the bid price correction to market level with respect to the source of the price. When specifying the gross capitalization rate and determining the gross achievable yield from renting of property, it was necessary to determine the so-called gross real yield, as described in Ardielli, Ardielli and Slavata (2016). This was aided by the analysis of the sale-ability of apartments in Ostrava, on the basis of which it was possible to determine the vacancy time of a particular size category in Ostrava in one year.

3.1 Specification of Gross Capitalization Rates

The first outcome of the research was to determine the level of gross capitalization rates in Ostrava districts. In Table 1 is depicted the distribution of the gross capitalization rates of apartments by individual districts. Gross capitalization rates in main Ostrava districts range from 5.9 to 16.5 %. The average RPR ratio in Ostrava districts is 10 %. The value is higher than 6 - 8 % calculated by Bradáč et al. (2009).

Table 1 - Gross capitalization rates in selected locations of Ostrava region.

Locality	Gross capitalization rate (%)
Bělský Les	12.6
Dubina	13.5
Hrabová	5.9
Hrabůvka	11.0
Hulváky	16.5
Krásné Pole	8.8
Mariánské Hory	9.0
Martinov	15.8
Moravská Ostrava	8.2
Muglinov	8.1
Nová Ves	18.0
Poruba	8.5
Přívoz	7.8
Pustkovec	8.3
Slezská Ostrava	6.4
Svinov	7.7
Vítkovice	11.5
Výškovice	9.2
Zábřeh	10.7

Source: Own calculation

3.2 Specification of the Price to Rent Ratio of Flats

The second outcome of the research was to determine the price to rent ratio (PRR) in Ostrava districts. It is known as the return of investment in years. In Table 2 is depicted the distribution of the PRR ratio of apartments by individual districts. PRR ratio in main Ostrava districts range from 5.6 to 16.9. The average PRR ratio in Ostrava districts is 10.6 years. This shows the specific character of Ostrava flat market. It seems to be more convenient to buy here the flats than rent.

Table 2 - Sales prices and rents of apartments in Ostrava by city district and RPR of flats.

City District	Average price (CZK)	Average rent (CZK/month)	Return on investment (PRR ratio) in years
Bělský Les	732 789	7 674	8.0
Dubina	637 280	7 193	7.4
Hrabová	1 733 898	8 575	16.9
Hrabůvka	741 786	6 807	9.1
Hulváky	464 000	6 383	6.1
Krásné Pole	951 000	6 966	11.4
Mariánské Hory	1 017 241	7 632	11.1
Martinov	620 500	8 190	6.3
Moravská Ostrava	1 062 401	7 219	12.3
Muglinov	984 537	6 660	12.3
Nová Ves	451 246	6 769	5.6
Poruba	947 950	6 679	11.8

Přívoz	954 245	6 223	12.8
Pustkovec	963 087	6 660	12.1
Slezská Ostrava	1 509 092	8 034	15.7
Svinov	1 129 516	7 234	13.0
Vítkovice	687 489	6 581	8.7
Výškovice	884 464	6 768	10.9
Zábřeh	752 033	6 695	9.4

Source: Own calculation

3.3 Specification of Marketability and Ability of Flats to be Rent

Based on the tracking of the time series of advertisements on sales offered through the updating of individual advertisements in the database, information on the marketability of apartments in Ostrava was evaluated. It has been noticed that real estate agencies are working with published advertisements by means of updates until the final sale, when the advert will completely disappear from the offer. If the advertisement is not reflected by the clients, the real estate agency will update it, which in most cases will lower the price of the apartment. Advertisements are widely updated from the first day of submission to the 90th day after their publication. This suggests that an advert will in most cases attract clients within 3 months of its publication, and the apartment is sold at that time and disappears from the real estate agency's offer. During the first 90 days, 91.17% of advertised apartments are sold.

If we analyze the time from filing an ad to its latest update more closely, we find that more than 38 % of advertisements are posted and last updated (sold) within the first month of publication. An additional 30 % of ads are last updated within 2 months of the publication, and about 22 % of the advertisements are last updated within 3 months of publication. Only less than 9 % of advertisements disappear from the real estate agency offer up to 3 months after publication, see the chart depicted in Figure 2.

Figure 2 – Sale time of flat in Ostrava. Source: own processing
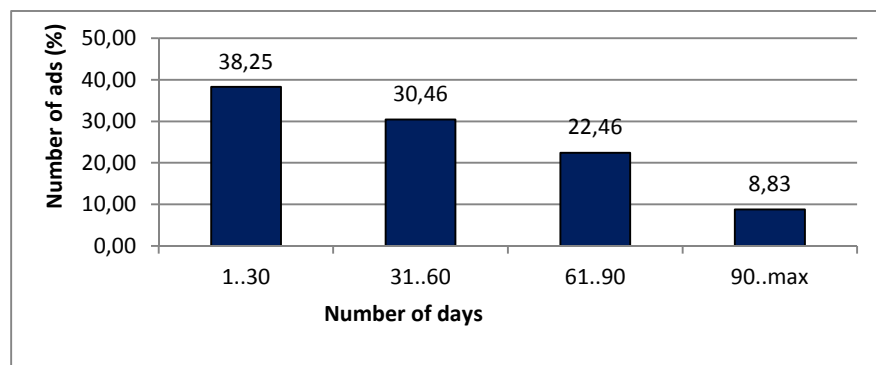
During the first 3 months, the prices of apartments in real estate offers are often reduced. The average price reduction for an apartment during the first 90 days is CZK 35 547, which is 4.03 % of the original apartment price.

In the same way as in the case of sales advertisements, information on the current vacancy rate in Ostrava was collected by means of the registration of individual advertisements in the database. Advertisements are most active until the 60th day after the publication, indicating that the vacancy is about 2 months long. Then the apartment is in most cases occupied by the tenant and the ad is removed from the real estate agency offer. During the first 60 days, 81.97 % of advertised apartments in Ostrava are leased. Of which almost 41 % of advertisements have a lifetime of one month. A further nearly 41 % of ads are up-to-date within 2 months of publication, and about 11 % of ads are last updated within the 3 months of publication. Only about 7 % of ads are removed from the real estate agency offer up to 3 months after the publication, see the chart in Figure 3.

Figure 3 – The vacancy period of flat in Ostrava. Source: own processing
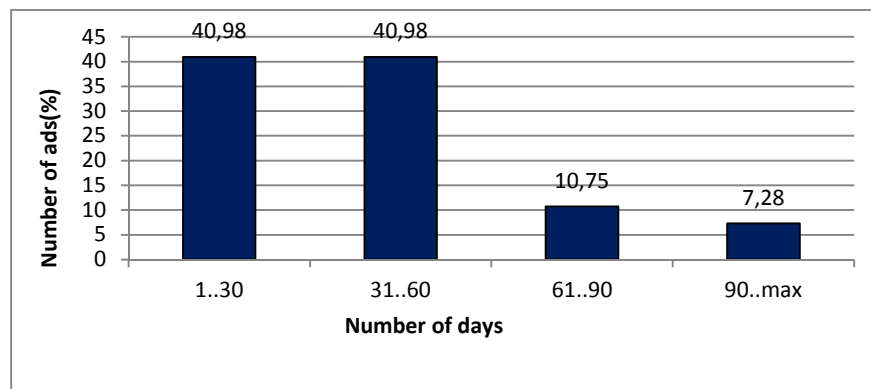
Average rental price reduction for the apartment during the first 60 days is 2.62 % (it is CZK 182 per apartment).

4 Conclusion

This article is aimed on specifying the level of gross capitalization of the selected segment of the real estate market. The aim of the research was to describe and, as far as possible, to generalize the relationships found in this segment of the real estate market at the regional level. The selected segment for the application part is the Ostrava flats market. In terms of locations, the highest values of gross capitalization were recorded in the area of Zábřeh - Hulváky and Nová Ves near Ostrava. The high values of the gross capitalization rates were also calculated in the Ostrava - South area, which is adjacent to the above - mentioned perimeter districts and forms a uniform area of Ostrava with the highest gross capitalization rate in Ostrava. Ostrava-Jih consists of the cadastral areas of Dubina near Ostrava, Hrabůvka, Výškovice near Ostrava and Zábřeh nad Odrou. It is the most populous city district in Ostrava with a rough housing estate, where approximately one third of the town lives. The average return on investments of flats in Ostrava districts is 10.6 years. this suggests that buying a flat in Ostrava is better than renting.

The Moravská Ostrava, Poruba and Zábřeh locations in Ostrava are the main habitat for housing with dense housing of residential buildings. The offer of apartments for sale and rent is therefore highest within the city. Rentals are significantly more frequent in terms of supply than sales and especially in Poruba and Moravia Ostrava. Also demand for apartments for rent and sale is high in these locations. According to the analysis of marketability and rentability, it was found that apartments are on average occupied by the tenant within two months of the publication of the advertisement. A suitable buyer of an apartment is found on average within three months of the publication of the advertisement. In Hrabůvky, the offer of flats for rent and for sale is balanced. Dubina, on the other hand, has a higher offer of apartments for sale than for rent. Vitkovice is an example of a cadastre, in which the offer of apartments for rent exceeds several times the offer of apartments for sale. In case of an offer of apartments for sale, there were recorded more cadastral territories with nonexistent offer. It is a residential area without residential buildings, where only apartments for rent in family houses are offered.

Acknowledgements

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Evaluation of Schools with Polish Language Teaching in the Czech Republic

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Abstract

The article evaluates the technical efficiency and productivity of nursery and basic schools with Polish language teaching in the Czech Republic. Schools are founded by local government in the form of allowance organizations. All of them are located only in the area of the Frýdek-Místek and Karviná districts. The aim of the article is to evaluate schools with Polish language teaching in the Czech Republic from the perspective of the level of technical efficiency and technical productivity. Technical efficiency is assessed using the DEA method for the years of 2011 - 2016. Technical productivity is then evaluated in the same period, using the Malmquist Index that can be used to evaluate the efficieny of multi-input and output production units. It also allows rating of the selected schools´ relative efficiency – in comparison to the others in the set. Based on the results of the DEA method, there is the technical efficiency outcome: best schools of the Karviná District are those founded by the villages of Horní Suchá, Karviná-Fryštát and Těrlicko. In the Frýdek-Místek District the school founded by the village of Milíkov is the best. From the technical productivity point of view the Český Těšín and Orlová schools with Polish language teaching in the district of Karviná improved during 2011 – 2016. And except for the Milíkov school, all of the District of Frýdek-Místek basic schools with Polish language teaching improved during 2011 – 2016.

Keywords: allowance organization, the Czech Republic, DEA, Malmquist index, schools with the Polish language teaching

JEL Classification: A20, C67, H44, I21, P36

1 Introduction and Review of Literature

The subject of this paper is to evaluate the technical efficiency and productivity of the functioning of schools with Polish language teaching that are founded in the Czech Republic. The paper evaluates a total of 16 homogeneous organizations, which provide education both on the pre-school level in kindergartens and on the compulsory school level at the basic schools. All of the evaluated organizations are located in the municipalities of the Karviná and Frýdek-Místek districts, which are established on the basis of decisions of the municipal councils; and serve mainly to teach children / pupils of the population who claim to belong to the Polish national minority. Compulsory school attendance has an extraordinarily long history in the territory of the Czech county (introduced by the so-called General School Regulations "during the reign of Maria Theresa in 1774), which is also documented by the date of establishment of evaluated schools. Compulsory school attendance applies to all citizens with permanent residence on the territory of the Czech Republic without distinction, that is to say, the inhabitants of other nationalities. It is in essence a guaranteed right to education for every individual. This right is regulated by Article 33 of the Charter of Fundamental Rights and Freedoms, which is an integral part of the constitutional order in the Czech Republic. This highest state legal document says that schooling is compulsory for a time period set by the law. And that schooling is free of charge in the basic, medium and, according to society possibilities, also at universities. Other rights and obligations concerning education are regulated in the provisions of valid legislation on education, in particular in the Education Act No. 561/2004 Coll., On pre-

school, basic, secondary, higher vocational and other education and in Act No. 111/1998 Coll., On universities, as amended.

Education is ranked among public services in the developed countries; and the Czech Republic is no exception in this point of view. In terms of their economic character, public services are primarily public (collective) public goods provided to the population indiscriminately. Musgrave (1959) noted that a public service can be referred to as a service that is generally funded, in whole or in part, from public sources. Among the public sources there can be included those sources, that, in the democratic countries, are usually chosen by the elected political representation of the inhabitants. In a similar vein, a number of authors point to this, such as Peková et al. (2012), Tománek (2015), Sedmihradská and Bakoš (2016) or Varadzin and Becica (2016).

Ochrana et al. (2007) also highlights several negative aspects that are associated with the provision of public services. They are, in particular, the emerging externalities and inefficiency in spending of public funds, which in turn leads to a general lack of resources to provide sufficient public services at the required quality level.

The aim of this paper is to evaluate schools with a Polish teaching language established in the legal form of an allowance organization and to define their level of technical efficiency in 2011-2016 and also the level of technical productivity between the particular years of the evaluated period.

The reason for examining the technical and productive efficiency of schools with Polish language teaching is the assumption that the evaluated schools do not achieve the same efficiency in spending of public funds. The purpose of the paper is to point out this possible inefficiency in comparable units.

All of the evaluated schools are in the legal form of an allowance organization and are founded by a public subject to provide a kind of public service, which in itself predicts certain inefficiency. At the same time, the evaluated organizations are financed from public funds of the state through special transfers. Tea state finances mainly the employees' wages. And the funds of the territorial self-government cover mainly the operating expenses of the organizations.

Efficiency and resource allocation have been measured in the public sector for the last 50 years, which is a consequence of the development of technical possibilities, of the shortage of public resources increasing and of the reaction of the professional public to newly enforced economic theories, which, according to Jablonský and Dlouhý (2015) want to avoid wastage from public sources.

The problems of inefficiency in provision of public goods are becoming the subjects of a number of domestic and foreign expert works which evaluate organizations in various areas of the public economics. Examples of te education area include the work of Chakraborty, Biswas and Lewis (1999) or Chakraborty, Harper (2017); Conroy and Arguea (2007) or Ouellette and Vierstraete (2010) or Cordero, Santin and Simancas (2017). Among the Czech authors we can see Plaček, Ochrana, Půček (2015) or Vrabková (2016). Measurement of the efficiency of organizations within the Czech Republic happens not only in the field of education, but also of various cultural organizations (Ardielli, Becica, 2018), health care (Vrabková, Vaňková, 2014), social services (Ertingerová, 2018) leisure activities (Bečica, 2016).

The works show that the inefficiency of some public sector institutions in the Czech Republic is the result of an overhang of supply; and of insufficient demand. Market imbalances often cannot be solved simply like by reducing of the size and capacity of buildings, or by reducing of the seats or beds capacity. Reduction of the provided services quality could happen. However, this does not in itself mean that individual publicly-established organizations may not develop, compare with others, seek new financial possibilities, and generally respect the principles of 3E -economy, efficiency and effectiveness.

2 Characteristics of the Organisations, Data and Methods

The evaluation of schools with the Polish language teaching is done using the output-oriented DEA method with constant yields from the range (CCR) and the Malmquist productivity index (MPI). The results are the output from the data available in the annual reports of individual organizations in 2011-2016 and from economic indicators available in the publicly accessible database of the Ministry of Finance of the Czech Republic, the IISSP – Monitor, in the evaluated period. This period was chosen to allow at least five consecutive years for the DEA method to obtain the most recent comparable data, i.e. the values for 2011-2016. The DEA method evaluates the efficiency of the evaluated organizations within the given sample and in the relevant year. Within the model a share indicator was chosen. It combines the performance and economic indicators, respectively the selected inputs and outputs on the basis of the schools evaluation. Inputs, outputs and evaluated period are characterized by the table no. 1.

Table 1 – Characteristics of inputs, output and of the evaluated period.

Model	Inputs - x	Outputs - y	Evaluated period
DEA	x 1 – Wage costs per child / pupil;	y 1 – Revenue from transfers per child / pupil; y 2 – Other revenues per child / pupil	2011, 2012, 2013, 2014, 2015, 2016,
MPI	x 2 – Operating costs of the institution's building capacity		2011/2012, 2012/2013, 2013/2014, 2014/2015, 2015/2016, 2011/2016,
Data source	Annual reports of evaluated schools; Economic indicators of the evaluated schools, available from the public database of the Ministry of Finance of the Czech Republic: IISSP - Monitor		

Source: Own processing.

The output-oriented DEA model with constant yields from the range (CCR) was selected for our evaluation. The economic indicators were selected for this model to include the wage and operating (energy, other) costs of the evaluated organizations (inputs) as well as the revenues from public sources (state and local self-government). They were chosen also to include management's ability to secure the organization's running through other sources revenues than just the public transfers (outputs). In terms of the performance indicators, the indicator of the actual number of children and pupils influencing the wage costs was chosen. And also the administrative buildings of the evaluated institutions that relates to the institution's operating costs (heating, lighting, cleaning) was used for inputs. For outputs, the performance indicator of the actual number of children and pupils who were educated in chosen institution in the given year was used; because the number of serviced clients is typical for public services. These selected inputs and outputs are the traditional monitored indicators of organizations that provide public education services.

The characteristics of the evaluated organizations in terms of performance and economic indicators are shown in the Table no. 2. In addition to the organizational start date, the table shows the maximum capacity of the buildings in terms of the theoretical number of children / pupils, the capacity filling in percent and the average percentage of individual costs / revenues per total costs / revenues of the organization in the evaluated period of 2011-2016.

Table 2 - characteristics of the performance and economic indicators (average in %) of the evaluated organizations during 2011-2016.

Evaluated organisations – DMU´s (municipality)	Esta blish ment	Max. capacity (number)	Filli ng in %	Wage costs/ total costs	Energy costs/ total costs	Other costs/ total costs	Transfer/ total revenues	Other revenues/ total revenues
Karviná District								
Albrechtice	1828	50	28	74,6	5,1	20,3	95,8	4,2
Český Těšín	1923	550	66	76,3	6,5	17,2	89,6	10,4
Dolní Lutyně	1914	120	30	82,6	8,3	9,1	95,4	4,6
Havířov Bludovice	1911	90	63	77,5	6,5	16,0	90,2	9,8
Horní Suchá	1930	100	81	71,5	4,4	24,1	96,1	3,9
Karviná-Fryštát	1918	375	42	67,1	5,8	27,1	85,3	14,7
Orlová	1928	50	28	79,7	5,2	15,1	96,9	3,1
Těrlicko	1921	35	63	68,7	6,5	24,8	94,3	5,7
Frýdek-Místek District								
Bukovec	1855	85	40	80,7	3,6	15,7	97,8	2,2
Bystřice	1923	238	67	82,3	4,3	13,4	93,8	6,2
Hnojník	1950	150	75	80,1	2,7	17,2	91,1	8,9
Hrádek	1985	43	70	74,3	3,3	22,4	89,5	10,5
Milíkov	1904	30	70	71,8	6,6	21,6	87,1	12,9
Mosty u Jablunkova	před 1800	25	72	84,1	5,3	10,6	99,2	10,8
Návsí	před	50	48	81,6	5,7	12,7	98,7	1,3

	1800							
Třinec	1880	628	32	80,1	4,3	15,6	94,4	5,6

Source: Own calculations based on the available performance and economic indicators.

Evaluation of technical efficiency of production units based on the size of inputs and outputs is dealt with by the DEA models, assuming that the compared organizations provide homogeneous product and that the indicators are comparable within the compared period. Brožová (2014) notes that both, private and public sector organizations can be rated as a benchmark for comparable products or services. This kind of evaluation can be done for manufacturing companies, banks, supermarkets, hospitals, schools, authorities and other public services providers. Since there can be plenty of inputs and outputs, according to which we evaluate the units, the DEA ranks among the multi-criteria decision-making methods.

The analysis of data packages is appropriate to determine the technical efficiency of units that are comparable to each other, which is also the case of schools with Polish language teaching. The chosen evaluated organizations use the same inputs to produce the same outputs, but there are some differences in their performance. Units are compared to each other to determine which of them are efficient and which are not. In the case of inefficient units, the data packet method is able to show how much this unit should increase its outputs, or reduce its inputs to become efficient. Jablonský and Dlouhý (2015) state that the DEA was for the first time used by Farrell (1957), who measured the efficiency of single-entry and output units, or by Charnes, Cooper and Rhodes (1978) who used multiple inputs and outputs to calculate.

Primary CCR model oriented to outputs is defined as:

minimize: $g = \sum_j^m v_j x_{jq},$

under conditions: $\sum_i^r u_i y_{ik} \le \sum_j^m v_j x_{jk},$ $k = 1, 2, ..., n,$ (1)

$\sum_i^r u_i y_{iq} = 1,$

$u_i \ge \varepsilon,$ $i = 1, 2, ..., r,$

$v_j \ge \varepsilon,$ $j = 1, 2, ..., m.$

Dual CCR model oriented to outputs is then in the matrix form defined as:

maximize: $g = \varphi_q + \varepsilon(e^T s^+ + e^T s^-),$

under conditions: $X\lambda + s^- = x_q,$

$Y\lambda - s^+ = \varphi_q y_q,$ (2)

$\lambda, s^+, s^- \ge 0,$

where s + and s- are the vectors of the added variables in the input and output constraints, eT = (1, 1, ..., 1), and ε is an infinitesimal constant, which is usually chosen as 10-8. The evaluated Uq is efficient when the following two conditions are met:

1. The optimal value of the variable Θ * q is equal to one.
2. Optimal values of all of the additional variables s_i^{+*}, i = 1, 2, ..., r a s_i^{-*},
   i = 1, 2, ..., m are equal to zero.

The results of the DEA model oriented to outputs applied to the evaluated schools with the Polish language teaching set up by municipalities in the legal form of an allowance organization are shown in Table no. 3 below.

In the Malmquist index, which is based on the DEA method and evaluates the improvement of the organization between the individual years of 2011-2016, we also considered about comparison of individual organizations over a longer period of time, i.e. a comparison of the first and last evaluated period, in other words: after five years.

Malmquist Productivity Index – it is a tool for assessing the efficiency of production units, which seeks to capture the impact of model of technological change and their separation from other efficiency increasing sources (Jablonský and Dlouhý, 2015). The Malmquist Productivity Index calculation requires two single periods and two mixed period measures. It is defined as the product of Catch-up and Frontier-shift terms. The catch-up (or recovery) term relates to the degree to which a DMU improves or worsens its efficiency, while the frontier-shift (or innovation) term reflects the chase in the efficient frontiers between the two time periods, (Cooper et al., 2007). The paper approaches to the Malmquist index in an adaptation that was proposed by Färe, Grosskopf, Lindgren and Roos (1994). Adaptation is based on the DEA models and was further developed by Zhu and Cook (2013).

The Malmquist (MPI) Productivity Index (3) is defined as (Zhu and Cook, 2013):

$$M_0 = \left[\frac{\theta_0^t(x_0^t, y_0^t)}{\theta_0^t(x_0^{t+1}, y_0^{t+1})} \frac{\theta_0^{t+1}(x_0^t, y_0^t)}{\theta_0^{t+1}(x_0^{t+1}, y_0^{t+1})} \right]$$ (3)

M_0 measures the productivity change between periods t and $t+1$. Productivity declines if $M_0 > 1$, remains unchanged if $M_0 = 1$ and improves if $M_0 < 1$.

The first part of the formula (on the right hand side) measures the magnitude of technical efficiency change between periods t and $t+1$ (catch-up). The other part of formulation measures the shift in the frontier between t and $t+1$ (frontier-shift).

Results of productivity according to MI (see table 4), in the form of changes between the two periods $(t$ and $t+1)$ define whether the productivity of each DMU is improved, unchanged or declined: (a) improves if $M_0 < 1$ [↑]; (b) remains unchanged if $M_0 = 1$ [→]; declines if $M_0 > 1$ [↓].

The technical efficiency and productivity models will examine the ability of individual schools with Polish language teaching in the area of the districts of Karviná and Frýdek-Místek to reach the maximum volume of outputs in relation to the set inputs. The inputs are seen as resources that institutions consume to secure their core activities. Lower value of inputs leads to higher performance of the monitored production unit.

3 Results

The results of the DEA model are based on the fact that, for a given problem, there is a set of production options, which is made up of all permissible combinations of inputs and outputs. The set of production options is determined by an efficient boundary. If the combination of inputs and outputs at the particular school lies at this limit, it is an effective unit. From this point of view, the school is effective if it consumes a small amount of inputs for a large number of outputs. If the school has the value equal to 1 in the table then the school is efficient in the given year compared to the other schools from the compared file. If the school is not efficient (it is not at the production line), it is necessary to adjust the size of its inputs or outputs so that it can achieve the efficiency of the model. Given that the actual number of children / pupils is given by the demographic curve and this cannot be influenced by school management at all, it is possible to influence the number of children / pupils through the school's excellent reputation or to try to influence the size of the economic indicators (inputs or outputs). In this case, increase in efficiency should be achieved by reducing wage and operating costs or by increasing other revenue or transfer revenues, for example through additional funding from the founder in the form of a contribution. Higher efficiency could also be achieved by increasing own revenues from economic activities, including revenue from space rents, various donations or extraordinary revenues that are not automatically claimed (e.g. by participating in projects funded by European funds).

Table 3 - Technical efficiency of schools in terms of the output-oriented DEA model (CCR).

DEA: output oriented						
School with Polish language teaching in the municipality of	2011	2012	2013	2014	2015	2016
Karviná District						
Albrechtice	1,10	1,10	1,04	1,06	1,04	1,05
Český Těšín	1,00	1,00	1,15	1,13	1,18	1,19
Dolní Lutyně	1,18	1,18	1,17	1,20	1,18	1,14
Havířov-Bludovice	1,07	1,07	1,13	1,08	1,20	1,00
Horní Suchá	1,00	1,00	1,00	1,00	1,00	1,00
Karviná-Fryštát	1,00	1,02	1,00	1,00	1,00	1,00
Orlová	1,00	1,09	1,05	1,00	1,00	1,04
Těrlicko	1,00	1,00	1,00	1,00	1,00	1,00
Frýdek-Místek District						
Bukovec	1,11	1,18	1,15	1,18	1,14	1,12
Bystřice	1,00	1,15	1,18	1,19	1,19	1,19
Hnojník	1,00	1,22	1,24	1,20	1,15	1,22
Hrádek	1,00	1,03	1,04	1,02	1,09	1,16
Milíkov	1,00	1,00	1,00	1,00	1,01	1,00
Mosty u Jablunkova	1,15	1,15	1,13	1,16	1,19	1,14
Návsí	1,09	1,16	1,14	1,17	1,13	1,16
Třinec	1,09	1,20	1,14	1,06	1,13	1,14
DEA = 1,0	9	4	4	5	4	5

Source: Own processing.

The results obtained for individual schools using the output-oriented DEA method are summarized for the years 2011-2016 in Table 3. Output of this table is the distribution of the examined units to two groups: the efficient ones (light grey) and the inefficient ones (dark grey) according to the size of the consumed sources and the quantity of outputs. This method compares the organization's achievements with the best values of the other organizations in given years. From a year-on-year comparison, no major conclusions can be drawn. At first glance it is obvious that schools in the municipalities of Karviná District, namely in the villages of Horní Suchá and Těrlicko, were efficient in all of the monitored years. The school in Karviná - Fryštát was efficient with one exception of 2012. The table shows that efficiency of schools in the Frýdek-Místek District was lower. The best performance was achieved by the school in Milíkov, which, in addition to minimal change in 2015, was fully efficient in all of the years under review.

From Table 3 it is also visible that the most efficient units (56% of the surveyed sample) were found out in 2011. In the following years, the number of efficient units decreased to about a quarter and ranged from 25-32% of the sample of schools with Polish language teaching. At the same time, it is also possible to say that among the evaluated organizations the differences were rising year on year, and the worst value was recorded in the district of Karviná at the Dolní Lutyně School and in the district of Frýdek-Místek at the Hnojník School. Differences between the most and the least efficient schools where up to 0,24.

Table 4 - The results of technical productivity (MPI) of schools in individual years under review.

Malmquist Productivity Index: output oriented												
School with Polish language teaching in the municipality of	2011, 2012		2012, 2013		2013, 2014		2014, 2015		2015, 2016		2011, 2016	
Karviná District												
Albrechtice	1,00	→	1,04	↓	0,99	↑	1,02	↓	0,99	↑	1,03	↓
Český Těšín	0,99	↑	0,94	↑	0,99	↑	1,00	→	0,96	↑	0,88	↑
Dolní Lutyně	1,00	→	1,00	→	0,96	↑	1,03	↓	1,03	↓	1,01	↓
Havířov-Bludovice	1,03	↓	0,98	↑	1,01	↓	0,98	↑	1,18	↓	1,19	↓
Horní Suchá	1,14	↓	0,92	↑	0,81	↑	1,01	↓	1,14	↓	1,09	↓
Karviná-Fryštát	0,98	↑	1,36	↓	0,85	↑	1,13	↓	0,98	↑	1,22	↓
Orlová	0,97	↑	1,09	↓	1,01	↓	1,03	↓	1,08	↓	0,98	↑
Těrlicko	0,99	↑	0,99	↑	0,95	↑	1,12	↓	0,89	↑	1,03	↓
Frýdek-Místek District												
Bukovec	0,93	↑	0,98	↑	1,01	↓	1,02	↓	0,99	↑	0,93	↑
Bystřice	0,96	↑	0,93	↑	0,99	↑	1,01	↓	1,00	→	0,87	↑
Hnojník	0,86	↑	1,00	→	1,01	↓	1,09	↓	0,93	↑	0,83	↑
Hrádek	0,97	↑	1,06	↓	0,98	↑	1,01	↓	0,93	↑	0,89	↑
Milíkov	1,02	↓	1,17	↓	0,97	↑	1,00	→	0,99	↑	1,08	↓
Mosty u Jablunkova	0,98	↑	0,99	↑	0,99	↑	0,98	↑	1,04	↓	0,96	↑
Návsí	0,92	↑	0,98	↑	0,99	↑	1,03	↓	0,97	↑	0,91	↑
Třinec	0,97	↑	1,01	↓	1,00	→	0,96	↑	0,98	↑	0,97	↑
No improves ↑	11		8		11		3		10		9	
remains unchanged →	2		2		1		2		1		0	
No declines ↓	3		6		4		11		5		7	

Source: Own processing.

From the results of the Malmquist index, that are shown in table four, we can see that in the evaluation after five years, between 2011 and 2016, the schools in the municipality of Hnojník and the municipality of Bystřice, both in the district of Frýdek-Místek, improved the most. Largest improvement of Karviná District is found out at the Polish school in the village of Český Těšín. The results also show that more than half of the evaluated institutions were improving over the years, with the exception of 2015 (compared to 2014). In 2015 we can see stagnation at 2 schools and a decline in efficiency at 11 schools of the evaluated group. This resulted in a deterioration of 69% of the monitored sample. None of the evaluated schools was, in the long run, only improving or only worsening. The comparison between 2011 and 2016 also reveals that schools in the municipalities of the Karviná District have the tendency to deteriorate, with the exception of schools in the municipalities of Český Těšín and Orlová; on the other hand, schools in municipalities of the Frýdek-Místek District, with the exception of the municipality of Milíkov, show improving technical productivity.

4 Discussion and Conclusions

The above-mentioned technical efficiency and productivity and its results are limited by the selection of evaluated indicators (inputs and outputs). If other inputs or outputs were selected for this sample of organizations, the model would need to be recalculated and also different results could be identified. Different results would also be achieved only by adding one unit (school) to the file of monitored organizations. Within the framework of evaluated economic indicators, investment funds were not included in the model, because they were uneven in the evaluated organizations and would distort the results.

At the same time, it is worth mentioning that in the schools founded to educate members of national minorities there are some milder conditions for their functioning, compared to regular Czech schools. Schools with the Polish language teaching are founded in accordance with Article 25 of the Charter of Fundamental Rights and Freedoms and in accordance with the Framework Convention for the Protection of National Minorities. Members of a national minority living in the Czech Republic have the right to education in their mother tongue guaranteed, if the Committee on National Minorities is established in the municipality of their permanent residence. Committee must be established in accordance to Section 117 (3) of Act No. 128/2000 Coll., On Municipalities.

The Committee for National Minorities is obligatorily established in municipalities where at least 10% of the municipality population has been registered with a given national minority in the previous census (in the Czech Republic, at 10-year intervals, most recently in 2011). The Committee for National Minorities should be set up in 64 municipalities in the Czech Republic. But it is really established only in 48 municipalities. Twelve of them were not required on the basis of census results.

In the Czech Republic the right to education in the language of national minority is currently applied only by the Polish national minority, which according to the 2011 Census reported 39,096 persons in the so-called Tesin Silesia. This is the area of the evaluated schools – the districts of Karviná and Frýdek-Místek. According to data of the Ministry of Education, Youth and Sports, there are 20 kindergartens, 21 elementary schools and 1 secondary school with Polish language teaching in the above mentioned districts. From the legal subjectivity point of view there are just 22 of these organizations 22, since at the municipalities usually establish only one organization with legal personality. And this organisation covers both the activities of kindergarten and elementary school with Polish language teaching. Only the homogeneous production units were selected for evaluation, i.e. the organizations were comparable. The paper compared 16 schools providing education in kindergartens and basic schools in the above-mentioned municipalities.

From the point of view of providing funds for education of members of national minorities to individual schools from the state budget, specific conditions are set in the classes' repletion. They are slightly different from the conditions for common classes in Czech kindergartens and primary schools. At schools for national minorities there must be at least 8 children in a kindergarten class, 10 pupils in an elementary school class and 12 students in a secondary schools class where pupils are taught in their mother language. At the same time there is the requirement that all classes within this organization must have at least 12 children in average (primary school or kindergarten) or 15 children in average (secondary school). This requirement was met in all of the evaluated organizations in the years under review. If the required number of children, pupils and students fails to be fulfilled but there is still interest in education for a national minority, the school head may, with the consent of the founder, specify subjects or parts thereof within the school education program for which the teaching can be done bilingually. Theoretically, a Czech school and a school with Polish language teaching could be merged under one legal entity, but the right of a national minority for education in the mother language would stay preserved. In view of the constant decline in the number of inhabitants reporting to the Polish nationality, this situation may occur in a number of municipalities quite soon, probably after 2021. If at least 10% of the municipality citizens do not register to the Polish nationality, committees for national minorities will not have to be set up. And it is a question of how the founders approach to establishment of schools with Polish language teaching.

Given that the public founders (state, region and municipality) have recently put a lot of emphasis on increasing the efficiency of public funds spent, regular evaluation of organizations can be expected. One of the possible ways of evaluation is to measure technical and production efficiency. As mentioned above, efficiency of the rated schools is largely influenced by selected inputs and outputs, which depend on various factors. For example, the amount of population living in the catchment area of the school, the number of inhabitants reporting to Polish nationality, the ability of management to negotiate sufficient funding for operation and development of the organization, then the willingness of the founder to finance the activities of the school above the common (or legal) framework. However, it is important to note that all of the above-mentioned municipalities have also a regular Czech school in addition to the above-rated schools with a Polish language teaching. And they can be compared. It is also important to see that only schools with Polish language teaching were monitored within this

paper. And if the municipalities´ Czech language schools were included to the evaluated sample, the results would be completely different, both in terms of technical efficiency and technical productivity. However, such a measure of efficiency was deliberately neither the aim nor the purpose of this contribution, as the authors are very well aware of gravity of such measurement and of its possible consequences.

Acknowledgements

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A Smart Village as an Opportunity for Development of Borderland Areas of the Czech Republic and Poland

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Abstract

In the conditions of sustainable development, a smart village is supposed to provide an answer to social, economic and environmental challenges which rural areas of Europe are faced with in the 21st century. The aim of the study is to identify and analyze the social developmental potential of villages located in Opole Region. On the basis of questionnaire-based survey research carried out in 2018 among 100 managers of trade agricultural holdings based in Opole Province, the authors undertake to answer the question: Can the existing social capital be the driving force of smart transformation of rural areas in this region? In the study, networks of cooperation which are being formed in the borderland of the Czech Republic and Poland were pointed to. They are seen as structures which facilitate diffusion of smart services and innovativeness in bio-economy and circular economy. The diminishing importance of agriculture in economy not only makes agriculture economy be pushed out from the main current of studies, but also causes farmers to be neglected as actors of local development, which can pose a serious barrier to transformation processes in the rural areas of Czechia and Poland.

1 Introduction

In the rural areas of developed countries there occurs a peculiar "vicious circle" which is made of the following characteristic: small population density results in a loss of the critical mass for services and infrastructure, in the consequence of which the percentage of firms established in rural areas is low and causing the supply of workplaces to be also low, which – in turn – fuels migration in rural areas (depopulation of rural areas) as well as aging of the population inhabiting such areas [8]. The appearance of such a "vicious circle" in rural areas is the result of their modernization and – in particular – industrialization of agriculture and its uprooting from rural space. Within the framework of agribusiness being formed (food complex) the agricultural sector is losing its significance to a greater and greater extent, while rural areas are developing a type of dependent economy. Sustainable development of rural areas is connected thus with the necessity of modernization of modernization, including also modernization of policies which have served the development of highly-productivist farming, e.g., modernization of the Common Agricultural Policy (CAP). Consequently, the new type of modernization requires being supported by knowledge since only thoughtfully implemented changes can limit the negative external effects of simple modernization generated in a rural area on different planes: environmental, economic, social and cultural.

The conception of a smart village is a consequence of the transformation of the CAP from a branch policy into a territorial one. Initially, a solution to the problem of "vicious circle" was sought for in the multifunctional development of rural areas. This framework, however, was based on the assumption of "shrinkage" of the role of agriculture in the rural space of Europe and neglected the role of family-run agricultural holdings in creation of public goods. The paradigm of integrated development, which has superseded that of multifunctional development, accentuated the role of endogenous resources and developmental potentials, as well as their

systemic use thanks to creating smart specializations in agriculture in rural areas [2]. A smart village is expected to make a next step towards raising the quality of life in rural areas and their adaptation to economy based on knowledge [4].

Smart villages are rural areas and communities that take advantage of their strengths and assets to create new developmental possibilities through improvement of the existing networks of cooperation and services thanks to their use of the latest technologies – primarily all the information-communication technologies (ITC), innovations, knowledge and skills [3]. The attributes of a smart village are the following:

- precision farming maximizing the output and reducing the input,
- digital platforms offering all essential services (e-learning, e-health, e-administration, transport, gastronomy, social services, P2C platforms),
- shared economy for expensive technical solutions and equipment,
- economy making use of agribiological factors through evolution of research, innovation and technology,
- renewable energy,
- rural tourism including eco-, health- and recreational-economy,
- social innovations in services, e.g., silver economy, care of the elderly, rehabilitation, "green schools".

Pilot schemes, supported by this approach, have already been realized in Europe and on other continents, also in the borderland areas within the InterReg project.

2 Material and Methods

The aim of the study is to identify and analyze the social developmental potential of villages located in Opole Region. The object of the present study are the modernization paths of family agricultural holdings based in Opole Province. In the research, the term territory is understood as a functional area possessing specific natural, economic, social and cultural resources. The empirical material analyzed in the study comes from multi-stage research into changes in the production and organization of holdings, as well as socioeconomic problems occurring in the process of implementing sustainable development of the agriculture in Opole Province.

The material was collected with the help of a questionnaire-based interview carried out in 100 holdings of intensive and medium-intensive production system. The holdings are located in agricultural subregions representative of Opole Province. The research was conducted in the years 2014 and 2018. In the analysis of the collected material, the paradigm of regional development – Place-based Approach – was referred to.

3 Results and Discussion

Realization of all the directions of the actions mentioned in Bled Declaration, which serve the purpose of smart transformation of rural areas (a distinguishing property of a smart village), requires intensive and sustainable agricultural production [10].

As regards "smartly intensive" farming, the most important endogenous resource, beside soil, labor and capital, is management [5]. Perfecting of it demands skills of redefining autonomous goals of management, which is a condition behind adaptation of holdings to the changing surrounding (mainly the institutional one) and realization of its own paths of development (see Table 1).

Table 1 – Ranking of goals of managing a production entity in the opinions of their owners.

Specification	Ranking	
	2014	2018
Optimization of technological possibilities of specialization	1	1
Acquisition of knowledge and life learning	2	2
Minimization of investment costs	4	3
Minimization of transaction costs	6	4
Minimization of costs of financial capital acquisition	7	5
Maximization of profits from implemented innovations	3	6
Access to "better" sources of information	5	7
Greater routinization of production processes	8	8

Source: Authors' own study based on the survey.

It follows from the presented data that technological optimization of specialization possibilities, as well as obtaining knowledge and life learning are invariably major priorities in managing the owned production entities [1]. Changes in the ranking of management goals in 2018 relate to the following: minimization of costs of creating investments (the 3rd place), minimization of transactional costs (the 4th place) and minimization of costs of capital acquisition (the 5th place). In Poland, the development of the financial surrounding of agricultural holdings has been postulated for years now. It is modeled on that supporting the development of small and medium-sized enterprises. Horizontal integration, although it is more advanced than in other regions of Poland, has not developed its critical mass yet, one that allows division of transactional costs between producers and receivers of farm raw materials. In the research carried out in 2018, it was found out that agricultural holdings commonly make use of the Internet as a source of information, thus entailing a drop in the significance of the category of "access to better information sources" (the 7th place) in the management of an agricultural holding. Routinization of production processes cannot be a significant goal of management, since in a changing institutional environment implementation of innovations is a necessity and maximization of benefits flowing from their implementation is important (the 6th place), but it does not restrict the action of the mechanism of enforcement of their implementation.

The farmers' attitudes towards innovations depends on whether they consider their agricultural holdings to be developing or endeavor solely to increase production or maintain its level to date (see Figure 1).

Figure 1- Attitude of agricultural holdings managers towards innovations. Source: Authors' own study based on the survey
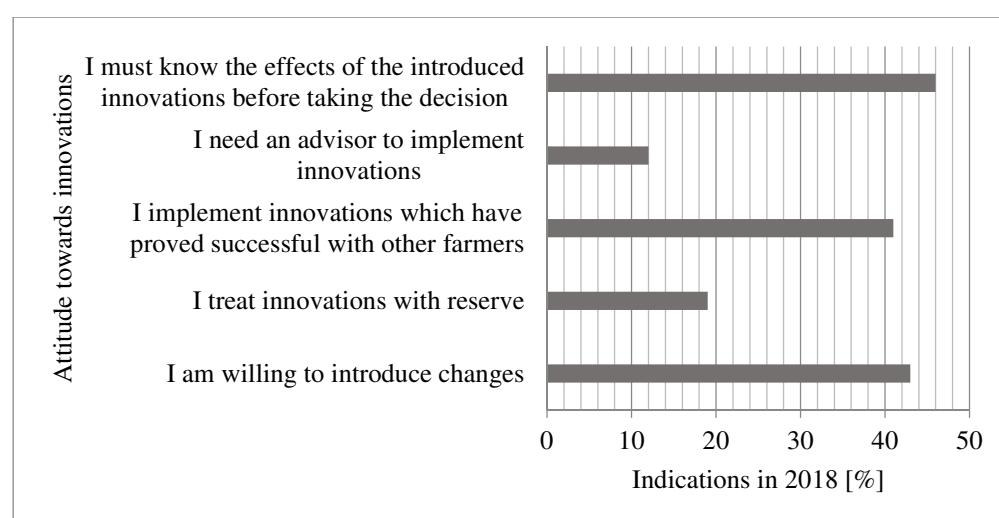
The research confirms that the farmers' attitudes towards innovations is more and more reflective: farmers must know effects of their implementation (46% of the indications), which is not tantamount with the lack of willingness to introduce changes (43%). The attitude of the owners of holdings which belong to the group of 10-20 hectares of arable land is one of reserve. In their managing agricultural holdings, they resort to their private knowledge. Only 12% of the farmers take advantage of support from agricultural advisors in the process of implementing innovations. A greater role in this respect is played by sales representatives of corporations, who also provide advisory services. Their position on the map of sources of farming knowledge in 2018 has improved in comparison with that in 2014 – a shift from the 7th to the 5th place in the ranking list.

Advocates of the paradigm of ecological intensification [9] draw attention to the fact that organic agriculture, similarly as conventional farming, does not have to be of the extensive character. In the both farming systems, the problem concerns using agri-biological knowledge and industrial tools of intensification of production. They may be applied in different production systems and, regarding smart farming, in the consequence of their use there are different local development paths. Due to the economic strength of European industry (both of that manufacturing means of production and that processing raw materials and waste coming from this production, with the aim to reuse it), the precision farming must be supported – as it was emphasized in Bled Declaration.

Some earlier research dealing with changes in the organization and productivity of agriculture in Opole Province indicated that it would evolve towards precision farming [6]. The material obtained from the questionnaire-based survey conducted in 2018 has allowed identifying the actions which favor such a transformation (see Figure 2).

Figure 2 - Elements of the precision farming system used in agricultural holdings in Opole Province. Source: Authors' own study based on the survey
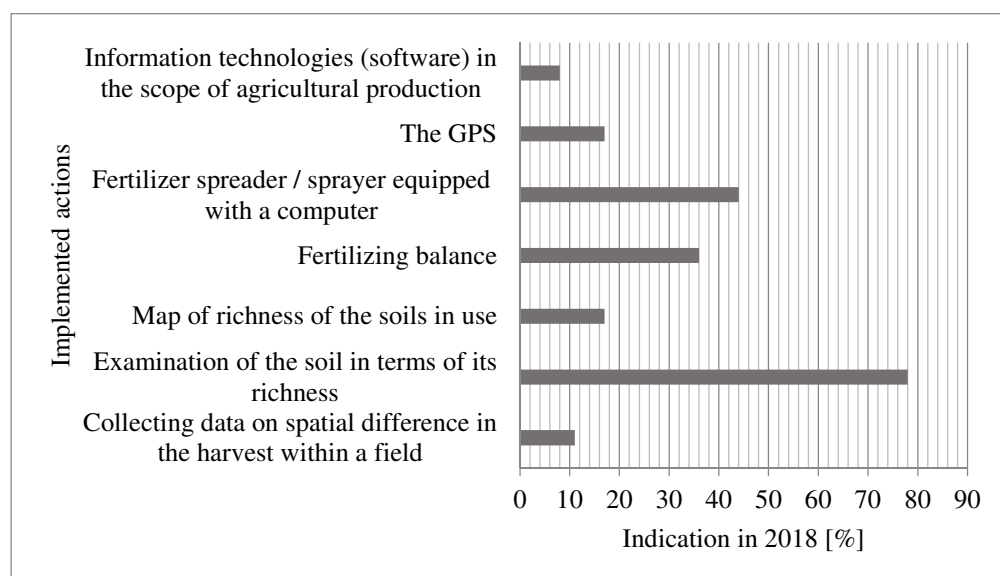
Managers of agricultural holdings tend to use these tools which are obligatory to a broader extent, basing on the principle of cross compliance: examination of the soil as regards its richness (78% of the indications) and fertilizing balance (36%). They are, at the same time, the priorities of the flagship program called Baltic Deal – the strategy designed for the agriculture of the Baltic Sea region. Users of the examined holdings invest chiefly in fertilizer spreaders / sprayers equipped with computers to analyze the richness of the soil and agri-biological contamination with fungicides (44% of the indications). As far as Opole Province is concerned, specialist computer software is used mainly by agricultural enterprises. On the other hand, regarding family-run holdings, implementing this instrument of management is at the initial stage at the moment (8% of the indications).

In the introduction to Bled Declaration, it was pointed to different elements of the smart village. Success of actions which are run within these areas will depend on initiating or transforming the existing networks of cooperation with farmers' participation (see Figure 3).

Figure 3 – Impact of cooperation networks on the development of agricultural holdings. Source: Authors' own study based on the survey

It is industry which will delineate the directions of modernization of farming in the European agriculture [11]. Representatives of firms actively join operational groups EIP-AGRI (European Innovation Partnership – Agricultural Productivity and Sustainability) which make efforts to popularize new solutions in agricultural production. Individual concerns realize their own projects in the field of smart farming. They are often oriented locally, for example, towards production of smart fertilizers (Group Azoty SA). The research has proved that

trade farming in Opole Province is oriented towards cooperation with global value chains and, in consequence, farmers make the development of their production entities dependent on cooperation with companies dealing in agri-food processing (45% of the indications). Preference for this direction of cooperation does not pose a threat to production of traditional food and rooted markets.

In borderland areas, there are a good number of actions cried out, which bear the signs of transformation of rural areas into smart ones. However, their integration on the local level is indispensable, as well as formation of smart villages networks functioning in this area. Such a network can be an inspiration for other places and mobilize their communities to participate in such actions. Projects of smart villages are willingly supported within the InterReg program, whereas in the planning perspective 2020Plus, which is coming closer, they will make the priority for the EU. It is thought that realization of the projects of smart villages will secure an increase in the employment and better workplaces in rural areas. Moreover, smart villages are expected to prevent the depopulation trends in the country and to secure a generation change in agriculture, as well as a change in the farm work status [7].

4 Conclusion

In the global space, the smart village and smart farming make the premises of the IIIrd green revolution. The rural areas of Europe can accelerate this direction of changes thanks to embedding of precision farming in the local space. Describing the transformation of the farmer's status in Poland, initially the following triad was applied: peasant – agriculturalist – farmer, and in the later period: peasant – farmer – entrepreneur. Presently, one should rather speak of farmers as managers of knowledge and innovations, whose aim is – as the research shows – optimization of technological possibilities of specialization, as well as gaining knowledge and life learning.

In rural areas, there must exist an effective system of diffusion of knowledge and innovations. Farmers want to implement innovations in a reflective way – they must know effects of their implementation. The system of diffusion of knowledge and innovations must be embedded territorially and integrate actions of local governments, non-governmental farmers' organizations, industry and sales networks. The role of relevant institutions and organizations is to build trust in new knowledge and to reduce uncertainty connected with new technologies.

It can be supposed that the dominating system of agricultural production in Opole Province will be precision farming. This is the direction of changes that is most desired in regions with intensive production system. Such regions include also those in the Czech Republic.

Thanks to modernization of the institutional matrix of the CAP, farmers in Opole Province are building the social relational capital which facilitates initiating changes in the organization of agricultural holdings and secures their adaptation to new farming conditions. There appear tighter and stronger ties mainly with industry and also with other farmers, sales networks and consumers.

In borderland areas, there have been formed cooperation networks which can also support smart transformation of agriculture and create projects of smart villages in order to – in consequence – lead to a new organization of the borderland space.

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Cooperation in Managing the Environmental Function in Agriculture as a Condition for Integration of the Borderland Areas of the Czech Republic and Poland

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Abstract

The aim of the study is to justify the need for cooperation in the sphere of managing the environmental function in the agriculture of the borderland areas of Poland and the Czech Republic. Until now, thanks to the so-called "green structure of the Common Agricultural Policy" the environment-related requirements in agriculture have come from the top and have been of the universal character. In the agricultural policy following 2020, it is state governments and multilevel management structures which will have been responsible for programming and implementing environmental and climatic strategies in this sector. In borderland areas, solutions that will be accepted may become a source of conflicts due to the unavoidable internalization of external effects of actions which are to be taken. In the study, on the basis of survey-based research conducted in trade agricultural holdings located in Opole Province, the authors conclude that farmers would prefer the environmental protection instruments employed to date to be integrated and new norms and actions on the national and regional levels to be established. Realization of environmental programs, however, will require institutional innovations, as well as changes in the system of knowledge and information related to agriculture. Cooperation in the sphere of creating common Internet-based platforms supporting farmers in securing stability of local natural capitals can give rise to broader cooperation in the field of protection of environment in borderland areas.

1 Introduction

Regions of the Czech Republic and Opole Province (the south-western region of Poland) belong to the areas of Europe where agriculture of high degree of intensity is developed. On this basis the thesis is formulated that this type of agriculture is not sustainable environmentally. One can, however, point to several limitations of the above-mentioned thesis, that is:

- population growth in the global space causes intensification of agricultural production to be an unavoidable process;
- the demand for biomass used in the bio-economy, chiefly for energy-generating purposes, is also growing;
- intensive agricultural production can have the sustainable character inasmuch as appropriately directed changes are implemented in technology and organization of production;
- the institutional matrix of the Common Agricultural Policy (CAP) does not favor a simple development of agriculture, facilitating its adjustment to the economy based on knowledge;

- the CAP evolves in the direction of territorial policy – there are created institutional conditions of re-rooting of agriculture in the local/regional space.

Comparing developing farming with sustainable agriculture is possible solely on the plane of modernization processes, with the provision that sustainable agriculture is neither postmodern nor postindustrial. The strategy of sustainable agriculture develops rather in the process of modernization of modernization [1] on the economic, environmental, social and institutional planes. In all of these areas, simple modernization has provoked a great number of negative external effects.

Since the beginning of the 21st century the EU member-countries have been implementing environmental norms (Good Agricultural and Environmental Conditions [GAEC], Statutory Management Requirements [SMR], greening, integrated plant protection – "the CAP green structure"), which gave rise to ecological modernization of agricultural holdings. Recreation of the environmental function of agricultural holdings has been acknowledged to be the main source of the CAP added value and the basis of its legitimization in the public opinion. The commonly expected orientation of the CAP towards effects has forced the European Commission to redefine the principle of subsidiarity and to accept the fact that the top-down and universal approach towards managing the environmental function in agriculture is inadequate. Thus, an integrated approach was proposed, in compliance with which, there has been established one catalog of norms and requirements covering the whole of "the CAP green structure" on the national or regional level. Agricultural chambers in the Czech Republic and in Poland have agreed that the regional/local level is the most suitable for managing the environmental function in agriculture and for using goods which are developed as a result of such actions [4]. A separate problem is connected with harmonizing the environmental requirements and actions in the neighboring regions of Czechia and Poland, as well as with creating platforms of cooperation in this sphere.

The aim of the study is to justify the need for cooperation in the sphere of managing the environmental function in the agriculture of the borderland areas of Poland and the Czech Republic. Until now, thanks to the so-called "green structure of the Common Agricultural Policy" the environment-related requirements in agriculture have come from the top and have been of the universal character. In the agricultural policy following 2020, it is state governments and multilevel management structures which will have been responsible for programming and implementing environmental and climatic strategies in this sector.

2 Material and Methods

The object of the studies presented in the paper were the changes in the production and organization of agricultural holdings based in Opole Province, which aim to implement sustainable intensification in farming. Accordingly, the empirical material comes from questionnaire-based research carried out in the years 2014 and 2018, covering 100 holdings of intensive and medium-intensive agricultural production. They were located in communes which can be considered representative of the agricultural space of Opole Province. The material presented in the study includes questions concerning the influences of: the market, environmental regulations, agricultural policy and network of cooperation on management of the environmental function in agriculture. The results of the research are presented in the tabular and descriptive forms. In the context of justification and explanation of the results of the research, deductive and inductive methods were applied, as well as the theory of institutional change.

3 Results and Discussion

From the point of view of neoclassical economy, environmental regulations make an additional, undesired cost which lowers the competitiveness of economic subjects and whole sectors. In agriculture, such a framework results from the observation that the majority of agri-environmental services are connected with production of raw materials and agricultural produce. As regards intensive farming, this dependence can have the following three dimensions:

- competitiveness, when production of agricultural produce causes a drop in services of ecosystems;
- complementariness, when within certain limits the quantity of produce and agricultural raw materials grows, as well as when the quality of services of ecosystems improves;
- supplementariness, that is an increase in agricultural production does not cause a depletion of the agri-biological services of the environment [6].

Taking into account the above relations, it is vital to answer the question whether the natural capital remaining at the farmers' disposal, influences the volume of their production. In the presented research, the natural capital is not identified solely with the quality of soil, but also with services of ecosystems that are deciding as regards the specifics of the given agricultural area [7]. On the basis of the opinions expressed by the examined farmers from Opole Region in 2014, this dependence was confirmed by 84% of the respondents, whereas in 2018 – by 85%.

Thus, users' of agricultural holdings evaluation of the influence of agricultural activity on the quality of ecosystems is most relevant. In comparison with the research conducted in 2014, the number of the farmers who declared that thanks to practices of good farming culture the pressure of agriculture on the environment has decreased (see Table 1) and, respectively, the percentage of the answers pointing to a rise in the pollution of the environment (23% of indications) and deterioration of the soil quality (25%) has increased.

Table 1 – Impact of agricultural production on the environment in farmers' opinions.

Environmental effects:	Indications in %[*]	
	2014	2018
- pollution of the environment will increase	22	23
- the quality of soils will deteriorate	13	25
- thanks to the practices of Good Farming Practice the impact of agriculture on the environment will not be so detrimental	61	48
- the state of natural environment, landscape will improve considerably and biodiversity will be recreated	10	7
- traditional species of plants and breeds of animals will be preserved	5	10

[*] - possibility of indicating more than one option
Source: Authors' own study based on the survey.

Sustainable agriculture in the European Union should be multifunctional. In this model, the environmental functions and the economic ones of agricultural holdings should be complementary towards each other. According to the examined, the weakness of the relation is the result of not rewarding the natural capital factor by the market (61% of the indications), eventual indirect rewarding through the quality of the possessed produce (14% of the indications in 2014 and 26% in 2018). It is then solely economic benefits which undergo optimization. In order for the farmer, in his microeconomic rationality, to take account of the environmental and social benefits there are indispensable institutional transactions that award (reward) agricultural producers for their contribution to secure stability of ecosystems. In the conditions of specialization and intensification of production, the environmental functions of agricultural holdings do require institutional protection (see Figure 1).

Figure 1 – Farmers' opinions about rewarding farms for maintaining the quality of ecosystems. Source: Authors' own study based on the survey
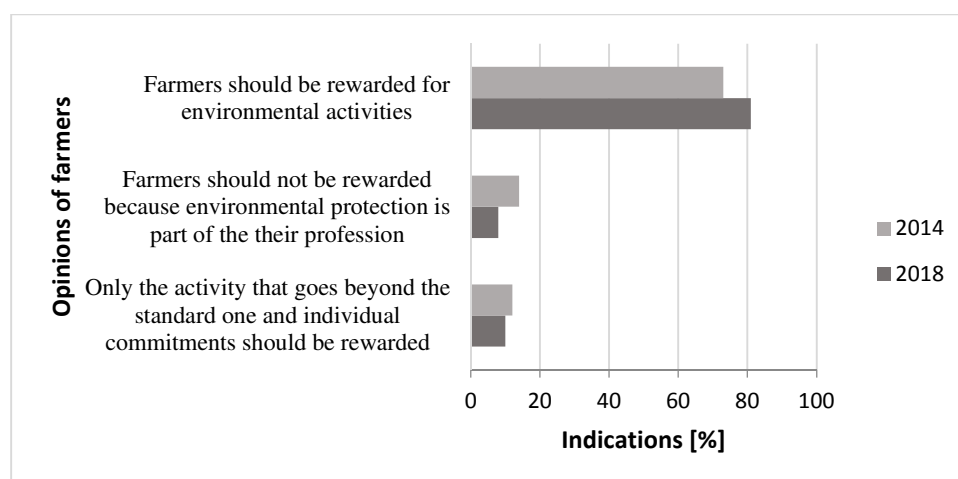
Farmers must not be devoid of the benefits flowing from positive external effects which arise within the framework of the farming activity they run, therefore in 2018, 81% of the respondents were of the opinion that farmers ought to be rewarded for their activity for the environment (in 2014 – 73%). Protection of the environment is written in the farmer's profession, according to 8% of the questioned, so it should not be rewarded additionally (in 2014 – 14%). According to 10% of the respondents, only the activity that goes beyond the standard one and individual commitments should be rewarded (in 2014 – 12%).

Another view can be formulated, too, i.e. that implemented environmental regulations, which generate additional costs, can be a source of innovations that will compensate for their height. The hypothesis of Porter deals with

this regularity [5]. The presented research confirms that the environmental requirements of the CAP became the source of many eco-innovations in the commercial agriculture of Opole Region and gave rise to its ecological modernization [2]. As far as consolidation of this process is concerned, it is the European Innovation Partnership Agricultural Productivity and Sustainability (EIP-AGRI) has a great role to play. An important role in this process is also played by agri-environmental programs. Assessment of their realization in the regions is necessary while creating strategic plans of the environmental protection in agriculture in the perspective *2020Plus*. In Opole Province, the interest in realization of agri-environmental packages was on the rise until 2018. In the present financial perspective, there has followed a drop in the farmers' interest in management of the environmental function in this form. The farmers' reasons for their participation in agri-environmental programs are presented in Table 2.

Table 2 – Main motives behind the decision to join agri-environmental programs.

Motive:	Indications in %
- financial incentive	43
- counseling of agricultural advisors	20
- example of other farmers	6
- necessity to protect the possessed natural resources	8
- because they are concurrent with my way of management	11
- thanks to this my holding meets the greening conditions	13

Source: Authors' own study based on the survey.

According to the respondents, the main motive behind the decision to join the realization of agri-environmental programs was financial incentive (43% of the indications). Thanks to this activity the given holding satisfies also the requirements of greening (13% of the indications). Only 11% of the questioned pointed to the convergence of requirements contained in agri-environmental packages and the applied system of cultivation. As regards initiating agri-environmental activities, an important role is also played by support of agricultural advisors (20% of the indications).

The reasons why some farmers do not undertake agri-environmental commitments are greatly varied: from a dislike of filling in successive applications (25% of the indications), through lack of interest in their goals and requirements (16% of the indications), into doubts in their environmental effectiveness (15%). The view that the obtained payments are too low and do not compensate for the lost income is growing more and more popular (21%).

Positive external effects of agri-environmental programs require a suitably large scale of activity spanning the limits of ecosystems. Joint actions of farmers provide also the guarantee that their efforts will not be wasted by a lack of realization of similar practices in neighboring holdings. Moreover, cooperation in the area of realization of agri-environmental programs is secured by the effect of synergy which raises the effectiveness and effectivity of implemented instruments of support. A group of farmers can also run actions related to different types of environmental goods existing in the given area. A positive effect of the cooperation is diffusion of knowledge and the ability to manage the environmental function in agriculture.

In the discussion about agri-environmental programs, the view that their realization should be accompanied by cooperation of farmers living in the given functional area with the participation of local structures of management and experts is gaining more and more recognition. Such a solution was accepted, for instance, in Holland. In the case of the presented research, 44% of the respondents confirm the need for farmers' cooperation in realization of agri-environmental programs, while 40% of them do not have their opinion on this issue.

Pro-environmental actions realized by farmers can be initiated by different parties: individual farmers, accredited agencies, regional and local structures of management, non-governmental organizations. Opinions on institutions which should be initiators of such cooperation vary among the examined farmers. On the basis of the obtained research results it was found out which institutions would be the most effective in organizing cooperation in realization of agri-environmental programs:

- local branches of the Agency for Restructuring and Modernization of Agriculture – 33% of the indications,
- commune on the basis of local plans of protection of the environment – 25%,
- marshal's office on the basis of regional strategies of protection of the environment – 22%,
- interested farmers – 19%,

- groups acting for renewal of the country – 3%,
- local action groups – 2%.

It was mentioned in the introduction about the proposal of the European Commission relating to changes in the "green structure of the CAP" and creation of environmental regulations and strategies of managing the environmental function in agriculture on the following levels: national, regional and local. The establishment of one catalog of environmental norms for agriculture was declared by 66% of the respondents taking part in the research. The farmers pointed to different levels on which requirements concerning managing the stability of natural resources should be defined:

- governmental level – 36% of the indications,
- regional level – 31%
- local – 21%,
- European Commission – 19%.

It follows from the presented data that farmers' opinions are concurrent with the Bratislava Declaration of Chambers of Agriculture. Managing the environmental function in agriculture restores the territorial dimension of agricultural production and its relations with local ecosystems. Thanks to this, the agricultural production does not only reproduce the environmental public goods, but also secures vitality to specific resources which can make the beginning of other chains of value [3].

Securing complementariness of different functions of agricultural holdings in frontier areas requires cooperation in implementing the strategy of sustainable intensification in farming, as well as popularization of good practices in this domain. It can only be postulated that these issues should be taken into account in institutional cooperation programs. Networks of cooperation can be formed in the virtual space, too. Here, an example can be AG-Forum – the transborder forum of protection of environment in agriculture, which has been active in the borderland area of Dolnośląskie (Lower Silesia) Province and Saxony and the Internet platform *EKOKnowhow*. This is a bilingual platform promoting ecological innovations, new technologies and good practices implemented in agricultural holdings on the both sides of the border. Constructing communication platforms in agriculture can give rise to cooperation of institutions while implementing environmental regulations that generate positive external effects in borderland areas.

4 Conclusion

Strategic programming of environmental protection in agriculture and defining environmental norms in the EU require fundamental changing. The levels which can secure good effects of realization of the environmental functions of the CAP is the regional one and that of functional areas. This opinion is confirmed also by farmers from Opole Province.

Agri-environmental programs make the oldest form of managing the environmental function in the EU. Their popularization and the duty to implement them in each member-state have not removed differences in the approach to their goals and evaluation of their effectiveness, though. These programs have contributed to a considerable degree to the ecological modernization of agricultural holdings. The experience connected with their realization can be used in creating regional strategies of the environmental protection in agriculture. The market rewards farmers for their managing the environmental function. Farmers' ecological obligations must make the foundation of institutional contracts.

Ecological regulations in agriculture are a source of costs which can partially be compensated for by implementation of eco-innovations. However, institutional innovations and programs are indispensable to secure their supply and to create a system of their diffusion. Such a system cannot be solely of the central character. There are territorial solutions necessary in the functioning of this system, which will take into account also borderland areas.

The biggest difficulty in implementing the management of the environmental function in agriculture is connected with the need for cooperation of agricultural producers in realization of agri-environmental-climactic obligations. The promotion of it makes a challenge to regional and local structures of co-management as well as institutional innovations in the form of cooperation platforms.

Securing stability of the natural capital, in particular, services of ecosystems, poses a challenge to regions with an intensive production system. Within the framework of sustainable intensification strategy, each territory should seek its own path of development, one that will cultivate the local specific resources existing in its space. Thanks to this, their value (uniqueness) can be transferred in the produce and commercialized in a variety of services.

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Selected Determinants of Spatial Differentiation of the Households' Standards of Living in Poland

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Abstract

The article presents the relationship between the level of socio-economic development and self-esteem for meeting consumer needs in Poland's provinces in 2016. The aim of the research was to determine the strength of the impact of the differentiation of voivodships in Poland due to the level of socio-economic development and consumption on the variety of self-assessment of the financial situation of households.

In particular, it was analyzed: differentiation of the level of socio-economic development of the administrative units of the country (voivodships have been adopted), spatial differentiation of selected demographic and economic characteristics of households, self-assessment of the financial situation of households.

The work primarily uses source information from the research of household budgets of the Central Statistical Office (CSO), as well as data contained in the CSO' Local Database. The methods of statistical and taxonomic analysis were used in the research.

1 Introduction

Rate and level of the socio-economic development of both individual countries and regions within countries have never been and are not the same (cf. Józefiak C., 2007, p. 55 and further). It results from the diversification of economic, geographic and natural, demographic, cultural or even political conditions in which societies function. Inequalities in socio-economic development translate into inequalities in the standard of living or more generally well-being and are generally assessed negatively. Therefore, it is not surprising that one of the goals of socio-economic policy is usually to reduce these inequalities.

The results of researches of the standard of living should be the basis of socio-economic policy. An important issue in this researches is the identification of spatial differentiation of conditions and the final effect of consumption, it meens a level of needs meeting. Therefore, the aim of the presented research is to determine the impact of the diversity of voivodships in Poland, due to the level of socio-economic development, to diversify the standard of living of households measured by subjective self-esteem to meet needs.

The article presents the relationship between the level of socio-economic development and self-esteem for meeting consumer needs in Poland's provinces in 2016.
In particular, it was analyzed:
• differentiation of the level of socio-economic development of the administrative units of the country (voivodships have been adopted),
• spatial differentiation of selected demographic and economic characteristics of households,
• self-assessment of the financial situation of households.
The work primarily uses source information from the research of household budgets of the Central Statistical Office (CSO), as well as data contained in the CSO' Local Database. The methods of statistical, econometric and taxonomic analysis were used in the research.

2 Spatial Differentiation of Exogenous Determinants of Households' Living Standards in Poland in 2016

The level of socio-economic development was assumed to be external determinants of the standard of living of households treated as the basic entities of consumption. This category is most often measured by values reflecting the economic potential and socio-economic effects of its functioning. To characterize the level of socio-economic development, especially in spatial terms, usually the broadest possible set of features describing the examined category as well as its determinants are taken into account.

In the presented studies, potential sets of variables describing, respectively, the level of economic and social development of voivodships in Poland in 2016 were reduced to sets of diagnostic variables in accordance with the rules of statistical surveys, ensuring their substantive and formal correctness.

And thus, the level of economic development of the voivodships has been characterized by the following diagnostic variables:

1. value of gross domestic product per capita in PLN,
2. value of investment outlays in total per capita in PLN,
3. average share of innovative enterprises in the total number of enterprises in %,
4. average share of enterprises receiving orders via computer networks (website, EDI systems) in %,
5. value of sold production of industry in total per capita in PLN,
6. value of retail sales of goods per capita in PLN,
7. ratio of production to electricity consumption in %,
8. value of agricultural commodity production per 1 ha of agricultural land in PLN,
9. total registered unemployment rate in %,
10. percentage of long-term unemployed (13 months and longer) in %,
11. length of expressways and highways per 100 km2,
12. length of national roads with a hard surface per 100 km2.

In turn, a set of eleven diagnostic variables was selected to analyze the level of social development of voivodships:

1. number of spectators and listeners in theaters and musical institutions per 1000 population,
2. poverty risk indicator according to the poverty line - share of people in households living below the minimum subsistence level in%,
3. average monthly gross wages and salaries excluding entities employing up to 9 people in PLN,
4. number of doctors (total staff) per 10 000 of the population,
5. number of nurses and midwives (staff working in total) for 10 000 population,
6. number of beds in general hospitals for 10 000 of the population,
7. number of infant deaths per 1000 live births,
8. coefficient of inter-voivodeship migration balance in total per 10 000 of the population,
9. total foreign migration balance factor per 10 000 of the population,
10. share of population living in cities in %,
11. umber of university students per 10 000 of the population,
12. usable floor area of a flat per person in m2.

On the basis of both sets of diagnostic features, synthetic measures of economic and social development were determined using the Hellwig method (Pluta W, 1977, p. 19 and futher). Considering the volatility ranges of both measures, voivodships were divided into four homogeneous classes due to their level of development. The results of the analysis are included in Table 1.

Table 1 - Formation of synthetic measures of differentiation of economic and social development of voivodships in Poland in 2016.

Voivodship	Country bordering the region	Values of Hellwig measure			
		Economic development	Rank	Social development	Rank
Lower Silesia	Czech Republic, Germany	0,475	2	0,338	2
Kuyavian-Pomeranian	lack	0,275	3	0,217	3
Lublin	Belarus, Ukraine	0,134	4	0,248	2
Lubusz	Germany	0,325	3	0,070	4
Lodzkie	lack	0,497	2	0,297	2
Lesser Poland	Slovakia	0,405	2	0,375	1
Masovia	lack	0,594	1	0,437	1
Opole	Czech Republik	0,382	2	0,104	4
Subcarpathia	Slovakia, Ukraine	0,147	4	0,135	3
Podlachian	Belarus, Lithuania	0,121	4	0,358	1
Pomerania	lack, maritime boarder	0,395	2	0,219	3
Silesia	Czech Republic, Slovakia	0,549	1	0,350	2
Swietokrzyskie	lack	0,202	3	0,192	3
Warmia-Masuria	Russia	0,071	4	0,041	4
Greater Poland	lack	0,558	1	0,107	4
West Pomerania	Germany, maritime boarder	0,213	3	0,217	3

Source: own study based on the CSO' Local Database (https://bdl.stat.gov.pl/BDL/dane).

The voivoidship with the highest level of social and economic development in 2016 was the Masovia province (see Tab. 1). In the hierarchy the Silesia voivoidship was characterized by a similar level of economic development, but a little bit lower level of social development, while Greater Poland was in the first-class in terms of economic development, but one of the least developed socially. The Lower Silesian, Lodzkie, Lesser Poland, Opole and Pomeranian Voivodeships belonged to the second class in terms of economic development, and in terms of social development they were in the second, third or even fourth class. The next group consisted of voivodeships: Kuyavian-Pomeranian, Lubusz, Swietokrzyskie and West Pomeranian. They are ranked third in terms of economic development and third/fourth in terms of social development. The weakest group in terms of economic development were the voivodships: Lublin, Subcarpathia, Podlaschian and Warmian-Masurian, but only Warmian-Masurian is ranked in the lowest class in terms of social development. It is also worth noting that in addition to the Masovia, better economically and socially developed are voivodships located on the southern Polish border.

The values of Hellwig's measure indicate a significant differentiation of voivodships in terms of social and economic development. Moreover, the specified level of economic development of voivodships was generally not accompanied by a similar level of social development, which is confirmed by the relatively low value of the correlation coefficient[1] between the two synthetic variables ($R^2 = 0.412$, not significant on the level 5%). Therefore, it can be assumed that the spatial diversity in Poland should also be the same. The households' standard of living is the result of consumption determined, inter alia, by income, the consumption of durable consumer goods, or patterns of consumer behavior.

3 Differentiation of Endogenous Determinants of the Households' Standard of Living in Voivodships in Poland in 2016

In order to deepen research on the spatial differentiation of households situation in Poland, an analysis of selected socio-economic characteristics of these entities, treated as endogenous determinants of their standard of living, was carried out. The results of this analysis are presented in Tables 2, 3 and 4.

Based on the values of appropriate volatility coefficients, it can be stated that demographic characteristics such as the age of the reference person or the size of the household, set as averages for voivodships in Poland in 2016, did not statistically differentiate these units of the administrative division.

On the other hand, the differentiating features were: the level of education of the head of a household (reference persons) and selected economic characteristics, such as the main source of household income or some elements of the structure of consumer spending and households equip in selected consumer durables.

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[1] There were used Pearson's correlation coefficients in the research.

Table 2 - Spatial differentiation of households in Poland in 2016 according to selected demographic characteristics and sources of maintenance.

Selected Voivoidships	Average age of the reference person	Average number of household members	Share of households with high educated reference person (in %)	Structure of households by main source of income (shares in %)				
				paid work	work on a farm	self-employment	retirement pay or pension	unearned sources
Lower Silesia	52,31	2,50	21,90	50,50	1,24	6,80	36,91	4,55
Kuyavian-Pomeranian	51,95	2,79	16,92	48,12	7,42	6,20	32,57	5,69
Lublin	54,07	2,76	19,93	42,68	9,55	5,53	38,46	3,78
Lubusz	52,93	2,60	18,22	51,85	1,80	5,01	37,84	3,50
Lodzkie	52,95	2,64	21,79	48,51	4,77	6,92	36,10	3,70
Lesser Poland	52,89	2,80	23,55	48,57	2,50	8,08	36,51	4,33
Masovia	51,58	2,61	33,17	52,14	6,03	7,77	30,62	3,43
Opole	53,98	2,65	17,68	48,92	2,98	6,47	37,20	4,42
Subcarpathia	53,97	3,04	19,86	48,46	2,13	6,39	39,56	3,46
Podlachian	54,55	2,63	19,70	37,33	13,80	5,90	37,50	5,47
Pomerania	52,36	2,72	22,11	50,81	3,14	7,53	34,93	3,59
Silesia	53,80	2,56	20,13	47,17	1,00	5,89	42,01	3,93
Swietokrzyskie	55,45	2,76	18,78	42,75	7,21	5,45	41,58	3,02
Warmia-Masuria	52,48	2,65	16,44	46,89	7,17	4,80	35,32	5,82
Greater Poland	51,95	2,92	20,94	49,38	6,59	7,80	32,35	3,88
West Pomerania	54,00	2,50	23,16	49,54	1,64	7,48	37,34	4,00
Poland total	52,91	2,69	22,42	48,47	4,58	6,78	36,12	4,06
Coefficient of variation(in %)	2,0	5,3	18,1	7,8	70,0	15,4	8,2	19,6

Source: own study based on GUS panel surveys of household income and expenditure in 2015.

In the Masovia voivodeship, the best one in terms of economic and social development, the average age of household head was the lowest (see Tab. 2). There was noticed also one of the lowest household size and the highest share of households of reference persons with higher education. In this voivodship, the largest part of households was maintained by paid work, quite high was also the share of households retaining from self-employment. In turn, the lowest was the share of households whose main source of income was retirement pay or pensions. Also low was the share of households maintained from unearned sources. In the Masovia voivodship, households achieved the highest average equivalent incomes and consumption expenditures.

In Poland, in voivodships with a higher level of economic development, the majority part were households, in which reference person had a higher education and households maintainced from a hired work and from self-employment. On the other hand, in the economically underdeveloped voivodships the relatively high was share

of households retaining from work in agriculture and households of pensioners. The relationship between the education of the reference person and the main source of households maintaining and the level of social development of the voivodships was slightly weaker, although the same direction. Highly correlated with the socio-economic development of the voivodships was the level of average equivalent incomes and consumer expenditures of households.

In the structure of expenditures on consumer goods, the most important were expenses for food and housing (see Tab. 3). In 2016, in the voivodships of our country their total was at the level of 40%-50% of the total consumption expenditure. However, in general, in the economically better developed voivodships, the share of expenditure on food was relatively smaller, and the housing was more expensive. Expenditures on transport were the highest in the following provinces: Opole, Lubusz, Pomerania, Masovia, Lower Silesian or Lodzkie, in which households incomes were relatively high. Relatively the lowest transport expenses occurred in the Swietokrzyskie and Warmian-Masurian voivodships. In the case of equivalent expenditure on health, also the highest level occurred in the Masovia voivodship and the lowest in the Warmian-Masurian, however, the shares of this group of expenditures did not differ spatial (4.8%-6.5%) and they were weakly correlated to socio-economic development. Charakteristic was the differentation of household expenditures on culture and recreation, namely in the Masovia voivodship they were the highest, but also in the Lower Silesia, Lodzkie, Opole, Pomeranian and Silesia voivodships their level was significantly higher than in other voivodships.

Table 3 - Spatial differentation of financial situation of households in Poland in 2016.

Selected Voivoidships	Monthly, equivalent		Average propensity to consume	Selected groups of monthly equivalent consumer expenditures per person in PLN									
	Income in PLN	Expenditure In PLN		Food		Housing		Health		Transport		Culture and recreation	
				in PLN	in %	in PLN	in %	in PLN	in %	in PLN	in %	in PLN	in %
Lower Silesia	2122,61	1672,45	78,79	391,96	23,4	359,60	21,5	92,34	5,5	135,94	8,1	106,76	6,4
Kuyavian-Pomeranian	1879,61	1484,22	78,96	370,07	24,9	331,15	22,3	75,08	5,1	124,09	8,4	85,82	5,8
Lublin	1760,36	1428,46	81,15	369,77	25,9	242,93	17,0	87,55	6,1	136,32	9,5	84,98	5,9
Lubusz	2021,31	1619,96	80,14	399,35	24,7	356,43	22,0	82,90	5,1	144,36	8,9	94,04	5,8
Lodzkie	1944,49	1658,12	85,27	375,69	22,7	321,72	19,4	97,62	5,9	149,76	9,0	112,10	6,8
Lesser Poland	1958,16	1474,29	75,29	369,48	25,1	338,34	22,9	82,41	5,6	109,46	7,4	91,96	6,2
Masovia	2415,84	1904,59	78,84	404,15	21,2	350,05	18,4	124,35	6,5	169,62	8,9	148,34	7,8
Opole	1897,63	1657,20	87,33	376,68	22,7	282,44	17,0	89,65	5,4	188,76	11,4	109,66	6,6
Subcarpathia	1609,50	1313,67	81,62	365,79	27,8	241,31	18,4	80,98	6,2	105,71	8,0	67,81	5,2
Podlachian	1855,46	1403,40	75,64	389,68	27,8	278,66	19,9	77,26	5,5	109,11	7,8	76,24	5,4
Pomerania	2162,74	1673,61	77,38	396,76	23,7	334,05	20,0	95,38	5,7	148,44	8,9	107,37	6,4
Silesia	2058,63	1670,59	81,15	389,27	23,3	370,05	22,2	96,75	5,8	123,99	7,4	123,66	7,4
Swietokrzyskie	1784,27	1382,04	77,46	375,09	27,1	291,57	21,1	95,51	6,9	97,58	7,1	88,98	6,4
Warmia-Masuria	1892,29	1369,25	72,36	362,01	26,4	304,27	22,2	71,15	5,2	98,72	7,2	76,15	5,6
Greater Poland	1956,95	1451,19	74,16	349,60	24,1	330,51	22,8	78,64	5,4	125,62	8,7	86,16	5,9
West Pomerania	2006,59	1537,33	76,61	402,80	26,2	316,76	20,6	73,50	4,8	109,87	7,1	89,85	5,8
Poland total	2020,45	1591,72	78,78	381,92	24,0	326,14	20,5	92,13	5,8	133,03	8,4	104,37	6,6

| Coefficient of variation (in %) | 9,1 | 9,9 | 4,8 | 4,1 | 7,6 | 12,0 | 9,4 | 14,5 | 9,5 | 19,3 | 12,9 | 20,3 | 10,8 |

Source: as in Table 2.

[a] The article uses the categories of real equivalent incomes and expenditures of households set in 2015 prices. The OECD 70/50 scale formula was used to determine the number of persons in a household, according to which the first adult receives the weight 1, the next adults - the weight 0,7, and persons under the age of 15 receive a weight of 0.5, assuming that due to the current level of Poland's economic development it is more appropriate than the modified OECD scale 50/30, used for developed countries.

As already mentioned, on the level of satisfying needs, or the standard of living of households, in addition except consumer spending affects also the utility of the stream of services flowing from all theirs assets, that is, in addition to real current income, very important are durable goods owned by households. Resources of selected durable goods in households in voivoidships in Poland in 2016 are shown in Table 4.

Table 4 - Households' equipping in selected durable goods in voivodships in Poland in 2016.

Selected voivoidships	Shares of households possessing goods (in%)							
	TV set	device for receiving satellite or cable TV	computer with Internet	mobile phone	e-book reader	washing machine	dishwasher	car
Lower Silesia	86,31	65,82	72,02	95,00	3,52	97,17	32,42	61,33
Kuyavian-Pomeranian	87,09	63,77	72,56	97,10	2,03	94,72	26,12	63,31
Lublin	77,64	52,38	67,31	92,92	0,92	91,22	21,00	68,04
Lubusz	86,19	74,87	73,57	95,90	1,60	97,30	33,43	64,96
Lodzkie	84,25	63,66	69,90	95,94	3,02	94,16	27,83	65,33
Lesser Poland	83,99	51,01	74,21	93,62	2,63	96,18	27,14	64,61
Masovia	82,64	55,00	75,56	96,35	5,98	94,58	31,29	64,70
Opole	84,38	64,65	69,58	93,42	2,16	96,81	38,03	65,06
Subcarpathia	83,97	60,12	71,88	94,09	0,96	94,89	18,85	71,99
Podlachian	82,38	53,13	65,28	89,58	1,91	92,97	21,53	63,37
Pomerania	85,87	75,11	74,75	95,83	3,23	96,46	34,98	61,03
Silesia	88,22	58,92	74,14	95,97	3,12	97,23	31,42	62,81
Swietokrzyskie	80,64	53,98	64,54	96,56	0,92	93,55	15,51	63,12
Warmia-Masuria	83,90	65,49	69,76	95,20	1,29	95,67	26,45	61,71
Greater Poland	87,31	64,55	74,20	96,31	3,00	97,39	32,35	71,20
West Pomerania	90,94	69,88	70,34	96,19	3,67	97,90	30,77	54,99
Poland total	84,88	60,89	72,31	95,29	3,01	95,61	28,84	64,46
Coefficient of variation (in %)	3,6	11,8	4,6	1,9	51,3	1,9	21,5	6,0

Source: as in Table 2.

Preliminary analysis of households' equipment in durable goods in Poland in 2016 (see Tab. 4) showed that practically all households had basic household devices, such as washing machines, refrigerators, or vacuum cleaners and TV sets. In turn, it could be considered that owning some goods is very dependent on the interests or lifestyle of households' members (bicycles, cameras, music equipment, home cinema). On the other hand, the equiping with cable or satellite television reception equipment, computers with access to the Internet, and especially dishwashers and relatively new good: e-book readers was spatially differentiated and depending positively on the level of social and economic development. Two goods (dishwasher and e-book reader) were the least frequently used in households in Poland, but also in their case the average equipping was the most spatially differentiated. In turn, an average households' equipping with cars in voivodships was practically independent on the level of the voivodships' economic development.

4 Differentiation in Self-Assessment of Material Determinants of the Households' Standard of Living in Voivodships in Poland in 2016

The standard of living is understood as the level of satisfaction with the achieved level and structure of consumption and the conditions in which people life is being proceed. Thus, it is best demonstrated by the self-assessment of the material situation that is the basis for meeting needs [Bywalec C. (2007), p. 39 and further].

Results of the studies onself-assessment of the households' financial situation on average in voivodships in Poland in 2015 are presented in Table 5.

Households in all voivodeships most often assessed their material situation as medium and more often as at least rather good than bad and rather bad. At the same time, the highest shares of optimistic assessments were generally found in economically well-developed voivodships, and their own financial situation was more often negatively assessed by households in voivodships with the lowest levels of socio-economic development.

Table 5 - Differentation of voivodships in Poland in 2016, according to the self-assessment of households' own financial situation.

Selected voivoidships	Shares of households (in%) assessing their own financial situation as				
	very good	rather good	medium	rather bad	bad
Lower Silesia	13,42	20,35	53,74	9,31	3,17
Kuyavian-Pomeranian	12,35	17,73	57,88	7,83	4,22
Lublin	7,76	19,16	57,27	12,37	3,44
Lubusz	14,41	19,32	50,35	11,11	4,80
Lodzkie	9,82	17,02	58,57	9,74	4,85
Lesser Poland	12,45	22,33	55,09	8,05	2,09
Masovia	14,49	19,40	53,35	9,30	3,45
Opole	16,24	27,65	47,07	6,78	2,26
Subcarpathia	7,93	19,33	59,37	10,70	2,66
Podlachian	9,20	20,05	55,90	9,98	4,86
Pomerania	18,39	19,15	49,01	8,88	4,57
Silesia	17,48	18,78	51,25	9,26	3,23
Swietokrzyskie	9,47	21,12	57,59	9,81	2,01
Warmia-Masuria	14,41	18,20	53,25	11,03	3,11
Greater Poland	11,81	20,87	56,65	8,25	2,41
West Pomerania	13,78	21,52	49,54	11,94	3,22
Poland total	13,14	19,82	54,23	9,47	3,35
Coefficient of variation (in %)	24,7	11,8	6,8	15,3	28,4

Source: as in Table 2.

In addition, the relationship between household consumption expenditure and satisfaction of own financial situation was examined. For this purpose, logit models of this dependence were estimated. Character of the logit model is:

$$p = \frac{1}{1+\exp(-(a_1 x + a_0))} \tag{1}$$

where:
p- probability of at least good assessment of the own financial situation,
x – monthly equivalent expenses of households in thous. PLN,
a_i – estimated structural parameters of a model.
Estimated models passed the verification positively. The obtained parameter estimates are presented in Table 6, and their graphical form in Figure 1.

Table 6 - Results of estimation of parameters of logit models explaining the relationship of the at least "rather good" self-assessment of the financial situation of households with equivalent expenditures in Poland in 2016.

Selected voivoidships	Estimated values of structural parameters of the models	
	a_0	a_1
Lower Silesia	-1,883	0,709
Kuyavian-Pomeranian	-1,783	0,616
Lublin	-2,200	0,804
Lubusz	-1,912	0,764

Lodzkie	-2,322	0,762
Lesser Poland	-1,857	0,818
Masovia	-1,996	0,689
Opole	-0,999	0,469
Subcarpathia	-2,589	1,165
Podlachian	-2,004	0,768
Pomerania	-1,709	0,718
Silesia	-1,645	0,646
Swietokrzyskie	-1,495	0,485
Warmia-Masuria	-1,421	0,501
Greater Poland	-1,829	0,747
West Pomerania	-1,682	0,691
Poland total	-1,834	0,695

Source: as in Table 2.

Figure 1 - Chart of logit models of households' self-assessments of the financial situation and theirs dependency on the monthly equivalent households' expenditures in voivodships in Poland in 2016.
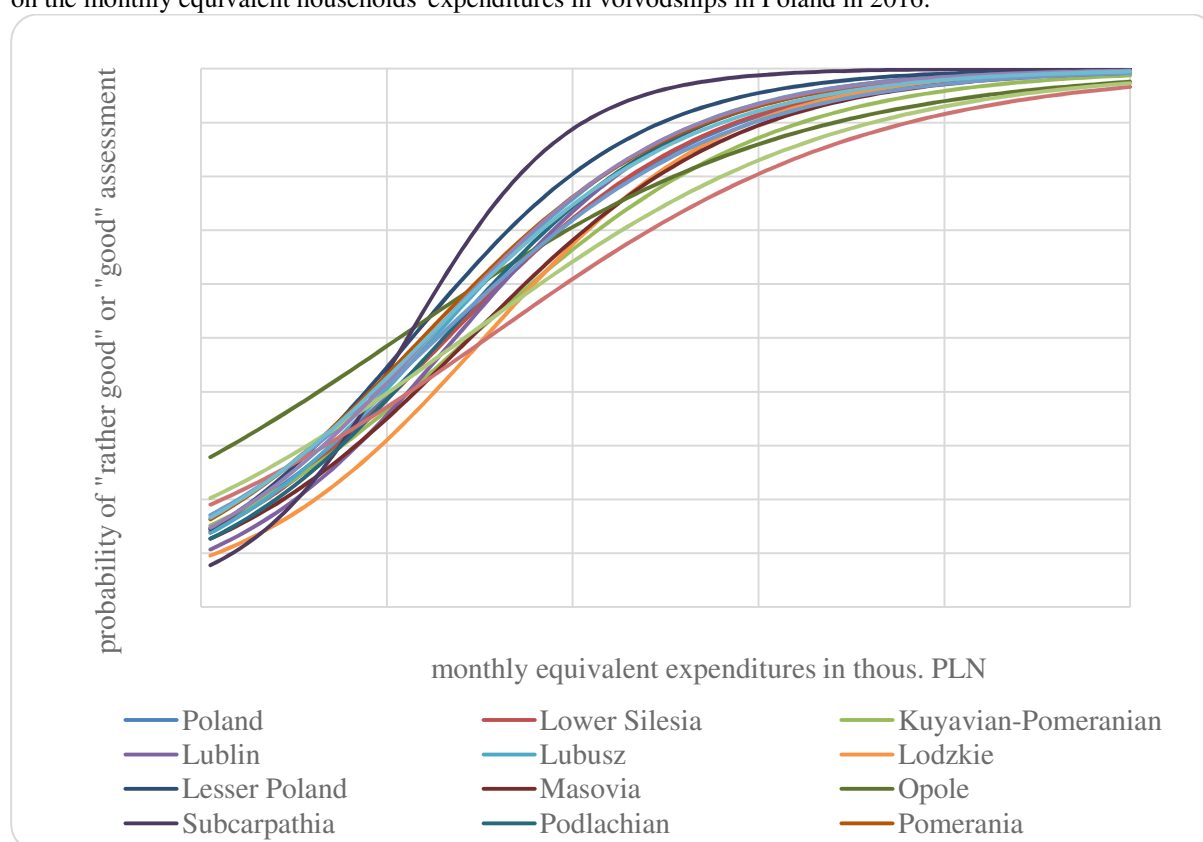
Based on the graphs of the estimated logit models shown in the Figure 1, it can be concluded that in 2016 in Poland, more than half of households assessed their financial situation as at least good with equivalent incomes at the level of around PLN 3 000, and with revenues at the level of around PLN 10 000 satisfied with their own financial situation would be already all households. Moreover, the nature of the studied dependence was very similar in all voivodships, and the households assessments were strongly conditioned by the level of average consumption expenditures.

5 Conclusion

The results of analysis presented above shows that in 2016 there were significant differences in the level of economic and social development of administrative division units, such as voivodships, in Poland.

And so, the highest values of characteristics of economic and social development and high assessments of the level of satisfying the needs of households were observed in the Masovia Voivodship. Swietokrzyskie turned out to be the least economically and socially developed voivodship, in which households relatively worstly assessed

their standard of living. As a rule, the higher level of economic development was characteristic of voivodships, whose capitals are very large urban centers, Warsaw, Wroclaw, Cracow, Trójmiasto, Katowice, Poznań and Szczecin.

However, the state of the economy was a strong foundation for the social development and the standard of living of the population. Nevertheless, in the case of some voivodships, where personnel difficulties in health care were observed, the level of the social development was disproportionately low in comparison with the economic development (for example, the Greater Poland voivodship). At the same time, a stronger relationship was observed between the level of social development than between the level of economic development and the self-assessment of the financial situation of households in voivodships (see Tab. 7).

Table 7 - Relationship between the level of economic and social development of voivodships in Poland in 2016 and selected characteristics of households.

Specification of variables - characteristics of households (average for voivodships)	Values of correlation coefficients	
	Synthetic measure of economic development of voivodships	Synthetic measure of social development of voivodships
self-assessment of the material situation	0,24756	0,55395 **
age of the reference person	-0,53328 **	-0,07247
education of the reference person	0,54625 **	0,67222 ***
monthly equivalent income in PLN	0,70401 ***	0,46927 *
monthly equivalent expenses in PLN	0,76807 ***	0,44978 *
monthly equivalent expenditure on food in PLN	0,19828	0,42564 *
monthly equivalent expenses for housing maintenance in PLN	0,72265 ***	0,30734
monthly equivalent expenses for health care in PLN	0,62451 ***	0,55703 **
monthly equivalent expenses for transport in PLN	0,56103 **	0,09413
monthly equivalent expenditure on culture and leisure in PLN	0,79420 ***	0,53967 **
share of households owning a computer with access to the Internet	0,67591 ***	0,12271
share of households with an e-book reader	0,74930 ***	0,58955 **
share of households with an automatic washing machine	0,45010 *	-0,23941
share of households with a dishwasher	0,63666 ***	-0,05717

Source: as in Table 2.
*- significant on the level 10%, **- significant on the level 5%, ***- significant on the level 1%.

In all voivodships, expenditures on basic needs, on food, housing maintenance as well as on health, transport, culture and leisure were stronger correlated with the level of economic development than social one. Having computers with access to the Internet, e-book readers or dishwashers (still relatively rare in Polish households) was also strong and positive dependent on economic development. Most characteristics of determinants of the standard of living and the degree of satisfying the households needs showed significant spatial variability, which is confirmed by the values of the variance coefficient.

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Activities and Economics of Silesian Diaconia

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Abstract
The contribution is focused on the evaluation of the activities of the non-profit organization of Silesian diaconia, church legal entity for the period of 2012 - 2017. Silesian diaconia was founded in 1990 as a civic association. Since 1996, it has been operating as a church legal entity. The mission of Silesian diaconia is to provide social and health services to people in need based on the principles of the Christian values. The activity of the Silesian diaconia is mainly focused on the areas of the Moravian - Silesian region, specifically on Bruntál, Krnov, Nový Jičín, Český Těšín, Karviná, Frýden-Místek, Třinec, Ostrava and Havířov. Silesian diaconia currently operates over one hundred types of social services.

Keywords: economy, non-profit organizations, social services

JEL Classification: J1, L3

1 Introduction

A social service or social services represent an activity or groups of activities which are provided to a socially disadvantaged group(s) of people. That encompasses support deemed at social integration without the exclusion of withdraws, whilst improving their quality of living and overall well being. It also protects a society of people that are disadvantaged and exposed to the risks of capitalistic consumers, that have no regard for their underrepresented counterparts. From this standpoint, the view of social services relates to us all inwardly and their impact is significantly imperative for the conditions of humanity (Čámský, Sembdner, Krutilová, 2011).

For organizations and institutions providing social services may include, but are not limited to the following: self-governed units, individuals, legal entities and ministries. Also, state subsidies, organizations and organizational units funded by the state. A social service provider can be conjointly non-governmental organizations which are subsidized by the public budget. The main goal(s) for these organizations is to facilitate a standard of living that is more than subpar for its citizens and undermined groups of people, lodged within society affected by burdensome life situations. Non-governmental sector(s) represent a very attractive and a very important segment in social services provisions. In the Czech Republic, about two-thirds of social services are provided by non-governmental organizations, composed of charitable organizations, religious entities and ecclesiastical legal entities (Pejcál, Dostál, 2017; Průša, 2007). In particular, European nonprofit organizations represent a noteworthy contribution toward social services in general. According to the research, Central European governments including Croatia have grant funding contracts for organizations providing monetary provisions for social services. These grant funding contracts are not utilized in all countries (Struyk, R. J., 2002). In 2012, ecclesiastical organizations provided 620 social services with the capacity of 7 475 clients in the Czech Republic. In 2016, the total number increased by 33 services to 653 social services available, however, the capacity was reduced to 6 938 clients (MPSV, online).

Due to the changes within the fall of 1989, the socio-political conditions influenced the churches ideology of Christian love, that should be manifested through particular actions and services. This ideology of the Evangelical church in Silesia led to the conviction, that the diaconal work should be restored. This was the genesis of an independent organization called Silesian diaconia. The first draft of Silesian diaconia

regulations was formulated in the middle of the year during 1990, which included provisions of an advisory committee. On 27th November 1990, the Ministry of Interior of the Czech and Slovak Federal Republic registered the organization Silesian diaconia as an independent entity in form of a Civil Society Organization. The first facility founded by the Civil Social Organization in Karviná in 1991 was called Agapé, known as the center for Christian help. These services were provided to the people needing more resources and support for better living standards. Belatedly, changes in the Czech legislation resulted in the transformation of an organization into an ecclesiastical legal entity founded by the Silesian Evangelical Church of the Augsburg religion. Later, it was registered in the register of legal entities in the Ministry of Culture on 5th September 1996.

The objective of this paper is an evaluation of operations and management during the period of 2012-2017. Towards 12th May 2017, the organization has registered 24 types of social services within which prevail especially residential care services (shelters) and ambulatory services (social rehabilitation, day-care center). Silesian diaconia administers approximately 32% of a total number of social services provided by ecclesiastical organizations in the Czech Republic.

Within the evaluation of operations and management, a benefit-cost analysis coupled with a vertical analysis focused on the structure of social services, during the years of 2012-2017, were applied for finances per client as a performance parameter.

The development of the organization Silesian diaconia was impacted by several factors that determined the direction of its growth. Silesian diaconia actively cooperated with other organizations not only in the Czech Republic but also the following countries (Germany, Poland, Slovakia, Denmark, Finland, etc.). Because of these connections, lots of experience and financial aid were acquired which helped to expedite and enhanced the development of their activities. There were a rapid development and an increase in the number of facilities that were significantly influenced by floods in the Moravian-Silesian region in 1997. Silesian diaconia produced ancillary works that included food provision, hygiene supplies, clothes, and other needed items. In addition, they provided support services such as construction and/or reconstruction of damaged apartments and houses of the flood victims.

Silesian diaconia provides social services for disabled people, elderly, homeless and people with special needs.

2 Silesian Diaconia

The organization Silesian diaconia is a Christian non-governmental organization that implements its operations in accordance with biblical principles of love and provision to those in need.

Silesian diaconia administers social services throughout five different areas that coordinate operations of social centers. Within each area, a board of executives is assigned to facilitate an advisory committee for management and administration.

The territorial structure of Silesian diaconia is following: Bruntál, Krnov, Nový Jičín area, Frýdek-Místek, Třinec area, Karvinsko area, Ostrava, Havířov area, and Těšínsko area.

Silesian diaconia operates not only in the Moravian-Silesian region but also in the South Moravian and Olomouc regions. It currently operates more than sixty centers without an independent legal entity which are centrally controlled by the Silesian diaconia headquarters in Český Těšín.

Around the time frame of 2012–2017, there were 20 centers providing 27 various social services actively operating in the surrounding areas of Bruntál, Krnov, Nový Jičín. There were 14 fewer service providers in Frýden-Místek, Třinec than there were in the previous one. However, the total number of services provided was identical. Nonetheless, 23 social services were available for people in Karvinsko area throughout 16 centers over the years of 2012 – 2017. Within the Ostrava, Havířov areas the organizations specialized predominantly in consulting services, family services, and elderly services. Over the period of six years, there were 17 centers available for clients bringing a total of 23 social services. Within all inspected areas, the one with the lowest number of centers was Těšínsko area with only 12 units. Despite the low number of centers, the social services available do not deviate from the other areas. They administer a total of 24 social services within which the prevalence of residential care services and home care services.

2.1 The structure of Social Services of Silesian Diaconia

In accordance with the Social Services Act (number 108/2006) as amended, the social services were divided into three different groups that are residential care services, ambulatory services, and home care services. Reference law 108/2006, § 33 paragraph 1.

The area of Bruntál, Krnov, Nový Jičín provided a total of 27 social services within which ambulatory services prevailed, followed by residential services and the remaining 29 % represented home care services as shown in Figure 1. Within ambulatory services, displayed dominance particularly in the number of day-care centers along with the presence of social-therapeutic workshops. Residential care activities provided shelters primarily for women and children and/or supported housing. Service workers administered home care services mainly in forms of social rehabilitation and early care.

In the Těšínsko area, Silesian diaconia focuses primarily on the disabled, elderly and chronically ill people. Therefore, social services like personal assistance services, support services, living support services, and residential care services for the disabled are supported.

The less represented types of ambulatory services were ascertained to be day-care centers, social-therapeutic workshops, and social care prevention centers.

The Frýdek-Místek, Třinec area focused equally on both services, home care, and residential care, both of them showed a production of (41 %) for ambulatory services. Within this area, Silesian diaconia offered services to people in a difficult life situation along with homeless people. This manifested service offerings primarily in the forms of shelters and hostels. Lastly, the home care services concentrated on home programs coupled with social services for families.

Similarly, in Karvinsko area, home care services (43 %) predominated over the other types of services. In contrast, residential care services including shelters and hostels were represented only by 22 %. The only area that focused on the social care prevention centers within ambulatory services was the Karvinsko area. These are services provided to clients in various forms such as leisure activities, law application assistance, social counseling and/or harm reducing programs for people with drug addictions.

Approximately, half of the 23 services available in the Ostrava, Havířov area were delivered in a form of an ambulatory service and moreover, social counseling and/or day-care center. Conversely, the residential care services represented merely 17 % of the total amount. Those centers who offered these services operated solely in Ostrava and within the home care services, the majority were respite care and elderly services.

The organization established their branches according to specific requirements for each given area and groups of people living in them. Figure 1 illustrates that both areas Bruntál, Krnov, Nový Jičín and Ostrava, Havířov offer primarily ambulatory services. The predominance of home care services together with residential care services that are performed in a natural environment are located in the areas of Těšínsko, Karvinsko and Frýdek-Místek, Třinec.

Figure 1 - The structure of social services within given areas during the period of 2012-2017. Source: Izabela Ertingerová, 2018.
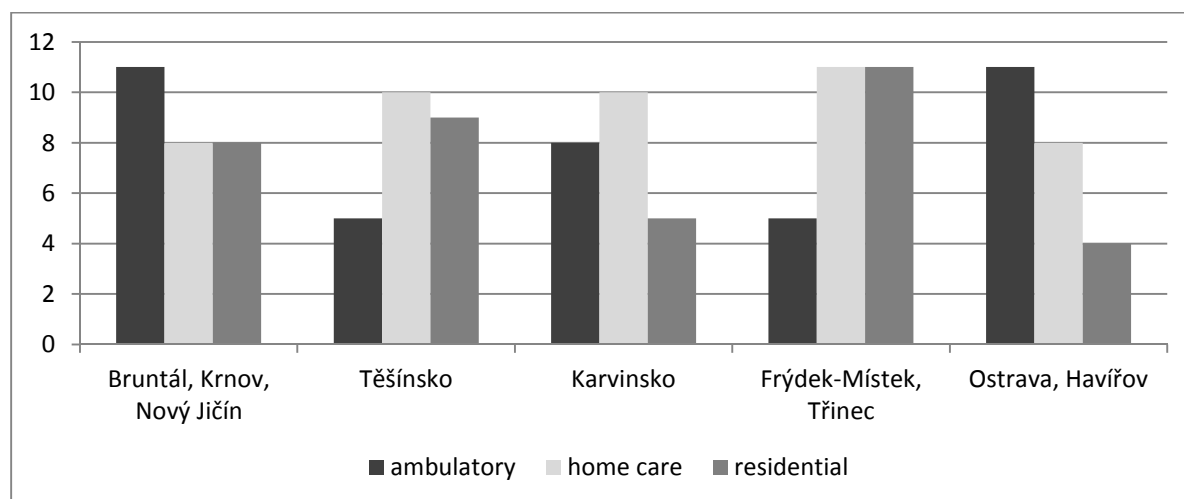
2.2 Economics of Silesian Diaconie

The funding system of Silesian diaconie is based on the non-governmental financing established for a purpose of administering social services. It stands on the multi-source financing that consists of the public budget, payments of service users and also business operations (Boukal, 2013).

Annually, financing of social services provided by Silesian diaconie is accompanied by uncertainty regarding funding from the state budget. Whereas the financial aid granted from the state budget forms a crucial portion of organizations yielded, deflection becomes significant regarding the provision of their services. Table 1 demonstrates that within the observed period of time, the organizations budget consisted primarily of grants from ministries, regions, and the European Union in total of 55 - 63 % of total revenues. Secondly, payments from services represented 19 - 22 % of total revenues and the subsidies of cities and municipalities were 11 - 15 %. Also, 2 - 5 % of revenues were mainly donations from companies, sponsors and people. Three-quarters of the budget are from public resources (donations + subsidies) which makes them reliant upon them. The profit from their services is only a small portion of their resources. Going forward, their strategy is to eliminate their dependencies on other sources for finances, that restrain them from succeeding with financial goals.

During the period of 2012-2017, there was an occurrence of an increase of total returns of the organization of approximately 10 %. Subsidies of cities and municipalities, as well as an increase of revenues, contributed to the positive progression. In this case, the revenues have increased due to an operation of new residential services in the Moravian-Silesian region. In 2015, there was a significant change in social service financial section because of a displacement of finances from the Ministry of Labor to individual regions.

Table 1 - Structure of revenues of Silesian diaconia in % during the period of 2012 – 2017.

	2012	**2013**	**2014**	**2015**	**2016**	**2017**
Grants	61,65	60,7	62,54	59,89	55,93	60,82
Subsidies of cities and municipalities	11,63	12,94	12,48	14,64	13,49	12,97
Foundations	1,39	0,94	0,51	0,56	1,58	0,73
Sales of goods and services	2,18	1,90	2,28	3,30	2,24	1,37
Earned profits	19,87	19,62	19,64	19,29	21,49	20,48
Other revenue	3,28	3,90	2,55	2,32	5,27	3,63
Total revenue in CZK	**182 208 931**	**203 173 258**	**231 025 817**	**247 259 263**	**291 205 943**	**321 296 664**

Source: Izabela Ertingerová, 2018.

The extent of financial social services of Silesian diaconia varied in individual areas by type of service in 2017. Within residential services, the one with the highest financial aid was Těšínsko with 44,6 million CZK with a capacity of 232 clients, i.e. 192 354 CZK per client. In contrast, areas of Bruntál, Krnov and Nový Jičín were given 6,7 million CZK with a capacity of 340 clients, i.e. 19 800 CZK per client. The reason for larger financial aid per client in Těšínsko area can be seen by the high demands of operations for retirement houses and disabled people alike which are more costly to operate. Similarly, the area of Ostrava, Havířov operated with an aid of 22,6 million CZK with a capacity of 51 clients, i.e. 443 206 CZK per client and Bruntál, Krnov, Nový Jičín area focused mostly on shelters.

In case of ambulatory services, the situation was more balanced (12-18 million CZK) apart from Frýdek-Místek, Třinec area with 4,9 million CZK. In this area, the ambulatory services range only 18%. The highest financial aid per client falls into Bruntál, Krnov, Nový Jičín and Těšínsko areas - 62 244 CZK and 57 835 CZK at the similar capacity of 285 and 262 clients. In the Ostrava, Havířov area falls only 8 113 CZK per client but, the total number of served clients was 1582. The majority of clients utilized a social counseling service which is not as financially demanding as other services.

Total expenditure, as well as total financial aid per client within terenní services, were very balanced in all areas except Těšínsko area (8,9 million CZK and 44 261 CZK per client). Even if Těšínsko area focuses on home care services the total capacity is lower than in the other areas. The services supported up to 201 clients whereas the other remaining areas clientele ranges from 730 – 888 people.

Table 2 – Expenditure of individual areas of Silesian diaconia in CZK in 2017.

Service	Area				
	Bruntál, Krnov, Nový Jičín	**Těšínsko**	**Karvinsko**	**Frýdek-Místek, Třinec**	**Ostrava, Havířov**
residential	6 731 848	44 626 126	24 497 527	26 029 127	22 603 505
ambulatory	18 024 572	15 152 688	13 365 819	4 905 034	12 834 738
home care	12 613 047	8 896 450	12 182 378	10 926 182	17 289 068

Source: Izabela Ertingerová, 2018.

Table 3 – Finances per client in CZK within individual areas of Silesian diaconia in 2017.

Service	Area				
	Bruntál, Krnov, Nový Jičín	**Těšínsko**	**Karvinsko**	**Frýdek-Místek, Třinec**	**Ostrava, Havířov**
residential	19 800	192 354	54 682	51 954	443 206
ambulatory	63 244	57 835	15 470	12 740	8 113
home care	14 598	44 261	16 665	14 245	19 470

Source: Izabela Ertingerová, 2018.

3 Conclusion

The organization Silesian diaconia offeres a wide spectrum of social services centered on a variety of targeted groups that encompasses disabled children, youth, adults, families and the elderly. The main objective of this paper was to evaluate the methods of those service operations during the years of 2012 to 2017 and the management of services in 2017. The genre of social services were residential, ambulatory and home care. These social services supplied multiple service centers throughout five different areas within the Moravian Silesian region. Areas such as Bruntál, Krnov, Nový Jičín, Těšínkso, Karvinsko, Frýdek-Místek, Třinec, and Ostrava Havířov were successful in developing each region. In so doing those regions had focused their attention on activities for clients residing within their areas.

As a result, the data of this analysis uncovers a significant disparity in the structure as well as the focus of social services within the measured regions. Within these two regions, Bruntál, Krnov, Nový Jičín and Ostrava, Havířov predominately ambulatory services such as day care services and social-therapeutic workshops had occurred the most. Conversely, residential care activities and home care services were performed to a lesser extent. In contrast, Těšínsko, Karvinsko, and Frýdek. Místek, Třinec areas exemplified a significantly higher result in residential care and home care services. Nevertheless, the final outcome demonstrated an increase in both established centers and their number of social services which ultimately led to many well-pleased clients and exemplified a higher quality of management.

Annually, the organization encounters an unpredictability of financial security, resulting in stress for grant funding allocated within the state budget. Consequently, if the organization so happens to not receive the funding available, they would have to result to other less ideal types of actions such as service limitations, terminations or employee dismissal. Future restoration builds upon a success of further negotiations as to additional financing. To prevent such financial vulnerabilities in the future, it is essential for the organization to procure additional financial resources.

For the organization, it would behoove them to accumulate additional financial aids because it permits more opportunities to secure and or influence the exploits of their own reserves. One option, that could help facilitate such a stable platform for an organization would be an online auction of various items donated by the people. A second option would be renting compensatory and rehabilitating devices. For example, walking sticks, walkers, wheelchairs, bathtub seats, handles, toilet chairs, etc. Another option is to facilitate dining services for the public utilizing their own cafeteria. Lastly, the option for the organization to consider is to lend their name or logo to companies, willing to invest in product manufacturing. It's vital for the organization to select a company(s) with good public standings alongside with an exceptional track record for good quality products, in order to benefit from viable financial investments.

The analysis of expenditures monitored within 2017 did not detect significant variations in any of observed areas. The relationship between the greater and lesser areas of orientation, pertain to the ability to specialize on certain social services, resulting in the benefit of financial gains available in their regions. Financial resources per client varied significantly within given areas. Even though, the number of clients was the highest within

home care services, finances per client were the lowest. The reason was that home care services are generally provided in a natural environment so they do not require high financing. Conversely, residential services finances per client were the highest (50 – 440 thousand CZK) because it is very expensive to manage houses for elderly and disabled people. Regarding ambulatory service (8 – 63 thousand CZK per client), the variable was the number of served clients together with the capacity of given area. Non-governmental organizations provide predominantly home care services along with ambulatory services with an objective of helping people in their natural environment as well as meeting their individual needs. In case of barriers in administering services, there are feasible alternatives to them (Hyánek and col., 2007).

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Family Business as a Phenomenon of Cross-Border Sustainable Development of the Identity of Cieszyn Silesia

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Abstract
Even though Těšín Silesia in the 20th and in the beginning of the 21 century has undergone various specific changes including the division into two states, the area has retained its cross-border identity and integrity. Based on the coordinated research at VŠPP Praha, UE Katowice and Academy WSB in Dąbrowie Górniczej, such results have been achieved that confirm the importance of family business for the sustainable development of the identity and integrity of Těšín Silesia.

The aim of the article is to prove the positive effect and importance of family business for the sustainable development of the identity and integrity of Těšín Silesia.

The article exploited research based mainly on own questionnaire investigation, diagnostic missions and the passporting of companies and their environment, interviews with entrepreneurs, causal, relatioship and comparative analyses and targeted statistical surveys. The obtained results were verified by the application of the methods of critical propositional and Boolean logic, and by comparing them with findings presented in available literary sources.

The authors of the article bring forth research findings which confirm that it is not only the specific phenomenon of regional co-existence on the border of Poland and the Czech Republic but also a historical contribution and positive example of cross-border cooperation within the EU in a wider context.

Keywords: family business, identity, integrity, sustainable development, Těšín Silesia

JEL Classification: F63, O15, O19

1 Introduction

Těšín Silesia in the 20th and the beginning of the 21st century has undergone various specific changes, including the division into two states, yet it has retained the specific cross-border sustainability of its identity and integrity to the present. It is a positive example of cross-border cooperation of a historically integrated region, but divided into two European Union states, although the history of this Euroregion has been accompanied by various controversial situations.

VŠPP Praha (or VŠP Ostrava) has been dedicated to researching family business since 2015. This research has gradually gained an international character with universities from the Czech Republic, Slovakia and Poland taking part. Results based on coordinated research of VŠPP Praha, UE Katowice a Akademie WSB w Dąbrowie Górniczej, confirm the importance of family business on the sustainable development of identity and integrity of Těšín Silesia These findings are presented in this article. The article is based mainly on data and results obtained within the Grant Agency project of the Academic Alliance of the Czech Republic – GAAAA č. V2017005, Contemporary paradigm of family business in the Czech Republic in the beginning of the Industrial revolution 4.0

2 Theoretical Background of Research

Several other authors have addressed the topic of family business, its influence on the development of the region, or the issue of the development of Těšín Silesia

However, there is a lack of comprehensive research addressing family business issues and their impact on the sustainable development of the identity and integrity of the regions.

Family business is built on a basic entity and it is the family. *In sociology, a family is a solidaristic group of people bound to each other by marriage, relations or adoptions who live together for a long period of time and whose adult members are responsible for the upbringing of their children.*

Other definitions delineate a family according to their functions.: *reproductive, socio - economic, cultural, social, psychological and emotional.*

The nuclear ('core') family consists of a man, a woman, their children and other relatives (grandparents, aunts, uncles, cousins etc.). In addition to a monogamous family arrangement, there can also exist a family which is polygamous or an incomplete family with just one parent as well as other variants dependent on a given cultural background.[2].

A family lives in its relevant **living environments** including a *business environment* in which it carries out its business activities. The current business environment is influenced by both *global* and *local* factors of family existence as well as its business and can be said to be very turbulent (Mikoláš, Zamarský, Fialová, Nikolskaja).

A family business is defined by the synergy of 4 subsystems.(Mikoláš, Karpeta a kol., Blava, Wisla, Amerika and others): a) family*, b) business (family business), c) environment and d) outputs.* **Outputs** represent a *set of expressions and emissions* (in the broadest sense of the word) of a family, family business and the relevant *economic, social, technical, biological, environmental, knowledge, cultural, moral, legal etc.*

The key feature of family business is the ability to **reproduce** (evolution) *the famiy, business, relevant environment and their outputs.* This ability is determined by the existence of *family potentional, family firm, environment and their outputs* (as synergy of the four above-mentioned subsystems).

Family business in the context of the development of the region is, for instance, researched by Uzcategui Sanches (2018), who points out the importance of family businesses in an economy and their role in sustainable development including the perspective of generation transition. Kulková (2017) makes a point of the role of family businesses in the stabilisation of an economy during the time of crisis and their ability to stimulate employment in such a crisis. Similar issues are studied by Mura (2017) - family businesses are important not only because they provide employment to family members but also create their own values, culture, traditions and thus participate in the formation of the region; the development of regions where large enterprises are not present for various reasons.

The positive effects of cross-border cooperation in Těšín Silesia is researched, for example, by Drapela (2017) whose research suggests that cross-border cooperation helps to create positive and functional relationships and contributes to reducing negative views of neighbours. Another author who analyses similar issues of cross-border relationships in the Euroregion of Těšín Silesia is Klosowski (2004), whose research is mainly focused on the activities of cross-border co-operation in this region.

3 Aim and Implementation of Research

The aim of the authors of this article is to demonstrate the positive contribution and importance of family business for the sustainable development of the identity and integrity of Těšín Silesia in the context of the identification of new paradigms of dynamism in the development of family business in culturally close countries.

The characteristics of Těšín Silesia, based on the joint research of Akademie WSB w Dąbrowie Górniczej and VŠPP Praha, were presented in publication *Prospects for the Development of the Culture Sector in the Euroregion Těšín Silesia"*(Kurowska, 2014, in the Czech and Polish language versions).The issue of region identity is described in III. chapter (Czech version: pages 97-131, Polish version: pages 97-133). The identity of a region is defined by a set of internal and external characters that identify it in a wider environment. The identity of the region is characterized by the following key features:

- *idea* - defining the region's missions,

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[2] The definition of family is based on the following source: J. Jandourek, *Sociologický slovník*. Praha: Portal 2001, page 206.

- ***totem*** - a site representing the core ideas of a region's existence,

- ***design*** - aesthetic, audiovisual, etc. image of the region's ideas,

- ***rituals*** - behavior, communication, processes, etc. derived from the contents of the region's ideas,

- ***innovation*** - the process of transforming ideas, totem, design and ritual into new developmental forms.

The research was based mainly on our own questionnaire survey, diagnostic missions and passports of companies and their environment, interviews with entrepreneurs, causal, relational and comparative analyzes and targeted statistical surveys, primarily implemented within the framework of the Grant Agency of the Academic Alliance of the Czech Republic - GAAAA V2017005, Contemporary Paradigms of Family Business in the Czech Republic at the Beginning of the Industrial Revolution 4.0. The results obtained were verified by the application of critical proposition and Boolean logic methods, compared with the findings presented in the available literary sources.

There were about 350 family businesses surveyed in the Czech Republic and Poland (between 2016 – 18), of which over 200 companies in the Moravian-Silesian Region. Approximately 200 family firms of Upper Silesia (Katowice Voivodeship) were surveyed as a comparative sample. The authors of this article continue to pursue this research with a view to finding and understanding new paradigms of the dynamism of the development of family business in culturally close "post-socialist" countries (Czech Republic and Poland) in general, especially in relation to the legal environment. The research was further narrowed to Tesin Silesia.

A research sample consisting of 163 family businesses gave insights into the state of family entrepreneurial activities, their innovation potential and competitiveness.

A comparative sample conducted in Poland (in the province of Upper Silesia), applying the same methodological principles as in the Czech Republic, comprised 72 family businesses.

Results obtained by our own research were confronted with the findings of partner universities in Slovakia (VŠEMVS Bratislava) and in Poland (University of Economics in Katowice).

Further research on family entrepreneurship, achieved in cooperation with the UE Katowice, was presented on a regular basis in a number of scientific articles (see list of sources).

4 Results of Research and Discussion

The key finding of the research activities is that, in the case of Těšín Silesia, it is not only a specific phenomenon of regional coexistence on the border of Poland and the Czech Republic, but also its historical contribution and a positive example for cross-border cooperation within the EU in a wider context.

Theoretical characteristics of the identity of Těšín Silesia were verified in a number of publications (e.g. Kurowska, 2014; Cichá, 2017; Těšín Silesia, 2018). *The strongest manifestations of regional identity can be observed in the county (powiat) Cieszyn on the Polish side and in a region delineated by the cities of Český Těšín - Jablunkov in the Czech part of Těšín Silesia.*There are two other linguistically cultural areas of the region in the territory of the Czech Republic: the southern part of the Frýdek - Místek district and the area delineated by Ostrava - Bohumín - Karviná, which for historical reasons contain "blurred" or "diluted"signs of the Tesin Silesia idedntity.

The reseach into family business in the defined euroregion has yielded key findings (Mikoláš, 2015, 2016, 2017):

- *family business (at the level of small and medium-sized firms) does not usually ʂee"success in financial indicators (especially profits), but in the qualitative parameters of relationship between family and firm,*

- *on both sides of the state border of Těšín Silesia in the district of Cieszyn and the northern part of the district of Frýdek - Místek (the area between Český Těšín and Jablunkov), there is a clear manifestation of entrepreneurial activity of families,*

- *on both sides of the border, the influence of conservative values and especially the Christian (the Catholic and Evangelical Churches) attitude to the family can be felt,*

- *both parts of the Euroregion intensively cooperate and mutualy influence each other in culture and economy,*

- *the Czech part of the Euroregion, unlike the Polish one, is multicultural, i.e. besides the Polish nationality, there coexist Czechs and Moravians, Slovaks, Hungarians, Vietnamese, Roma and other European and non-European peoples,*

- conservative understanding"of life and entrepreneurial values is reflected in the perception (especially in the Czech part of Těšín Silesia) of legislation as a significant threat to business (on the other hand, in the Czech regions of the Czech Republic, the legislative regulations are perceived significantly more positively),

- the innovation potential of small and medium-sized family businesses in this region over transnational corporations is considerably lower, with only 3% of small and medium-sized family businesses ready to cope with the challenges of the Industrial Revolution 4.0.

Empirical research was carried out in 235 small and medium-sized family businesses in the Czech Republic and Poland.

The following table summarizes selected statistical research results in both countries.

Czech Republic

Total of family businesses analyzed – 163.

Table 1 - Statistical summary of research results in CR.

Answers to summary questions regarding the hand over of a family business to a successor	Number of responsesby companies	Notes
I/ handover has taken place	31	
II/ handover plan is ready	12	
III/ handover plan is not ready	105	
III a/ there are no successors	*10*	
III b/ owner does not wish to hand over	*19*	
IIIc/ family members are not interested/competent to take over the business	*57*	Out of which: c1) incompetent successors (lack education in field): 20 c2) incompetent successors (under 20 years old or students): 34 c3) successors have no interest*: 3*
III d/ other reasons	*19*	Out of which: d1) succession is being considered (older than 20, employed by the company, getting experinced): 18 d2) succession will be determined by inheritance proceedings: 1
IV/ no answer, unclear answer	15	
Number of researched businesses N =	163	

Source: authors of article

Poland

Total of family businesses analysed - 72.

Table 2 - Statistical summary of research results in Poland.

Answers to summary questions regarding the hand over of a family business to a successor	Number of responsesby companies	Notes
I/ handover has taken place	23	Out of which: succession has just been finalised, new owner is too young, does not yet have children: 1
II/ handover plan is ready	19	
III/ handover plan is not ready	27	
III a/ there are no successors	4	
III b/ owner does not wish to hand over	0	

III c/ family members are not interested/competent to take over the business	16	Out of which: c1) incompetent - under 20 years old: 8 c2) incompetent - over 20 years old: 2 c3) successors have no interest: 4 c4) inexperienced: 1 c5) business new on the market: 1
III d/ other reasons	7	Out of which: d1) no suitable candidate: 3 d2) successor is employed by the company, however, succession is being planned, but has not taken place yet: 1 d3) succession is about to take place*:* 1 d4) successor does not have adequate education: 1 d5) founder of business is not currently contemplating succession: 1
IV/ no answer, unclear answer	3	
Total of family businesses analyzed N =	72	

Source: Z. Mikoláš, J. Karpeta (research VŠPP Praha, 2017)

In spite of a number of common features, there were identified a number of differences between Czech and Polish family businesses in the monitored area.   In the context of historical development, entrepreneurship has been developing differently in both post-communist countries. While in the Czech Republic family business is still being carried out by the very founders of the family business, more than a third of Polish family businesses have already been handed over to the next generation. Similar differences have also been identified in connection with planning to hand over the business in the future within the family.

Table 3 - Handing over the business to the next generation – Czech family business (in % of respondents).

Handover complete	Handover is planned	Handover isnot planned	No answer (do not know)
19,00	**7,4**	**64,4**	**9,2**

Source: authors of article

Table 4 - Handing over the business to the next generation – Polish family business (in % of respondents).

Handover complete	Handover is planned	Handover isnot planned	No answer (do not know)
31,9	**26,4**	**37,5**	**4,2**

Source: authors of article based on Z. Mikoláš, J. Karpeta (research VŠPP Praha, 2017)

Fundamental differences in the reasons for non-continuity of business within the family were identified only when the founder (owner) was indifferent to the idea. Almost one third of Czech family businesses did not take any steps to solve the problem of succession even though followers existed, whereas Polish family businesses did not seek to solve this problem only when there were followers.

Threats to the continuation of family business by next generations are further underlined by the findings from the two countries where a considerable lack of interest was identified in the follow-up of the family business. In more detail, these conclusions are documented in summary tables 3 and 4.

Table 5 - Reasons for non-transfer of Czech family business (in % of respondents).

Comapny has no followers	Owner has no interest to hand over the business	Follower is not interested in taking over (incompetence)	Other reasons
9,5	**18,1**	**54,3**	**18,1**

Source: authors of article

Table 6 - Reasons for non-transfer of Polish family business (in % of respondents).

Comapny has no followers	Owner has no interest to hand over the business	Follower is not interested in taking over (incompetence)	Other reasons
14,8	**0**	**59,3**	**29,9**

Source: authors of article based on Z. Mikoláš, J. Karpeta (research VŠPP Praha, 2017)

From the above – mentioned, it is clear that family business is a significant phenomenon in the Euroregion of Upper Silesia, especially in Těšín Silesia, both in the territory of Poland and in the territory of the Czech Republic. Many characteristics confirm the influence of Central Slavonic culture. We see consensus in the Czech Republic, Poland and Slovakia (especially in the district of Čadca). The need for family business development is not only due to the internal factors of individual Central European states. A new phenomenon is also migration to Europe from countries where family and family relationships are of great importance. The phenomenon of family business in the Czech Republic could be easily seen especially after 1990 within the Vietnamese community. Their mutual solidarity, diligence, activity, entrepreneurship, the engagement of a wider family (not just direct relatives), etc., are a demonstration of the difference between the "standard" small and medium-sized firm and the family business.

The specific development of the Czech part of Těšín Silesia after 1990 contributed to the establishment and development of very large multinational family businesses. It is possible to clearly identify the companies' crucial influence on the identity of the region in which they operate, in all its parts of the idea, totem, design, rituals or innovations.

These are the family businesses:

- **HMMC Nošovice**, member of Hyundai Motor Group, controled by the South Korean tycoon *Chung Mong - koo* and his family (the founder of the family business clan was his father *Chung Ju - jung*)

- **Moravia Steel**, **Třinec**, a group of businesses controled by the family of **Tomáš Chrenek** (of Slovak nationality)

- **Walmark**, **Třinec**, corpporation founded by three brothers - *Walachovi* (of Polish nationality), since 2015 the company has been owned by the fund Miol Europe

- **Marlenka international**, **Frýdek-Místek**, company founded and owned by the Armenian *Gevorg Avestisjan*.

It is paradoxical that these companies, although important for the development of the region, are *not typical representatives of the historical identity of Těšín Silesia.* On the other hand, they ascertain the national openness (multicultural character) of the region.

By field research, however, a typical family was found, connecting both parts of Těšín Silesia (Polish and Czech parts), developing a family business and strengthening the identity of the region. It is a family business called **MOKATE** and the *Mokrysz* family. The family is active in Poland, the Czech Republic, Slovakia, Hungary, Italy and other countries, such as the Middle East. Part of the group is also the Family Company Foundation and other organizational units.[3]

5 Conclusion

Long-term research at VŠPP demonstrates the irreplaceable importance of family business not only for the economic development of countries and regions, but also has a significant impact on social and cultural development, on the creation of identity and integrity of regions and on the formation of a business layer connected to the region. The importance of the Mokrysz family for the development of Těšín Silesia can be compared to that of the Baťa family for the Zlín region in the Czech Republic. At the same time, common problems of both Czech and Polish companies were identified in succession, which in many cases does not occur and the continuity of the positive influence of the family business on the region and its development can be interrupted. Therefore, it is necessary to continue to initiate legislative processes in the individual EU states, as this area of economic and social development (family business in the border area) is largely underestimated.

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[3]The following are fragments from the MOKATE website as well as findings from our visit of the Ustron plant and interviews with company staff.

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Research Potential of Czech and Polish NUTS2 Regions

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Abstract
Research and innovation potential plays a key role in the generation of new knowledge, products and technological processes. The paper deals with the role and position of scientific and research policy and the research potential of Czech and Polish NUTS2 regions. Based on selected indicators of research and development (Intramural R&D expenditure by sectors of performance, human resources in science and technology, researchers by all sectors and employment in high-tech sectors) over the period 2011-2015, an analysis and evaluation of research and innovation potential of Czech and Polish NUTS2 regions was carried out. As regards the research potential, Prague and South-east in the Czech Republic and Mazowieckie in Poland have a dominant position. Results of the testing of correlations between research and development indicators, using correlation analysis, prove a stronger correlation of R&D in Czech NUTS2 regions, compared to Polish NUTS2 regions over the period 2011-2015, in particular between 1) intramural R&D expenditure by sectors of performance and human resources in science and technology and 2) intramural R&D expenditure by sectors of performance and employment in high-tech sectors.

Keywords: Czech regions, Polish regions, potential, research

JEL Classification: H72, O32, R58

1 Introduction

Science, research, development, and innovation are among significant sources of economic growth and social well-being. Research and development (R&D) is systematic, creative work performed to extend current knowledge, including the knowledge of people, culture and society, acquisition of new knowledge or its application. The condition for a successful development of innovative and science-research environment is strong cooperation among institutions with a high involvement of the public sector (research laboratories, universities, research institutes and other workplaces, business incubators), which show signs of synthetic knowledge bases with business entities. However, innovative potential of regions does not only include the state of R&D capacities of the public and enterprise area, but it is also necessary to investigate broader connections of the emergence of innovations, which include changes to organization and implementation of R&D and change to the system of public financing of innovation activities. Innovative and research potential is dealt with not only on the regional and national level, but also in the European dimension. Efficiency in the R&D sector on the regional level of the EU is dealt with by Aristovnik (2014). Other authors (Hudec, Prochadzkova 2015) evaluated innovation performance and efficiency of the Visegrad countries. Research and innovation potential on the

regional level in the Czech Republic is dealt with, among others, by Matatková, Stejskal (2013); Kovacsová (2014) or Winklerová (2016), in Poland, for instance, Golejewska, Czyzewska-Misztal (2016); Breznitz, Ornston (2017) and in EU countries Roszko-Wójtowicz, Białek (2017).

The paper aims to evaluated research potential in Czech and Polish NUTS2 regions over the period 2011-2015, on the basis of a theoretical empirical approach. The evaluation is using from a comparative analysis, and mutual relations of R&D indicators in Czech and Polish NUTS2 regions is observed by means of correlation analysis.

1.1 NUTS 2 Regions and Development of Research and Innovation Potential

NUTS (Nomenclature des Unités territoriales statistiques) are territorial units generated for statistical purposes, established by Eurostat in 1988 for statistical needs, for comparison and analysis of economic indicators, statistical monitoring, preparation, implementation and evaluation of regional policy of EU countries and for the use of resources of the EU. A three-level hierarchical NUTS classification applies in the EU, which divides the EU member states into a series of regions at the NUTS1 level (Halásková 2014, Nahtigal 2013). Cohesion regions (NUTS2) represent an elementary statistical unit for the calculation of GDP indicator per citizen, and serves as the basis for support from structural funds and the cohesion fund. By expressing GDP in the purchasing power parity (PPP), differences in prices between countries (regions) are eliminated. Regional analyses and current questions related to NUTS2 are dealt with by numerous authors. Kacperski (2015) addresses crucial problem of territorial subdivision of Poland into NUTS. In the period 2007-2013, Mazowieckie Voivodship was in the group of less developed regions, while in the next financial perspective 2014-2020 it is classified as a more developed region. The author solves statistical division of the region into two separate units NUTS2 after 2020 would allow these regions to qualify for two different categories of wealth: a more developed region (Warsaw metropolitan area) and a less developed region (the remaining part of the Mazowieckie Voivodship). Other authors (Gavurová, Vagasová, Kovac, 2016) focus on competitiveness of regions, where a number of factors, including science, research and innovation environment play a significant role. Nevima, Majerová (2016) solve the issue of alternative access towards evaluating of competitiveness of NUTS2 regions in the Czech Republic and Poland. The authors show a detailed view of regional competitiveness of regions by way of quantitative characteristic which can lead to a more precise definition of the reached competitiveness of NUTS2 regional units in the European Union. Zdražil, Kraftová (2012) present the results of regional analysis of the Visegrad group states (V4) on the NUTS2 level and rate the extent of their convergence/divergence. The authors have created an evaluation classification model, which uses selected indicators of economic performance, economic resources usage rate and growth potential. Melecký, Staníčková (2015) concentrate on the evaluation of V4 NUTS2 regions' efficiency within the framework of CCR input oriented model and comparison of the level of competitive potential of V4 NUTS2 regions in included. In connection with competitiveness and research potential of the regions, it is also necessary to take into account factors that influence the assessment of their sustainability (Drastichová, 2015).

Current topics of innovation and research potential, specifics and differentiation in R&D on the regional level and the role of innovative environment in the Czech Republic are dealt with by, among others, Klímová (2013); Drahošová, Bednář (2014); Kovacsová (2014) or Winklerová (2016). Matatkova, Stejskal (2013) summarise the findings regarding knowledge and the innovation environment that public authorities can support in the form of regional innovation systems (RIS) and the authors also suggest a novel method for increasing the efficiency of public financial support. Czyzewska-Misztal, Golejewska (2016) evaluate research potential and innovation in Polish regions in relation to innovation strategy within the time frame 2014-2020. The more closely concentrate mainly on less innovative regions in the process of smart specialization and on their progress for improvement. Other authors, e.g. Hudec, Prochadzkova (2015) underline the differences between efficiency of their research and innovation systems, innovation performance and efficiency of the Visegrad countries (Czech Republic, Hungary, Poland and Slovakia) as well as their regions. The authors show a substantial difference in case commonly evaluated innovation performance is replaced by the efficiency. Except the capital regions, there are several Polish and Czech regions which belong to the most efficient in innovation in the Visegrad regional comparison: Lodzkie, Lesser Poland, Central Moravia and South East Moravia.

2 Material and Methods

The paper is based on Eurostat data (Statistic on research and development at regional level NUTS2) as the average of the period 2011-2015. The selected set comprises a total of 24 NUTS2 regions, i.e. eight Czech regions (Praha- CZ01, Střední Čechy- CZ02, Jihozápad- CZ03, Severozápad- CZ04, Severovýchod- CZ05, Jihovýchod CZ06, Střední Morava- CZ07, Moravskoslezsko- CZ08) and 16 Polish regions (Lódzkie- PL11, Mazowieckie – PL12, Malopolskie – PL21, Slaskie- PL22, Lubelskie- PL31, Podkarpackie – PL32, Swietokrzyskie – PL33, Podlaskie – PL34, Wielkopolskie - PL 41, Zachodniopomorskie – PL42, Lubuskie – PL43, Dolnoslaskie – PL51, Opolskie – PL52 , Kujawsko-Pomorskie - PL61, Warminsko-Mazurskie – PL62, Pomorskie – PL63). The paper applies a document analysis in the reviewing of literature on NUTS2 regions and

their research potential. Research potential in Czech and Polish cohesion regions is evaluated based on selected R&D indicators (Intramural R&D expenditure by sectors of performance (GERD) % of GDP, human resources in science and technology-HRST % of active population, researchers, full-time equivalent (FTE) by all sectors % of total employment and employment in high-tech sectors % of total employment) as the average of the period 2011-2015.

The comparison of indicators of research potential is performed using comparative analysis, and mutual relations of R&D indicators between Czech and Polish NUTS2 regions is performed with correlation analysis. Correlation analysis aims to determine the intensity of the linear correlation between X and Y. These are observed in *n* statistical units, and the results are demonstrated in point diagram, where each observed pair *(x_i, y_i)* is shown as a point in rectangular coordinates, with *X located on the horizontal axis and Y* on the vertical axis. The points then comprise a set which demonstrates characteristic features of correlations of both areas (Lynch, 2013). Correlation analysis was used in the research by Slavata (2015). In the present study, Pearson's correlation coefficient is unsuitable, but Kendall's correlation coefficient (Kendall's tau- t_k). It expresses the difference between the probability that value of two variables follow in the same order, and the probability that they are not.

Kendall's coefficient tau is calculated as:

$$t_k = S/D = P-Q/D \qquad (1)$$

where denominator D is the maximum possible number of concordances (discordances) and has the value n(n-1)/2 (see Hendl, 2012, p. 271). Based on the Shapiro-Wilk normality test, p-values are lower than the standard significance level (0.05) and the data do not have a normal distribution (table 1).

Table 1- Levels of significance for data normality test.

Indicators	GERD % of GDP	HRST % of active population	Employment in high-tech sectors % of total employment	Researchers (FTE) % of total employment
p. value	0.0107*	8.4e-05***	0.013*	5.47e-06***

Note: * coefficient is significant in the interval (0.05- 0.01) (in the two-tailed test).
     *** coefficient is significant in the interval *lower than* 0.001 (in the two-tailed test)
Source: Authors calculation

3 Results and Discussion

This section deals with Czech and Polish NUTS2 regions and the analysis of their research potential on the basis of selected R&D indicators over the period 2011-2015. Correlation analysis also observed mutual relations between R&D in Czech and Polish regions and aggregately in all regions.

3.1 Analysis of Research Potential in Czech and Polish NUTS 2 Regions

The Czech Republic comprises 8 and Poland 16 NUTS2 cohesion regions, which were compared by GDP per capita in terms of purchasing power parity (PPP), depicted in Figure 1. By Eurostat news release (2014), Prague (Czech Republic) is among the 20 regions with the highest GDP per capita in PPP in the EU (28). By contrast, Polish regions (Lubelskie, Podkarpackie, Swietokrzyskie, Podlaskie, Warminsko-Mazurskie) are among the 20 regions with the lowest GDP per capital in PPP Apart from Prague, which represents an outlier, also Střední Čechy and Jihovýchod in the Czech Republic, and Mazowieckie and Dolnoslaskie in Poland, are among the regions with the highest GDP.

Figure 1- GDP per capita in Czech and Polish NUTS2 regions in year 2011 (in PPP, EU28= 100). Source: Authors according to Eurostat news release (2014).
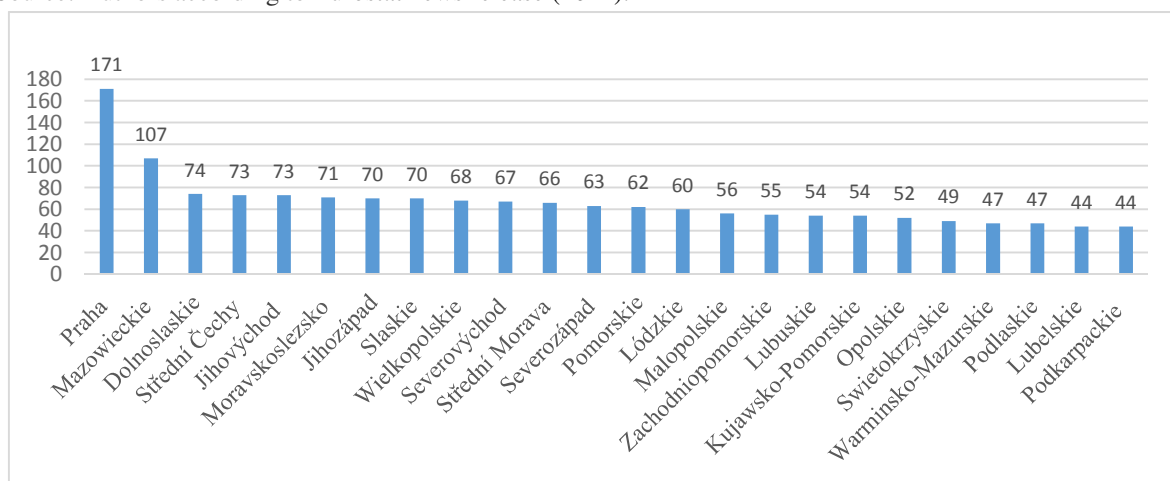
The analysis and evaluation of research potential in Czech and Polish NUTS2 regions over the period 2011-2015 is performed with four R&D indicators (Intramural R&D expenditure by sectors of performance (GEDR) % of GDP, human resources in science and technology-HRST % of active population, researchers (FTE) by all sector % of total employment and employment in high-tech sectors % of total employment). Total expenditure on R&D is all common and capital (investment) expenditure allocated over the analysed year on research and development performed within the analysed region, regardless of the resource or form of financing (OECD 2015). Expenditure on R&D enable view on innovation capacity of the region and its evaluation in generation of new knowledge and use of the outcomes of R&D. The higher this expenditure is, the better conditions are created for growth and strengthening of innovation potential of a region. R&D expenditure is dealt with in numerous studies, e.g. Gardocka-Jalowiec (2012) assesses R&D activities and the structure of R&D expenditure in Poland in comparison to EU27 states. Another author Szarowska (2016) quantifies the effect of public R&D expenditure on economic growth in selected Central and Eastern European countries, focusing on the Czech Republic and Poland.

Apart from total expenditure, another significant indicator of R&D are human resources. Employees in R&D are not only researchers focusing on R&D, but also all people who work on R&D workplace (helping, technical, specialized, administrative and other staff). According to the OECD (2015), the number of R&D employees is usually expressed (measured) as the number of natural persons, whereby this indicator gives an idea about the number of people partially or fully involved in R&D activities. For the purposes of national and international comparison, the most frequently applied indicator is the recalculated number of persons in R&D (FTE). Employment in the high-tech sector is then an output indicator which shows the employment in high-tech sectors (code HTC) as percentage of total employment according to sectoral approach at NACE Rev. 2 and is oriented on the ration of highly qualified staff in these areas. In the present case, R&D indicators in Czech and Polish NUTS2 regions over the period 2011-2015 are compared (see Table 2).

Table 2- Indicators of research potential of Czech and Polish NUTS2 regions over the period 2011-2015.

Regions NUTS II	GERD % of GDP	HRST % of active population	Employment % of total employment	Researchers (FTE) % of total employment
CZ01	2.626	57.2	8.5	2.043
CZ02	1.794	36.42	4.86	0.5022
CZ03	1.53	32.74	3.3	0.4149
CZ04	0.362	27.74	2.06	0.1074
CZ05	1.408	32.34	4.48	0.4471
CZ06	2.626	37.1	5.18	0.9011
CZ07	1.352	31.2	3.7	0.4838
CZ08	1.176	31.96	3.48	0.4104
PL11	0.678	34.78	2.96	0.3176
PL12	1.546	46.94	5.74	0.8241
PL21	1.296	36.98	3.06	0.7759

PL22	0.588	39.94	2.34	0.3465
PL31	0.866	34.82	1.5	0.3126
PL32	1.158	32.56	1.4	0.3954
PL33	0.392	32.2	1	0.1409
PL34	0.536	35.02	1.4	0.3119
PL41	0.7	34.04	1.96	0.362
PL42	0.322	35.62	1.7	0.3111
PL43	0.204	33.44	2.225	0.1777
PL51	0.694	38.78	4.26	0.5737
PL52	0.266	32.88	1.567	0.224
PL61	0.36	31.36	2.06	0.311
PL62	0.38	33.18	1.225	0.2403
PL63	0.984	38.66	3.98	0.5437

Source: Authors calculation according to Eurostat (2018).

Table 2 makes it clear that the dominant position from the Czech regions in terms of the research potential is seen in Praha (CZ01) and Jihovýchod (CZ06) and from Polish regions Mazowieckie (PL12). By contrast, a low research potential was found on the basis of the selected indicators over the observed period in the region Severozápad (CZ04) and Swietokrzyskie (PL33). Comparing the NUTS2 regions be R&D indicators over the period 2011-2015, it can be said that the highest intramural R&D expenditure (GERD) as % of GDP was reached by Praha (CZ01) and Jihovýchod (CZ06) in the Czech Republic, and Mazowieckie (PL12) and Malopolskie (PL21) in Poland. The comparison makes it clear that R&D expenditure in Polish regions is markedly higher than R&D expenditure in Czech regions. The lowest intramural R&D expenditure and innovation performance is seen in Polish regions of Lubuskie (PL43) and Opolskie (PL52), and the Czech region of Severozápad (CZ04). In the Severozápad region, higher R&D expenditure were found compared to Polish regions with the lowest expenditure (Lubuskie and Opolskie), by approximately 0.1% GDP. R&D expenditure in the Severozápad region are comparable to four Polish regions: Kujawsko-Pomorskie (PL61), Warminsko-Mazurskie (PL62), Swietokrzyskie (PL33) and Zachodniopomorskie (PL42) (see Table 2). Similar results were also obtained in other pieces of research (e.g. Halásková 2014), when among NUTS2 regions with the highest expenditure on R&D were found Praha and Mazowieckie. Among regions with the lowest expenditure on R&D were, just as in the present research, found Lubuskie, Opolskie and Severozápad.

The comparison of human resources in science and technology (HRST) as % of active population (Table 2) showed that the most significant representation is seen in the Praha region (CZ01), followed by two Polish regions of Mazowieckie (PL12) and Slaskie (PL22). On the contrary, a very small representation and development of human resources in science and technology were found in the regions of Severozápad (CZ04), Střední Morava (CZ07) and Polish regions Kujawsko-Pomorskie (PL61), Swietokrzyskie (PL33), Podkarpackie (PL32) and Opolskie (PL52). Similarly, a strong share of total researchers (in all sector performance) % of total employment is concentrated mainly in big centres and capital cities, i.e. Praha (CZ01) and Jihovýchod (CZ06) and Polish regions Mazowieckie (PL12) and Malopolskie (PL21), which also constitute the main concentration of research and development and centres of employment. In the remaining observed Czech and Polish NUTS2 regions, with some exceptions, the representation of researchers is fairly small. Polish NUTS2 regions are not characterised by such marked disparities in the share of researchers on total employment, which can be explained by a more balanced concentration of science and research centres. This fact is also corroborated by other studies dealing with NUTS2 regions in the evaluation of R&D (Aristovnik 2014, Halásková 2014) or in connection with the evaluation of competitiveness and solving disparities, e.g. Eurostat news release (2014; Nahtigal, (2013); Zdražil, Kraftová (2012) or Nevima, Majerová (2016). The evaluation of the employment in high-tech sectors as % of total employment showed that the highest share is again seen in regions with the main concentration of R&D, namely Praha (CZ01) and Jihovýchod (CZ06) in the Czech Republic, and Mazowieckie (PL12) in Poland. In the majority of Polish regions, quite a small share of employment in high-tech sectors was observed over the given period (1-2% of total employment).

3.3 Evaluation of Research Potential in Czech and Polish NUTS Regions with the Application of Correlation Analysis

In the present section, research potential in Czech and Polish regions is evaluated on the basis of selected R&D indicators (GERD % of GDP, HRST % of active population, Employment in high-tech sectors % of total employment, Researchers (FTE) in all sectors % of total employment) with the application of correlation

analysis and Kendall's tau (t_k). Correlations between R&D indicators at the regional level (NUTS2) in the EU was tested, for instance, by Aristovnik (2014, p. 525). In the present study, correlations between research-potential indicators over the period 2011-2015 are observed in Czech NUTS2 regions (Table 3), in Polish NUTS2 regions (Table 4), and aggregately in Polish and Czech NUTS2 regions (Table 5).

Table 3 - Correlations between R&D indicators in Czech NUTS2 regions (2011-2015).

	GERD % of GDP	HRST % of active population	Employment in high-tech sectors % of total employment	Researchers (FTE) % of total employment
GERD % of GDP	1	0.909 **	0.764**	0.764**
HRST % of active population	0.909 **	1	0.714*	0.714*
Employment in high-tech sectors % of total employment	0.764 **	0.714 *	1	0.857 **
Researchers (FTE) % of total employment	0.764 **	0.714*	0.857 **	1

Note: * coefficient is significant in the interval (0.05- 0.01) (in the two-tailed test).
       ** coefficient is significant in the interval (0.01-0.001) (in the two-tailed test)
Source: Authors calculation

Correlation analysis using Kendall's tau confirmed a strong, statistically significant correlation in Czech NUTS2 regions, with $p < (0.01- 0.001)$ between input indicators of research potential 1) HRST% of active population and GERD% of GDP and 2) researchers (FTE) % of total employment and GERD % of GDP. Another statistically significant correlation was found in indicators of input and output research potential a) GERD % of GDP and Employment in high-tech sectors as % of total employment and b) between researchers (FTE) % of total employment and Employment in high-tech sectors % of total employment (see Table 3).

A strong, statistically significant correlation was found in correlations between R&D indicators in Polish NUTS2 regions (Table 4) with $p < 0.001$ between input indicators, i.e. researchers (FTE) % of total employment and GERD% of GDP. Another statistically significant correlation was found in $p < (0.01- 0.001)$ in input and output indicators of research potential a) HRST % of active population and employment in high-tech sectors % of total employment and b) researchers (FTE) % of total employment and employment in high-tech sectors % of total employment.

Table 4 - Correlations between R&D indicators in Polish NUTS2 regions (2011-2015).

	GERD % of GDP	HRST % of active population	Employment in high-tech sectors % of total employment	Researchers (FTE) % of total employment
GERD % of GDP	1	0.333	0.293	0.717***
HRST % of active population	0.333	1	0.544**	0.483**
Employment in high-tech sectors % of total employment	0.293	0.544**	1	0.51**
Researchers (FTE) % of total employment	0.717***	0.483**	0.51**	1

Note: ** coefficient is significant in the interval (0.01-0.001) (in the two-tailed test)
       *** coefficient is significant in the interval *lower than* 0.001 (in the two-tailed test)
Source: Authors calculation

Comparing mutual relations between R&D indicators in Czech and Polish NUTS2 regions over the period 2011-2015, it can be said that a strong, statistically significant correlation is present in $p < 0.001$ between input indicators of researchers (FTE) % of total employment and GERD % of GDP. Another strong, statistically significant correlation with $p < 0.001$ was confirmed between input and output indicators of research potential a) researchers (FTE) and employment in high-tech sectors as % of total employment and b) GERD % of GDP and employment in high-tech sectors % of total employment (Table 5).

Table 5 – Correlations between R&D indicators in Czech and Polish NUTS 2 regions (2011-2015).

	GERD % of GDP	HRST % of active population	Employment in high-tech sectors % of total employment	Researchers (FTE) % of total employment
GERD % of GDP	1	0.221	0.55***	0.715***
HRST % of active population	0.221	1	0.313*	0.406**
Employment in high-tech sectors % of total employment	0.55***	0.313*	1	0.64***
Researchers (FTE) % of total employment	0.715***	0.406**	0.64***	1

Note: * coefficient is significant in the interval (0.05- 0.01) (in the two-tailed test).

   ** coefficient is significant in the interval (0.01-0.001) (in the two-tailed test)

   *** coefficient is significant in the interval *lower than* 0.001 (in the two-tailed test)

Source: Authors calculation

Results of the testing of mutual relations between research and development indicators, using correlation analysis, prove a stronger correlation of R&D in Czech NUTS2 regions, compared to Polish NUTS2 regions over the period 2011-2015, in particular between intramural R&D expenditure % of GDP and human resources in science and technology as % of active population; and intramural R&D expenditure as % of GDP and employment in high-tech sectors as % of total employment. Also, strong correlations between researchers (FTE) as % of total employment and employment in high-tech sectors % of total employment in Czech regions compared to Polish regions were found.

4 Conclusion

For a successful development of regions, it is necessary to create conditions for research and innovation potential. The evaluation of research potential on the basis of selected R&D indicators in Czech and Polish NUTS2 regions over the period 2011-2015, a dominant position of Praha and Jihovýchod, and Mazowieckie regions was found. These regions are characterised by the highest intramural R&D expenditure as % of GDP, the representation of human resources in science and technology of active population, the highest share of researchers (FTE) of total employment, and the also have the highest share of employment in high-tech sectors of total employment. By contrast, a very small research potential was found, over the observed period, in the regions Severozápad and Swietokrzyskie. Results of the testing of correlations between research and development indicators, using correlation analysis, proved a stronger correlation of R&D in Czech NUTS2 regions, compared to Polish NUTS2 regions over the period 2011-2015. The strongest correlation of R&D indicators in Czech regions were found between human resources in science and technology as % of active population and intramural R&D expenditure % of GDP; and researchers (FTE) and employment in high-tech sectors % of total employment. In Polish regions, the strongest correlations of R&D indicators were found between researchers (FTE) as % of total employment and intramural R&D expenditure as % of GDP; and human resources in science and technology as % of active population and employment in high-tech sectors % of total employment. In conclusion, it can be said that in connection with the extensive issue of Czech and Polish NUTS2 regions and the possibilities of evaluating the research potential, plenty of questions remain unanswered, which can serve as a topic for further research.

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The Communication in Social Media

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Abstract

New sources of enterprises' market success can be traced back to changes in information technology, communication, and consumer habits. The new forms of communications are now emerging with the assist of consumers in Internet. Contemporary consumers have a real and ever-increasing influence on the functioning of enterprises; they have become co-authors in the Internet-space. This way the enterprises which build relationships acquire knowledge, experience, and even the abilities of their consumers to realize specific strategic goals. The Internet allows them to communicate easy and gain a vast amount of information about businesses and brands, opinions about the products or services. The emergence of the Internet-space and the growing number of virtual communities has influenced two key factors in the marketing approach, including issues related to relationship building and consumers' decisions. Enterprises use this knowledge and increasingly transforms the market, the way transactions are made, and fulfillment of social expectations. The principal objective of article is to present ways of engaging consumers - Internet users in building content of communication in social media and examples of social media.

Keywords: communication, Internet, relationship, social media

JEL Classification: M300, M310, O350

1 Introduction

New sources of enterprises' market success can be traced back to changes in information technology, communication, and consumer habits. The Internet as a specific technological achievement brings together billions of users and influences the way they communicate on various platforms of information exchange, transactions and distribution of goods. It is an instrument that connects the whole world, and its use in various areas of life makes it a technology that generates innovations and new community groups. Those groups operate in unusual conditions of management using modern technologies and a huge participation of consumers. Consumer behavior has revolutionized, and the way enterprises communicate with them or generally with the market, has changed radically. The elements of the relationships built by enterprises now migrate from the traditional (real) market to the virtual market. The sphere of communication with the environment will inevitably move to the network. Such changes require different than traditional principles and communication tools, and the communication process itself will be the foundation of the new company management.

The influence of many factors that make up these relationships has changed over the Internet, and dependencies and attachments to users of network-stakeholders who belong to a specific community become important. The Internet not only enables them to communicate, but also brings them closer together within specific groups of virtual communities. For many companies and consumers, creating such communities is extremely important. Therefore, in recent years there has been a clear transition in communication between the company and its stakeholders to the network: social media, search engines, discussion forums and blogosphere, where companies and their products are constantly observed, evaluated and commented on. In this new environment, power is exercised by Internet users representing customers, employees, investors, suppliers, local communities and other key stakeholders. Whats important, online communities operate according to a completely different logic -

network logic, which manifests itself in the structure of many connections between people, organizations and products that enables peer-to-peer contact, real-time processes and, as a result, information symmetry (Płoszajski 2012, p. 13). Such an environment requires different from traditional principles and tools of communication, most of which managers probably do not realize, completely ignoring changes, or noting them, trying to apply the existing rules of the game, which in this new environment are not working. The article aims to demonstrate the need to introduce new forms of marketing communication in the Internet space, including social media, show ways to build a positive image in the context of social media specificity and to capture the opportunities and threats associated with this new environment of business activities.

2 Communication in the Enterprise

It can be assumed that the basic forms of marketing presentation, which companies use when addressing their stakeholders, include organizational culture (behavior and symbolism) and communication (Van Riel, Fombrun 2007, p. 67). The most important form are the company's activities, expressed in organizational culture, policies, strategies, processes, regulations and structures, because the behavior (what the company actually does) is the most credible key for the environment to read its identity and shape its reputation. The second important element is communication, which can be defined narrowly or broadly - according to some authors, communication of the company covers everything that organization says, does and in any way communicates to the environment. This is called "overall communication". The holistic approach to communication is consistent with the types of information that shape people's ideas about the enterprise. Information types cover three levels (Van Riel, Fombrun 2007, p. 46):

1. the first level is information based on personal experience (e.g. with the company's products, its representatives, events initiated by it),

2. the second level includes information (about products or the company itself) based on the opinions of family, friends or acquaintances,

3. the third level is information obtained from the media (advertising, publicity).

Undoubtedly, the first level of information has the greatest impact on shaping of the company's relations, but they are usually the smallest part of the entire set of information and impulses that reaches people. In fact, our opinions about many companies are shaped mainly by what our friends say about them or what we learn about them from various types of media. Therefore, companies put a lot of effort into making information about their activities or products present in the social media. Therefore, from the point of view of shaping reputation, the great importance have organizational communication (PR, public affairs, sponsoring, corporate advertising, internal communication) and marketing (advertising and promotion of products, whisper marketing, viral marketing).

The sphere of communication between the enterprise and the environment will move to the Internet. The dynamic development of social networks results mainly from specific features of the Internet, which distinguish it from other media. Global reach, high availability, interactivity, variety of media forms and speed of communication make the Internet an inseparable medium for the communication of most organizations with the environment. Meanwhile, it seems that most managers still do not realize that their companies, products or behaviors are subject to careful observation, comments and evaluations in this virtual world - every day someone writes about them on blogs, forums, websites, and these assessments and comments once posted live there almost forever. The company's communication with the environment aimed at creating a positive image has so far assumed that the other side of the dialogue are various stakeholders that are institutions, that is formal, real structures that somebody directs, which formulate specific demands and with which it is possible to negotiate. The system of many relations and the emergence of network structures (Karaś 2017, p. 108), in which the distance does not matter, changed the environment in a fundamental way.

First of all, even a single person - usually a customer - offers the strength with which every, even the largest, company must count. Secondly, the essence of social behaviors represented by dispersed online communities are equipped with the peer-to-peer mechanism in real time acting (Płoszajski 2012, p. 15). Their essence is the lack of central, imposed control, high autonomy of network users and components, network, non-linear causality of mutual interaction between elements (Karaś 2017, pp. 108-109). This means that online communities can operate very efficiently without a predetermined goal, or rather with high liquidity of these goals, without hierarchy and without leadership, and yet have a very high self-organization capacity. Such a defined community represents a collective stakeholder, completely changing the principles of building the relationship between them and the company. First of all, they require openness and honesty and reliability. Secondly, they demand acceptance for being constantly assessed and criticized, giving consumers a decision about what is right and willingness to accept this decision regardless of its rationality. Thirdly, accepting the much bigger difficulty of such a dialogue compared to institutional stakeholders.

3 Forms and Methods of Communication Used in Social Media

A. Kaplan and M. Haenlein define social media as "a group of web-based application solutions that rely on the ideological and technological foundations of Web 2.0 and which enable the creation and exchange of user-generated content" (Kaplan, Haenlein 2010, p. 59). The term social media contains two words – social and media in order to describe and understand meaning of the whole. "Social can be described as a group of people with relations between them while media can be described as an instrument with the purpose to provide communication. By putting these two words together, we get, that social media is an instrument of on-line communication between people (users of social media). These people can create information, share and exchange them with other users in specific places such as networks or in general virtual communities. Social media affects our everyday personal or business life" (Pavlicek, Doucek 2015).

At present, it is believed that efficient communication of enterprises with their stakeholders using social media is the basis for shaping the company's good reputation. The role played by social media in this area can be better understood thanks to a slightly different perspective on the types of media that are available to the company in this respect, namely: own media, commercial media and earned media. The own media are media in which the content and form of communication is controlled by the company, which include, for example: the official website, original blog or company profile on Facebook. The commercial media are traditional media like press, radio, TV or billboards used in advertising or sponsorship.

The commercial media are media in which the company's stakeholders - mostly customers - are the authors of the information or comments. The essence of these media is the creation of such content that is readily reproduced on other websites, blogs and is generally easily spread on social media. They are undoubtedly the most difficult to master, because they remain completely independent of the company, but have the greatest impact on the reputation of the company as the most reliable. These media are today the strongest and most influential medium of communication, because they possess all the features necessary for effective online information exchange: simplicity, honesty, trust in the sender, openness, impartiality, etc. Positive opinions and comments in the earned media are the most valuable for smaller companies that do not have well known brands of products.

As a new medium, the Internet has brought new promotional techniques, giving companies interesting from their point of view opportunities of reaching the larger group of customers, employees or representatives of public opinion. These include: viral advertising, word-of-mouth marketing (WoMM), webmarketing (SEO), Web 2.0 marketing, e-mail marketing, e-branding and e-CRM (Budzyński 2008, pp. 184-189). All these listed concepts can be used on the Internet in creating and monitoring the image of a company, brand or specific product on the web.

Managing relationships in the Internet requires creating a comprehensive online communication strategy, taking into account both the company's activities, such as running a company website or company blog, usual positioning of the company's own or product website, constant monitoring of entries (or other content) appearing on the Internet about the company or its brands (and proper response to them), as well as the development of scenarios in the event of crises. Internet monitoring allows to gain up-to-date knowledge about how a company is perceived by current or potential customers, employees, business partners, public opinion, etc. It also allows responding quickly when an inappropriate communication occurs on one of the Internet communication channels, or conflict situation appears, which could turn into a serious crisis or loss of public trust. Activities the most commonly used by companies in the network are the following:

- Reading comments posted on forums and social networks.
- Running a company website on a social network where internet users can ask questions.
- Emergency contact and distribution of information to people who write about the brand, e.g. on the micro blog.
- Constant contacts with bloggers writing about products / services.
- Running a company blog.
- Creating company video clips.
- Creating behavioral and contextual ads.
- Sponsoring websites, e.g. for files downloading.
- Creating groups on social networks.
- Sponsoring of blogs.

- Joining friends on a social network.

The most commonly undertaken activity in the network is running a site on a social network. This is confirmed by the fact that 60% of Fortune 100 companies use social networking sites (as well as microblogs and blogs) in their promotional campaigns. Effective communication of the company through social media arouses great interest of marketing specialists and is currently considered to be an image-building success. Most social media companies are mainly used to increase the awareness of the company/product and create positive associations with the company/brand among consumers (social media are tools that support sales only to 25% of respondents).

The observed for several years trend of the wider use of social media for activities that build the company's reputation results from the huge potential of this communication channel, consisting of the ability to mobilize and engage crowds of Internet users around a given idea, initiative, brand or company.

4 Communication of Polish Companies in Social Media

Polish companies focus their activity mainly on two websites, namely on Facebook and YouTube, as the most popular among domestic Internet users. The market leader and the first social network that crossed the magic threshold of a billion registered users is Facebook, which is generally used by nearly 2.2 billion active users per month. There are nearly 21.5 million Internet users in Poland, and 2.196 million Internet users use Facebook (according to Gemius, PBI from 10th July 2018). The second place on the podium, with 1.9 billion users, is taken by YouTube, which according to the above-mentioned PBI data from 10th July 2018 is already used by almost 19.5 million Polish Internet users. The third place with 1.5 billion users belongs to WhatsApp (Raport Social Press 2018).

In Poland, there is a clear trend of growth in the number of social media users and communicators through phones, in the last year it was a 20% increase in population. The most popular social media are Facebook and YouTube, Poles use it much more willingly than the average users in the world. Almost 60-64% of network users in Poland use at least once a day Facebook or YouTube, while on average in the world declared it to 45.7% respondents. According to the Gemius study, these websites are at the forefront of their category in Poland. The ranking of the most common social media that is used, at least once daily, is following (Global Web Index 2016):

- You Tube   64%
- Facebook   62%
- Google+   33%
- Fb Messenger   32%
- Skype   25%
- Twitter   24%

In Poland, however, there is a low interest in using the WhatsApp communicator. According to the study, it is used by 38% of people globally, while in Poland only by 11%. The communication application taken over by Facebook has never gained much popularity in Poland, and Poles prefer to chat with FB Messenger (Global Web Index 2016).

We could compare same general information about markets in Poland and Czech Republic. "In 2014, the Internet penetration with 78% of households online put the Czech Republic, a country of 10.5 million, slightly below the EU28 average of 81%. These figures demonstrate gradual catching-up on the part of the Czech Republic, which has reduced the gap from 9% in 2006 to mere 3% nowadays" (Hladik, Štětka 2015). In Poland access to Internet in households have been declared by 80.4% of users (Rajchel 2017, p.128), it is the average level for EU countries. „Although in terms of the general Internet infrastructure the Czech Republic has been, until very recently, perceived as an underperformer, social media have quickly become a popular online service. In 2013, a representative survey on Czech adult population reported an increase in the number of Internet users (68.6 % of adults), more than half of which (65.8%) claim to use social networking sites" (Hladik, Štětka 2015). In Poland in 2013, 87% of users declared using of social media. In Czech Republik Facebook leads the statistics with 65.8 % of Internet users (62% users in Poland), followed by YouTube 44.8% (64% users in Poland), and Twitter 19.7% (24% users in Poland) (Hladik, Štětka 2015); (Global Web Index 2016). Social media can thus be said to be a common, widespread phenomenon in the contemporary Czech Republic, which also means that the consumers of news can be expected to be well acquainted with them, either through first or second-hand experience. Situation in Poland is therefore similar, there is a significant trend of growth of social media users.

Most Polish companies are not yet able to effectively use social media and as a result their activities in this environment are associated mainly with image crises create completely new ways of activities, and even business models. Meanwhile, it should (Kubisiak et al., 2012). The main reason for this state is simply the lack of knowledge how to navigate in this new environment, how to reach potential clients or employees, and how to talk with them, to effectively build your positive image and promote product brands. The specificity of communication in the network is expressed by such features as: universality, accessibility, latitude, multidirectionality, interactivity, speed and attractiveness. The basic mistake is usually that companies treat social media as an additional marketing channel, and not as a space that allows to be noted that the same mechanisms that Internet users use to communicate, companies can successfully use to reach their customers with information about products or new offers and support their promotion. Next, by creating so-called Facebook fanpages enterprises can capture company/brand enthusiasts, build lasting relationships that lead to loyalty and friendship, and thus gain loyal brand allies and ambassadors.

In addition, companies can refer to interests and evoke positively associated events (sports, music, environmental protection, etc.), providing Internet users with something valuable, and at the same time warming company's image and subtly promoting the brand. Social media is also an environment where you can run advertising campaigns (e.g. viral) combined with those carried out in traditional media. Marketing activities carried out in the sphere of communication may translate into benefits and threats resulting from functioning in social media.

On the one hand, an open dialogue run by the company on the web is an invaluable source of knowledge about customers. In relation to centralized information provided by traditional media or corporate websites, the network is full of content edited and widely disseminated by consumers. It can be said that the Internet has become a great tool for examining the minds of customers and other key stakeholders of the company - unexpensive, reliable and extremely effective, provided that the company's representatives are able to make the right use of it. Monitoring of relevant blogs, discussion forums or social networking sites and active participation in them gives the company not only a lot of important marketing information about the customers' opinions and expectations, but it is also a great opportunity to solve problems related to products, to look for new ideas, to educate clients, to promote new products and, as a result, improving company's market offer, which is one of the most important factors determining the opinion about the company.

All these forms of social media presence require the company not only to send messages - as it was in the case of traditional media relations - but, what is very important to receive information, speed of reaction, skillful dialogue - without flattering, but also without ignoring entries or censoring content. Social media impose the necessity of constant activity, reacting to all comments and queries as well as systematic creation of attractive content (e.g. applications, games, professional counseling, etc.)

On the other hand, managers are certainly aware of the threats posed by social media. The growing significance of the risk generated by social media results from the fact that they greatly escalate other types of risk to which a company is exposed. They can easily increase the risk related to the strategic, operational and reputational spheres - the compromised confidentiality of information, revealing company's secrets or triggering the rapid spread of dangerous gossip. With always available mobile devices that allow to take photos at any time, make movies, edit information and immediately put them online, citizens - customers, employees, suppliers, etc. have received a powerful weapon, and social media can such a digitized information spread with lightning speed. Companies that do not understand or do not accept it, expose their reputation to serious, often irreversible damage, counted in millions of zlotys. The most frequently mentioned reputation risks are: leakage of confidential or company-relevant information to the network (44%), campaigns conducted in networks against the company by dissatisfied clients or critics (39%), use of private e-mails or other digital information against the company (35%), unfavorable comments posted by former (34%) or current employees (32%) (Szwajca 2017, s. 233).

5 Conclusions

The greatest potential for creating a positive image of the company lies in skilful communication through social media, currently considered the key to the image success. Most companies use them mainly to increase the awareness of the company/product and create positive associations with the company/brand among consumers. Effective management of the company's reputation on the web requires above all very diverse forms of presence in these media - not only sending messages, as it is in the case of traditional media relations, but receiving information, speed of reaction and skilful conduct of dialogue with following the principles of integrity, transparency, lack of censorship, manipulation or spamming. The specificity of skilful image creation in such an environment requires the company to understand three things. First of all, building market position in this case means that with the use of its products enterprise helps Internet users build relationships with other users (because it is really the sense of the existence of social networking sites) (Kubisiak et al., 2012). Secondly, most of the content about the products or the company itself is generated by users and that content remain almost

completely out of control. The communication of the company with its stakeholders on the Internet is indeed multidirectional and assumes the equivalence of partners in the discussion. Thirdly, it is very difficult to estimate the effectiveness of the activities undertaken on the Internet - it is not facilitated by the diversity of content that appears there, nor the large number of users, nor the speed of information generation and dissemination. However, it is in the thematic diversity of websites, the number of participants and in the free choice of the participation model in the interaction between the enterprise and Internet users lies in the huge marketing potential of social networking sites. Enterprises that will acquire the skills necessary to build good relationships with their stakeholders on the web will have a chance not only to build a lasting, positive image of their company, but will also be able to carry out tasks related to sales or customer service through them, use the opinions community in the process of designing new products, and create new business models.

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Economic Migration of the Poles and the Czechs in the United Kingdom of Great Britain and Northern Ireland

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Abstract

The migrants coming from Eastern Europe and their economic status has become a major topic in the United Kingdom of Great Britain and Northern Ireland (hereinafter: UK) as this issue was one of the main arguments for the leaving the European Union in the UK Referendum held in 2016. Most of the East European migrants has come from Poland. Currently, more than 900 thousand Polish migrants make up the most numerous group of migrants in the UK. The negative view on migrants from Eastern Europe relies on the fact that these migrants are a major burden for the British social and healthcare system. At the same time, however, the issue of modern slavery is being discussed, based on the fact that Eastern European migrants are willing to work under undignified working conditions in the UK. The aim of the paper is to analyse and evaluate the economic status of East European migrants, especially the Poles and the Czechs, on the UK labour market. The paper is based on the theoretical concept of the dual labour market, which is used in the analysis of real data. As the conclusion, the expected changes in migration of the Poles and the Czechs after the UK's leaving the European Union scheduled for April 2019, is given.

1 Introduction

Almost three in ten babies born in England and Wales in 2017 were the children of immigrants mother, the highest proportion ever. More precisely, a record 28.4 percent of births were delivered to mothers who were themselves born abroad. Birth figures from the Office for National Statics (hereinafter: ONS) showed that the percentage of live birth to mothers born outside the UK continued to rise in 2017 compares with 28.2 percent in 2016. This percentage has increased every year since 1990, when it was 11.6% (Office for National Statistics, 2017).   It means that a growing share of the British rapid population increase is attributable to higher fertility among newly-arrived women than among those born in Britain. Lord Green of Deddington, Chairman of Migration Watch UK[4] said: " These figures are a sharp remainder of the massive and continuing impact of migration on the scale and nature of our society. The public are clear that they want immigration substantially reduced" (Migration Watch UK, 2018a)

The status of East Europeans migrants in the UK is a very topical issue, given the outcome of the UK referendum held in 2016, where the main argument for Brexit was the large immigration from Eastern Europe. Official figures show that net migration from the Eastern European countries which joined the European Union in 2004 rose sharply following the accession and peaked in 2007. Net migration from Romania and Bulgaria, states which joined the EU in 2007 increased sharply from 2014 onwards, which was likely augmented by the ending of UK transitional controls on migration from those countries in January 2014.

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[4] Migration Watch UK is the British independent and non-political body monitoring migration flows to and from the UK. Established in October 2001.

The rise in net migration from Eastern Europe has likely been driven in large part by the fact that wages available in the UK are considerably higher than in countries of origin. For example the minimum wage in the UK, between 2010 and 2017, was over three times higher than in Poland (Migration Observatory[5], 2018) . The Polish diaspora is the largest diaspora in the UK. The rise in the Polish-born population has more than tripled in size over the last decade from 2007 to 2017. Also notable is the rise in the Romanian-born community over the same period. The Czech-born population is not significant in size, but Roma population born in the Czech Republic along with Roma population born in Slovakia living in the UK is mainly gathered in socially excluded areas living on social benefits receiving them without any work.

In today's increasingly interconnected world, migration has become a reality. Modern transportation has made it easier, cheaper and faster for people to move in search of jobs, opportunity, education and quality of life. Migration can contribute to sustainable economic growth both home and host countries. Countries of destination benefit from migration as migrants fill labour gaps and pay taxes and social security contributions. Some of migrants are among members of the communities that contribute to the development of science and technology in host countries. A part of migrants, including East European migrants are sending home remittances that supplement household income and improve the livelihoods of families.

However, inequality and poverty compel people to leave their homes to seek a better future for themselves and their families abroad and many East European migrants remain among the most vulnerable workers in host countries. Migrants are often the first to lose their jobs in the event of an economic downturn, work for less pay, for longer hours, and in worse conditions than native-born workers. Some migrants endure human rights violations, abuse and discrimination. Migrants, particularly women and children, may fall victim to human trafficking and the heinous forms of exploitation that it entails. In that context, the issue of modern slavery of some East European workers has raised recently in the UK.

The aim of the paper is to build up a picture of how national populations in UK are changing due to the movement of people around the Europe and especially analyse and evaluate the economic status of East European migrants, especially Poles and Czechs in the UK society.

2 Material and Methods

Understanding migration statistics requires an explanation of the terminology used.

The *first issue* need to be discussed is: who is a migrant? A migrant is broadly defined as a person who changes their country of residence. Conventionally, there are two different ways of making this definition more precise (Office for National Statistics, 2018a):

- A migrant is someone whose country of birth is different to their country of residence. That definition is consistent and objective, includes people born abroad but classifies as migrants also people who were born abroad but who are nevertheless nationals of the country in which they live: e.g. children born to armed forces personnel stationed in foreign countries.
- A migrant is someone whose nationality is different to their country of residence. That definition includes nationals born abroad but excludes people who have changed their country of residence and acquired the nationality of their new home country.

The *second issue* need to be discussed is: what is the difference between migrant stocks and flows? In migration statistics, stocks refer to the number of migrants resident. i.e. people whose country of birth or nationality is different from that of the country in which they live during a particular period. Flows refer to the number of people changing their country of residence during a particular period. Immigration and emigration are therefore flow measurements, recording the number of people entering and leaving the country on a long-term basis. Stocks and flows are normally measured as the number of people changing the country of residence for a period of at least a year. Net migration is the measure of the net flow of migrants into and out of a country, it means the difference between immigration and emigration: the number of people moving to live in a particular country minus the number of people moving out of that country to live elsewhere. (Office for National Statistics, 2018a).

This paper is based on estimates of the number of international migrants prepared by the Population Division being a part of the Department of Economic and Social Affairs of the United Nations. Dataset *Trends in International Migrant Stock: The 2017 Revision* containing estimates of the total number of international migrants by country has been used for preparation that paper (United Nations, 2017a), (United Nations 2017b), as well as data from bulletins Migration Statistics Quarterly Report (Offices for National Statistics, 2018a)..

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[5] The Migration Observatory is based on the Centre on Migration, Policy and Society at the University of Oxford and provides independent, evidence-based analysis of data on migration and migrants in the UK.

From a methodological perspective on labour market position of migrants, the concept of dual labour market is used in this paper. Dual labour market concept was worked out by American economists Piore, Doeringer (Piore, Doeringer, 1971). They divided the labour market into primary and secondary sectors:

- Workplaces created in *the primary sector of the labour market* distinguish themselves by high protection of workplaces, possibilities of a future carrier development and good working conditions. They provide high wages, extra bonuses, status, possibility of trainings and bigger chances in the labour market in the case of a job loss.
- Workplaces created in *the secondary sector of the labour market* are unsecured, have worse working conditions, lower work and legal protection of employees, poorer wage prospects, low possibility of personal development and also repetitive and long-term unemployment. In the secondary labour market there are mainly disadvantaged groups of workers such as low skilled workers, migrants, handicapped people, mothers with children and the like.

3 Results and Discussion

3.1 Migrants Stock and Net Migration in UK[6]

Since 2000, the number of international migrants has continued to grow worldwide, reaching 258 million in 2017, up from 173 million in 2000. The international migrant stock grew by an average around 2 % year. Between 2000 and 2017 Europe received 22 million of international migrants[7] and the UK was one of the countries most affected.

In 2017, two thirds (67 %) of all international migrants were living in just twenty countries. The largest number of international migrants (50 million) resided in the United States of America. Saudi Arabia, Germany and the Russian Federation hosted the second, third and fourth largest numbers of migrants worldwide (around 12 million each), followed by the UK (around 9 million). The UK is therefore one of three European countries with the largest number of migrants along with Germany and the Russian Federation. Trends in the number of migrants in that countries between 1990 and 2017 is shown in figure 1.

Figure 1 - Migrant stock in Germany, the Russian Federation and UK by country of birth, 1990 – 2017. Source: United Nations, 2017a, United Nations, 2017b
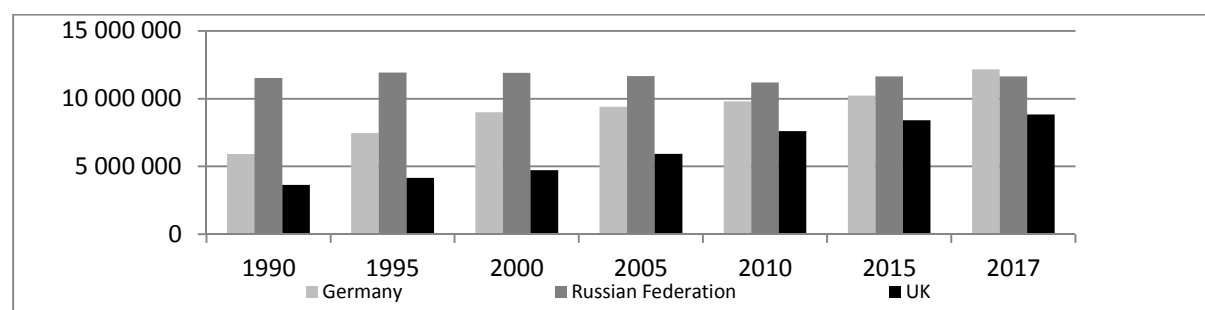
Analysing the data by countries given in figure 1 provides insights into current trends in changes in the number of international migrants, which differ widely by countries. Between 2000 and 2017, the number of international migrants increased sharply in UK and Germany, while in the Russian Federation the international migrant population remained the same. However, according to the share of migrant in population, the European countries with the largest share of migrant in population are Sweden, Austria, Germany and UK, see figure 2.

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6 The data for the stocks and flows of international migrants in this chapter are derived from the publications Trends in International Migrant Stock: The 2017 Revision (United Nations, 2017a), Trends in International Migrant Stock: The 2017 Revision. Documentation. (United Nations, 2017b) and from bulletins Migration Statistics Quarterly Report (Offices for National Statistics, 2018a). Used definition of international migrant at this chapter: an international migrant is a person who is living in a country other than his or her country of birth.
[7] Between 2000 and 2017, Asia received more international migrants than any other region (30 million), Europe received the second largest number of (22 million), followed by Northern America (17 million) and Africa (10 million).

Figure 2 - Migrant stock by country of birth as percentage of total population in selected countries, 1990 – 2017. Source: United Nations, 2017a,   United Nations, 2017b
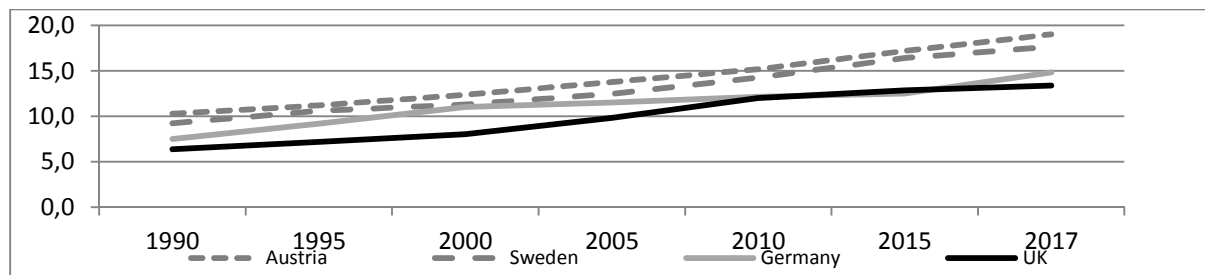
The share of migrants in the population in selected European countries in 1990-2017 has risen sharply throughout the period and raised the issue how national populations are changing. Building up a picture of how population are changing due to the movement of migrants means take into account net migration, i.e. the net flow of migrants into and out of a country. The number of people migrating to the UK has been greater than the number emigrating since 1994. However, for much of the twentieth century, the numbers migrating to and from the UK were roughly in balance, and from the 1960s to the early 1990s the number of emigrants was often greater than the number of immigrants (Aldin,Wadsworth 2010). Over the last twenty five years, both immigration and emigration have increased to historically high levels, with immigration exceeding emigration by more than 100,000 in every year since 1998, see figure 3.

Figure 3 - Net international migration in the UK by country of birth, 1991 – 2017**.** Source: Office for National Statistics (2018a)
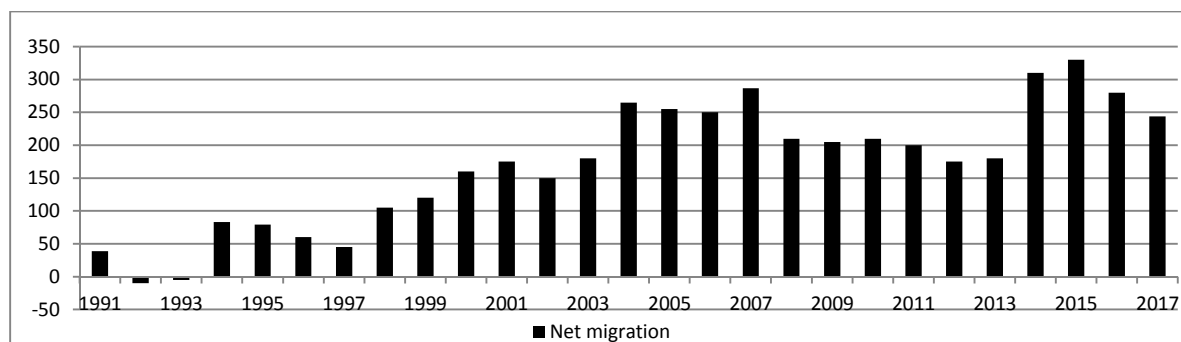
Immigration in UK has grown faster than emigration since 1998, leading to an increase in net migration from an annual average of 37,000 in the period 1991 to 1995 to an annual average of 253,000 in the period 2012 to 2017. Net migration has risen sharply form 2004, when the Eastern European countries joined the European Union[8] and peaked in 2007. The next sharp increase in net migration was recorded in 2014, which was likely due to the end of the UK's transitional controls on migration from Romania and Bulgaria in January 2014. Romania and Bulgaria joined the EU in 2007.

3.2 The UK Government Net Migration Target

In response to increasing net migration, the following tasks were adopted by UK Government:

- Under the 2010 Coalition Government, the Home Office said that it aimed to reduce net migration "from the hundreds of thousands back down to the tens of thousands" (House of Commons, 2010).

- Following the 2015 General Election, Prime Minister David Cameron said the new Conservative government still aimed to reduce net migration to that level, it means to the tens of thousands (Prime Minister's Office, 2015).

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[8] Eastern European countries that joined the EU in 2004: Czech Republic, Estonia, Poland, Hungary, Latvia, Lithuania, Slovakia and Slovenia.

- Following the UK Referendum held in 2016, Prime Minister Theresa May said she remained firm in her belief "that we need to bring net migration down to sustainable levels, and the Government believe that that means tens of thousands" (House of Commons, 2016).

However, net migration has not been reduced of less than 100,000 since 2010, it means that the UK Government targets have not been achieved. In that context, the position of East Europeans migrants in the UK society is a very topical issue, given the outcome of the UK Referendum 2016, where the main argument for Brexit was large immigration from Eastern Europe (Migration Watch UK, 2018b).

3.3 From which Countries do People Migrate to the UK?

In 2017, 14.4 % of all UK population were international migrants, out of which 5.6 % were immigrants came from EU and 8.7 % came from European, but non EU member state countries and from the rest of the word. The large number of migrants from EU countries were born in the EU14[9](45.5 %), followed by immigrants born in the EU8[10] (40 %). The smaller number of immigrants from EU countries were born in the EU2[11] (12.5 %) and in the EU other countries[12] (2.5 %), see table 1.

Table 1 - Population in the United Kingdom by country of birth, total and at aged 16 to 64, January 2017 to December 2017[1] .

	All population	UK	Non-UK	EU	EU14	EU8	EU2	EU other	Non EU	Other Europe	Asia	Rest of the Word
Population in UK	65 176	55 777	9 382	3 705	1 686	1 444	474	101	5 677	358	2 942	2 376
Population in the UK aged 16 to 64	41 145	33 471	7 664	2 981	1 213	1 271	424	72	4 683	320	2 427	1 936
Aged 16 to 64 as a percentage of UK	63%	60%	82%	80%	72%	88%	89%	71%	82%	89%	82%	0,81

Note 1: Estimated numbers of migrants are measured through the Labour Force Survey (LFS) and the Annual Population Survey (APS), which aggregates and supplements LFS data.
Source: Office for National Statistics (2018a)

Analysing the data given in the table 1 provides insights into the total population UK and of that at aged 16 to 64 broken down into above given geographical groups. Figures show that almost 90 per cent of migrants from EU2 (89%), EU8 (88%) and European non member states EU countries (89%) are at aged 16 – 64 (i.e. at working age) which is the highest level of all geographical groups. The largest group of migrants in the UK (922,000) was born in Poland, followed by migrants from India and Pakistan. A large group of migrants was also born in Romania (390,000), ranked fourth. Relatively small is a group of immigrants from the Czech Republic (54,000), which is on the 43rd place, see table 2.

Table 2 - Migrants in the UK by country of birth, January 2017 to December 2017[1]

List of the first five countries plus the placement of other EU8 and EU2 countries[2]	Country of birth	Migrants stock in thousands
1	Poland	922
2	India	829
3	Pakistan	522
4	Romania	390
5	Republic of Ireland	390
12	Lithuania	178
24	Latvia	105
27	Hungary	93
29	Bulgaria	84

[9] EU14 consists of old member state countries, UK is not included in this grouping because is shown separately.
[10] EU8 consists of the Eastern European countries that joined the EU in 2004: Czech Republic, Estonia, Poland, Hungary, Latvia, Lithuania, Slovakia and Slovenia.
[11] EU2 consists of the two countries that joined the EU in 2007: Bulgaria and Romania.
[12] EU other countries consist of Malta and Cyprus joint EU in 2004 and Croatia joined EU in 2013

| 31 | Slovakia | 79 |
| 43 | Czech Republic | 54 |

Note 1: Estimated numbers of immigrants are measured through the Labour Force Survey (LFS) and the Annual Population Survey (APS), which aggregates and supplements LFS data.

Note 2: Slovenia and Estonia is not included due to migrants stock from these 2 countries in UK is not significant

Source: Office for National Statistics (2018a)

3.4 Why do People from Eastern Europe Migrate to the UK?

Net migration from the EU8 rose sharply following the accession of those countries into EU in 2004 and was 137,000 at its peak in 2007. However, although net migration from the EU8 averaged around 43,000 a year between 2010 and 2015, it fell to 5,000 in 2016. Net migration from E2 (Romania and Bulgaria) i.e. countries joined the EU in 2007 increased sharply from 2014 onwards, more than doubled from 21,000 in the year 2013 to 54,000 in 2016 (Office for National Statistics 2018a). This increase was likely augmented by the ending of UK transitional controls on migration from those countries in January 2014.   Strong incentives for migration from East European countries include a much higher wages in the UK relative to the countries of Eastern Europe, the pull effect of people already are in the UK and political turbulence in Eastern Europe:

- The rise in net migration from Eastern Europe has likely been driven in large part by the fact that wages available in the UK are considerably higher than in countries of origin. The minimum wage in the UK, between 2010 and 2016, was over three times higher than in Poland. The UK's 2017 minimum wage (1,397 Euros) remains three times higher than Poland's minimum wage (453 Euros) and is five times higher than Romania's minimum wage (275 Euros) (Migration Observatory, 2018).
- Kinship and growing existing communities of EU8 and EU2 nationals in the UK act as a draw for migration. The 2017 figure includes 1.4 million people born in the EU8 and 470,000 born in the EU2, see table 1. The most notable rise has been in the Polish-born population, which has nearly risen fourth time in size over the decade from 265,000 to 922,000. Also notable is the rise in the Romanian-born community over the period – it increased nearly 18-fold from 17,000 to 320,000 over the period.
- Political turbulence in Eastern Europe could act as a push factor for potential migrants to other parts of Europe including EU. Poland's ruling Law and Justice Party has been accused of pursuing a polarising agenda, a factor which may driven opponents of the government to seek residence elsewhere in the EU. In February 2017, as a result of political disputes over corruption, Romania experienced its biggest anti-government demonstrations since the fall of communist leader Nicolas Ceausescu in 1989

3.5 East European Migrants in the UK Labour Market.

A key indicator of labour market outcomes is the employment rate measuring the share of the employed in the total working-age population. In 2017 the employment rates of male workers from the Europe, i.e. EU2 (92%), EU8 (91%) and EU14 (83%) were higher than those of UK-born men (79%). Female workers coming from EU2 and EU8 countries had higher employment rates than UK-born women (respectively 76% and 75%). However, the employment rate of women from EU14 (69%) was less that of UK-born women (72 %), see figure 4.

Figure 4 - Employment rate by country of birth. Source: Office for National Statistics (2018b)
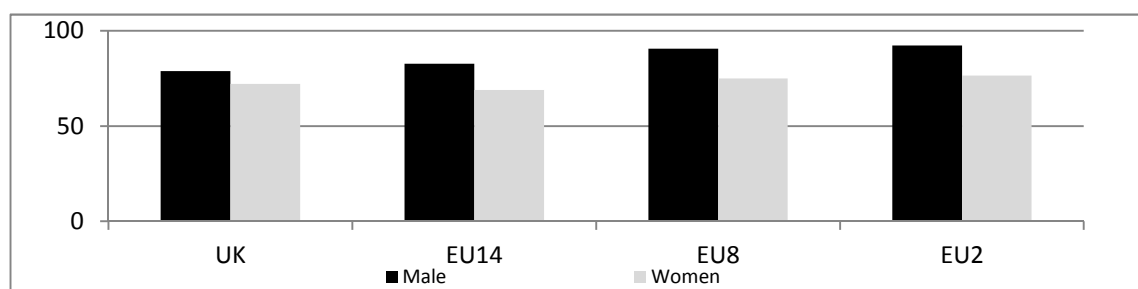
UK-born men's wages have exceeded those of male European migrants. This is to be a result of the higher share of EU8 and E2 migrants who, being employed in lower skilled occupations, have been earning a lower hourly wage. Although characterised by very high employment rates, workers from the EU2 and EU8 countries earn the lowest median wages among groups considered, see figure 5. Workers born in EU2 and EU8 poorly paid. On the other hand, workers from EU14 have the higher hourly wage UK-born men. The trends are similar for female migrants, see figure 5.

Figure 5 - Median hourly wage (£) by country of birth, 2017. Source: Office for National Statistics (2018b)
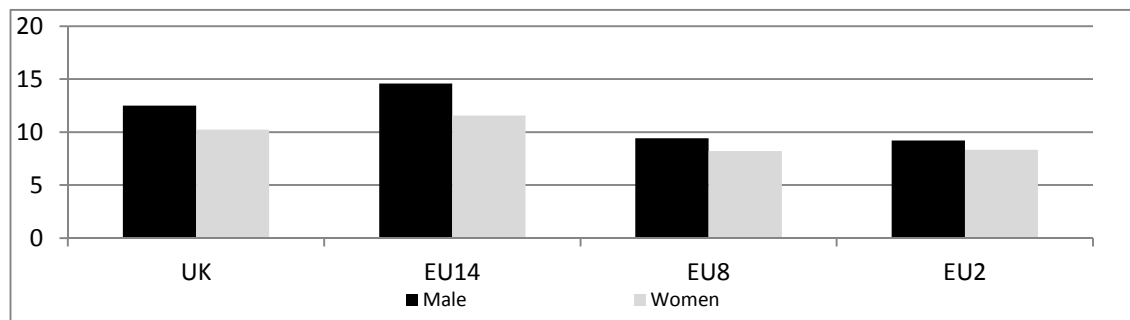
Even when the averages reported above may mask significant variations in employment rates and in hour wages, it is evident that East European migrants are mostly part of the secondary labour market where created workplaces have worse working conditions and poorer wages. (Kotýnková, Krebs 2015). In 2017, EU8 and EU2 born workers were overrepresented in elementary occupations, such as cleaners, kitchen and catering assistants, building workers, carpenters and chefs and less part of that workers were employed in skilled jobs. There can sometimes be a mismatch between an individual's educational attainment and the skill level required for his or her job in the UK. Specific groups of recent migrants from the EU8 and EU2 countries are known to be frequently employed in jobs that do not correspond with their education and skills.

Workers born in EU8 and EU2 are poorly paid and their jobs are often called 3D jobs where they do dirty, difficult and dangerous work and in that context have been raised questions on modern slavery[13]. Some Pols, Czechs or Slovakian people are brought to the UK with the offer of employment and, after arrival, gang leaders seize them documents, opening multiple bank and utility accounts in their names – but refuse to hand over access to the accounts or bank cards. Workers do 3D work and are abused and controlled by threats of harm to their families at home. Some of that workers do work in the farming sector harvesting grains or root vegetables, tending livestock or fruit picking, some workers do work in building sector or in manufacturing and are being exploited every day in the UK[14]. Modern slavery workers are invisible people, but very visible are Roma migrants born in the Czech Republic along with Roma migrants born in Slovakia living in the UK mainly gathered in socially excluded areas living on social benefits receiving them without any work. Well - known socially excluded areas are in county Kent (especially in Margate and Ramsgate).

4 Conclusion

The number of people migrating to the UK has been greater than the number emigrating since 1994. However, for much of the twentieth century, the numbers migrating to and from the UK were roughly in balance, and from the 1960s to the early 1990s the number of emigrants was often greater than the number of immigrants. Over the last twenty five years, both immigration and emigration have increased to historically high levels, with immigration exceeding emigration by more than 100,000 in every year since 1998. In 2017, the largest group of migrants in the UK (922,000) was born in Poland, followed by migrants from India and Pakistan. A large group of migrants was also born in Romania (390,000), ranked fourth. Relatively small is the group of migrants from the Czech Republic (54,000), which is on the 43rd place. Strong incentives for migration from East European countries include much higher wages in the UK relative to the countries of Eastern Europe, the pull effect of people already are in the UK and political turbulence in Eastern Europe.

The migrants coming from Eastern Europe and their economic status has become a major topic in the UK, as this issue was one of the main arguments for the leaving the European Union in the UK Referendum held in 2016. The negative view on migrants from Eastern Europe relies on the fact that these migrants are a major burden for the British social and healthcare system. However, there is a little evidence available for debate about that issues. It seams that migrants pay more in tax than they claim in benefits, because their employment rate is very high. But this ignores the extent to which tax has also to be spent on services consumed by the migrant population including

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[13] Modern slavery is a crime where the most vulnerable men, women and children are abused for criminal profit, with many victims forced to live and work in squalid conditions for little or no money. They are controlled with threats and abuse and have no means of escape. They are considered to be invisible. (Wadsworth, J. 2010).
14 Women from across eastern Europe are lured to the UK, whether by fake migration services or unscrupulous individuals who betray them fall into a dark spiral of sexual exploitation and forced, unpaid prostitution, unable to escape.

health, and education and additional infrastructure required. These elements should be included into the overall fiscal balance. These calculations may vary by breaking down revenues between direct and indirect taxes, and identifying expenditure under the broad headings of old-age benefits, working-age benefits, health and education. Therefore, there is no clear answer to that key issue.

Looking ahead, the attractiveness of the UK for potential migrants from the East European countries could be reduced by uncertainty stemming from the Brexit process, by the risk of a further devaluation of sterling and by the possibility of a period of lower growth. On the other hand, there will continue to be a large wage disparity between the UK and the East European countries.

As regards to the Poland there has been a reduction in net migration in the year 2017 which may reflect improving economic conditions in Poland and reduced exchange rate in the UK. Nevertheless, the large Polish diaspora already in the UK will continue to act as a pull factor. Romania is in a different proposition. Economic and political conditions in these country have remained poor. It is therefore likely that there will continue to be a significant inflow. Regarding to the Czech Republic, migrants stocks in UK is not very significant and it seems to be clear that uncertainty arising from Brexit will be a push factor especially for the Czech Roma population as access to social benefits will probably be tightened since spring 2018, when the UK leaves the EU.

Acknowledgements

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Analysis of the Size of Nonprofit Sector in Czech Regions

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Abstract

Nonprofit sector represents the set of institutions, which primary aim differs from generating profit distributable to their founders or owners. Types of organizations covered by this general term vary from state to state and reflect their historical, political, legal and economic framework. Size of non-profit sector depends on many factors. In general, demand and supply factors have to be taken into account, as well as the community attributes when the variability in non-profit's sector size is examined. The aim of this paper is to identify differences in the size of nonprofit sector (defined by the number of nonprofit institutions serving to households) between 14 regions of the Czech Republic for the period of years 2014-2016; and to indicate if the link between the number of nonprofit institutions and supply of financial resources provided to them by third sides was evident within the examined period. Special attention will be paid to Moravian-Silesian Region. Conclusions are based on a review of relevant scientific sources and own statistical analysis.

Keywords: nonprofit institutions, nonprofit sector, private donors, public subsidies, regions

JEL Classification: H24, L31, N30

1 Introduction

Nonprofit sector, known also as voluntary, third, civil society or independent sector, covers broad range of institutions staying and operating outside the market and the state. Institutions titled as nonprofit have many similarities when nonprofit sectors in different countries are compared, but their legal status and types vary in relation to their historical, political, legal and economic framework. Salamon et al. (1999, p. 3) describe nonprofit institutions as entities that are private, nonprofit distributing, self-governing and voluntary organizations. At the national level, nonprofit institutions are increasingly involved in welfare, social services (such as healthcare or education) and public-private partnership (Anheier, 2005). They contribute to the overall country's GDP and employment.

Size of the nonprofit sector – measured by the number of nonprofit institutions or value of its production of goods and services – varies between countries and also between regions of a certain country. Many theoretical and empirical studies try to explain what affects this geographical spread. They usually deal with preconditions for the activities of nonprofit institutions in various terms (financial, human, environmental, etc.), or precisely speaking with demand and supply factors.

In the Czech Republic, nonprofit sector has had long tradition affected by historical, political and economic changes the country has gone through. Many disparities, at least in socio-economic terms, are identified when 14 Czech administrative regions are compared. It can be expected that differing preconditions for the activities of nonprofit institutions exist there. In the first decade of the 21st century, size of nonprofit sector in Czech regions was examined in many studies in relation to the size of social capital, see the studies of Stachová (2008) or Majerová, Kostelecký, Sýkora et al. (2011). However, since then no serious study measuring the size of nonprofit sector in Czech regions was introduced.

The aim of this paper is to identify differences in the size of nonprofit sector (defined by the number of nonprofit institutions serving to households) between 14 regions of the Czech Republic for the period of years 2014-2016; and to indicate if the link between the number of nonprofit institutions and supply of financial resources provided to them by third sides was evident within the examined period.

2 Theoretical Background for the Analysis of the Nonprofit Sector's Size

Intensive research has been done in recent years in order to explain why nonprofit institutions exist in the market economy because generating profit and its residue's distribution to corporations' owners is essential for this economic system. Since the 1970s, many theories explaining existence of a space for activities of nonprofit institutions have been introduced. They deal with such terms as public goods, information asymmetry, trust, externalities, transaction costs and limitations of the market (see for details Anheier, 2005, p. 120-138). Dollery and Wallis (2001) distinguish between two genres of theories dealing with nonprofit institutions: demand and supply models. The former ones tend to focus on how the institutional characteristics of nonprofit institutions seem to give them comparative advantage in production of certain types of goods and services; the latter ones endeavour to explain existence of nonprofit institutions as the outcome of social entrepreneurship. As the key issue in theoretical and empirical research of nonprofit sector is regarded the specification of demand and supply conditions that lead to the nonprofit form as the institutional choice, opposed to public agencies or business firms (Anheier, 2005).

At the first sight, it is evident that the size of nonprofit sector varies country to country. Several studies try to explain determinants of these cross-country variations (see some remarks to them in Pevcin, 2012). Factors influencing size and growth of nonprofit sector in a certain country attract researchers' attention too. For instance, Gronbjerg and Paarlberg (2001) identify and evaluate significance of factors enabling to explain differences in the size and scope of the nonprofit sector in Indiana (the United States). They deal with three types of explanatory – independent variable, specified in Table 1.

Table 1 - Factors with possible impact on nonprofit sector's size.

Demand factors	Supply factors	Community structure
Heterogeneity of a community Social distress in a community	Supply of resources to support nonprofit activities: financial, human, etc.	Community size Employment structure Population change

Source: Gronbjerg and Paarlberg (2001), own processing

With reference to other analysts, Gronbjerg and Paarlberg (2001) explain that community financial resources are related to the size of the nonprofit sector because the wealthiest communities have more for-profit business firms as well as nonprofit institutions. They admit that this claim is stronger for private donations and membership fees, but on the other hand they argue that partnership between nonprofit sector and state authorities – visible through local, regional or national public funding for nonprofit institutions' activities – should affect the size of nonprofit sector too. Conclusions of Gronbjerg and Paarlberg (2001) support those economic theories that explain variations in nonprofit density with reference to community structures and availability of financial resources, while arguments focusing on demand or need for nonprofit activities are not supported by their explanatory study.

Another inspiring study was prepared by Corbin (1999), who tries to identify factors influencing the growth of nonprofit institutions operating in social services in 285 major metropolitan areas in the United States. He deals with such explanatory variables as social cohesion, heterogeneity of a community, income, poverty or philanthropic culture. Corbin confirms strong relation between per capita income and number of nonprofit social services agencies.

3 Research Objectives and Methods

Based on above mentioned theoretical approaches and empirical studies, the aim of this paper is to identify differences in the size of nonprofit sector (defined by the number of nonprofit institutions serving to households) between 14 regions of the Czech Republic for the period of years 2014-2016; and to indicate if the link between the number of nonprofit institutions and supply of financial resources provided to them by third sides was evident within the examined period.

Essential starting-point in this analysis is to define the term nonprofit institution (NPI), but one common definition of private NPI still lacks in Czech law. Based on the Civil Code and essentially following the Austro-Hungarian civil law tradition (Frič et al., 1998), these basic types of private nonprofit organizations exist in the Czech Republic: associations, foundations, endowment funds and institutes. However, Civil Code does not

regulate all legal forms of private nonprofit institutions, because a few types are still regulated by specific legislative norms (e.g. political parties, professional associations or church organizations, etc.). In general, as the NPI are considered entities staying outside the state/governmental sphere and being established for the primary aim differing from generating profit distributable to their founders or owners. In this study, the definition of NPI applied in the system of national accounts is respected. Therefore, as the NPI are regarded entities that have been created for the purpose of producing goods and services, but, at the same time, it is not allowed due to their status to use this production as a source of income, profit or financial revenue for entities that establish, manage or finance these institutions. Attention is paid only to nonprofit institutions serving to households, it means to NPI with more than 50 % of their operating cost covered and controlled by household (CZSO, 2017).

Geographical spread of NPI serving to households is analysed in terms of 14 administrative regions of the Czech Republic. Analysis takes into account only institutions with identified activity. Number of NPI is then put into the relation with the defined financial resources available to NPI, and with the financial preconditions for the activities of NPI (explanatory monetary variables). They are specified in Table 2.

Table 2 – Explanatory – monetary variables.

Variable	Specification
Financial resources per one inhabitant in a region	
Subsidies from the budget of regional authorities (1)	Total amount of noninvestment transfers provided to private nonprofit and similar entities from the budget of a regional authority
Subsidies from the municipal authorities' budgets (2)	Total amount of noninvestment transfers provided to private nonprofit and similar entities from the budgets of municipal authorities with extended powers lying in a region
Donations (3)	Total amount of donations provided to nonprofit institutions by private and legal persons registered in a region
Financial preconditions per one inhabitant in a region	
Gross domestic product – GDP (4)	Annual net money income in a region (5)

Source: Own processing

In the case of variables (2) and (3), significant simplifications have to be made. Variable (2) does not take into account subsidies provided by all municipalities, but only those provided by municipalities with extended powers. Variable (3) does not reflect the amount of money provided to NPI registered in an examined region but the amount of donations provided by entities registered there, because of missing statistics reflecting regional allocation of private donations. It is assumed within the analysis that donors prefer to support NPI beneficial for local or regional community, therefore all donations are allocated in the region, where the private donators are registered.

Analysis is made with the use of descriptive statistical methods. Lack of longer data series (because of the recodification of Czech private law) does not allow to bring more serious proof about the relation between the number of NPI and financial preconditions in Czech regions. Above cited empirical studies apply multiple regression analysis to identify and assess this relation. It opens space for further research at the moment when the data series will be available. At this moment, financial preconditions and resources for the activities of NPI are evaluated with the use of traffic light method (yellow colour is used for percentile 50), as well as with the use of composite index (CI) of financial preconditions defined as simple arithmetic mean of normalized values of independent monetary variables. Normalization is done according to a standard formula converting the original values of defined variables into numbers varying in a range between 0 and 1 (0 for the worst possible outcome and 1 for the best possible outcome).

Composite index for region j is calculation with the use of equation (1), where x is the value of the independent monetary variable i (1-5):

$$CI_j = \frac{1}{n}\sum_{i=1}^{n}\frac{(x_{ij}-x_{imin})}{(x_{imax}-x_{imin})}. \tag{1}$$

Data used in this analysis are taken from the databases of the Czech Statistical Office, Czech Financial Administration, and from the Information Portal of Czech Republic's Ministry of Finance.

4 Empirical Analysis and Results

Nonprofit sector has had long tradition in Czech lands, starting in Middle Ages, with 50-year-long break during the WW2 and the Communist period and resurrection after the regime change in the 1990s. The new development of nonprofit sector was tied up with the transformation process of the economy and society as a

whole. In the 1990s, the Czech society was a witness of the massive growth in the number of nonprofit institutions, following improved overall framework for their activities. The last significant change in economic and legal environment was introduced with recodification of the Czech private law, connected mainly with the new Civil Code, effective from 1 January 2014. Development of the total number of NPI serving to households for the whole Czech Republic is presented in Figure 1.

Figure 1 - Number of NPI serving to households between years 2005 and 2015. Source: Czech Statistical Office (2018), own data processing

Czech nonprofit sector has many specifics (for details see Pospíšil a Hyánek, 2009) following significant changes in Czech history. With respect to the size of nonprofit sector especially the legacy of nanny state (visible especially in the sector of public services where many public allowance organizations operate); and existence of a divide between 'old' and 'new' NPI are significant. The 'old' NPI are considered to be the continuations of those organisations existed during the Communist period (they are active in such areas as leisure and they are usually based on membership principle), while the 'new' ones have been newly established since the year 1989 (they operate in such areas as human rights, environment or social services, and they are in many cases fully professionalized).

Similar to other post-communist countries, Czech NPI serving to households are significantly dependent on public financial transfers, provided as public subsidies with the aim to support activities of NPI in specified areas or with the aim to provide certain services to citizens. In the year 2014 and 2015, public transfers represented more than 50 % of all transfers that NPI received (see Table 3).

Table 3 - Other transfers provided to NPI serving to households – year 2014 and 2015.

Sector of provider	2014	2015
Total CZK million	33 057	31 667
in which (in percent)		
Nonfinancial and financial corporations	15,4	13,4
General government	51,0	53,3
Households: donations	4,4	2,2
Households: membership fees	10,3	11,6
Households: voluntary work	17,5	18,8
Rest of the world	1,4	0,7

Source: Czech Statistical Office (2018), own data processing

Some analysts (see e.g. Rose-Ackerman, 1996) claim that private NPI heavily dependent on government funds differ from privately supported NPI. NPI dependent on public funds do not offer advantages generally regarded as the fundamental ones for private nonprofit institutions.

4.1 Differences in the Size of Nonprofit Sector between Czech Regions

The Czech Republic is administratively divided into 14 regions that differ when the size of population as well as their economic performance and the level of socio-economic development are taken into account. However, significant differences in the number of NPI serving to households exist between them too.

First step of the analysis is focused on identification of the geographical spread of NPI serving to households. Only institutions with identified activity are taken into account. In absolute terms, the highest number of NPI serving to households is traditionally registered in the region of the capital city Prague, while in relative terms (per 1000 inhabitants) the highest number of NPI was registered in Vysočina Region, followed by South Bohemian Region for the period 2014-2016. On the other hand, the lowest number of NPI served to households in Karlovy Vary Region.

Studies of Stachová (2008); or Majerová, Kostelecký, Sýkora et al. (2011) also identified relatively higher number of NPI in Vysočina Region in comparison to other Czech regions. Stachová (2008) showed that also a dynamics of the growth in the NPI number was higher in Vysočina Region than in other regions. Majerová, Kostelecký, Sýkora et al. (2011) point out on the fact that relatively higher number of NPI existed in Vysočina Region, despite not very good socio-economic parameters of the region, not very high level of interpersonal trust and interest to participate on civic life among region's inhabitants.

Decreasing number of NPI was visible in all regions when the 2016 data on the number of NPI are compared with the 2014 data. On average, in 2014 about 4,27 NPI were registered per 1000 inhabitants in one Czech administrative region, while only 3,42 in 2016 (see Figure 2).

Figure 2 – Number of NPI serving to households (per 1000 inhabitants). Source: Czech Statistical Office (2018), own data processing.
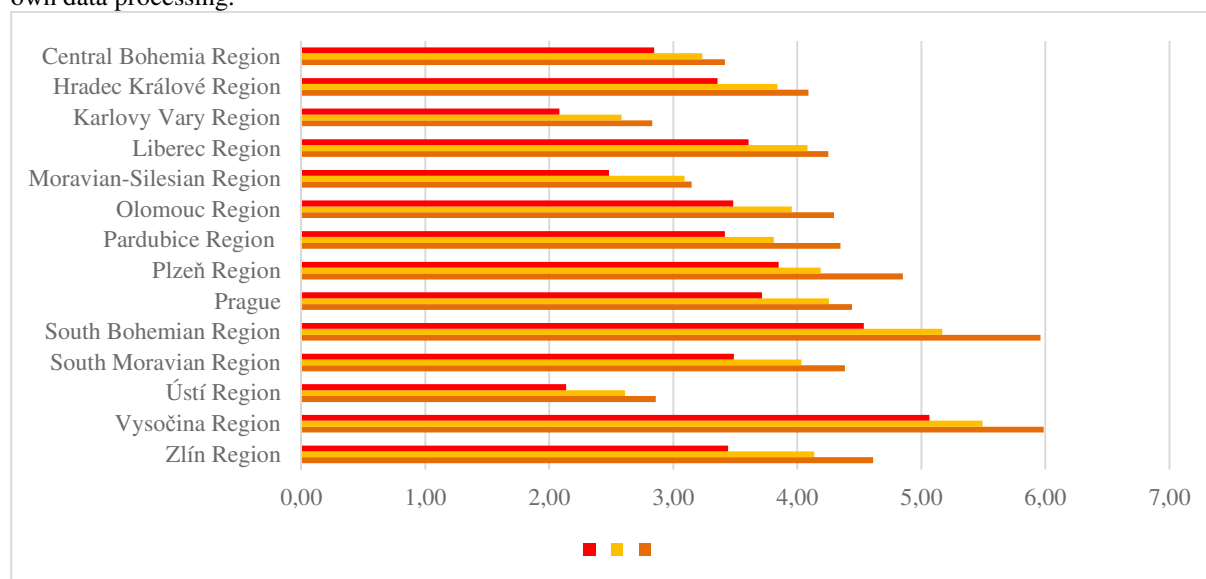
4.2 Relation of the Size of Nonprofit Sector to Financial Preconditions and Resources in Czech Regions

Can be the differences in the number of NPI explained with existing differences in preconditions for their activities? Is the highest number of NPI serving to households registered in a region with the best preconditions, in terms of available financial resources? In relations to theoretical models and some empirical evidences (mentioned above), the highest number of NPI should be registered in a region with the wealthiest community – region with the highest incomes, private donations and public subsidies provided to NPI. Following Table 4 summarizes classification of Czech regions with respect to the number of NPI per 1000 inhabitants, financial preconditions and resources devoted to NPI serving to households for the year 2016. Traffic light method is applied (yellow colour is used for percentile 50).

Table 4 – Number of NPI in relation to financial preconditions and resources in 2016 (CZK per 1 one inhabitant).

Region	Number NPI/1000 inhabitants	GDP	Annual net monetary income	Subsidies from the budget of a regional authorities	Subsidies from the municipal authorities' budgets	Private donations
Central Bohemia Region	2,85	552 470	174 701	487	193	278
Hradec Králové Region	3,36	221 053	165 796	495	506	258
Karlovy Vary Region	2,08	89 461	164 077	898	457	148
Liberec Region	3,61	155 081	163 865	594	231	311
Moravian-Silesian Region	2,48	466 702	140 678	621	489	248
Olomouc Region	3,48	219 892	165 611	684	229	320

Pardubice Region	3,42	186 151	148 944	731	388	283
Plzeň Region	3,85	243 908	165 254	541	375	261
Prague	3,72	937 542	214 296	1 388	1388	783
South Bohemian Region	4,54	238 620	153 229	626	331	194
South Moravian Region	3,49	513 666	166 200	674	498	326
Ústí Region	2,14	274 254	148 178	740	275	168
Vysočina Region	5,06	190 141	153 139	615	320	255
Zlín Region	3,44	228 601	143 932	893	339	354

Source: Czech Statistical Office (2018); Monitor – Information Portal of Czech Republic's Ministry of Finance (2018); Czech Financial Administration (2018), own data processing

At the first sight, strong relation between the number of NPI (dependent variable) and financial preconditions (independent monetary variables) is not visible when the Prague Region is not taken into account. Regions with the highest number of NPI per 1000 inhabitants are not classified as regions with the best financial preconditions. Details concerning possible relation between the number of NPI and each of independent monetary variable are displayed in the set of figures titled as Figure 3.

Figure 3 – Relations between the number of NPI (per 1000 inhabitants) and explanatory variables (in CZK per 1 inhabitant). Source: Czech Statistical Office (2018); Monitor – Information Portal of Czech Republic's Ministry of Finance (2018); Czech Financial Administration (2018), own data processing.
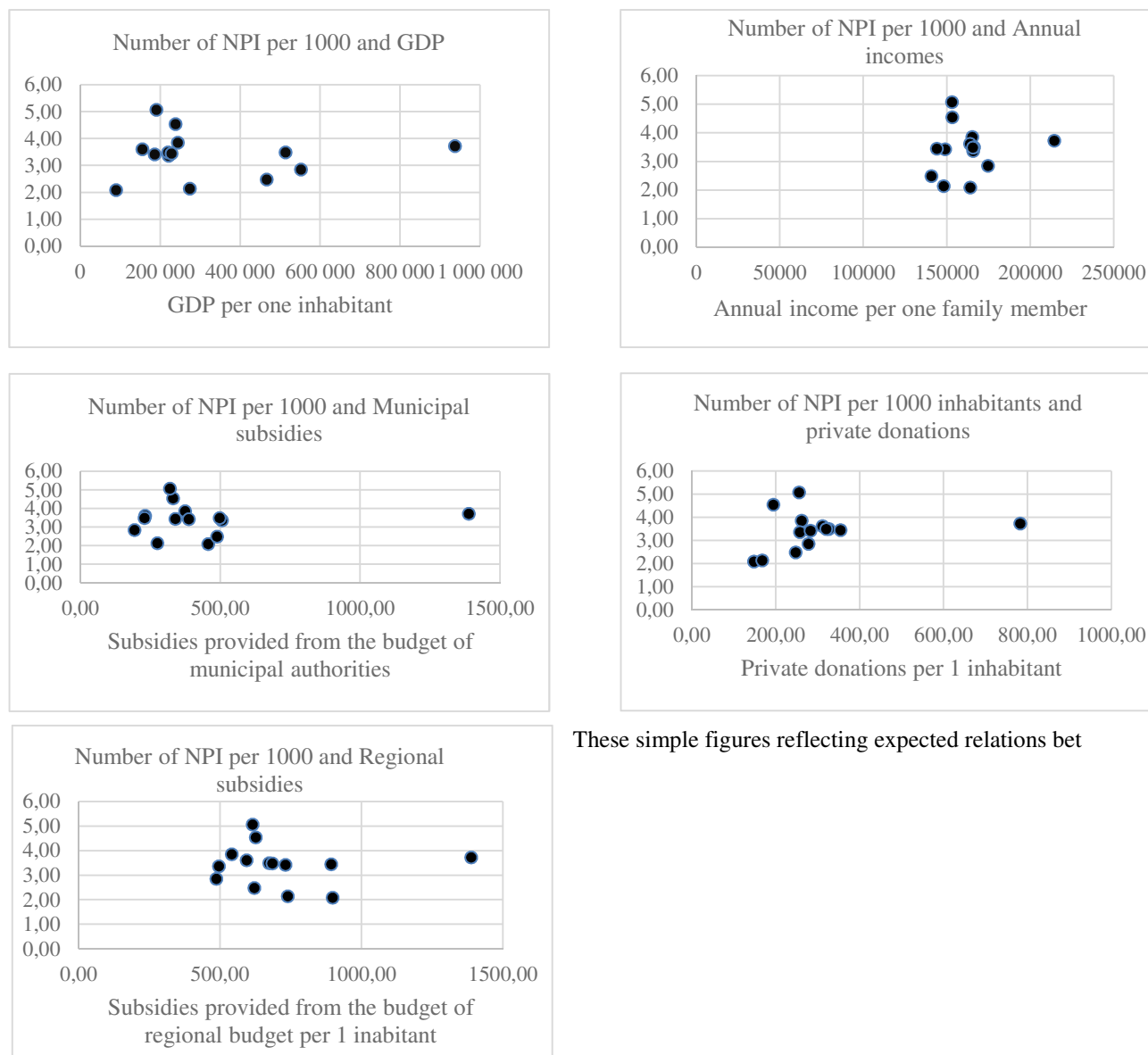
These simple figures reflecting expected relations bet

103

Figures concerning the relation between the dependent variable (number of NPI) and independent monetary variables do not indicate existence of any strong relation. More serious results can be obtained from the multiple regression analysis, but data series are too short to form statistically and economically significant model.

4.3 Moravian-Silesian Region in Comparison to Others

The Moravian-Silesian Region, the home region of this paper's author, is the region with many specifics. It is the third most populated region and besides Prague region with the highest population density. Region suffers from structural problems connected with its former orientation on extracting and heavy machinery industries. Industrial production is still very important source of income for business firms operating there and generates most employment. On the other hand, region is affected by relatively high unemployment and negative population trends (in terms of natural population change and net migration). In relative terms, number of NPI per 1000 inhabitants is lower in the Moravian-Silesian Region (MSR) than the average number for all Czech regions is with the difference about 1. Value of financial resources available to NPI serving to households is also lower there than the average regional value is (see Table 5).

Table 5 – Financial preconditions and resources available to NPI in 2016: Moravian-Silesian region in comparison to the mean values (CZK per one inhabitant).

Region	Gross domestic product	Annual net monetary income	Subsidies from the budget of regional authorities	Subsidies from the municipal authorities budget	Private donations
Moravian-Silesian Region (MSR)	466 702	140 678	621	489	783
Maximal value (Prague in all cases)	937 542	214 296	1 388	1 388	783
Maximal value (without Prague)	552 470	174 701	898	506	354
Minimal value	89 461	140 678	487	193	148
Mean value (without Prague)	275 385	157 970	661	356	262
Difference between MSR and mean value (without Prague)	144 020	-21 315	-93	59	-51

Source: Czech Statistical Office (2018); Monitor – Information Portal of Czech Republic's Ministry of Finance (2018); Czech Financial Administration (2018), own data processing

Overall evaluation of financial resources available to NPI serving to households is based on composite index (CI) defined above. As the region with the best financial preconditions for the activities of NPI is identified South Moravian Region for the year 2016 if Prague Region is not taken into account. The worst preconditions are in Ústí Region. Deeper analysis has to be done for South Bohemian Region, where the second highest number of NPI is registered but the financial preconditions are evaluated as the second worst. This finding opens space for further research. See the position of the Moravian-Silesian Region in comparison to other Czech regions in Table 6.

Table 6 – Composite index of financial resources in 2016 and number of NPI serving to households.

Region	CI	CI - Ranks	Number NPI per 1000 inhabitants
Central Bohemia Region	0,53	3	2,85
Hradec Králové Region	0,51	4	3,36
Karlovy Vary Region	0,51	6	2,08
Liberec Region	0,40	10	3,61
Moravian-Silesian Region	0,51	5	2,48
Olomouc Region	0,49	7	3,48
Pardubice Region	0,46	8	3,42
Plzeň Region	0,46	9	3,85
South Bohemian Region	0,34	12	4,54
South Moravian Region	0,79	1	3,49
Ústí Region	0,32	13	2,14

| Vysočina Region | 0,36 | 11 | 5,06 |
| Zlín Region | 0,57 | 2 | 3,44 |

Source: Czech Statistical Office (2018); Monitor – Information Portal of Czech Republic's Ministry of Finance (2018); Czech Financial Administration (2018), own data processing

5 Conclusion

Paper deals with the number of nonprofit institutions serving to households (NPI) in relation to financial preconditions and resources available for their activities in 14 administrative regions of the Czech Republic. When the relative number of NPI (number per 1000 inhabitants) is taken into account, significant differences exist between Czech regions. The highest number of NPI was registered in Vysočina Region for the period 2014-2016, while the lowest in Karlovy Vary Region. Strong relation between the number of NPI and monetary explanatory variables (GDP, net monetary income, public subsidies and private donations) was not evident when the methods of descriptive statistics were applied.

Relation between the number of NPI and financial preconditions was proofed for the year 2016. First, graphical analysis was done and then regions were evaluated with the use of own composite index summarizing defined explanatory monetary variables. Results of both analyses show that in Vysočina Region (region with the highest number of NPI) the financial preconditions can be evaluated below the percentile 50 in comparison to other regions. Similarly, region with the best financial preconditions does not have the highest number of NPI. However, region with the lowest number of NPI (Karlovy Vary Region) can be evaluated as the region with the worst financial preconditions.

Significant change in Czech private law connected with the introduction of the new Civil Code in 2014 causes the lack of longer data series, because data for the period of years 2014-2016 are not fully consistent with data reported until the year 2014. This fact does not allow to apply multiple regression analysis that can bring more serious proof of the relation between NPI and defined explanatory monetary variables. Analysis presented in this paper represents the first – initial step – in author's research of the geographical density of NPI serving to households in the Czech Republic. As the next step in explaining size variability of the nonprofit sector between Czech regions, the heterogeneity of regional communities will be taken into account as the explanatory nonmonetary variable. However, this topic will be open in another paper.

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Efficiency of Local Self-Government Units in Providing Library Services on the Polish Side of Euroregions: Glacensis, Pradziad, Cieszyn Silesia and Silesia

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Abstract

The aim of this study is to investigate how Polish municipalities cope with providing public library services and what is a nature of a possible inefficiency? Whether it has an operational nature related to a waste of resources, or the inefficiency is linked to an inappropriate managerial ability to choose an optimal scale of operation. For this purpose the Data Envelopment Analysis (decomposed to a pure technical efficiency and scale efficiency) was applied. The DEA model with two inputs (collection of books and number of employees) and two outputs (readers of public libraries and borrowing books) allowed identifying the technical efficiency of 98 examined units. The study revealed that 14% of municipalities are globally efficient, i.e., they achieve the full pure technical efficiency as well as the scale efficiency. Additionally, 6% of the analyzed sample has been recognized as efficient in terms of the pure technical efficiency, but they showed the scale inefficiency. The mean score of the overall technical inefficiency in providing public library services ranges between 21% and 28%. The study allowed pointing at the pure technical inefficiency as the main cause of the overall inefficiency. Therefore, care should be taken to ensure that libraries outlays are not wasted and they tailor to the needs of readers. This mainly concerns the library employment and a scope and topicality of books collection.

1 Introduction

Over the past 15 years, the number of public libraries in Poland has been progressively decreasing, from 8783 in 2002 to 7984 in 2016, i.e., by 9%. As a result of the reduction in the number of libraries, the number of people per library was systematically increasing. Within 15 years, this indicator increased, on average, by 17%. Did the above situation cause an increase in the number of readers in every single library? Contrary to such a supposition, the answer is negative-the number of public library readers decreased, on average, by 19% during the period considered, and at the same time the number of books borrowed per reader dropped from 20 to 18. This dismal showing of a downward trend in the librarianship development in Poland is even more dramatic when we look at the data regarding the readership. According to a report carried in 2016 by the Polish National Library (titled *Podstawowe wyniki badań czytelnictwa za rok 2015*), over 63% of respondents did not read even one book in the previous year. In 2002, non-readership was counted as 44% of the respondents. The percentage of people who read 7 or more books in a year also significantly decreased from 22% in 2002 to 8% in 2015.

Where do readers obtain books from? Borrowing from friends was the most widespread source of access to books (almost 35%). Purchasing of books accounted for about 33%, and home collections were 30%. Books borrowed from public libraries found themselves in fourth place. These show that borrowed books are the largest

source of books accessed by Polish readers. These numbers clearly show that public libraries play a particularly important role in a community that is not familiar with regular reading, and they still have a lot to do!

Visiting the library does not have to necessarily mean reading of books. The highest percentage of those who visit libraries and read borrowed books, can be found among people who read 7 or more books a year, in the groups of students and in the youngest age group, 15-19-year-olds.

And what are the main reasons for using public libraries? As the report states, the most important reason for using public libraries is the access to books that would otherwise be difficult to obtain; then comes the librarian's help; next, the atmosphere of the library as a place and the fact that the events and activities organized in it are free. In turn, the main justifications for not using public libraries are: not meeting such a need, and the possibility of satisfying the majority of information sought and reading needs on the Internet. Additional points are allegations regarding outdated collections and the fear of paying penalties for books not returned on time.

In the light of the above remarks, the question arises whether in the modern world the welfare of librarianship is really so important? Or, maybe in the world of digital information the era of libraries comes to the end? Hopefully, this will never happen considering all the goals and functions of public libraries they have to fulfill. The well known set of the basic services which public libraries should provide, and how they should be provided, administered and financed has been published in IFLA/UNESCO *Public Library Manifesto 1994*, a document published by UNESCO, the first in 1949. Its third revision, agreed in 1994, defined a public library as the local gateway to knowledge, which provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups. According to *IFLAI/UNESCO guideline for development* (Gill 2001) based on *Manifesto*, the purpose of the public library is to provide resources and services in a variety of media to meet the needs of individuals and groups for the purposes of education, information and personal development including recreation and leisure. They have an important role in the development and maintenance of a democratic society by giving to the individual access to a wide and varied range of knowledge, ideas and opinions. Thus, public libraries make provisions for a wide and varied collection in different media to meet the varied information needs of the society at large. The purposes of public libraries pointed out in *Manifesto* are as follows: 1) supporting both individual and self-conducted education, as well as formal education, at all levels, 2) being the local center of information making all kinds of knowledge and information readily available to its users, providing opportunities for personal creative development, 3) creating and strengthening reading habits in children from an early age, 4) providing a focus for cultural and artistic development in the community and helping to shape and support the cultural identity of the community, 5) playing an important role as a public space and meeting place. All decision makers at national and local levels and the library community at large, around the world, are urged to fulfill the purposes of public libraries mentioned above.

A wide spectrum of activities that pursue the goals of public libraries have been reflected in numerous scientific publications. It is worth paying attention to studies that consider the role of public libraries in community building and development (see e.g., Lankes, 2011, Scott 2011, Belewitt 2014, Lawson 2016, Tello 2018). They show library activities as a means to building bonds across the community, and bring people from different social and economic backgrounds together to connect and learn about each other. These studies prove that public libraries bring to their communities as being far more than just books and banks of computers. Libraries are still places where individuals gather to explore and interact. They are central to building the local community, creating an inclusive society and supporting local culture. Socially inclusive libraries reach out to the community's marginal groups providing services that meet their needs. These may include the unemployed, social assistance recipients, offenders, the illiterate, and many others. Barriers can include technology, rules, charges, etc. Public libraries are a vital element in the public services of each country. They provide a focus for individual learning for people of all ages, and make available access to vital information and community networks ; they are a gateway to local arts and cultural activities; and they are leading the drive to increase the use of information and communication technology among all sectors of society. The public library has become a multipurpose agency with multiple roles covering the areas of information and lifelong learning, recreation and leisure, culture and research. The new information and communication technologies do not threaten the existence of public libraries but offer an opportunity to provide increasingly valuable and effective services for users.

The next very interesting topic concerns challenges faced by public libraries in the era of the Internet and digital media technologies (see e.g., McKnight, Dearnley 2003, Bin, Miao 2005, Bertot et al. 2011, Real et al. 2014). These studies examine the new challenges faced by libraries since the advent of the Internet in the mid-1990s - public libraries have become key Internet-access and technology-training providers for their communities. The ability to offer Internet access alongside support and training for patrons using such technologies are primary indicators of the value of libraries to their communities. The Internet challenges any traditional notion of library's use for collecting or managing information. As the information is constantly changing it is not a static and reliable source like a book, nor is the contents necessarily correct all the time. Internet-enabled services and

resources provided by public libraries are crucial for nowadays communities. Another challenge is related to electronic publications. While the hard copy publishing market is mature, the rules and regularities of electronic publications in libraries are still under development. What and how much of electronic materials should be bought by public libraries and be made available to the users, how they are used, and what is the potential for portable electronic book (e-book) devices within a public library context, are still embarrassing questions for librarians. If we agree-on the basis of the literature review presented-that the activity of public libraries is important factor for building a civic society, social ties, preventing social and technological exclusion and developing local democracy, we must admit that it is important to examine how local self-government units deal with the provision of public library services.

The progressive decline of readership in Poland and the degradation of librarianship seem to be very worrying and need actions that would reverse this fatal trend. Such actions require a multilevel diagnosis, which may be found partly in the results of this study.

The aim of this study is to investigate how Polish local self-government units cope with providing public library services. Do they perform efficiently in terms of transforming their library resources into production expressed by library usership? Where are the sources of inefficiency to be found and what is the nature of possible inefficiency? Whether it has operational nature associated with the waste of resources? Or, it has the nature of non appropriate managerial ability to choose the optimal scale of operation. As the research sample, the municipalities from the Polish side of Polish–Czech Euroregions (Glacensis, Pradziad, Cieszyn Silesia and Silesia) will be examined. This unusual selection of a research sample has been determined due to a very specific reason, namely, the closest neighborhood of the society where the readership and the librarianship have no equal all over Europe. As the performance evaluation tool, Data Envelopment Analysis will be applied.

2 Material and Methods

2.1 Research Framework and Data Descriptive Statistics

The issue of the assessment of public libraries' activity is very important, particularly for the reasons of a general tendency to reduce public spending. Services of public libraries are financed from public funds, and it is very difficult to evaluate their effectiveness or efficiency. According to Shim (2013), effectiveness refers to the extent to which library services meet the expectations or goals set by the organization, while efficiency measures the library's ability to transform its inputs (resources) into production of outputs (services), or to produce a given level of outputs with the minimum amount of inputs. Of the two aspects, efficiency has received comparatively less attention in the literature, yet it should be holding more meaning and importance to decision makers of the parent institution. Though relatively smaller in number, articles have been published on the measurement of the efficiency of library performance, especially for benchmarking purposes. It is worth paying attention to the following publications which consider the efficiency of libraries' performance: Hammond, C. 2002, Srakar 2017, Vrabkova, Friedrich 2017, Vrabkova, 2017. The most popular technique used in this literature for the efficiency measurement is Data Envelopment Analysis (DEA). The selection of appropriate indicators to examine the performance of public libraries reflects specific research objectives (according to who is the recipient of results of the research, and for what purposes they will be used), and data availability.

This study aims to evaluate the efficiency in providing public library services through 110 Polish local government units (*gmina*) that are members of four Polish-Czech Euroregions. The brief characteristics of these Euroregions is as shown in Table 1.

Table 1 - The size of Polish-Czech Euroregions and public libraries' density.

	Euroregion				Total
	Pradziad	**Glacensis**	**Cieszyn Silesia**	**Silesia**	
Number of municipalities on Polish side (local level units (*gmina*))	40	31	16	23	110
Area of Polish side in km² (% of total)	5.239 (73)	3.217 (64)	885 (63)	1.562 (56)	10.903 (67)
Polish inhabitants as % of total	84	48	53	38	54
Number of municipalities with 1-3 libraries (% of total)	17 (43)	21 (68)	11 (69)	14 (70)	63 (57)

	624	931	2 267	864	624
Number of inhabitants per library: min	624	931	2 267	864	624
max	9.463	30.357	12.044	22.658	30.357
V	0.66	1.18	0.48	1.03	0.98

Source: Own work on the basis of data available from the Euroregions' websites and on-line Local Data Bank (https://bdl.stat.gov.pl/BDL/start).

The Polish side of four analyzed Euroregions covers an area of almost 11,000 km^2, which is approximately 67% of the total territory of the Polish-Czech Euroregions. The greater part of each Euroregion lies on the Polish side (56-73%). Euroregion Pradziad is the largest one, and 84% of its inhabitants are Poles who live in 40 municipalities. The smallest is the Euroregion of Cieszyn Silesia (its territory is five times smaller than Euroregion Pradziad). The Polish part of it consists of 16 municipalities.

As can be seen, the analyzed Euroregions are very diverse in terms of size and population. Among them there are local governments with only 1 library, as well as units with 13-15 libraries (including branches). Municipalities with 1-3 libraries constitute, on average, 57% of the total. The analyzed sample is also very different in terms of the number of population per library: from 624 inhabitants in Lubrza (Euroregion Pradziad) up to 30,357 in Bielawa (Euroregion Glacensis). The coefficient of variation (V) for this indicator is high or very high in all Euroregions (0.48-1.18), which means that the density of the libraries in certain municipalities is very different.

In order to assess the performance of local government units as the result of providing public library services, four indicators will be examined. Two of them are inputs which are crucial production resources for each library: the collection of books per 1000 population (CB); and the number of employees per library (EL). The other two indicators will express outputs that reflect on how citizens make use of what the library offers. These two indicators are: the readers in public libraries per 1000 population (RL); and the borrowing of books per reader (BB). The data used in the study refers to the year 2016. This is obtained from the statistical office, the Local Data Bank. The range of input-output indicators and their descriptive statistics is shown in Table 2.

Table 2 - Descriptive analysis of input-output indicators (2016).

Inputs:	Abbr.	Min	Max	AV	M	SD
Collection of books per 1000 population	CB	878	9469	4222.2	4096	1680.6
Number of employees per library (including branches)	EL	0.4	13	2.8	2	2.3
Outputs:						
Readers of public libraries per 1000 population	RL	38	296	146.2	139	57.4
Borrowing books, per reader, in volumes	BB	6	35	19.22	18	5.7

Source: Own work on the basis of on-line Local Data Bank (https://bdl.stat.gov.pl/BDL/start).

As Table 2 shows, the largest variation between the municipalities analyzed relates to the number of employees per library (EL). The coefficient of variation for the EL indicator amounts to 0.82. The other three indicators show rather moderate differentiation (the coefficient of variation for them ranges from 0.3 up to 0.4). For all indicators, the median is lower than the mean value.

In order to ensure the homogeneity of the analyzed sample of local government units in terms of providing public library services, there is a need to verify them using the appropriate quantitative method. In this study, the homogeneity of the sample will be examined using the super efficiency Data Envelopment Analysis (SE-DEA) model with arbitrarily set thresholds.

In the next step, the DEA under assumption of constant returns-to-scale (DEA-CCR) approach will be applied to evaluate the performance of the homogeneous sample of municipalities with decomposition to the pure technical efficiency and scale efficiency.

2.2 Data Envelopment Analysis as a Performance Evaluation Tool

Data Envelopment Analysis is a non-parametric method based on linear programming techniques. The DEA evaluates the technical efficiency and aims at estimating the relationship between the inputs and outputs of homogeneous objects. The main advantage of the DEA technique is that it does not require the specification of a particular functional form of technology. It is a powerful quantitative method for evaluating the relative efficiency when there are multiple inputs and outputs.

The DEA introduced by Charnes, Cooper and Rhodes in 1978 (Charnes et al., 1978), based on the work of Farrell (1957), offered a basic DEA model, which is the radial CCR model, with the assumption of constant

returns to scale (an abbreviation that arises from the first letters of the providers' names). The DEA-CCR model was extended to constitute technologies that reveal variable returns to scale by Banker, Charnes and Cooper in 1984 (Banker et al., 1984), called as DEA-BCC, respectively.

The DEA identifies a frontier based on which relative performance among all the decision-making units (DMUs) in the sample can be compared-the DEA benchmarks the analyzed DMU only against the best ones that form the frontier of efficiency (productivity frontier).

An object (the DMU) is recognized as 100% efficient (DEA score = 1) when comparisons with other units in a sample do not offer evidence of inefficiency in the use of any input or output. If any object is not at the frontier, it indicates inefficiency; its distance from the frontier defines the inefficiency level and a DEA score <1. Over the years, simple DEA models have been developed through several modifications which permit the users to have a better fit of the appropriate DEA variant to the specific needs of the researchers (for mathematical foundations of the DEA, refer to Charnes et al., 1994; Cooper et al., 2007; Emrouznejad and Tavana, 2014).

Using the linear programming technique, the various DEA models intend to provide efficiency scores under different orientations (input vs. output) and assumptions of returns-to-scale (constant vs. variable).

The DEA technical efficiency (TE), known as the global or overall technical DEA-CCR efficiency, can be broken down into two mutually exclusive and non-additive components: the pure technical efficiency (PTE) and the scale efficiency (DEA-Scale). Tahir, Bakar and Haron (2009) argue that a DMU which is efficient under constant returns-to-scale (DEA-CCR) is technologically efficient and also uses the most efficient scale of operation. The PTE denotes technical efficiency that cannot be attributed to deviations from the optimal scale (scale efficiency). This decomposition allows an insight into the source of inefficiencies. The PTE measure is obtained by estimating the efficient frontier under the assumption of variable returns-to-scale (DEA-BCC). It is a measure of TE without DEA-Scale, and purely reflects the managerial performance to organize the inputs in the production process. Thus, the pure inefficiency sometimes is referred to as controllable, managerial or X-inefficiency (Alexander, Jaforullah, 2005). The measure of DEA-Scale provides the ability of the management to choose the optimum size of resources, i.e., to decide on the DMU's size or, in other words, to choose the scale of production that will attain the expected production level. There are two possible reasons for scale inefficiency. The DMU could be operating under increasing returns-to-scale (IRS) and, therefore, be of sub-optimal scale. Alternatively, the DMU could be operating under decreasing returns-to-scale (DRS) and, therefore, be of supra-optimal scale. The ratio of TE to PTE provides the DEA-Scale measure (DEA-Scale = DEA-CCR/DEA-BCC).

In this study, the overall technical efficiency (DEA-CCR) will be computed in order to point out how many examined municipalities are globally efficient in providing public library services, which means that they do not waste their resources besides operating at an optimal scale. In turn, the PTE (DEA-BCC) and the DEA-Scale will be estimated in order to identify the main sources of libraries' inefficiency.

But, at the first step the DEA method will also be used to exclude from the analyzed sample the most outlying municipalities besides ensuring the homogeneity of DMUs. For this purpose, the super-efficient DEA (SE-DEA) variant will be applied. The super-efficiency variant is identical to the standard approach, except that the DMU under evaluation is excluded from the reference set. Super-efficiency DEA models rank efficient DMUs, and efficiency scores may be greater than 1.

In this study, the SE-DEA model with thresholds will be applied. The upper threshold will be set arbitrarily at 150% and the lower one at 50% (SE-DEA:50%≤Tr≤150%). It means that the examined sample of local government units will be cleansed from the outlying units which will show extraordinary efficiency scores exceeding 150%, as well as those that will obtain a very weak efficiency, i.e., efficiency scores will be lower than 50%.

3 Results and Discussion

3.1 DEA Super Efficiency Results - Determining the Homogeneity of a Research Sample

In the first step of the study, the group of 110 local government units was verified to ensure their homogeneity. For this purpose the super efficiency DEA variant with thresholds was applied (SE-DEA:50%≤Tr≤150%). The upper threshold set at 150% caused in the exclusion from the sample two units (Kiertz from Silesia and Leśnica from Pradziad). The lower threshold at 50% removed ten further municipalities (Kamieniec Ząbkowicki, Kłodzko, Nowa Ruda, Radków, Stoszowice and Szczytna from Glacensis; Byczyna and Korfantów from Pradziad; Dębowiec from Cieszyn Silesia and Kornowac from Silesia).

Finally, in the second step of the study 98 local government units will be evaluated due to their overall technical efficiency (DEA-CCR), pure technical efficiency (DEA-BCC) and scale efficiency (DEA-Scale). All these municipalities have been listed in the Table A1.

3.2 DEA-CCR Results and Decomposition to the Pure Technical Efficiency and Scale Efficiency

Table 3 presents a synthetic statistical description of the DEA computations results. The DEA approach allowed to identify 13 local government units (13% of analyzed sample) which showed the full global technical efficiency (DEA-CCR=100%) which means they are operating in the most productive scale size, as well as revealing their full pure technical efficiency (DEA-BCC=100%). An upper quartile of the sample identified an efficiency gap at about 13%. These highly assessed municipalities are located mainly in the Euroregion Pradziad. Twelve municipalities which obtained DEA-CCR score equal to or higher than 87% come from Euroregion Pradziad (seven of them are 100% efficient). It means that 32% of municipalities which come from Pradziad area are leaders in providing public library services. Further 24-27% of units which found themselves in the peers group come from the Glacensis Euroregion and Cieszyn Silesia.

The mean DEA-CCR efficiency score for the sample of 98 considered DMUs amounts to 75.1%, and it is almost equal to the median (74.9%). The 95% confidence interval amounts to the mean value ± 3.1%. This means that the true mean of the DEA-CCR efficiency score for all population of municipalities is likely to be between 72% and 78%. This implies that on average, Polish municipalities are achieving results of their libraries' performance about 22-28% worse than they would if they were efficient. Municipalities which have found themselves below the lower quartile noted DEA-CCR scores ranged between 50% and 64%. From 5 to 7 municipalities in each Euroregion found themselves in this bottom group. All this proves that a significant number of local government units from analyzed Euroregions poorly copes with providing public library services, and it is necessary to improve the efficiency of transforming given libraries' inputs into their outputs. DEA computations revealed that municipalities which showed the lowest DEA-CCR relative efficiency scores should significantly increase their output indicators: the number of readers of public libraries per 1000 population RL, by 56% to 100%, while the number of books borrowed per reader BB, by 56% up to 168%. Several DEA-CCR-inefficient municipalities should also decrease the number of employees per library EL by 11% to 82%. Nineteen among ninety-eight (19%) analyzed units showed full pure technical efficiency (DEA-BCC=100%), but six of them are not globally efficient due to the scale size of the unit (nine municipalities are located in the Euroregion Pradziad). The source of their inefficiency arises from disadvantageous conditions displayed by the scale inefficiency which ranged from a slight 5% up to 46%. The measure of scale efficiency assesses the ability of the management to choose the optimum size of inputs to attain the expected outputs. The mean scale efficiency score for the sample amounts to 91.5%.

Table 3 - DEA computations summary.

	DEA-CCR	DEA-BCC	DEA-Scale
Number of DMUs where DEA score=100% (as % of Euroregion) Total:	13 (13%)	19 (19%)	14 (14%)
Pradziad:	7 (19%)	9 (24%)	7 (19%)
Glacensis:	2 (8%)	4 (16%)	3 (12%)
Cieszyn Silesia:	2 (13%)	3 (20%)	2 (13%)
Silesia:	2 (10%)	3 (11%)	2 (10%)
Max:	100%	100%	100%
Min:	50.11%	51.89%	53.65%
Mean:	75.15%	82.12%	91.53%
95% confidence interval on the mean:	±3.12%	±2.87%	±1.88%
Coefficient of variation:	0.21	0.18	0.10
Quartile Q1:	64.10%	70.85%	89.05%
Q2:	74.90%	83.83%	94.56%
Q3:	86.97%	95.50%	99.19%
Number of DMUs where DEA score≤Q1 (as % of Euroregion):			
Pradziad:	6 (16%)	5 (14%)	5 (14%)
Glacensis:	7 (28%)	8 (32%)	8 (32%)
Cieszyn Silesia:	5 (33%)	6 (40%)	3 (20%)
Silesia:	7 (35%)	6 (30%)	9 (45%)
Number of DMUs where DEA score≥Q3 (as % of Euroregion):			
Pradziad:	12 (32%)	11 (30%)	10 (27%)

Glacensis:	6 (24%)	8 (32%)	7 (28%)
Cieszyn Silesia:	4 (27%)	3 (20%)	4 (27%)
Silesia:	3 (11%)	3 (11%)	4 (19%)

Source: Own calculation on the basis of Table A1.

The 95% confidence interval amounts to the mean value ± 1.88%, which means that the true average scale inefficiency is not very high, and ranges between 7% and 10%. The range between the low quartile (Q1) of the scale efficiency score and the high one (Q3) amounts to just 10%. The coefficient of variation for DEA-Scale scores is very low and equals 0.1, which means that differences between the considered DMUs are insignificant. In the case of local pure technical efficiency (DEA-BCC) the average efficiency score amounts to 82%, and the 95% confidence interval is ± 2.87%. It means that the true gap of pure technical efficiency is likely to be between 15% and 21%. The range between the low quartile (Q1) of the DEA-BCC score and the high one (Q3) amounts to even 24%. All this gives reason to believe that inefficiency in providing public library services has its source more in the local pure technical inefficiency that can be understood as a waste of inputs rather than in the scale inefficiency, i.e., in the managerial ability to choose the optimal size of operation.

4 Conclusion

The study revealed that 13% of 98 local self-government units forming the Polish side of four Polish-Czech Euroregions (Glacensis, Pradziad, Cieszyn Silesia and Silesia) are DEA globally efficient, i.e., they achieve the full pure technical efficiency as well as the scale efficiency. Additionally, 6% of the analyzed sample has been recognized as efficient in terms of local pure technical efficiency, but at the same time they show scale inefficiency. Therefore, it can be concluded that even 80% of analyzed municipalities should improve their operations in providing public library services. With 95% confidence, it can be argued that the mean overall inefficiency of Polish local governments in providing public library services ranges between 21% and 28%. However, it is even more important to indicate the source/cause of their inefficiency. The study showed that the technical inefficiency of municipalities in providing public library services is a result of the pure technical inefficiency rather than scale inefficiency - the mean value of pure technical inefficiency is likely to be between 15% and 21%, while the mean scale inefficiency ranges between 6% and 10%. Therefore, care should be taken to ensure that library outlays are not wasted and they tailor to the needs of readers. This mainly concerns the library employment and a scope and topicality of books collection.

It would be valuable to focus the further research on the performance of libraries in other regions of Poland, including other Euroregions as well as areas which lie beyond any cross-border influence on readership and librarianship. It would also be worth investigating the efficiency in providing public library services by including to the research sample municipalities from the Czech side of analyzed Euroregions.

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Appendix 1 - Data Envelopment Analysis stores (CCR, BCC, Scale Efficiency).

Municipality	Euroregion	DEA scores			Municipality	Euroregion	DEA scores		
		Scale	BCC	CCR			Scale	BCC	CCR
Baborów	Silesia	95.08	55.81	53.06	Lubrza	Pradziad	97.52	94.48	92.14
Bardo	Glacensis	100	93.89	93.89	Lyski	Silesia	89.03	71.48	63.64
Biała	Pradziad	89.1	94.16	83.9	Marklowice	Silesia	81.55	100	81.55
Bielawa	Glacensis	99.86	87.29	87.17	Mieroszów	Glacensis	100	100	100
Bierawa	Pradziad	82.39	95.46	78.66	Międzylesie	Glacensis	84.24	97.63	82.25
Borów	Glacensis	68.63	95.51	65.55	Mszana	Silesia	90.53	80.28	72.68
Branice	Silesia	99.83	55.98	55.88	Nędza	Silesia	82.33	61.35	50.51
Brenna	Śląsk Cieszyński	97.99	71.3	69.86	Niemodlin	Pradziad	91.1	82.26	74.94
Bystrzyca Kłodzka	Glacensis	91.76	54.61	50.11	Nysa	Pradziad	99.79	81.54	81.37
Chrząstowice	Pradziad	92.78	87.45	81.14	Olszanka	Pradziad	86.89	100	86.89
Chybie	Śląsk Cieszyński	87.76	66.79	58.62	Opole	Pradziad	64.45	100	64.45
Ciepłowody	Glacensis	94.11	84.03	79.09	Otmuchów	Pradziad	100	100	100
Cieszyn	Śląsk Cieszyński	94.86	100	94.86	Ozimek	Pradziad	89.51	60.05	53.75
Cisek	Pradziad	94.24	75.11	70.79	Paczków	Pradziad	92.41	89.45	82.65
Czarny Bór	Glacensis	94.64	84.53	80	Pakosławice	Pradziad	75.62	67.46	51.01
Dąbrowa	Pradziad	99.37	89.81	89.25	Pawłowiczki	Pradziad	95.69	55.11	52.74
Duszniki-Zdrój	Glacensis	53.65	100	53.65	Pietrowice Wielkie	Silesia	94.59	86.3	81.63
Dzierżoniów	Glacensis	79.1	97.68	77.26	Polanica-Zdrój	Glacensis	74.86	100	74.86
Gaszowice	Silesia	99.48	75.54	75.15	Polska Cerekiew	Pradziad	100	100	100
Głogówek	Pradziad	99.42	62.74	62.38	Popielów	Pradziad	91.09	83.3	75.88

Głubczyce	Silesia	90.58	83	75.18	Prószków	Pradziad	92.27	88.99	82.12
Głuchołazy	Pradziad	100	100	100	Prudnik	Pradziad	94.53	71.37	67.46
Głuszyca	Glacensis	95.08	68.88	65.49	Przeworno	Glacensis	98.72	97.01	95.76
Godów	Śląsk Cieszyński	90.88	74.14	67.38	Pszów	Silesia	72.64	89.16	64.77
Gogolin	Pradziad	98.35	88.46	87	Racibórz	Silesia	100	100	100
Goleszów	Śląsk Cieszyński	100	100	100	Reńska Wieś	Pradziad	98.81	98.5	97.33
Gorzyce	Silesia	76.1	89.98	68.47	Rudnik	Silesia	95.84	88.67	84.99
Grodków	Pradziad	91.63	83.63	76.63	Rudniki	Pradziad	100	100	100
Hażlach	Śląsk Cieszyński	93.52	68.14	63.72	Rydułtowy	Silesia	86.98	58.95	51.27
Istebna	Śląsk Cieszyński	92.06	65.74	60.53	Skoczów	Śląsk Cieszyński	99.86	75.71	75.6
Izbicko	Pradziad	100	100	100	Skoroszyce	Pradziad	100	100	100
Jasienica	Śląsk Cieszyński	98.95	75.46	74.66	Stronie Śląskie	Glacensis	89.21	75.3	67.18
Jastrzębie-Zdrój	Śląsk Cieszyński	72.23	92.41	66.75	Strumień	Śląsk Cieszyński	96.69	67.62	65.38
Jaworze	Śląsk Cieszyński	97.68	94.26	92.08	Strzeleczki	Pradziad	100	100	100
Jedlina-Zdrój	Glacensis	99.33	92.62	92	Strzelin	Glacensis	99.27	82.88	82.27
Jejkowice	Silesia	95.51	73.03	69.76	Świerklany	Silesia	71.56	70.66	50.56
Jemielnica	Pradziad	91.6	57.16	52.36	Tułowice	Pradziad	94.29	86.68	81.73
Kędzierzyn-Koźle	Pradziad	91.68	85.54	78.42	Ujazd	Pradziad	97.22	75.15	73.06
Kolonowskie	Pradziad	94.51	73.22	69.2	Ustroń	Śląsk Cieszyński	100	100	100
Komprachcice	Pradziad	97.1	75.52	73.33	Walce	Pradziad	81.02	75.83	61.44
Kondratowice	Glacensis	95.03	62.86	59.73	Walim	Glacensis	80.78	62.77	50.71
Krapkowice	Pradziad	97.72	98.33	96.09	Wałbrzych	Glacensis	92.76	73.77	68.43
Krzanowice	Silesia	74.04	86.95	64.37	Wisła	Śląsk Cieszyński	74.72	70.7	52.83
Krzyżanowice	Silesia	98.95	94.95	93.96	Wodzisław Śląski	Silesia	83.74	90.6	75.87
Kudowa-Zdrój	Glacensis	76.33	68.8	52.51	Ząbkowice Śląskie	Glacensis	86.99	69.81	60.73
Kuźnia Raciborska	Silesia	100	100	100	Zdzieszowice	Pradziad	95.87	72.66	69.66
Lądek-Zdrój	Glacensis	100	100	100	Zebrzydowice	Śląsk Cieszyński	99.74	64.18	64.01
Lewin Kłodzki	Glacensis	96.36	73.3	70.63	Ziębice	Glacensis	99.81	66.32	66.19
Lubomia	Silesia	89.1	57.9	51.59	Złoty Stok	Glacensis	97.42	51.89	50.56

Source: Own computations using Data Envelopment Analysis Software PIM ver. 3.2.

Spatial Differences in the Expenses Incurred by Units of Local Governments on Physical Culture in Poland in 2017

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Abstract

Units of local governments in Poland are responsible for running actions in the sphere of physical culture. The growing number of people practicing sports, as well as social and rearing aspects related to sports exert an influence on the activity of sports clubs and social organizations which promote physical culture. While only some sports organizations are self-sufficient economically, most of them must rely on public support. In Poland, like in the majority of European countries, one of the main sources of financing are subventions from public means. In this paper, using the background of characteristics related to legal aspects of financing physical culture by local government, which is based on subsidies, the author presents differences in expenses from local governments' budgets on tasks pertaining to physical culture (Section 926 of the budgetary classification), with special taking into account the subventions which constitute them. The research was conducted in the division into two main research areas: (1) spatial differences in the total expenses borne by communes on physical culture in 2017 (including subsidies) in the regional framework (division into 16 provinces) and (2) interdependence between the level of subvention-related expenditure incurred by the commune and selected variables. The basic tools of descriptive statistics and examination of interdependences were used. A very large spatial difference in the examined variables, both in the regional framework and within the types of communes, was found. A strong correlation was also found between total subvention-based expenses by communes and the level of the socioeconomic development of provinces and the number of people practicing sports in clubs and the low financial condition of the communes.

1 Introduction

Public authority, in their everyday activity, realize various types of tasks which are vital to society. They are also obliged to create favorable conditions which are conducive to satisfying collective demand for public services. As far as Poland is concerned, the basic group of the tasks and public services, which are not of the national significance, are realized by local governments through their units. They are subordinated to relevant local (the level of a commune /*gmina*/ or a county /*poviat*/) or regional (that of a province /*voivodeship*/) communities and represent their interests, respectively. Physical culture, in a direct and indirect way, impacts society's physical activity. Its fundamental aim it to care for the proper citizens' psychic and physical development, as well as health. In Poland, the notion of physical culture is defined normatively on the occasion of providing the legal definition of sport. This term, according to Article 2 of the Act on Sport [14], consists of all forms of physical activity, which – through accidental or organized participation in them – influence the working out or

improvement in man's physical and psychic condition, development of social relations or achieving results in sports on all levels. In the understanding of the Act it is sports and rehabilitation through movement that constitute physical culture.

The range of the impact exerted by physical culture, including sports, also extends beyond the sphere of health and sports rivalry. This was made prominent in 2007, when the European Commission declared that both the social role of sports and their economic influence contribute to a great extent to the realization of strategic goals of individual states as well as the whole of the EU, in such spheres as: solidarity and affluence [15]. Despite this, while physical activity is constantly being promoted, the EU is still faced with high indexes of shortage of sports-recreational activities. According to the latest data supplied by Eurobarometer [9], 46% of the Europeans confirm their lacking in any physical activity. Poland has taken its place among the countries with a high percentage of inhabitants who are passive as regards sports activity (56%). This confirms the argument that undertaking and organizing actions which propagate physical activity is an important sphere of public activity. Hence it seems justified to engage public subjects (state-run or local government entities) to not only promote, but also to (co-)finance (directly or indirectly) sports- and recreation-oriented tasks. The model of financing, which has been in operation for many years now, assumes that the basic source of financial outlays on physical culture, including sports, is the very local-government-run public sector itself. The structure of public expenses from the budget, which is presented in Table 1, confirms the considerable share of units of local government in financing tasks in this sphere.

Table 1 - Public expenses from the budget on physical culture in Poland in the years 2015-2017 (in million PLN).

Specification	2015	2016	2017
expenses of the state	261.24	293.70	282.32
share in the expenses of the state in total	0.08%	0.08%	0.08%
expenses of the local government sector	4 337.51	4 445.12	5 078.34
share in the expenses of local governments in total	2.21%	2.16%	2.21%
expenses of communes (without cities with rights of a county)	2 124.32	2 206.56	2 578.34
share in the expenses of local governments in total	48.98%	49.64%	50.77%
expenses of cities with the rights of a county	2 007.24	2 043.11	2 290.95
share in the expenses of local governments in total	46.28%	45.96%	45.11%
expenses of counties	78.44	72.85	83.52
share in the expenses of local governments in total	1.81%	1.64%	1.64%
expenses of provinces	127.51	122.60	125.53
share in the expenses of local governments in total	2.94%	2.76%	2.47%

Source: author's own elaboration on the basis of data from Local Data Bank, GUS

Sports activity is most often run in the form of sports clubs. In Poland, like in the majority of European countries, one of the principal sources of financing them are subventions from public means [11]. Both the aims which accompany realization of sports tasks and engagement of substantial public means in their realization justify exploring local governments' activities in this domain.

1.1 Legal Foundations of the Subvention-Based Financing of Physical Culture by Local Governments in Poland

Public subventions are one of the basic intervention instruments which is capable of shaping directly the socioeconomic development and stimulating various subjects to run socially-useful activity, including that in the sphere of sport. In the EU, there are five key streams which provide funding for grassroots sport. These are: (1) household expenditures and volunteering, (2) public sector subventions coming from the national, regional and local levels, (3) sponsorship, patronage and donations, (4) revenue from levies and charges on state lotteries, betting and gambling operators, (5) revenue from media rights to sports event organizers [10]. With reference to the above-mentioned catalog, subventions granted from public means are acknowledged to be one of the pillars of financing grassroots (amateur) sports. In Poland, Article 126 of the Act on public finances defines subvention from the budget as means which are subject to particular principles of clearing, ones which units of local government assign to financing or co-financing of realization of public tasks [13]. Granting them is a typical practice of Polish local governments, the more so as in the scope of carrying out their own tasks, from the point of view of the general principle, local government organs have the right to independently decide on subvention-

dependent expenses. Involvement of public authorities in the development of physical culture has its foundations in the records of the Constitution, which – in Article 68, par. 5 – indicate that public authorities support the development of physical culture, particularly among children and youth. Moreover, according to the records of the acts on: commune government, county government, provincial government (Art. 7, 4 and 14, respectively), the tasks in the scope of physical culture and tourism belong to the group of own tasks of local government units. Creating conditions, including organizational ones, which are conducive to developing sports, as an own task of units of local government, follows also from Article 27 of the Act on sports mentioned earlier. Other solutions which target development of sports and strengthening its organizational structure, as well as facilitate it to local governments to realize their own tasks follow from the records of Article 221 of the Act on public finances. They refer to subjects not included in the sector of public finances and not acting with the aim to make profit (e.g., non-governmental organizations), being ones that the commune can commission to execute its own tasks, among others in the sphere of support and popularization of physical culture. The indicated legal norms make a source of possible entitlements to subventions in the area of physical culture, yet – in practice – they are conditioned by the scope of subvention-related freedom of local governments. This, in turn, is determined, among others, by the type of own tasks (obligatory or facultative), as well as by financial possibilities of local governments, delineated first of all by the level of own income. Tasks in the scope of supporting physical culture count as voluntary ones. Thus, the decision whether they will be carried out is left to organs of the given unit of a local government. The more so as the legally defined possibilities of subsidizing subjects engaging in socially useful sports activity require socially effective and responsible subvention-related policy in communes. In this respect, it is of key importance to create proper formal-legal conditions which make it possible to decide about granting a subvention, its height, allocation and control of its utilization. Defining the conditions and mode of proceeding while applying for subsides has been settled along two procedural paths: in the case of non-governmental organizations (including sports clubs) – in the records of the Act on activity of public benefit and voluntary work [12], and strictly for sports clubs applying for subventions on the basis of the Act on sports – in compliance with the mode and principles defined by the so-called subvention resolution of the organ being an entity of the local government (i.e., on the basis of local legal regulations). Due to the lack of requirements which standardize the range of indispensable conditions defined in the subvention resolutions the procedure defined by the regulations of the Act on activity of public benefit and voluntary work can be considered a good model of granting subventions. Nevertheless, in both the literature of the subject and beneficiaries' opinions there is raised the objection of vagueness of the norms which deal with the practice of subsidizing subjects with the means from local governments' budgets [5][1].

2 Material and Methods

The presented research results make a fragment of quantitative-qualitative studies concerning effectiveness of expenditure of local government budget transfers (targeted grants) assigned to realization of tasks pertaining to physical culture. The research problem area dealt with in the paper concerns spatial differences in expenses from local governments' budgets incurred on physical culture (Section 926 of the budgetary classification), with particular account taken of the subventions constituting it. Out of all the rungs of local government units in Poland it is communes that spend the most on tasks relating to physical culture. Therefore, the research was conducted solely with reference to the administrative unit of commune. Additionally, the differences in the following types of communes were taken into consideration: (1) municipality (urban commune), (2) rural commune, (3) urban-rural commune, (4) city with rights of a county. The selection of the research sample was intentional – all the communes in the country were included in the research (N=2478), distinguished according to the administrative and statistical units layout by NUTS 2016. With respect to its subject, the research was conducted with the use of the desk research method. The primary financial data (height of the expenses from the budget in total under Section 926 of budgetary classification, including the amount of subventions granted) and complementary data which were necessary to establish indispensable relative variables, were obtained from the resources of Local Data Bank [3] and statistical yearbooks published by GUS (Central Statistical Office). Because of the fact that the examined variables did not appear in all of the communes covered by the research, the number of subjects (N) that were included in it is indicated while giving the characteristics of the results. The set of data thus prepared was subject to exploration and analysis.

For the sake of greater clarity, the research was carried out in division into two main research areas: (1) spatial difference in expenses in total which were borne on physical culture by communes in 2017 (including subsidies) in the regional framework (division into 16 provinces) and in individual types of communes, and (2) interdependences between the level of expenses based on subventions, which were borne by communes and selected variables. In order to make the examination more precise the following research questions were formulated in the individual areas: (1a) In which provinces of Poland did the communes incur low and in which high expenses on financing tasks in the sphere of physical culture, including subventions for subjects realizing these tasks? (1b) How were the examined expenses distributed between individual types of communes? (2a)

How were, in the regional system, connections between the height of granted subventions and the level of the socioeconomic development of the provinces formed? (2b) Are there any interdependences between expenses based on subventions in communes and the number of people practicing sports in sports clubs? (2c) How did the correlations between the subventions paid out and selected measures of the financial condition of the commune form? In the examination of differences in the expenses, the total expenses from the communes' budgets (Section 926 of the budgetary classification – physical culture) were denoted as variable y_1, while the subvention-based expenses realized in this section – as variable y_2. In order to make a presentation of the regional distribution of the examined variables, which would allow making comparisons within the provinces and according to the types of communes, the values of the examined variables per one inhabitant were accepted. The basic tools of descriptive statistics were applied mainly: measures of central tendency, measures of dispersion and asymmetry. The results of the statistical analysis of the basic descriptive parameters for variable y_2 were expanded with an examination of the dependence between the level of subvention-based expenses and: the level of socioeconomic development of the provinces (variable x_1), number of those practicing in sports clubs based in the area of the commune (variable x_2) and the financial condition of the commune (variable x_3). To examine the interdependence, the correlation coefficient was applied. The Human Development Index (HDI) was accepted as the measure of the provinces' development due to the fact that it refers to non-financial aspects of the socioeconomic development (life expectancy, number of years of education and the GDP *per capita* calculated according to the purchasing power parity). In view of the fact that launching the subvention financial mechanism does not have the automatic character (it is required to file an application), it was assumed that the number of people practicing in sports clubs contributes to the height of subvention-based expenses from the communes' budgets. On the other hand, financial independence determined on the basis of the so-called general index of financial independence (the sum of own incomes and general subvention in relation to the income in total) was accepted to be the measure of the financial condition of communes, as it provides information about the possibilities of generating own incomes and independence at their expenditure. The calculations were executed with the use of Statistica software package.

2.1 Model and Data

In the year 2017, expenses on tasks pertaining to physical culture were incurred by the decisive majority of Polish communes (N=2448; 98.79%). Expenses of this kind were not borne by mere 1.21% of the communes (30 rural communes). Regarding the latter group, the most – 1/3 (i.e. 10) of the communes were located in Mazowieckie and Podlaskie Provinces each. Inasmuch as in the former, the rural communes which did not engage budgetary means to finance the tasks in question accounted for 4.39% of all the communes of the kind in the Province, in the case of Podlaskie Province the inactive communes constituted 12.82% of the rural communes. As far as the communes which financed tasks in the sphere of physical culture were concerned (N=2448), the subvention-based expenses were not incurred by 251 rural communes. The largest number of them were located in the areas of Mazowieckie (31.87%) and Podlaskie (19.52%) Provinces. In Mazowieckie Province, the rural communes which did not subsidize subjects and organizations realizing tasks pertaining to physical culture made 35.09% of all the communes of this type in the Province, while as regards Podlaskie Province, these communes accounted for as many as 62.82% of the rural ones in the area. In 2017, the communes incurred a total of PLN 4,869.30 million on the realization of tasks connected with physical culture, including PLN 921.87 million (18.93%) in the form of subventions. The share of individual types of communes in the expenses borne is presented in Figure 1.

Figure 1 – Share of the communes according to their type in the expenses in total (on the left) and in the expenses based on subsidies (on the right). Source: author's own elaboration on the basis of collected data
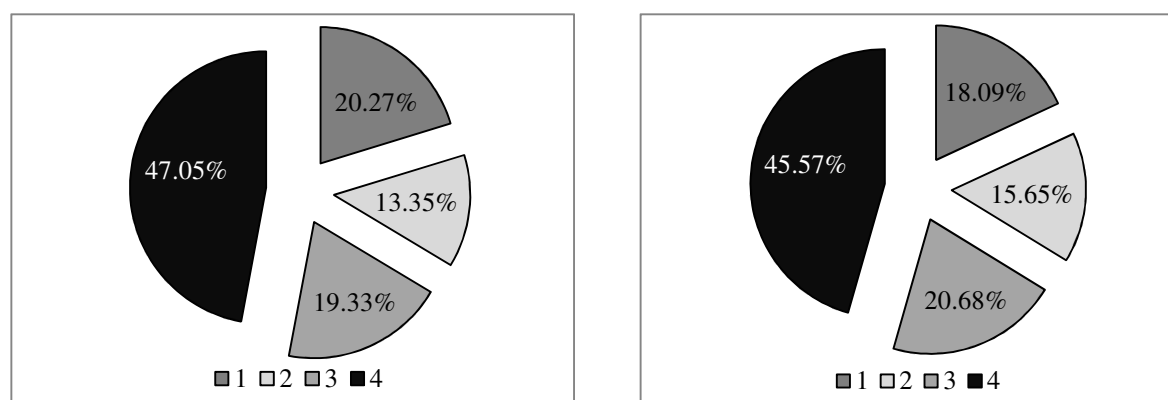
Types of communes: 1 – urban communes; 2 – rural communes; 3 – urban-rural communes; 4 – cities with the rights of counties

The value of the expenses in the nominal and *per capita* frameworks for provinces is presented in Figure 2 and Figure 3.

Figure 2 - Expenses incurred by communes on physical culture (the left axis, in million PLN) and their value *per capita* (the right axis, in million PLN) according to the provinces in Poland in 2017. Source: author's own elaboration on the basis of collected data
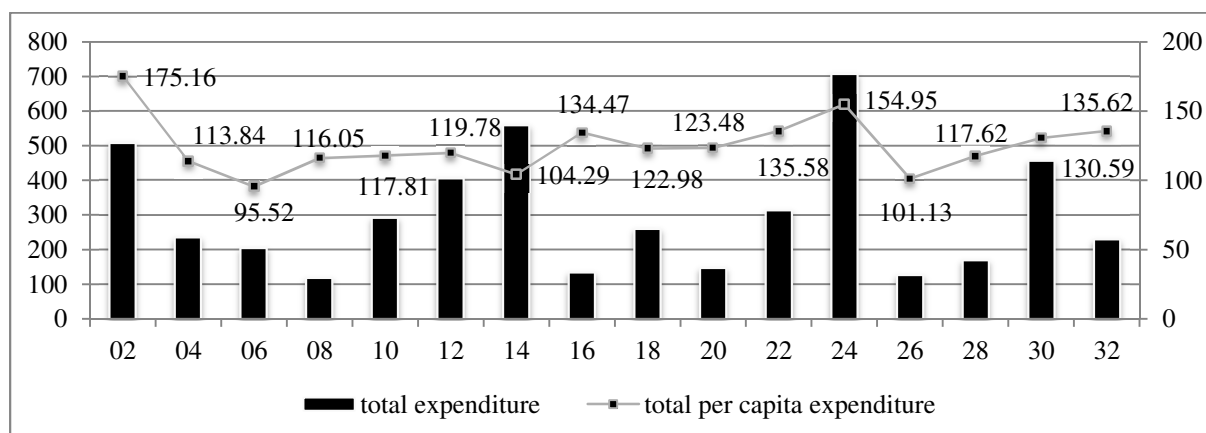
Province code: 02 – dolnośląskie; 04 – kujawsko-pomorskie; 06 – lubelskie; 08 – lubuskie; 10 – łódzkie; 12 – małopolskie; 14 – mazowieckie; 16 – opolskie; 18 – podkarpackie; 20 – podlaskie; 22 – pomorskie; 24 – śląskie; 26 – świętokrzyskie; 28 – warmińsko – mazurskie; 30 – wielkopolskie; 32 – zachodniopomorskie

Figure 3 – Subvention-based expenses in total (the left axis, in million PLN) and their *per capita* value (the right axis, in million PLN) according to the provinces in Poland in 2017. Source: author's own elaboration on the basis of collected data
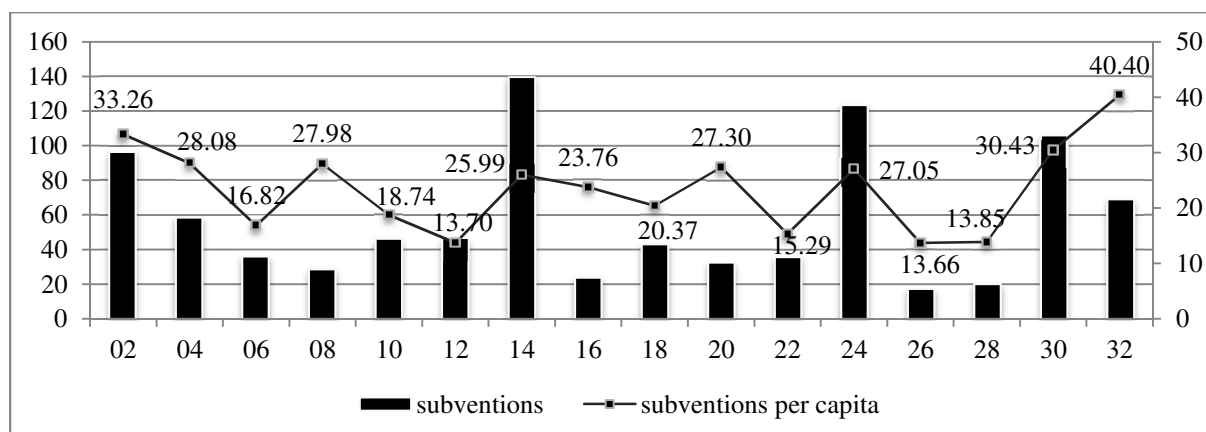
3 Results and Discussion

The examination of the differences in the level of variables y_1 and y_2, applying basic tools of descriptive statistics, was carried out in the regional system (according to the provinces) and according to the types of communes. As regards the national level, the results obtained for all the examined communes were juxtaposed in Table 2. In 2017, the communes spent PLN 74.67 *per capita* on the average from their own budgets on financing tasks related to physical culture and PLN 17.51 as support from subventions. The arithmetic mean for each of the variables was higher than the median. The high positive values of the asymmetry coefficient testify to the fact that the distribution for each variable is right-skewed. This means that in the majority of communes in Poland, the values of the examined variables remained on the lower level than the average for Poland. In the case of variable y_1 such a situation occurred in 1726 communes (N=2448; 70.51%), and in that of variable y_2 – in 1501 communes (N=2197; 68.32%).

Table 2 – Descriptive statistics of the examined variables for the communes in total.

Variables	N	M	Me	min.	max.	SD	V	As	No. of communes
y_1	2448	74.67	34.79	0.05	1 802.73	111.30	149.05	5.47555	1726
y_2	2197	17.51	12.90	0.17	329.24	19.23	109.87	5.93244	1501

Denotation of measures: M – arithmetic mean (in PLN); Me – median (in PLN); min. – minimum (in PLN); max. – maximum (in PLN); SD – standard deviation (in PLN); V – coefficient of variation (in %); As – asymmetry

Source: author's own elaboration on the basis of collected data

The characteristics identified for all the Polish communes were confirmed also while examining individual provinces. In the set of 16 of them, the mean for variable y_1 took values from the range [41.00;120.01] with skewness from that of [1.93383;8.06527], while the mean for variable y_2 remained within the range [11.88;31.61] with the skewness in that [2.31444;7.98759] and values of the coefficient of variation for each variable over 100%. The lowest value for variable y_1 (PLN 41) occurred in the case of Podlaskie Province. Apart from this, a low mean value of communes' expenses borne on physical culture was found in the following provinces: Lubelskie (PLN 44.37) and Łódzkie (PLN 51.94). On the other hand, the highest mean values of expenses on physical culture were found in the case of communes of the following provinces: Dolnośląskie (PLN 120.01), Wielkopolskie (PLN 101.12), Zachodniopomorskie (PLN 98.57) and Śląskie (PLN 98.02). As far as variable y_2 is concerned, the lowest mean value appeared in the case of Lubelskie Province (PLN 11.88) and then Warmińsko-Mazurskie (PLN 12.90) and Świętokrzyskie (PLN 13.04). For comparison, the highest mean value *per capita*, regarding the expenditure based on subventions was found in the provinces of Zachodniopomorskie (PLN 31.61) and then those of Dolnośląskie (PLN 23.54) and Opolskie (PLN 20.49).

In the set of examined communes and variables, concentration of results does not appear while taking into account the types of communes, either. The measure of variation of value distribution (V) for each of the variables in the case of urban, rural and urban-rural communes takes values over 100%. It is only in the case of cities with rights of a county that the coefficient of variation for variables y_1 and y_2 amounts to 53.82% and 72.85%, respectively. The lack of symmetry of distribution is confirmed, too, by the skewness which displays right asymmetry in all the types of communes. As a result of the large difference in the values of the variables in the examined set, the number of the local government units, in the case of which the variables were lower than the mean value for the given area, was given in Table 3 in both the spatial system and according to the types of communes.

Table 3 – Territorial distribution, number and types of communes displaying the variables below the mean for the province.

Specification	variable y_1					communes of the area	variable y_2					communes of the area
	total	type of commune					total	type of commune				
		1	2	3	4			1	2	3	4	
Poland	**1726**	**71**	**1279**	**375**	**1**	**70.51%**	**1501**	**117**	**1000**	**359**	**25**	**68.32%**
02	114	16	60	37	1	67.46%	93	21	46	26	0	56.36%
04	101	5	78	18	0	70.14%	84	5	61	17	1	63.64%
06	167	3	145	19	0	79.52%	108	6	92	10	0	56.84%
08	54	2	35	17	0	65.85%	54	1	31	22	0	66.67%
10	137	1	121	15	0	77.84%	118	10	93	14	1	72.39%
12	136	3	99	34	0	75.14%	110	5	79	24	2	63.58%
14	222	14	182	26	0	73.03%	155	13	116	24	2	67.98%
16	47	0	31	16	0	66.20%	51	2	31	18	0	72.86%
18	116	3	91	22	0	72.50%	103	6	75	21	1	65.19%
20	80	2	58	20	0	74.07%	46	4	24	18	0	71.88%
22	81	7	60	14	0	66.39%	62	7	46	6	3	60.19%
24	110	15	76	16	3	65.87%	104	14	65	15	10	64.20%
26	75	1	58	16	0	75.00%	58	2	39	16	1	68.24%
28	79	2	58	19	0	68.70%	73	6	46	21	0	70.87%

| 30 | 159 | 3 | 96 | 60 | 0 | 70.67% | 151 | 10 | 81 | 60 | 0 | 70.56% |
| 32 | 82 | 3 | 41 | 38 | 0 | 71.93% | 76 | 5 | 33 | 38 | 0 | 71.70% |

Source: author's own calculation on the basis of collected data.

The last stage of the research on difference in the variables was examination of the types of communes in particular provinces. Inasmuch as in the case of rural and urban-rural communes the results confirmed the properties determined to date separately for provinces and the types of communes, with reference to urban communes and/or the cities with rights of a county in several provinces there were revealed totally different characteristics which are presented in Table 4.

Table 4 – Basic descriptive statistics for types of communes in selected provinces.

Province	Type of commune	N	M	Me	min.	max.	SD	V	As
variable y_1									
04	4	4	184.12	186.49	139.17	224.33	38.45	20.88	-0.2365
06	1	16	133.71	141.62	12.71	261.15	77.28	57.80	-0.11910
20	4	3	218.97	236.55	152.97	267.37	59.19	27.03	-1.2191
26	1	4	188.69	206.92	49.36	291.55	111.32	59.00	-0.60301
32	1	8	121.81	126.55	40.74	188.59	58.77	48.25	-0.40501
	4	3	198.85	200.33	123.25	272.97	74.87	37.65	-0.0890
variable y_2									
6	1	16	15.51	16.13	3.88	25.51	6.38	41.16	-0.07171
	4	4	25.77	26.29	13.23	37.26	10.15	39.40	-0.26881
18	4	4	35.54	41.42	11.50	47.84	16.49	46.40	-1.68518
26	1	4	25.57	25.76	5.33	45.43	20.94	81.91	-0.01232
32	4	3	66.58	69.11	43.56	87.08	21.87	32.85	-0.51406

Source: author's own calculation on the basis of collected data

Examination of the interdependence between the value of the expenses based on subventions and the level of the socioeconomic development of provinces (variable x_1), measured with HDI (M = 0.87; V = 3.55%), proved that the correlation dependence between the variables is strong and positive, $r(x_1,y_2) = 0.707560$, with the p-value < 0,05 and was statistically significant at the accepted materiality level $\alpha = 0,05$. This means that the higher level of development of a province is accompanied by higher mean grant-based expenditure. Treating HDI as the measure of broadly understood quality of life, the potential source of identified dependence can be seen in components of the index (life expectancy, number of years of education and the GDP *per capita* calculated according to the purchasing power parity) [see too 8]. Remaining, however, in the phase of recognition and using the cluster analysis, a hierarchic structure of provinces was distinguished with reference to the diminishing similarity between them. The first group includes the following provinces: Dolnośląskie (2), Wielkopolskie (30), Mazowieckie (14) and Śląskie (24). The second one consists of the provinces of: Kujawsko-Pomorskie (04) and Zachodniopomorskie (32). In the third group, there are seven provinces: Lubelskie (6), Pomorskie (22), Podlaskie (20), Lubuskie (08), Opolskie (16), Świętokrzyskie (26) and Warmińsko-Mazurskie (28). The last group includes the provinces of: Łódzkie (10), Małopolskie (12) and Podkarpackie (18).

For further analysis of the correlations with y_2, variable x_2 – the number of people who practice sports in clubs (M = 444; V = 344%) – was chosen. Looking at the results of some studies, it can be noticed that if sports clubs receive subsidies from the local government budget, in the decisive majority of cases the acquired sum occupies a significant position in the income structure of the given organization [4]. Launching the subvention-based mechanism of financing is not of the automatic character, though (it is required that an application should be filed). In connection with it, the procedure of verification and assessment of the application customarily includes an analysis of the number of members of the club or the people who do sports in it, with a particular focus on inhabitants of the commune. In the opinion of some researchers [6], this criterion is not the most deciding as regards the assigned amount of the subvention, yet it is significant. The conducted studies concerning Polish communes in this respect point to a strong positive correlation between variable x_2 and the level of communes' expenditure based on grants, $r(x_2,y_2) = 0.875731$.

The last of the correlations accepted for the analysis was that of x_3 – the general index of financial independence of the commune (M = 0.655; V = 10.39%). It served to examine whether there exists an interdependence between the commune's financial condition and the level of subsidies spent. It was accepted that the term financial condition defines the commune's ability to realize actions which relate to the current needs of its

inhabitants and to undertake developmental actions [7]. Thus, an assessment of the financial condition allows determining not only the ability of these units to function, but also that of raising the qualitative standard of services provided for the inhabitants [2]. The examined relation between the financial condition of the communes in Poland and the level of the subventions paid out by them turned out to be of little significance, $r(x_3, y_2) = 0.254909$. This property is retained also in spatial disaggregation of the set of communes into provinces as well as into individual types of communes. It was not until the study of the provinces and the types of communes located in their areas had been completed that the differences in the examined dependence were shown. In the case of urban, rural and urban-rural communes in individual provinces, the values of correlation coefficients $r(x_3, y_2)$ span the continuum from faint (negative, positive) through weak, average into high. In turn, regarding the cities with rights of a county, the interdependences $r(x_3, y_2)$ are strong and very strong (positive, negative) in ¾ of the examined provinces, including those such as: Dolnośląskie (02), Łódzkie (10), Podlaskie (20) and Wielkopolskie (30), where the values of the correlation coefficient came close to 1.

4 Conclusion

The research has proved that communes in Poland do not form a homogenous organism and this as far as either the provinces or the individual types of communes are concerned. With the popular engagement of communes' budgetary means in carrying out tasks related to sport and physical activity, not all of the communes incurred expenses dependent on subventions. Such a situation occurred, primarily, in rural communes. The highest level of expenditure on physical culture and, consequently – subsidies connected with this sphere – were borne by cities with rights of a county, while the lowest – by rural communes. Still, the whole population is characterized by a very high changeability of the examined variables. The obtained results in particular areas solely allow distinguishing the provinces, whose communes were characterized by a low level of all the examined variables. They are the following provinces: Lubelskie (06), Podlaskie (20), Świętokrzyskie (26) and Warmińsko-Mazurskie (28). The conducted studies of the dependence showed that in the total group of communes the subvention-based expenses are tightly correlated with the level of socioeconomic development. With the substantial share of local governments' expenditure on financing tasks pertaining to physical culture by the public sector this suggests that separating communes' finances from economic processes is unjustified. Simultaneously, a weak correlation between the level of subvention-based expenditure and the financial condition of communes, measured with the general index of financial independence, was established. This leads to the conclusion that the value of the subsidies paid out only to a small degree depends on the level of the commune's freedom in the sphere of disbursing its own income and general subvention. It is worth noting, however, that this interdependence is formed in a different way as far as particular types of communes and provinces are concerned. Inasmuch as its weak character is retained in urban, rural and urban-rural communes in the majority of provinces, in the case of cities with rights of a county situated in ¾ of the analyzed provinces, the interdependence between subvention-dependent expenditure and their financial condition is very strong (positive and negative). This may suggest that both a province and type of commune influence the height of subvention-based expenditure which is incurred.

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Personal Competencies Enhancing Organizational Competences of Emergency Medical Units in Poland - Empirical Research

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Abstract

In turbulent and often chaotic environments, healthcare organizations need to develop and nurture a unique set of resources. These sets are built into/out of skills and capabilities, often referred to as core competences. Competency identification systems need to identify both – personal (managerial and professional) competencies and organizational competences. This article is focused on identification of the common professional competencies of medical personnel and managerial competencies of managers significantly shaping organizational competences of Emergency Medical Units in Poland. There were constructed models of personal competencies – managerial and professional. The model of managerial competencies in Emergency Medical Units contains five domains with 26 competencies. The domains capture the complexity and dynamic quality of the Emergency Medical Unit's manager's role and reflect the dynamic realities in health leadership today. Eight domains were established in the proposed model of professional competencies of medical staff employed in Polish Emergency Medical: Professional Responsibilities; Communication; Health and Safety; Assessment and Diagnostics; Therapeutics; Integration; Transportation; Health Promotion and Public Safety. Then, respondents identified specific, meaningful managerial and professional competencies which are significantly related to Emergency Medical Units organizational competences, and the Likert scale was used.

Keywords: *Emergency Medical Units, managerial competencies, organizational competences, professional competencies*

JEL Classification: D61, H21, I18

1 Introduction

The main objective of Emergency Medical Units in Poland is to ensure patients effective healthcare by providing emergency medical services, taking into account the expectations and values of patients which require appropriate professional competencies of the personnel employed in these units, managerial competencies managing these organizations, as well as organizational competences.

Because there is no compatibility in the literature as to the interpretation of the terms "competences" and "competencies" (Elleström, 1997; Robotham, & Jubb, 1996; Winterton, Delamare - Le Deist, & Stringfellow, 2006; Mulder, 2007) it is important to make a brief review of the definitions.

"Competency" (plural "competencies") referred to underlying characteristic of an individual that is casually related to effective or superior performance in job. The term "competence" (plural "competences") refers to the set of resources held by the organization, related to the performance of activities leading to achieving goals by the development of adequate capabilities to perform tasks (Guallino, Prevot, 2008; Krawczyk-Sołtys, 2017).

D. McClelland (Mc Clelland, 1973) popularized the issue of professional competencies. He postulated that in the aspect of predicting the future efficiency of people's work, one should not study their intelligence but their

competencies. R. Boyatzis (Boyatzis, 1982) defined the list of competencies that distinguished effective managers: goals of action, leadership, human resources management, focus on others, specialist knowledge. E.T. Penrose (Penrose, 1959) – one of supporters of resource based view (RBV) – was the first who has noticed organizational competences, emphasizing that in order to gain a competitive advantage, not only the organization's resources are important, but above all – the skills to use them in processes. Organizational competences can be defined as a combination of differentiated skills, complimentary assets and routines that provide the basis for an organization's competitive capacities and sustainable advantage. These are embedded in the organizational processes and systems and absorbed by all its members and structures (Escrig-Tena, & Bou-Llusar, 2005). There are three conditions that organizational competences must have (Sanchez, Heene, & Thomas, 1996): an organizational component in the sense of the coordination and development of assets, an intention component as it must imply certain premeditated activities to sustain the coordinated deployment of assets, and a goal attainment component as the coordination of assets must help an organization achieve its aims.

To achieve superior organizational performance of Emergency Medical Units, it is very important to identify which set of personal (professional and managerial) competencies is required to gain their strategic goals. It can be essential to clarify the areas of strategic competence – areas in which such organizations must be competent, if it is to succeed in its mission. In Authors opinion there are three such areas: marketing (recognizing patient's needs), quality (of provided medical services) and logistics (provision of medical services at the right time and place).

Competency identification systems need to identify both – personal (professional and managerial) competencies and organizational competences (Boam and Sparrow, 1992). The research question is: "are professional competencies of medical personnel and managerial competencies of Emergency Medical Units managers significantly shaping organizational competences of such organizations". To answer this question is the aim of the paper.

2 Material and Methods

Based on the assumptions of healthcare managerial competencies models in the literature (Stefl, 2003; Stefl, 2008; International Hospital Federation, 2015; National Center for Healthcare Leadership (NCHL), 2005; Sanghi, 2010; Krawczyk-Sołtys, 2017) and own author's observations (as a consultant) in such entities the model of managerial competencies in Emergency Medical Units was constructed (Krawczyk-Sołtys, 2018a). It contains five domains with 26 competencies. The domains capture the complexity and dynamic quality of the Emergency Medical Unit's manager's role and reflect the dynamic realities in health leadership today.

In the model of professional competencies of medical staff in Polish Emergency Medical Units was adopted the proposition of Paramedic Association of Canada (Paramedic Association of Canada, 2011) with assumptions of concepts (Epstein, & Hundert, 2002; Kęsy, 2013). The proposed model established eight domains of professional competencies of medical staff employed in Polish Emergency Medical Units: Professional Responsibilities; Communication; Health and Safety; Assessment and Diagnostics; Therapeutics; Integration; Transportation; Health Promotion and Public Safety.

In order to identify the impact level of personal competencies on the development of organizational competences of Emergency Medical Units, empirical studies were carried out in the second and third quarter of 2018.

Respondents assessed the current level of personal competencies in five-level Likert scale - managerial and professional -, and the impact level of these competences on organizational competences in three areas – marketing (recognizing patient's needs), quality (of provided medical services) and logistics (provision of medical services at the right time and place) – Polish Emergency Medical Units. There were 57 respondents assessing managerial competences and 135 respondents assessing professional competences.

3 Results and Discussion

3.1 Managerial Competencies Shaping Organizational Competences of Emergency Medical Units

First respondents assessed in Likert scale the current level of listed above managerial competencies (Figure 1).

Figure 1 – The radar of the managerial competencies level in Polish Emergency Medical Units (in Likert scale). Source: Own studies.
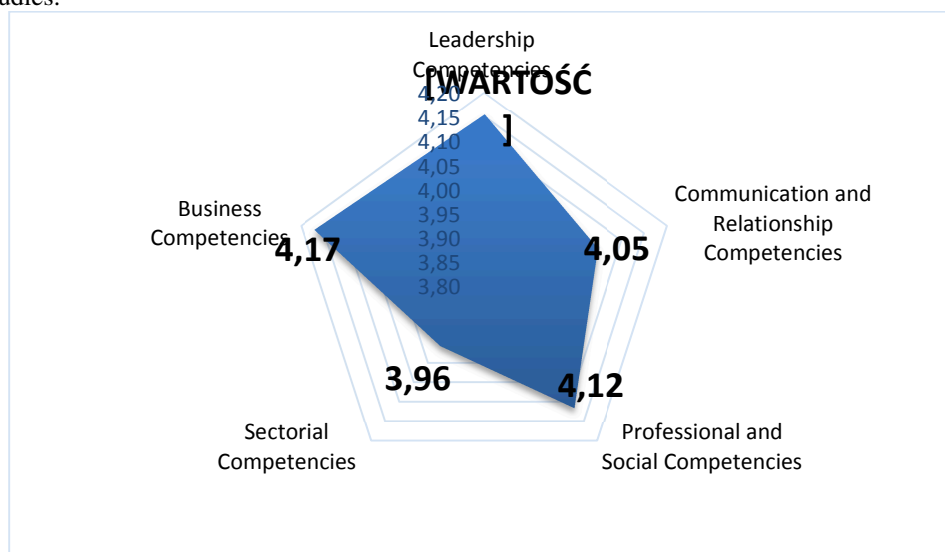
The highest rated managerial competencies were Business Competencies (4,17): knowledge of basic business practices and the ability to manage projects (4,11), strict adherence to procedures, regulations and legal norms as well as the ability to create internal regulations on their basis (4,39), financial management (4,46), human resource management (4,07), strategic management (4,25), information and knowledge management (4,12), risk management (4,02), improving the quality of medical services (4,16), systems thinking (3,98).

In respondents opinion next are Leadership Competencies (4,15): leadership abilities and behaviors (4,16), creation of an organizational culture based on mutual trust, transparency and focusing on improving the quality of provided medical services (3,96), leading change (4,30), encouraging employees to creativity, innovation and development (4,12), management skills (4,23).

Then the respondents pointed to the level of Professional and Social Competencies (4,12): professionalism (4,25), professional development and lifelong learning (4,26), contributions to the development of management in health care (3,89), awareness of goals, values, strengths and weaknesses (4,11) and ethical behavior and social awareness (4,07).

In sequence Communication and Relationship Competencies have been pointed (4,05): relationship management (4,04), communication skills (4,16) and facilitation and negotiation (3,95).

The lowest level – in respondents opinion – achieved Sectorial Competencies (3,96): knowledge of the functioning of the health care system and entities of this system (4,03), ability to optimize employment in the organization (3,81), personalizing health care (3,79) and public health competences (3,93).

Then respondents assessed in five-level Likert scale the impact of these competencies on organizational competences in three areas – marketing (recognizing patient's needs) (Figure 2), quality (of provided medical services) (Figure 3) and logistics (provision of medical services at the right time and place) (Figure 4).

Figure 2 - The radar of the impact level of managerial competencies on the development of organizational competences in marketing area of Polish Emergency Medical Units (in Likert scale). Source: Own studies.

Figure 3 - The radar of the impact level of managerial competencies on the development of organizational competences in quality area of Polish Emergency Medical Units (in Likert scale). Source: Own studies.

Figure 4 - The radar of the impact level of managerial competencies on the development of organizational competences in logistics area of Polish Emergency Medical Units (in Likert scale). Source: Own studies.
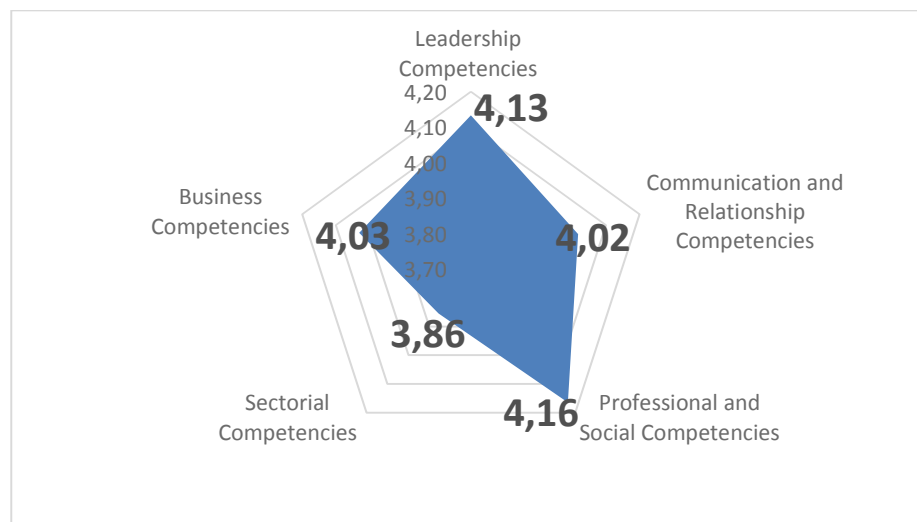
The most significantly shaping organizational competences of Emergency Medical Units were: in marketing area Business Competencies (4,30) and Professional and Social Competencies in quality (4,14) and logistic (4,16) areas. Then:

- in marketing area respondents pointed: Leadership Competencies (4,04), Communication and Relationship Competencies and Professional and Social Competencies (4,02), and Sectorial Competencies (3,81);

- in quality area indicated: Communication and Relationship Competencies (4,11), Sectorial Competencies (4,08), Leadership Competencies (4,05), and Business Competencies (4,03);

- in logistics area respondents pointed out: Leadership Competencies (4,13), Business Competencies (4,03), Communication and Relationship Competencies (4,02), and Sectorial Competencies (3,86).

3.2 Professional Competencies Shaping Organizational Competences of Emergency Medical Units

The core competences of the Medical Emergency Units are innovative combinations of knowledge, capabilities, adequate technologies, information and methods (Besler, Sezeler, 2011, Ljungquist, 2008), as a result of which emergency medical services are provided to the patient according to his preferences and expectations. In accordance with these assumptions in next step respondents assessed in five-level Likert scale the current level of professional competencies of medical staff (Figure 5).

Figure 5. The radar of the professional competencies level in Polish Emergency Medical Units (in Likert scale). Source: Own studies.
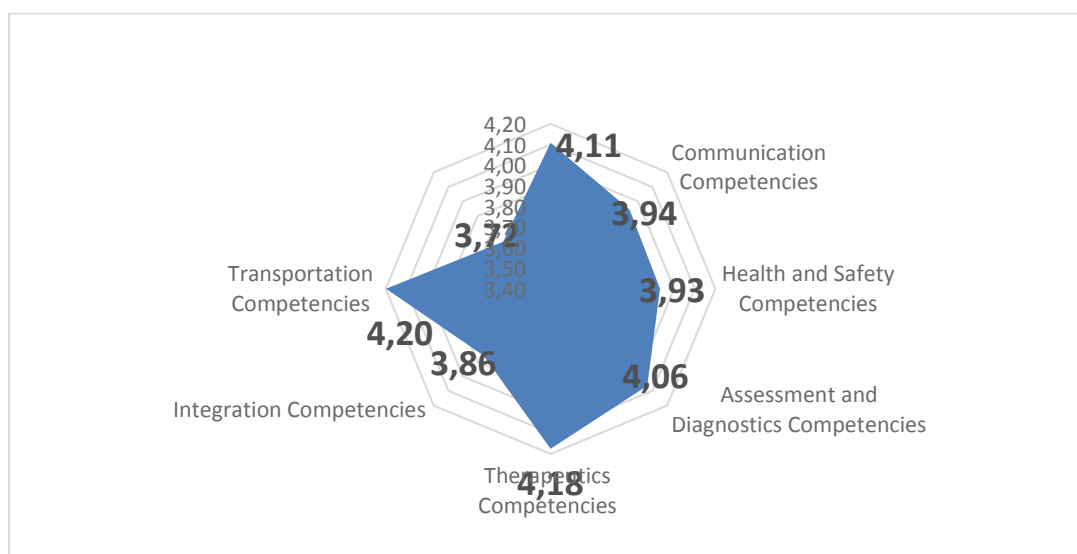
The highest rated professional competencies were Transportation Competencies (4,30): preparing ambulance for service (4,49), driving ambulance or emergency response vehicle (4,23), transferring patient to air ambulance (4,14) and transporting patient in air ambulance (3,94).

The next area were Therapeutics Competencies (4,18): maintaining patency of upper airway and trachea (4,10), preparing oxygen delivery devices (4,54), delivering oxygen and administering manual ventilation (4,44), utilizing ventilation equipment (4,23), implementing measures to maintain hemodynamic stability (3,77), providing basic care for soft tissue injuries (4,05), immobilizing actual and suspected fractures (4,20), administering medications (4,07).

Then the respondents pointed to the level of Professional Responsibilities Competencies (4,11): functioning as a professional (4,13), participating in continuing education and professional development (3,77), possessing an understanding of the medicolegal aspects of the profession (4,19), recognizing and complying with relevant Polish legislation (4,01), functioning effectively in a team environment (4,22), making decisions effectively (4,10), managing scenes with actual or potential forensic implications (4,34).

In sequence Assessment and Diagnostics Competencies have been pointed (4,06): conducting triage in a multiple-patient incident (4,01), obtaining patient history (4,08), conducting complete physical assessment demonstrating appropriate use of inspection (3,92), palpation and percussion (4,57), assessing vital signs, utilizing diagnostic tests (3,74).

Next respondents indicated Communication Competencies (3,94): practicing effective oral (4,04) and written (3,91) communication skills, practicing effective non-verbal communication skills (3,84) and practicing effective interpersonal relations (3,98).

Then the respondents pointed to the level of Health and Safety Competencies (3,93): maintaining good physical and mental health (3,69), practicing safe lifting and moving techniques (3,81) and creating and maintaining a safe work environment (4,21).

In sequence respondents pointed Integration Competencies (3,86): utilizing differential diagnosis skills, decision-making skills and psychomotor skills in providing care to patients (3,85), providing care to meet the needs of unique patient groups (3,83), conducting ongoing assessments and provide care (3,89).

The lowest level – in respondents opinion – have Health Promotion and Public Safety Competencies (3,72): integrating professional practice into community care (3,43), contributing to public safety through collaboration with other emergency response agencies (4,09), participating in the management of a chemical, biological, radiological, nuclear and explosive incident (3,66).

Then respondents assessed the impact level of these competences on organizational competences in three areas in five-level Likert scale – marketing (recognizing patient's needs) (Figure 6), quality (of provided medical services) (Figure 7) and logistics (provision of medical services at the right time and place) (Figure 8).

Figure 6 - The radar of the impact level of professional competencies on the development of organizational competences in marketing area of Polish Emergency Medical Units (in Likert scale). Source: Own studies.
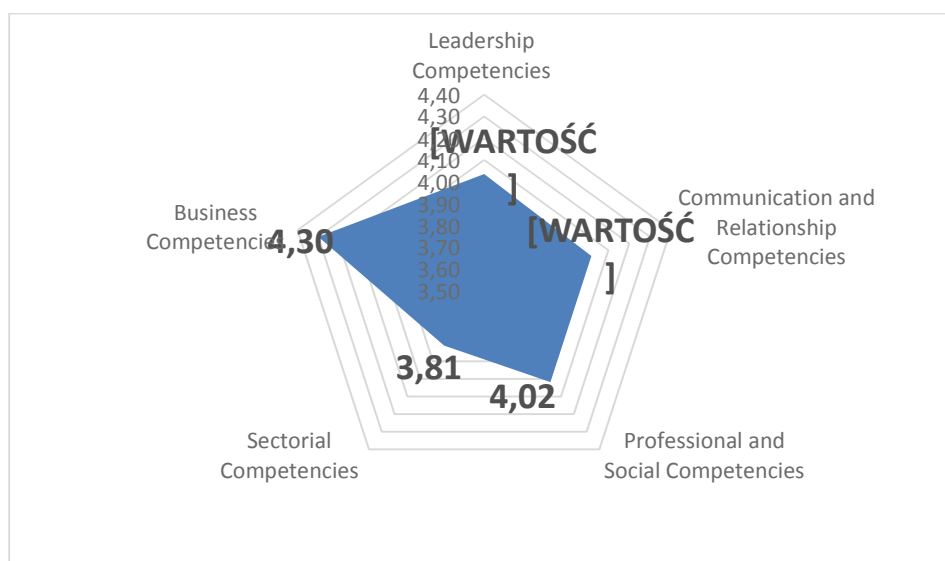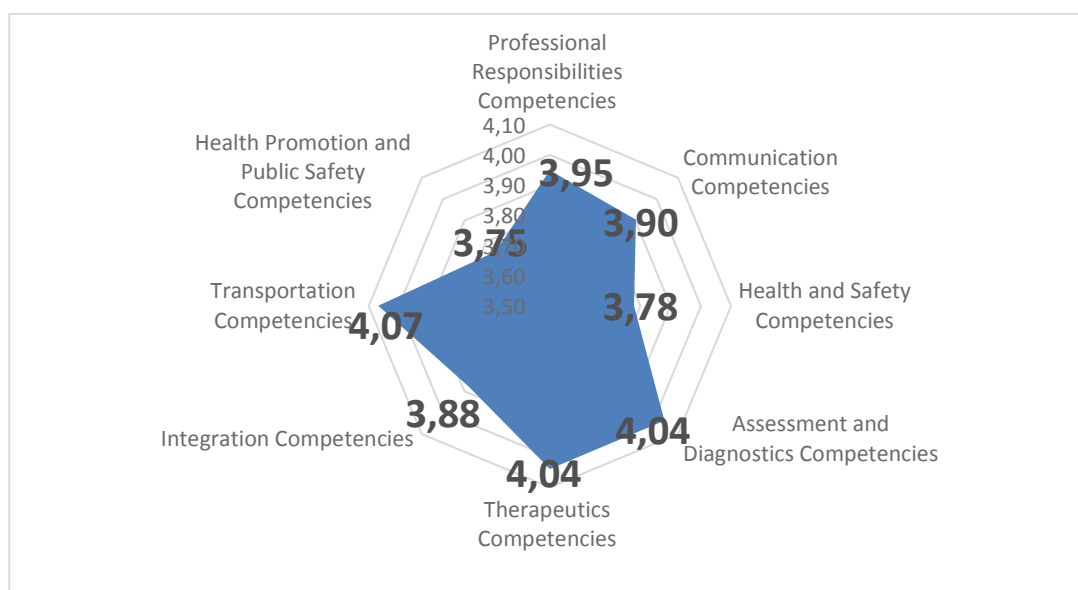
Figure 7 - The radar of the impact level of professional competencies on the development of organizational competences in quality area of Polish Emergency Medical Units (in Likert scale). Source: Own studies.
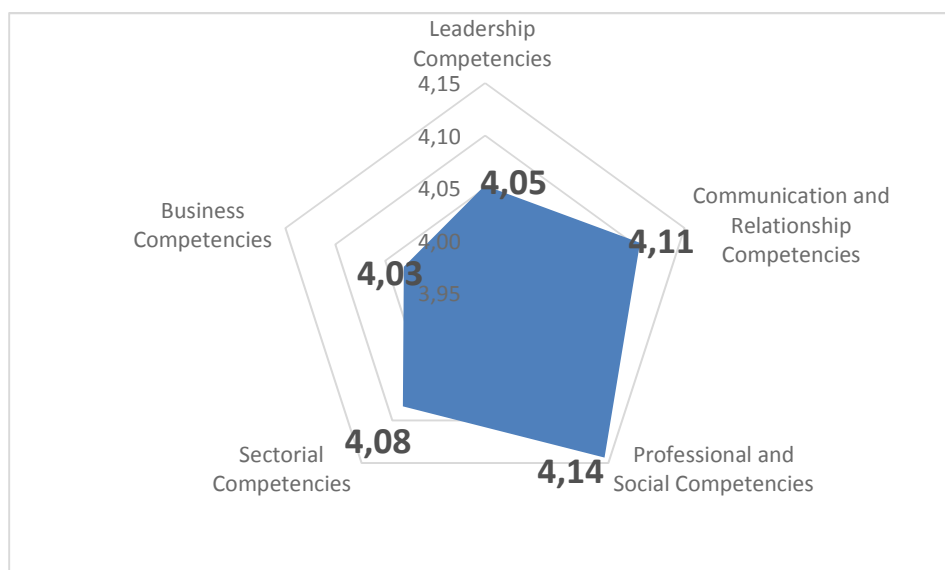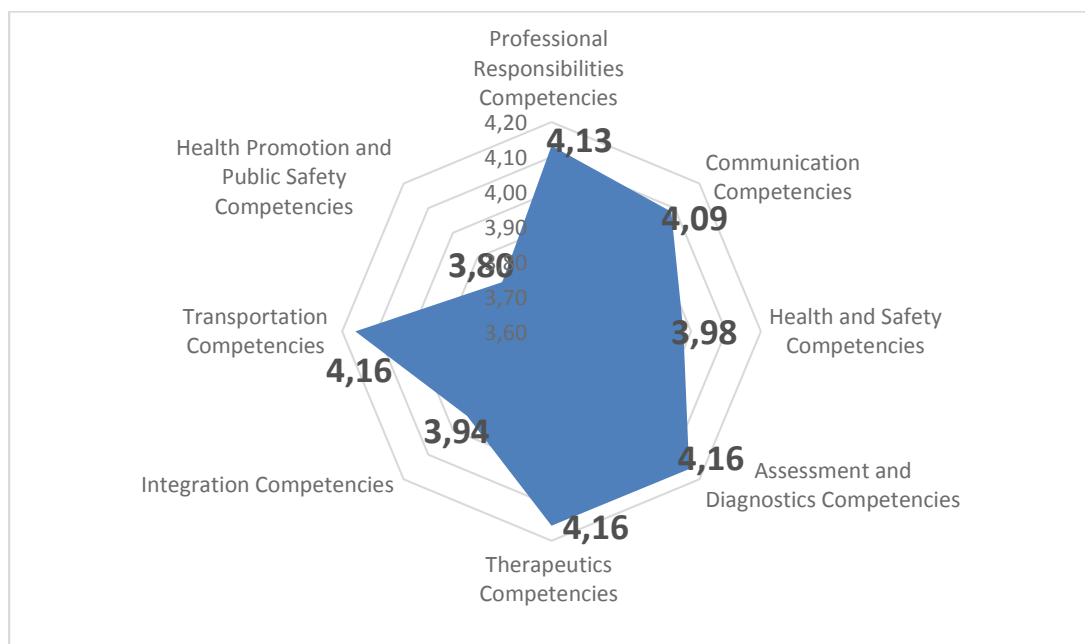

Figure 8 - The radar of the impact level of professional competencies on the development of organizational competences in logistics area of Polish Emergency Medical Units (in Likert scale). Source: Own studies.
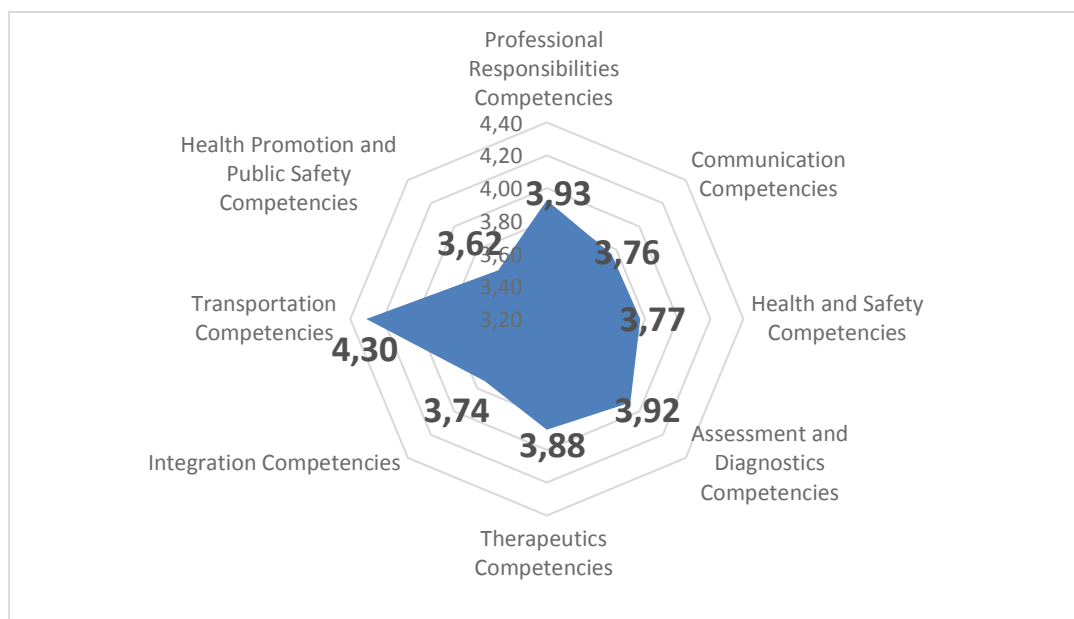
The most significantly shaping organizational competences of Emergency Medical Units in all areas were Transportation Competencies: in marketing area (4,07), in quality area (4,16) and in logistic area (4,30). In quality area the same indications – 4,16 – have obtained as well Assessment and Diagnostics Competencies and Therapeutics Competencies. Then:

- in marketing area respondents pointed: Assessment and Diagnostics Competencies and Therapeutics Competencies (4,04), Professional Responsibilities Competencies (3,95), Communication Competencies (3,90), Integration Competencies (3,88), Health and Safety Competencies (3,78) and Health Promotion and Public Safety Competencies (3,75);

- in quality area were indicated: Professional Responsibilities Competencies (4,13), Communication Competencies (4,09), Health and Safety Competencies (3,98), Integration Competencies (3,94) and Health Promotion and Public Safety Competencies (3,80);

- in logistics area respondents pointed out: Professional Responsibilities Competencies (3,93), Assessment and Diagnostics Competencies (3,92), Therapeutics Competencies (3,88), Health and Safety Competencies (3,77), Communication Competencies (3,76), and Health Promotion and Public Safety Competencies (3,62).

4 Conclusion

Organizational competences of Emergency Medical Units refer to organizational processes, engaged in by people, resulting in superior emergency medical services through and out of the organization.

Competences are a multidimensional concept and require an integrated approach to building a competence model that reflects the real complexity and dynamics of competence development processes in Medical Emergency Units in Poland.

The competency of such organizations (in addition to the systems and processes that underlie them) arise from the people who are involved in the process, the skills they individually and collectively must possess, and the behavior they must engage in (individually and interactively) to implement the process – their competencies (Krawczyk-Sołtys 2018b).

The special significance of competencies in services, especially professional services (so-called human based) to which emergency medical services belong, is indicated by S. G. Hein and C. D. Riegel (Hein & Riegel, 2012).

The diagnosis of professional competencies of Medical Emergency Units employees and managerial competencies of managers determined currently owned and achievable by them competencies necessary for effective, and quality proper achievement of goals and tasks. Between the most significant shaping the organizational competences of Medical Emergency Units one can distinguished:

- Business Competencies had the highest level of managerial competencies (4,17),

- the most significantly shaping organizational competences of Emergency Medical Units were: in marketing area Business Competencies (4,30) and Professional and Social Competencies in quality (4,14) and logistic (4,16) areas,

- the highest rated professional competencies were Transportation Competencies (4,30),

- the most significantly shaping organizational competences of Emergency Medical Units in all areas were Transportation Competencies: in marketing area (4,07), in quality area (4,16) and in logistic area (4,30). In quality area the same indications – 4,16 – have obtained as well Assessment and Diagnostics Competencies and Therapeutics Competencies.

As already mentioned in introduction the Emergency Medical Units competency identification system need to identify both personal (professional and managerial) competencies and organizational competences. Previously, the current level of personal (professional and managerial) competencies in the examined entities has been established.

It can be stated that there is a need to integrate professional and managerial competencies with organizational competences (Lustri, Miura & Takahashi, 2007; Yang et all 2006; Wickramasinghe, & De Zoyza, 2011) but this area is not yet fully developed – empirical research is limited. Hence, Authors empirical research were focused on the organizational competences of Emergency Medical Units in three areas: marketing (recognizing patient's needs), quality (of provided medical services) and logistics (provision of medical services at the right time and place), and the role that people competencies – managerial and professional – play in developing these; as well to understand specific, meaningful personal competencies that are related to the strategic needs of these units in a significantly contingent context.

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Green Areas in the Context of Sustainable Development Concept

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Abstract

The article discusses the assumptions of the concept of sustainable development and the mechanism of its implementation in relation to the management of territorial self-government units. The concept of sustainable development combines social, economic and environmental changes. It is recognized in many areas of management, including the city level, as the basis for the activities of local government authorities. Green areas in cities are an inseparable element of the urban landscape, they play a biological, recreational and climatic function. The state of the environment is one of the basic factors that improve the quality of life of residents, and urban greenery is an important factor in improving the quality of life. Activities related to the creation of an urban environment should be implemented in a balance between the natural environment and man. The result of such an action should be sustainable management of urban space, and in particular green areas. The study assessed the implementation of the concept of sustainable development by the example of green areas development in the area of the city of Zielona Góra. The study uses panel regression with established effects to assess the relationships occurring between the economic, social and environmental areas in the implemented path of urban development and their impact on the level of CO_2 emission.

1 Introduction

Sustainable urban development and proper management of local government units is a challenge for managers. Urban development is an important element of sustainable development because they are centres of trade, culture, science or industrial development. Spatial processes taking place in cities require the analysis of public space, in particular urban green areas. An important feature of modern natural systems in cities is the combination of objects that shape urban greenery - long established in the architecture of the city, with elements that have been recently incorporated into the urban structure. Considering the issue of sustainability, reference was made to the volume of CO_2 emissions. The aim of the article was to assess the impact of economic, social and environmental conditions on the volume of CO_2 emissions.

2 Material and Methods

2.1 Sustainable Development of the City

One of the key ideas for combining these social, economic and environmental aspects is the concept of sustainable development. In recent years, great emphasis has been placed on problems related to ecology and environmental protection. The concept of sustainable development is very extensive and popular in many fields of economics and management. However, the common feature of each approach is the adoption of the main objective to develop methods and mechanisms of action that will allow the development of civilization while preserving and respecting the laws of nature and the social aspiration of the population (Skowroński, 2016). This

135

concept undoubtedly constitutes a new proposal for a qualitative form of responsible and conscious life, both individual and social, on the principle of co-opting with the environment, taking into account ecological constraints and social expectations (Pałaczek, 2012). The concept of sustainable development can be derived from the assumptions of ecological economics being a heterogeneous trend in relation to the main trend in economics, as does H. Rogall (Rogall, 2010). A significant contribution of ecosystem services to the quality of life of communities whose livelihoods are often directly dependent on these services is indicated (Daw, Brown, Rosendo, Pomeroy, 2011). Diversified relations between the resources under consideration are also important, which cannot be reduced only to their purely economic dimension.

The concept of sustainable development has gained widespread acceptance at the level of formulation of local, national and international policies. Local government units, due to the variety of activities, the scale and scope of links between environmental participants, are an important area for implementing the principles of sustainable development. Especially in cities, disruption of one element of the system forces the burden on others (Rzeńca, 2016). Sustainable urban development is often identified with the process of suburbanisation, protection of public space, city landscape or cultural heritage. This paradigm in relation to spatial issues means shaping the city (Lorens, 2013):
   a) compact but differentiated,
   b) consistent but homogeneous,
   c) able to compete but also to build the region.

The concept of a sustainable city promotes a slower pace of life for its residents, creating jobs for the local population, developing the space of streets favourable to pedestrian traffic, high quality public transport (construction of bicycle paths). A dominant position of sustainable development and a multidimensional view of the urban space is visible (Lewandowska, 2014). The European initiative focuses primarily on four basic tasks:
   a) protection and improvement of the urban environment in order to achieve global and local sustainability,
   b) increasing economic prosperity and employment in cities,
   c) promoting equality and revitalization of urban areas,
   d) contributing to good governance in cities.

Key factors of city-forming determinants, changing over time, can include (Ciepielewska, 2016):
   a) economic factors – initially they involved creating conditions for the exchange of goods and services, in the days of industrialization they referred to minimization of production costs and access to resources, while in the post-industrial period, access to private and public services was important,
   b) technological factors – development of technologies that enable efficient transport, provide energy, water and food supplies in urban areas,
   c) political and military factors – there were power centres in the cities. In urbanized areas, it was easier to protect against external threats.
   d) social and cultural factors – easy access to various scientific and cultural centres in large centres.

In the area under consideration, the issue of the so-called green infrastructure occurs, which requires a short explanation. Green infrastructure is a multi-faceted activity whose aim is to maintain environmental reserves in the best possible condition, in accordance with the idea of sustainable development. This concept is based on principles (Benedict, McMahon, 2006):
   a) long-term planning,
   b) cooperation between participants in various security programs,
   c) respecting the needs of landowners,
   d) providing financing at the early stages of planning,
   e) communication between natural and urbanized areas,
   f) integrated activities,
   g) based on in-depth financial analysis.

The development of the city in accordance with the idea of sustainable development forces appropriate spatial management. In shaping the urban landscape, it is important to ensure proper proportions between natural and investment areas. Economic plans more and more often mark the important role of green areas as public spaces. These areas require proper location in the project, which results in the fact that urban green areas are managed comprehensively. Spatial development plans allow for the creation of new green areas, the restoration of damaged greenery or the use of degraded areas (Chojecka, 2014). City development planning must be responsive to dynamic changes in society (e.g. changing aspirations, increased awareness and willingness to participate in decision making by city dwellers), natural environment (e.g. biodiversity decline, threat of extreme weather events) and in the economy (e.g. globalization) (Burlińska, 2013).

2.2 Development of Green Areas of the City of Zielona Góra

Zielona Góra is the largest city of the Lubuskie voivodship and one of its two capitals. According to the provision contained in the Change of Study of Conditions and Directions of Spatial Development of the City of Zielona Góra[15], it occupies an area located in the south-eastern part of the Lubuskie voivodship. According to data at the end of December 2017, 53% of the total area of the city were forests. The most common forest areas are typical areas of production forests. Forests that are located within the city are massively frequented by the residents as recreational areas and to acquire fleece resources. In addition to urban forest areas, including forests rebuilt for recreational purposes of city residents, the urban greenery of Zielona Góra includes: parks and ornamental gardens, city greenhouses, allotment gardens and cemeteries, as well as district and area greenery.

The state of greenery shaped in the area of Zielona Góra is diverse, due to the combination of two, functionally different areas – the historic city of Zielona Góra and commune areas – suburban and rural. It shapes the internally inconsistent area. Unfavourable conditions are mitigated in the area of green areas by large forest areas, but the vast majority of them are production forests. The city of Zielona Góra demonstrates the necessity of a series of changes regarding all elements of the existence of green areas in the city – planning, design, execution and care. These changes must be organizational, financial and substantive. The green areas in Zielona Góra do not have a long lineage, which results from the city's history. Most of them occurred or were significantly modified in the period of emerging urban planning. The oldest green areas in Zielona Góra are the following parks: Piastowski, Botaniczny and Tysiąclecia, as well as greenery at Niepodległości alley and Kazimierz Wielki street. The foundation for the development of greenery in the city should be the joint activities of the owners of individual areas and administrators, under the substantive care of one person – an urban gardener or landscape architect. This vision will be different in different areas, depending on the attitude to planning, design and implementation details. Individual projects must have a common feature - the city's greenery system.

2.3 Methodical Assumptions

The problem of the implementation of the concept of sustainable development can be considered based on the relationships between the effect of diversified activities resulting in the emission of harmful compounds (the study adopted as such CO_2) and groups of factors characterizing three basic areas: economic, social and environmental. At the same time, it must be emphasized that the concept of sustainably balanced development is extremely extensive and its scope includes numerous principles, goals, rules or measures. Bearing in mind the purpose of the work, the focus is only on those elements that are related to atmospheric pollution through CO_2 emission. In assessing the impact of social, economic and environmental factors on CO_2 emission, panel regression with fixed effects was applied. The analysis was based on long-term data (2004-2016) for eighteen provincial Polish cities. Moreover, all variables were transformed with a natural logarithm to achieve elasticity coefficients of the impact of exogenous variables. In this econometric model, it is assumed that individual effects are not accidental and may express specific and directly unobservable features in the region (Baltagi, 2003). The following variables were adopted as explanatory variables: the share of green areas in the urban area (GR), the disposable income of households per capita (PI) and the unemployment rate (UR). The choice of diagnostic variables included in the model was made on the basis of their substantive meaning, based on a literature study, the availability of variable values for the examined cross-sectional units and statistical criteria. This problem was considered, among others in publications by authors such as Xu and Lin (2016, p. 1462), Du Wei, Cai (2012, p. 378) Kepplinger, Templ, Upadhyaya (2013, p. 757), Das and Paul (2014, p. 98), which was the basis for distinguishing these explanatory variables. The overall form of the model looks as follows:

$$y_{it} = x_{it}\beta + u_i + \varepsilon_{it}, (1)$$

where:
u_i - individual effect,
ε_{it} - pure random error.
A phenomenon often observed in the literature is transforming variables with a natural logarithm and bringing it to the form of a log-linear model.

$$y_{it} = x_{it}\beta + \beta'DU + \lambda'DV + u, (2)$$

where:
$\beta'DU -$ vector of individual effects,
$\lambda'DV -$ vector of time effects.

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[15] Resolution RM ZG XXVIII/392/08 of 19 August 2008, as amended.

Because the model is defined in natural logarithms, the coefficients of explanatory variables can be interpreted as elasticity (Martínez-Zarzoso 2008, pp. 9-10). The applied study used a panel regression method with fixed effects. The use of panel regression with established effects was preceded by appropriate tests to determine the validity of this method in this study. When choosing the method, statistical tests were helpful, among others the Breuch Pagan test (Breusch-Pagan test statistic: LM = 899,44 with the Chi-square value (1) p = 1,2969e-197). A low p value means rejecting the H0 hypothesis that the MNK panel model is correct, against the H1 hypothesis that the random effect model is more appropriate. In the second stage, the Hausman test was carried out (Null hypothesis: UMNK Estimator (GLS) is consistent. Asymptotic test statistic: Chi-square (3) = 68,8266 with p value = 0,757332). Due to the high p value, fixed effects were used in the model and the model took the form of:

$$lnCO2emission = \alpha_0 + \alpha_1 lnGR + \alpha_2 lnPI + \alpha_3 lnUR + \beta' DU + \lambda' DV + u$$

The model tested economic, social and environmental variables in accordance with the concept of sustainable development. The conducted estimation allowed to show the influence of the distinguished factors on the CO_2 emission volume.

3 Results and Discussion

Expanding areas subject to various forms of protection often limits the possibilities of investment development in a particular area. Therefore, it is necessary to create an idea that combines nature and landscape protection with the fullest possible use of public space in terms of development opportunities as well as the availability of valuable natural areas (Kowalski, 2011). Parks, green areas and estate green areas are an important element of the urban landscape. Table 1 presents the percentage share of these areas in eighteen voivodship cities in Poland in the years 2004-2016.

Table 1 - Area of parks, green areas and estate green areas in voivodship cities.

Area of parks, green areas and estate green areas in voivodship cities (in %)													
city	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Wrocław	4,88	4,99	5,09	4,98	3,89	5,11	4,88	4,78	4,79	4,79	4,80	4,95	5,14
Bydgoszcz	7,75	7,44	7,46	7,40	7,40	7,78	7,78	7,72	7,72	8,45	8,45	7,57	7,78
Toruń	2,94	2,63	2,63	2,71	2,71	2,91	2,91	3,01	3,01	3,00	3,00	3,29	3,38
Lublin	7,26	8,03	8,03	8,04	8,04	8,08	5,90	5,73	5,73	5,67	5,67	5,65	5,38
Gorzów Wlkp.	5,00	4,03	4,05	4,00	4,00	4,09	4,09	4,04	4,04	4,12	4,12	4,63	4,69
Zielona Góra	2,90	3,02	3,02	2,94	2,90	2,99	2,99	2,83	2,83	2,94	2,94	0,66	0,72
Łódź	6,09	6,15	6,20	6,65	6,39	6,55	6,40	6,13	5,55	5,46	5,49	5,49	5,77
Kraków	3,80	3,97	3,97	4,15	4,23	4,62	4,98	4,55	4,55	4,77	4,75	4,87	5,12
Warszawa	6,60	5,46	5,44	5,28	5,25	5,81	5,82	6,22	6,21	5,84	5,90	5,87	6,07
Opole	2,70	2,75	2,74	2,50	2,50	3,80	3,82	3,69	3,69	3,14	3,14	3,11	3,11
Rzeszów	5,50	5,49	3,82	3,32	2,45	2,51	2,58	2,88	2,88	2,64	2,68	2,83	2,92
Białystok	4,25	4,47	4,10	4,08	4,09	4,10	3,96	3,98	4,46	4,65	4,95	4,85	4,92
Gdańsk	2,14	2,20	2,17	2,68	2,68	2,81	2,81	2,85	2,85	2,90	2,96	2,98	3,21
Katowice	6,13	6,81	6,81	6,43	6,44	6,41	6,41	6,25	6,25	6,31	6,31	6,22	6,64
Kielce	2,24	3,42	3,41	2,95	2,95	2,91	2,91	3,06	3,10	3,02	3,00	3,06	2,97
Olsztyn	5,07	3,20	3,18	3,54	3,54	6,92	6,92	3,72	3,84	3,46	3,59	3,56	4,16
Poznań	4,45	4,64	4,25	3,42	3,35	4,07	4,08	4,22	4,24	4,00	4,01	3,66	4,05
Szczecin	1,38	1,42	1,41	1,24	1,24	1,52	1,52	1,85	1,86	1,47	1,47	1,62	1,85

Source: own study based on https://bdl.stat.gov.pl/

The presented results clearly show that there is no one universal pattern of transformations in the size of green areas. We dealt with both the increase in their share and the decrease. The fastest growth occurred in Gdańsk, Kraków, Szczecin and Kielce. However, the biggest falls were in Zielona Góra, Rzeszów, Lublin and Olsztyn. In the case of Zielona Góra, this was caused by the connection of communal areas to the city of Zielona Góra in 2015 (similarly to Rzeszów, hence the results in this area are not fully comparable). The area of the city of

Zielona Góra increased from 58 km^2 to 278 km^2. The city's increase by 220 km^2 has undoubtedly caused the number of parks per square kilometre of urban space fell to 0,72%. However, the widening of the city's territory by nearby villages classifies Zielona Góra in the first place in terms of afforestation (Table 2). Over half of the city's area is forested. The table (Table 1) shows that Bydgoszcz is a city with the highest number of green areas (in 2016 it was 7,78% of the total area of the city). The capital of the Zachodniopomorskie voivodship (Szczecin) is just after Zielona Góra the least green area of the analysed cities. In 2016, it was only 1,85% of the entire city area. However, it is worth noting that since 2004 the area of these areas has increased by 0,47%. Bydgoszcz and Katowice are cities in which there are the most green areas that are friendly to residents. This is 7,78% and 6,64% respectively. The average percentage area of parks, green areas and estate green areas in voivodship cities is 4,33 and among eighteen capitals of voivodships in Poland, half of them are above average.

Table 2 - Area of forest areas in voivodship cities.

Area of forest areas in voivodship cities (in %)													
city	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Wrocław	7,1	7,1	7,2	7,3	7,2	7,3	7,3	7,3	7,4	7,4	7,4	7,5	7,6
Bydgoszcz	28,6	27,0	28,0	28,1	27,8	27,2	27,9	27,9	27,9	27,6	27,7	27,5	27,5
Toruń	23,6	23,6	23,8	23,9	23,9	23,9	24,0	24,0	23,9	23,9	23,9	23,9	24,0
Lublin	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,1	11,2	11,2
Gorzów Wlkp.	4,7	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,6	4,7	4,6	4,3	4,3
Zielona Góra	43,8	43,6	43,5	43,4	43,4	43,9	43,9	44,0	44,0	43,8	44,1	53,1	53,0
Łódź	9,6	9,6	9,6	9,6	9,6	9,6	9,5	9,5	9,4	9,4	9,4	9,4	9,3
Kraków	4,2	4,3	4,3	4,3	4,3	4,3	4,3	4,3	4,3	4,3	4,3	4,3	4,0
Warszawa	13,5	14,2	14,4	14,1	15,4	14,3	13,5	13,6	13,7	13,7	13,8	13,8	13,7
Opole	9,5	9,4	9,4	9,6	9,6	9,6	9,5	9,5	9,5	9,5	9,5	9,5	14,6
Rzeszów	0,1	0,1	3,2	2,8	2,5	3,7	3,7	3,7	3,7	3,7	2,6	2,6	2,6
Białystok	19,2	18,4	17,6	17,8	18,0	17,9	17,9	17,7	17,7	17,7	17,9	17,9	18,1
Gdańsk	17,4	17,4	17,2	17,4	17,4	17,4	17,4	17,4	17,4	17,4	17,5	17,5	17,9
Katowice	39,4	39,5	39,5	39,5	39,5	39,5	39,8	39,9	39,9	39,9	39,7	39,7	39,8
Kielce	21,1	21,1	21,1	21,1	21,1	21,1	20,9	20,9	20,9	20,9	21,0	21,0	20,9
Olsztyn	21,1	21,2	21,6	21,3	21,4	21,3	21,3	21,3	21,3	21,3	21,2	21,2	21,2
Poznań	13,4	13,4	13,4	13,5	13,7	13,8	13,8	14,1	14,1	14,5	14,6	14,7	14,7
Szczecin	16,7	16,5	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,2	16,6	16,5

Source: own study based on https://bdl.stat.gov.pl/

The least afforested provincial city is Rzeszów. Although, like Zielona Góra, it expanded its administrative borders in 2006, the area of forest areas is only 2,6%. Before the two local governments merged into one forest area it was only 0,1%. The average area of forest areas in voivodship cities is 17,83%. However, attention should be paid to the huge variation in afforestation (the smallest 2,6%, the largest 53%). At the same time, it is worth noting that changes in the size of afforestation were very small, especially when compared to transformations in the size of green areas (the exception was again Zielona Góra and Rzeszów, in which the city and the municipality were connected). The equation has adopted the following analytical form (tab 3):

$$CO_2 emission = 3,22 + 0,122GR - 0,32PI + 0,035967UR$$

Table 3 - A panel model explaining the impact of changes in CO_2 emission in 2004-2016 in 18 voivodship Polish cities.

Variables	Coefficient	Standard error	t-Studenta	value p	
constant	3,22400	0,392993	8,204	2,33e-016	***
Green areas (lnGR)	0,122296	0,0511031	2,393	0,0167	**
Available income per capita (lnPI)	−0,320201	0,0483157	−6,627	3,42e-011	***
Unemployment rate (lnUR)	0,0359666	0,0201536	1,785	0,0760	*

*Remarks: level of significance: * 0.1, ** 0.05, *** 0.01.*
Source: own study based on Gretl 2016d program and BDL data.

Table 4 - Evaluation of model matching and statistical tests.

Arithmetic mean of the dependent variable	3,357693	Standard deviation of the dependent variable	1,455820
The sum of residual squares	37,43880	Standard error of residues	0,459912
LSDV R-square	0,910331	Within R-square	0,129100
F(20, 177)	89,84675	Value p for test F	1,32e-81
Autocorrelation of residues - rho1	0,397496	Durbin-Watson statistics	1,830053

Source: own study based on Gretl 2016d program and BDL data.

Looking for universals in the ongoing changes, a panel analysis was carried out, which will allow to indicate whether, despite the occurrence of differentiation, it is a mutually related mechanism. Estimation of the panel model showed statistical significance for all considered variables. The strongest influencing variable was current disposable income per capita. Its growth prompted a reduction in CO_2 emission, which is in line with theoretical assumptions presented in the literature on the subject. It can be assumed that a higher level of income led to an increase in care for the environment in cities and acceptance of additional costs related to it, incurred also from public funds. A reverse dependence was recorded in relation to the unemployment rate. Its growth led to a reduction in activities to reduce CO_2 emission and the greater importance of economic factors. Therefore, there is a competitive relationship between the social factor for which unemployment was assumed and the level of CO_2 emission. In this sense, the solution to emission problems is combined with the reduction of the occurrence of adverse social phenomena in cities. A similar relationship occurred in relation to the share of green areas. In this case, it should be assumed that the higher level of CO_2 emission (in relation to the previous period) leads to actions limiting this effect and greater attention to other aspects of the environment, which may include the suspension of the share of green areas. The model has a high coefficient of determination (LSDV R-squared at over 91%), while the value of "Within" is about 13%. Without taking into account the effects of individual cities, the power of matching the model is much weaker than with these effects. On the basis of the test of the differentiation of free expression, it can be clearly stated that there are individual effects in individual cities and, therefore, their specificity[16].

4 Conclusion

When assessing the condition of greenery in cities, it is possible to notice its diversification in relation to the forms of spatial development of the city and individual urban sectors. Some of the areas are dominated by the construction of previous centuries, others by modern construction. Despite these differences occurring in individual voivodship cities, it is possible to demonstrate the existence of a universal mechanism for transforming CO_2 and undertaken actions and their effects in the social and environmental and economic sphere. At the same time, it is possible to demonstrate the existence of different paths of socio-economic development. We are not dealing with one pattern, but as a result of different conditions, different concepts of transformations of broadly understood urban space are implemented. It is all the more interesting because in relation to these units a relatively coherent policy is implemented at the national level, especially the larger structure which is the European Union. At the same time, this means the necessity of different proceedings depending on the scale and direction of transformations of factors in the economic, social and environmental areas.

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[16] Null hypothesis: groups have a common free expression. Test statistic: F (17, 177) = 94,2616 with the value p = P (F (17, 177)> 94,2616) = 3,67241e-079.

In the context of sustainably balanced development, variables such as the share of green areas, disposable income per capita and the unemployment rate were important. All these factors significantly explained the impact on sustainably balanced social, economic and environmental development. This is in some way an element of choice between shaping the available space (including the share of green areas), and economic and social effects, which are specific substitutes for the consequences of the choice in terms of the level of emissions occurring in individual provinces.

On the basis of the panel analysis it was found that there are individual effects confirming the legitimacy of studying CO_2 emission in a regional context, where the level of this emission in the region is influenced by its specific characteristics related to the geographical location and the adopted level of sustainability.

Acknowledgements

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Utilizing the Alternative Fuels in Transportation

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Abstract

In the developed countries, transportation represents one of the main factors the expansion of which influences the environment negatively. The main issue is the road transportation, the negative effects of which are primarily high emissions and traffic noise.

Motor vehicles equipped with combustion engines significantly contribute to the excess dependency of Europe on imported fuels, as well as to greenhouse gas emission and global air pollution. The ever stricter emission standards for motor vehicles and standards for quality of driving fuels help decrease the emissions, however, this is not sufficient considering the increasing transportation density. By this reason, new alternative fuels and transportation means are continuously being looked for. The above mentioned issues have led to the global discussion on improvement of alternative energetic systems and fuels for passenger and goods transportation.

Supporting the usage of alternative fuels is one of the basic pillars of sustainable transportation leading to ecologically and economically favourable solutions. In the Czech Republic, the usage of alternative fuels is still not sufficiently widespread. However, some towns and cities have started to use alternative fuels vehicles and evaluate the economics of their operation. The paper is focused on characterization of technical-economic and ecological aspects of application of alternative fuels for motor vehicles in the transportation within the CZ.

Keywords: alternative fuels, ecology, economics, transportation

JEL Classification: L91, L62, Q56, Q57, Q42

1 Introduction

Among the basic issues of the concept of sustainable development are primarily increasing the quality of life and continuously minimizing the negative influences of human kind on the environment, as well as reducing the exploitation of natural resources. [1]

In the developed countries, the increasing transportation density is one of the most significant sources of the environmental damage. In the Czech Republic, traffic airborne release makes up to approximately 1/5 of the overall air pollution. [2] The main issue is the road transportation, the negative effects of which are primarily high emissions, and traffic noise.

The principles of sustainable transportation development introduced the requirements of continuous developing, analysing, and usage of perspective alternative fuels for car fleets. Therefore, the usage of alternative fuels and their support becomes one of the main trends of sustainable transportation, which will lead to ecologically and economically effective solutions. However, reducing the weights of the vehicles by using new innovative materials, such as modern composites for conductors [3,4,5,6,7], and light-weight construction alloys for components of engines [8,9], are among the world-wide interest of research engineers, too.

Alternative driving, i.e. the usage of alternative fuels for motor vehicles and development of new alternative methods to drive motor vehicles, has been of long-term interest not only for automobile producers (such as Volkswagen company), but also for various research and development and construction teams from all over the world, (see e.g. [10,11,12,13]). The results of these efforts have been for example new designs of vehicles and development and production of hybrid vehicles.

Among the alternative fuels used in transportation at present are [14]:

- Gas fuels

- primarily compressed natural gas (CNG),

- alternatively liquefied petroleum gas (LPG), however, this cannot really be considered as an alternative fuel due to its direct relation to crude petroleum processing.

- Biofuels

- pure (fatty acid esters – FAME, and pure vegetable oils),

- various concentrated mixtures of fossil fuels - bioethanol and petrol (e.g. E85), and fatty acid esters with diesel oil (e.g. mixed diesel oil with 30% of rapeseed oil methylester).

Generation II biofuels not produced from edible growths, but from non-edible biomass (cellulose from wood mass of other plants) are considered to be used within the nearest future.

At present, the vast majority of motor vehicles is driven by combustion engines, which use motor petrol or diesel oil to supply power. Combustion engines produce a wide range of chemical compounds causing environmental pollution, such as nitrogen oxides, dust, or volatile organic compounds which are easy to evaporate and contribute to photochemical smog. These negative influences on the environment are substantially regulated by the European Union legislature, and, primarily, by the obligation of the producers to meet the Euro emission standard (emission standard Euro VI, valid since September 2014), defining the limit values of exhaust residuals and airborne release from petrol and diesel fuel engines of motor vehicles in relation to the pollutant weight on mileage. [15] Also, certain large cities prohibit entry of motor vehicles in order to prevent pollution in accordance to the EURO VI standard – for example German cities, such as Stuttgart, Berlin, Hannover, etc.

In Europe, the support of usage of alternative fuels in transportation is provided via various legislative measures, which in the first stage dealt with the process of introduction of biofuels to transportation, and subsequently focused on the determination of processes of replacement of motor vehicles fuelled with petrol and diesel oil with motor vehicles fuelled with alternative fuels. In the individual countries, various kinds of support of alternative fuels in transportation ensue from the European legislature. These for example include decreased consumer taxes on "ecological" fuels, financial support for buying vehicles with reduced airborne release, or support of mass transportation using "clean" vehicles. Czech Republic took numerous legislative documents, resolutions and agreements, the main focus of which is to support the development and usage of ecological fuels in transportation, too. Among the recently taken, the most important is the "Memorandum on long-term cooperation in the field of natural gas-fuelled vehicles for the period till 2025" (May 2018). The document ensuing from mutual negotiations of the government with Czech Gas Association and Automotive Industry Association is valid due 31st December 2025. [16]

The aim of the memorandum is to determine adequate conditions for further development of usage of natural gas in transportation while avoiding future endangering of public budgets. In accordance with the European Union

politics, the document also declares the requirement to increase the number of alternative fuel vehicles and decrease the airborne release in transportation. [17]

2 Material and Methods

There are various ways and possibilities of usage of alternative fuels for motor vehicles and the range of their application always depends on the specific conditions of the individual company. The following factors are usually considered when evaluating the possibilities of usage of alternative fuels under the conditions of the given company:

- amount of transportation and average daily operating range (mileage) of vehicles,

- types and number of vehicles and their age,

- expected investment for buying new vehicles,

- availability of alternative fuels, i.e. necessary power sources.

Within the solution of the research task, a model enabling optimal selection of alternative fuels under the conditions of a given company considering fuels availability and expected costs was designed in order to evaluate economic, technical and ecological aspects of usage of alternative fuels for motor vehicles for transportation within an industrial company. [17]

Within the performed analysis, economic, technical and ecological presuppositions for applicability of alternative fuels for motor vehicles and the methodology of evaluation of usage of alternative fuels for motor vehicles within an industrial company were derived. Subsequently, a model enabling optimal selection of alternative fuels under the conditions of the given company was designed. [17]

Among the evaluated alternative fuels were CNG and LPG (gas fuels), biodiesel and bioethanol (biofuels), vegetable oils, electricity, diesel oil and petrol. The evaluation criteria used in the designed model were characterized as [17]:

- technical, such as number of pumping stations, fuel storage, parking in garages, operation security, possibility of transformation, operating range and power,

- economic, such as fuel cost, vehicle cost,

- ecological, such as fuel production and emissions.

The performed study compared the use of various individual fuel types for selected types of motor vehicles in a selected industrial company. Based on the acquired results, the most advantageous alternative fuel applicable for operation of motor vehicles in an industrial company is the compressed natural gas, CNG. However, CNG is not a conventional alternative fuel. Although its combustion creates only minimal environmental burden and corresponds to the presently valid legislature requirements according to the Euro VI emission standard, its contribution to greenhouse gas emissions (primarily CO_2) reduction is minimal [18,19,20]. The shortcoming of CNG is its fossil origin - does not solve the issue of sustainability. Based on the increasing demand for natural gas e.g. for heating of buildings, similar situation occurring for diesel oil at present can be expected to occur for CNG in the future - increase in price of CNG leading to searching for alternatives.

Considering the stable price of gas and its expected surplus (USA is at present the exporter of CNG), CNG appears to be the best possible solution for relatively quick and costless reduction of expenses on fuels, while meeting the EU requirements for reduction of emissions of CO_2 and other pollutants. Large industrial companies keep spending tens of milliards CZK per year on various ecological precautions. CNG offers quick, effective and undemanding solution for more ecological transportation of industrial companies. The performed analyses showed that the usage of natural gas (CNG) enables to increase competitiveness of a company in transportation and mobility.

Transportation and mobility are also essential components of the urban infrastructure. The urban mass transportation (UMT) is essential for every city and neighbouring towns. The main task of UMT is to ensure transport of required quality and quantity within the urban agglomeration. At present, individual transportation is becoming quite an issue in larger cities. A large number of passenger vehicles unambiguously pollute the air. Moreover, the capacity of roads is not sufficient to ensure fluent traffic. The aim of the Smart city and Smart mobility concepts is trouble-free, comfortable and, last but not least, ecological urban transportation. [21]

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[17] Tomáš Hüner, the secretary for trade and industry in demission http://www.hybrid.cz/cesko-ma-jistou-podporu-pro-cng-az-do-roku-2025

In the Czech Republic, the urban transportations of more than 50 towns and cities have been using CNG fuel buses - 1180 CNG fuel buses used in 3rd Q/2018. [22] The most modern CNG fuel buses produce up to 95 % less CO and approximately 1/3 less incombustible hydrocarbons. They are also up to 70 % less noisy. [23]

The corporate town of Ostrava takes part in the Smart city and Smart mobility concepts, too. One of the 2030 success indicators in strategic goal 6 *Cultivate the environment for life of all generations* is the increase in usage of emission-free and low-emission vehicles in UMT. [24]

The transportation provider "Dopravní podnik Ostrava a.s." (DPO) at present operates 290 buses, 105 of which are CNG fuelled. Due 2025, the city UMT plans to operate at least 60 % of emission-free vehicles (54 % at present) and at least 35 % low-emission EURO 6 vehicles (17 % at present). [23] The city of Ostrava plans to spend 680 million CZK on buying alternative fuel UMT vehicles within the car fleet renewal due 2020. [25]

Figure 1 - The % portion of CNG in market in 2017 including % portion of the DPO company. Source: [22]
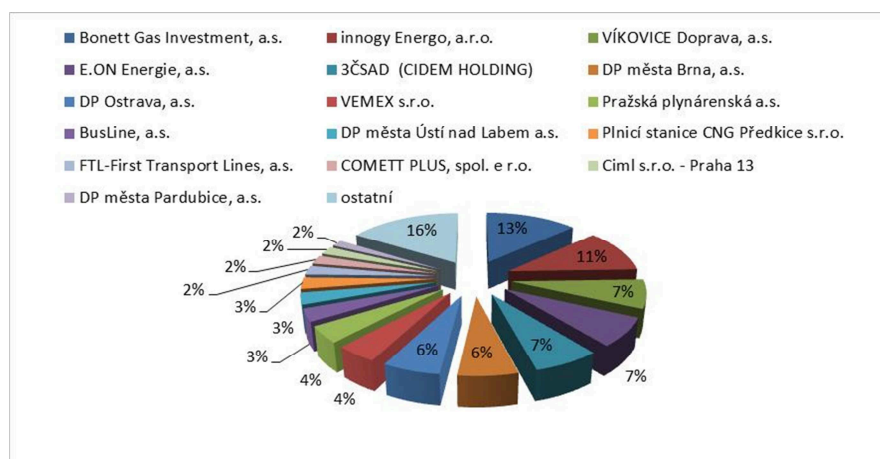
Not only do the CNG fuel vehicles protect the environment – also the consumption of CNG per 100 km is lower than consumption of diesel oil. Moreover, the operating range of CNG fuel buses is two to four times larger (in kilometres) than diesel oil fuel buses. The following tables show the consumption, operating range and fuel prices for CNG and diesel oil fuel buses in the city of Ostrava within the years from 2015 to 2017. The traffic efficiency evaluates the overall transport of the vehicles (i.e. mileage – operating range in kilometres) regardless the transportation density (i.e. the amount of transported passengers or goods). Besides the fact that the consumption of CNG is considerably lower than of diesel oil, the fact that the price of CNG is almost half the price of diesel oil is another advantage. Table 1 shows the evolution of average yearly costs of CNG and diesel oil.

Table 1 - Average yearly costs: CNG – diesel oil in CZ.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
CNG (CZK/m³)	15.9	15.75	16.46	16.7	16.95	17.19	18.1	18.39	17.69	17.25
Diesel oil (CZK/l)	24.72	26.67	30.57	34.25	36.53	35.91	36.15	30.75	27.08	29.57

Source: [18]

The DPO company started to operate CNG fuel buses in 2015. At present, DPO operates approximately 290 buses, 105 of which are CNG fuelled (90 articulated and 15 bi-articulated). The other approximately 185 buses are diesel oil buses. The 105 CNG fuel buses cover approximately one half of the overall operating range of the whole bus department (the yearly operating range is approximately 16.5 million km). In other words, CNG fuel buses (1/3 of the bus fleet) ensure half of the overall transportation. However, CNG fuel buses are newer and their operation is much more frequent than operation of the diesel oil busses. In 2018, DPO company builds another CNG pumping station at Hranečník and plans to buy another 45 CNG fuel buses. Therefore, most of the bus fleet transportation will soon be operated by CNG buses. The summary of fuel consumption and power of DPO company buses within 2015 – 2017 are depicted in tables 2 to 4.

Table 2 - Summary of fuel consumption and operating range of DPO buses in the year 2015.

	CNG		for comparison – similar diesel oil fuel vehicles	
	2015 reality (articulated)	2015 reality (bi-articulated)	2015 reality (articulated)	2015 reality (bi-articulated)
Fuel consumption CNG [kg]	372 982.50	90 597.99	-	-
Fuel consumption diesel oil [ltr]	-	-	2 337 623.76	273 154.86
Operating range [km]	1 165 091.90	228 748.10	6 584 419.80	617 549.93
Fuel consumption kg, ltr for 100/km	32.01	39.61	35.50	44.23

Source: [27]

Table 3 - Summary of fuel consumption and operating range of DPO buses in the year 2016.

	CNG		for comparison – similar diesel oil fuel vehicles	
	2016 reality (articulated)	2016 reality (bi-articulated)	2016 reality (articulated)	2016 reality (bi-articulated)
Fuel consumption CNG [kg]	2 243 875.45	546 690.5	0	0
Fuel consumption diesel oil [ltr]	113	0	1 284 071.15	177 889.25
Operating range [km]	7 064 361.762	1 394 549.663	3 557 511.575	394 029.316
Fuel consumption kg, ltr for 100/km	31.76491416	39.20193841	36.09464433	45.14619669

Source: [27]

Table 4 - Summary of fuel consumption and operating range of DPO buses in the year 2017.

	CNG		for comparison – similar diesel oil fuel vehicles	
	2017 reality (articulated)	2017 reality (bi-articulated)	2017 reality (articulated)	2017 reality (bi-articulated)
Fuel consumption CNG [kg]	2 234 521.45	546 738.91	-	-
Fuel consumption diesel oil [ltr]	-	-	1 324 681.91	164 733.03
Operating range [km]	7 143 177.21	1 415 168.59	3 681 491.15	354 112.90
Fuel consumption kg, ltr for 100/km	31.28	38.63	35.98	46.52

Source: [27]

3 Results and Discussion

As already mentioned, the main reasons for usage of alternative fuels are economic, but mainly ecological factors. The emissions of basic pollutants from combustion of alternative fuels are generally far more advantageous than emissions from combustion of conventional motor petrol and diesel oil. [22]

The support of compressed natural gas for motor vehicles after the year 2020 is going to be substantial within the whole world, as well as in the CZ. For example, in May 2018, the Czech government approved the memorandum, the government in which commits to fix the CNG consumer tax between 2020 and 2025 on the

present rate (CNG consumer tax is 290 CZK/MWh), which is lower when compared to the consumer taxes for motor petrol and diesel oil, to support usage of CNG as an alternative fuel in transportation. [16] Other forms of alternative fuels support are supporting the development of CNG/LPG fuel stations public infrastructure by the Ministry of Transport of the Czech Republic, or supporting of buying of modern CNG fuel buses by gas companies, etc.

However, not only the final ecological and economic impacts of usage of alternative fuels in transportation, but also the impact of the whole "life cycle" of the fuels needs to be evaluated, since the phases preceding the final usage are demanding for the majority of alternative motor fuels. These phases involve the foregoing stages, i.e. processing of raw materials, fuel production and distribution, final application in the individual vehicle, etc. Energy from non-renewable resources is consumed for production of virtually all the alternative fuels, although in various amounts. By this reason, objective results and values of the economic and ecological parameters of usage of alternative fuels can only ensue from complex analyses. To evaluate the usage and effectivity of alternative fuels in industry transportation, the valid LCA (Life-Cycle Assessment) methodology applicable to assess lifetime of products needs to be applied. This methodology was introduced by SETAC [26] organization and is defined in ČSN EN ISO 14 040 and ČSN EN ISO 14 044 standards.

The complex assessment of the influence of various kinds of fuels on the environment (LCA) is the contemporary focus of many research and development workplaces worldwide. However, this task based on the analysis of a large number of relevant input data from a wide range of branches of national economics, such as the agriculture, mining of raw materials, energetics, chemical industry, automotive, economics, etc., is very difficult. [10]

According to the conclusions of the Greenhouse Gas Intensity of Natural Gas study by NGVA Europe European association, greenhouses gas emissions will decrease by 7% when replacing Euro 6 certified diesel oil vehicles with CNG fuel vehicles in passenger transportation. The study analysed emissions produced during the whole life cycle of the fuel (Well-to-Wheel), from mining of the raw material, through distribution and logistics, to combustion in motor vehicles, via evaluation of data from the year 2015 acquired from 50 European gas companies. [11]

Massive development of usage of natural gas in transportation in the Czech Republic is limited by insufficient infrastructure of CNG pumping stations, as well as the non-uniform distribution of the stations when compared to the density and uniform distribution of conventional pumping stations. The main factors limiting wide spreading of CNG fuel vehicles are still high costs of CNG fuel vehicles when compared to diesel oil vehicles, and unstable development of prices of natural gas as a motor fuel. At present, the price of CNG in public pumping stations is approximately 18 CZK/m^3. [22]

The economical factor is thus a significant aspect influencing the development of alternative fuels in transportation – the initial investment, operation costs, economics of pumping stations, etc. The overall amount of savings ensuing from the usage of alternative fuels in companies is variable in time and depends primarily on the difference of the market prices of the conventional fuels (motor petrol and diesel oil) and the alternative fuels. The state politics and its attitude to introducing the alternative fuels into common praxis, e.g. the value of consumer taxes, possibility to gain subsidy to buy CNG fuel buses, etc., is of non-neglectable importance as well.

In the future, the facts that the prices will change, as well as that the changes in the price of diesel oil will cause changes in the price of natural gas (although with a certain delay), need to be taken into account. Considering the energetic crises and changes in market prices, especially the countries with developed industry massively support the research and development of progressive technologies in the field of usage of alternative fuels.

Suffice to say, the issue of development and usage of alternative fuels in transportation is complex, which is given primarily by the necessity to compare three important factors – economic (fuel cost), environmental (especially the assessment of the contribution to reducing greenhouse gas emissions), and technical. Based on the available scientific works on the discussed issue, most important is to acquire a balanced attitude, flexible enough to enable gaining the highest possible support for the alternative fuels being as sustainable as possible.

Acknowledgements

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The Problem of Municipal Indebtedness: a Case of the Municipalities in the Moravian-Silesian Region

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Abstract
Municipalities may find themselves in a situation where they do not have sufficient funds in their budget to cover expenses. This leads to a search for foreign resources, either in the form of repayable or non-repayable funds and hence in debt. The question of the indebtedness of municipalities is one of the frequently discussed topics in the Czech Republic. This is due to the recently increasing municipal debt, which accelerated in the 1990s and still affects more than a half of the municipalities. The aim of this paper is to ascertain the debt situation of all 300 municipalities in the Moravian-Silesian Region, namely the ability to repay the debts and also to find out whether this repayment is a problem for municipalities. For this purpose, the indicator of the total debt to the current budget balance was selected. The municipalities were monitored between the years 2010 and 2016. It was found that in case of an indebtedness indicator regarding the ability to repay its liabilities in the medium term, the municipalities in the Moravian-Silesian Region as a whole do not show a high degree of risk, more than sixty per cent of them are stable and only a few municipalities have to focus to improve it.

1 Introduction

Municipalities may find themselves in a situation where they do not have sufficient funds in their budget to cover expenses on public goods. This leads to the search for foreign resources, either in the form of repayable or non-repayable funds and hence in debt. On one hand, loans are directed towards areas that improve the quality of life and the appearance of communities, such as technical infrastructure, environmental protection, housing, school, cultural or sports facilities. This has tremendous implications for the quality of life of the population and the impact on productivity for all economic activities. (PPIAF, 2009) On the other hand, debt has negative consequences - debt repayment is linked to the payment of interest, which may be a high amount of money, and the municipality may not be able to meet its obligations in the long term. The repayment of borrowed funds is thus made from the current budget as well as from future budgets. Creditors may thus seek to recover their finances, which may result in the execution or auction of the municipal property, and all movable and immovable property may fall to a non-public subject. It will lose its original purpose and the municipality will not be able to provide its citizens with basic services either.

The question of the indebtedness of municipalities and territorial self-governing units is one of the topics discussed in the Czech Republic. This is due to the recently increasing municipal debt, which accelerated in the post-revolutionary years at a very fast pace and still affects more than a half of the municipalities. It is therefore very desirable to pay attention not only to the overall debt and its structure but also to the ability of the municipalities to repay it. On the basis of Act 23/2017 Coll. (The Law on Budgetary Rules), municipalities are concerned about such debt developments that do not undermine the long-term sustainability of public finances.

The authors of this paper aimed to find out the debt situation of all 300 municipalities in the Moravian-Silesian Region, namely the ability to repay their debts and to find out whether this repayment is a problem for municipalities. For this purpose, the indicator of the share of total debt to the current budget balance (TDCBP) was selected to indicate after how many months the municipality is able to repay its debts at a given level of the current budget balance. Municipalities were monitored over a period of seven years, from 2010 to 2016. For the purposes of this paper, data from publicly available sources of the Ministry of Finance, the information and monitoring system - so-called SIMU, were obtained. On the basis of this, the above-mentioned TDRCBP indicator was calculated.

The paper is structured as follows: The first section describes the analysis of the issue in both Czech and foreign literature, the second section of the paper describes the evolution of the debt of municipalities in the years 2010-2016, the third section deals with specific methods for assessing the issue of debt as one of the indicators of the municipalities financial health. The penultimate section is devoted to the analysis and results of the selected indicator of indebtedness in the municipalities of the region. The conclusion then summarizes the findings processed in the previous section.

2 The Issue of Debt in the Czech and Foreign Literature

The dependence of indebtedness (expressed as debt per capita) on the size of statutory cities (by population) and on the fragmentation of the local government was examined by Lajtkepová (2017). According to her, there is a dependence of the indebtedness (per person) on the size of the municipality. Hájek and Hájková (2009) studied the indebtedness of the municipalities in the Pardubice Region and the influence of economic and political factors on their debt. Linhartová and Němeček (2015) prove that municipal debt is not as high as the debt of the Czech Republic and only a few municipalities report this debt. Sedmihradská and Šimíková (2007) came to the conclusion that mainly large municipalities contribute to the increase in the indebtedness of municipalities. The authors Olej and Hájek dealt with a specific problem of the ability to repay the debt in the conditions of the Czech Republic (Olej and Hájek, 2006, 2007, 2008, Hájek and Olej, 2007a, 2007b).

This issue was explored by Gál and Kresta (2014), namely an impact of the growing debt on the decision-making process in sports financing in eight cities in Slovakia. They found that the debt development had a direct influence and correlation with the decision-making of municipalities. Maličká (2017) dealt with the analysis of the influence of economic determinants on the indebtedness of municipalities in Slovakia using the GMM method. Kozovský and Žárská (2008) claim that although the debts of the municipalities are low, they can cause a significant fiscal imbalance at the micro level. Kling and Nižňanský (2004) or Bryson (2007) came to similar conclusions to those in the Czech Republic, stating that the debt of municipalities in Slovakia mainly concerns large cities with more than 100,000 inhabitants. Ott and Bronic (2016) similarly concluded that the capital city of

Zagreb represents 20 % of the total debt of the municipalities in Croatia, municipalities only 8%. In the foreign countries, the issue of debt is analyzed in the long run, based on the situation of the 1960s and 1970s, which for many municipalities represented the beginning of financial problems and instability (Groves, Godsey and Shulman, 1981).

Scott (2001), who developed a rating model for the municipalities in South Africa to be able to repay the debt, included both financial, institutional and environmental indicators, as well as trend analysis. Ashworth, Geys and Heyndels (2005) identified a long-term dependency of municipal debt on retirement, population size, and debt service costs of Flemish municipalities. Hopland (2013) found that the reduction of local budget expenditures indirectly affects the regulation of municipal indebtedness in Norway. The dynamics of the debt of French municipalities was examined by Koumba (2014), who indicates the positive relationship between debt and public investment or the policy cycle.

The latter issue was the subject of further studies. According to Peterson (1998), the ability of municipalities to repay the debt is sensitive to economic conditions - if municipalities provide public goods with locally generated income, they are more vulnerable to economic cycles than local governments that either do not provide these services or receive funding from the central government. This fact, on the other hand, has not been confirmed in case of the Spanish cities (Benito and Bastide, 2004), when the location plays an important part - inland cities show a higher level of indebtedness. Veiga and Veiga (2014) or Ribeiro and Jorge (2015) analysed the impact of the political cycle on the Portuguese municipalities and found a direct dependence between a rising debt and electoral years.

3 Development of the Indebtedness of Municipalities in the Czech Republic Between 2010 and 2016

The issue of municipal indebtedness is related to the territorial division, the organization of the system and the competencies of the self-government. There is a high number of municipalities in the Czech Republic, consisting mainly of smaller municipalities. They are more often exposed to financial pressures and thus face financial problems when their investment exceeds the budget several times. This problem has been solved through public administration reform in Estonia, where the number of local government units has decreased. (Smetanková, 2018)

In the Czech Republic, more than a half of the municipalities are currently indebted. Their indebtedness grew sharply in the post-revolutionary years, and the main causes were:

- Public investments that were costly and did not provide the necessary financial resources to repay the debt.

- Financial participation of municipalities in obtaining investment subsidies.

- Insufficiency of municipal management with respect to the possible future risks of debt, along with the acquired autonomy in the field of municipal management.

- Easier borrowing than the private sector, which is perceived as riskier.

While municipal indebtedness was growing until 2013, in the last three monitored years (2014-2016) it has fallen, as is shown in Table 1. According to the Ministry of Finance (MFČR, 2017), 52 % of the 6258 municipalities reported a debt in 2016. The substantial part of the debt is created by the big cities (in particular Prague, Brno, Ostrava and Plzen), but with a lower risk of non-repayment of debt. A higher level of risk was reported by 11 municipalities (none of them in the Moravian-Silesian region). All risky municipalities fall into the category of small (9) and medium-sized municipalities (2) with a population of up to 3000 people. The highest share of the debt is recorded in loans, which showed the highest decrease (by 22 %) in the last monitored year, while bonds and other debts were stable, respectively slightly declining.

Table 1 – The Development and the structure of debt in the years 2010-2016 (CZK billions).

Indicator	2010	2011	2012	2013	2014	2015	2016
Loans	59.9	60.9	68.3	68.8	67.7	66.1	51.5
Communal bonds	15.8	14.0	13.8	15.0	11.8	10.7	10.7
Received refundable financial assistance and other debts	7.6	7.5	7.9	8.4	9.4	10.1	9.7
Total	**83.3**	**82.4**	**90.0**	**92.2**	**88.9**	**86.9**	**71.9**

Source: MFČR (2017)

As it can be seen from Table 2, territorial budgets show an increasing (positive) difference between the status of their accounts and the level of indebtedness in the last years of the monitored period. In the last year, this difference increased by CZK 73.3 billion, which was not only due to the decreasing debt but also due to increasing funds in the current accounts of municipalities, regions, voluntary associations of municipalities, regional councils and contributory organizations.

Table 2 – State of accounts and debt of territorial budgets * in 2010-2016 (CZK billions).

Indicator	2010	2011	2012	2013	2014	2015	2016
State of accounts total	96.6	97.2	112.3	126.3	138.7	145.2	197.8
Total indebtedness	105.1	107.2	117.1	121.6	119.1	116.3	95.6
Difference	**-8.5**	**-10.0**	**-4.8**	**4.7**	**19.6**	**28.9**	**102.2**

Note: * territorial budgets are made up of budgets of municipalities, regions, voluntary associations of municipalities, regional cohesion councils and contributory organizations
Source: MFČR (2017)

The above-mentioned positive trend is also illustrated by the following Figure 1, which shows growing difference the scissors being scattered between municipal revenues (upper curve) and expenditures (bottom curve), even though the municipalities received a lower subsidy of 37 % in 2016, of which the decrease in investment subsidies was less than sixty per cent. (MFČR, 2017)

Figure 1 – The development of revenues and expenditures of municipalities in 2010-2016 (excluding the capital city of Prague, in billions of CZK). Source: CRIF – Czech Credit Bureau.
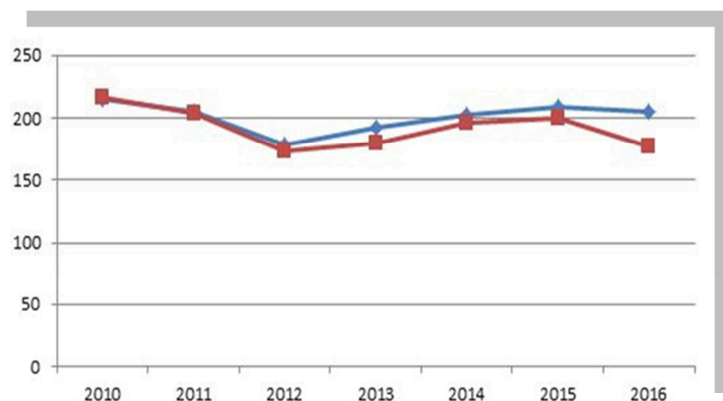
4. The Methodology of Assessing the Indebtedness of Municipalities

The indebtedness of the municipality significantly influences not only the financial stability of the municipality but also its normal course of action and thus belongs among the key areas of the economy. For the purposes of the project, on the base of which this paper was created, a total of eight indicators of indebtedness were developed (see Szarowská, Majerová and Šebestová, 2018). Most of them are based on the SIMU, but some have been modified, such as the proportion of foreign resources and total assets, to avoid distortion due to subsidy advances.

Below is a detailed list of indicators of indebtedness, including values that they may reach and limits in which the municipality is deemed financially (un)stable:

- Share of the total debt to the current budget balance (TDCBB)

- Debt service and debt capacities (DSDC)

- Interest rates and debt capacities (IRDC)

- Share of foreign sources and total assets (FSTA)

- Share of foreign sources without subsidies and total assets (FSTA1)

- Share of total debt to foreign resources (TDFR)

- Total debt service (TDS)

- Share of total debt in current income (TDCI).

For the purposes of this paper, one of the eight total debt ratios was selected, namely the first one - the total debt to the current budget balance (TDCBB). This indicator was tested and calculated for all 300 municipalities in the Moravian-Silesian Region. As indicated above, this indicator shows in how many months the municipality is able to repay its debt at a given level of the current budget. It was calculated based on a given relationship (1).

$$TDCBB = \frac{TD}{(CI - CE + IP)} * 12 \tag{1}$$

where *TD* is total debt, *CI* current incomes, *CE* current expenses and *IP* interest payments.

The indicator demonstrates the municipality's own activity and the approach to planning its commitments and their possible repayment. Although the municipality cannot influence a substantial part of its current income and current expenditure, it must consider this when deciding on a further debt burden, in case of debt (OPF, 2018). It is also necessary to consider whether and at what time (in months) it is able to repay its debts. Thus, the indicator can take values from 0 above:

- TDCBB ≤ 36 - the municipality is able to repay its liabilities in a relatively short time

- 72 ≥ TDCBB > 36 - municipalities are able to repay their liabilities in the medium term

- TDCBB > 72 - the municipality is able to repay its liabilities only in the long- run.

5 Results and Discussion

In the field of debt repayment, all three hundred municipalities of the Moravian-Silesian Region were analysed. From the total number of municipalities (300), 184 municipalities were identified with the value < 36, which is 61 %. The situation with a value of < 72 was recorded with 65 municipalities. The middle-risk was recorded with 13 municipalities more than three times during the monitored period, which is 20 %. The high risk of non-payment in the medium term, i.e. the value of > 72, was detected in 17 % of the 300 municipalities, i.e. 51 municipalities. Four municipalities experienced this situation more than three times (Dívčí Hrad, Kravaře, Liptaň and Mikolajice), which represents 8 % of the municipalities. The above-described situation is shown in Figure 2. At least 39 municipalities (13%) had higher expenditures than its income within the monitored period, with four municipalities it was more than three times (Mladecko, Rusín, Slezské Pavlovice and Šilheřovice).

Figure 2 – Risk of non-payment of municipalities debts in the years 2010-2016. Source: authors´own calculation

■ low risk   ■ middle risk   ■ high risk
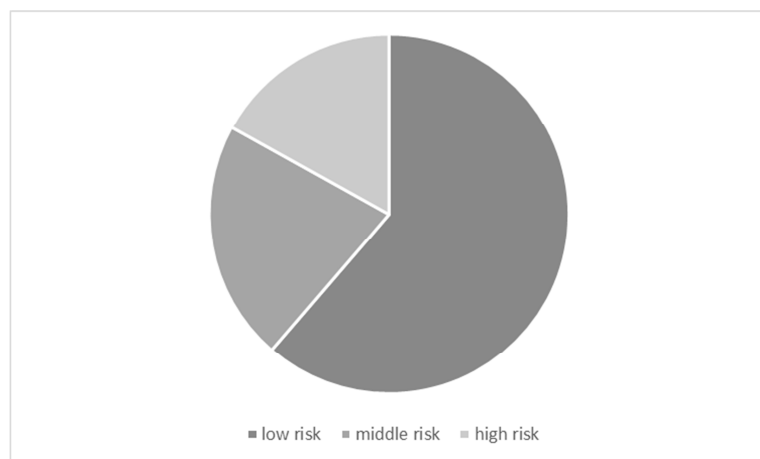
Considering the developmental tendency, at the beginning of the monitored period (in 2010) 11 municipalities were in a critical situation regarding the debt repayment, and in 2016 it was only five municipalities (Bravantice, Dívčí hrad, Liptaň, Vrchy and Vršovice). Out of 300 monitored municipalities, 19 municipalities recorded a deterioration in the last monitored year, which is almost 7 %. On the other hand, 20 municipalities (the same percentage) showed an improvement in their ability to repay.

Based on the above-mentioned, we can state that in the case of the indebtedness indicator (concerning the ability to repay its liabilities in the medium term), the municipalities in the Moravian-Silesian Region as a whole do not show a high degree of risk, the situation is stable in more than 60 % of them and only a few municipalities have to improve it. The decrease in the number of municipalities with a TDCBB indicator value of more than 72 is also positive. At the same time, in the last year, the situation in 20 municipalities deteriorated in relation to the previous period. However, assuming that the paper's aim was not to investigate the causes of this deterioration, it is a temporary case that does not require special attention and will improve in the next years.

6 Conclusion

As the problem of indebtedness troubles more than a half of the municipalities of the Czech Republic, many authors focus on examining its influence, causes and consequences on the functioning of municipalities. The aim of the paper was to find out the state of debt of the municipalities of the Moravian-Silesian Region, namely the ability to repay their debts and to find out whether this repayment is a problem for the municipalities. For this purpose, one of the debt indicators, the total debt to the current budget balance (TDCBB) expresses in how many months the municipality is able to repay its debts at a given level of the current budget balance. All three hundred municipalities were monitored between 2010 and 2016 based on the data published by the Ministry of Finance within the SIMU information and monitoring system. Although the aim of this paper did not investigate why some municipalities have a worse financial situation than others, additional questionnaire surveys and managed interviews were carried out and obtained results could be a topic for further discussion.

By calculating the proportion of total debt to the current budget balance (multiplied by the number of months in the year), municipalities were assigned with values - less than 36, less than 72, and more than 72 (months). It was found that the municipalities in the M-S region do not have a problem with debt repayment in total, while in the high-risk group there were at least 17 % of the municipalities in the monitored period, but only four municipalities have a long-term problem. Overall, the situation regarding the debt repayment improved - at the beginning of the monitoring, 11 municipalities were in a critical situation, yet only five at the end of the monitoring. The economic conditions play an important role, as in 2010 it was a post-crisis year, and in 2016 the economy (at macro, regional and micro level) was in a state of economic growth. A rising support for the regional policy has also played a role here because, as Black (2017) says, supporting cities that are able to repay their commitments is a crucial step towards unlocking longer, sustainable investments that will provide critical services to the people and promote ecological growth through a smart urban development.

Acknowledgements

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Perception of the One Belt One Road Initiative by the Managers of Small Business Enterprises Located in Opole Silesia (Poland) – Results of Pilot Study

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Abstract

The article attempts to present the expectations and plans of the managers of small Silesian Opole (Poland) companies related to the prospects of more convenient business cooperation with the Chinese partners. Results of a survey (pilot study) conducted in 2017 are shown in the article. What is more, the text presents the current China's economic development and increasing trade between China and Europe. The article also indicates the role of Poland which may play a significant role due to the operating rail connections with China and may become the buffer state for European countries in the future.

1 Introduction

From the second century B.C. up to the sixteenth century A.D., the Silk Road was the key international exchange route between Asia and the countries of the Middle East and Europe. Functioning of this route throughout centuries resulted in the development of market mechanisms and institutions supporting trade and it had a huge impact on the exchange of ideas and modern technologies.

Nowadays, there is a return to the concept of the Silk Road under the slogan of the One Belt One Road Initiative (一带一路/ Belt and Road Initiative/ OBOR). This vision of establishing a global market for trade exchange supported by both China and many members of Asia and Europe today is a concept of many international policies of countries that actively participate in building new transport connections (Chaisse and Matsushita, 2018).

The OBOR concept has a huge meaning for the development of Chinese trade policy, implemented since the introduction of reforms in 1978. China, as a global economic power, is looking for a new channels of sales to acquire raw materials, knowledge and innovative solutions and to export its goods to Europe (Misiurski and Śmietański, 2017). The New Silk Road is also a chance for Europe, including Poland. Establishing long-term trade cooperation and offering products to the Chinese market may contribute to the improvement of the trade balance of many European Union countries.

Europe is a very important economic partner of China. On the basis of the China Statistical Yearbook, the trade exchange between Europe and China in 2016 was over USD 677.76 billion, of which the export from China to Europe amounted to USD 389.92 billion and import USD 287.85 billion. The biggest recipient of the Chinese goods is Asia – around 49,6% from all China's export goes to Asian countries, the second place belongs to

Europe, where goes 18,6% of goods. Europe is also an important importer for China – nearly 18,1% of all goods imported by China comes from the European countries (China Statistical Yearbook, 2017).

Among the European countries, Germany is the largest importer and exporter to China. In 2016 China exported to Germany goods of the total value of USD 65.26 billion, while import amounted to USD 86.11 billion in the reporting year (Figure 1.). It is also worth noting that Germany, the Netherlands and Switzerland have a positive trade balance with China, which means that the value of export of goods to China surpasses import.

Figure 1 - The amount of export and import of China with selected European countries in 2016 [USD billion]. Source: Own study based on the China Statistical Yearbook 2017, [cit. 2018-08-01]. Available from http://www.stats.gov.cn/tjsj/ndsj/2017/indexeh.htm
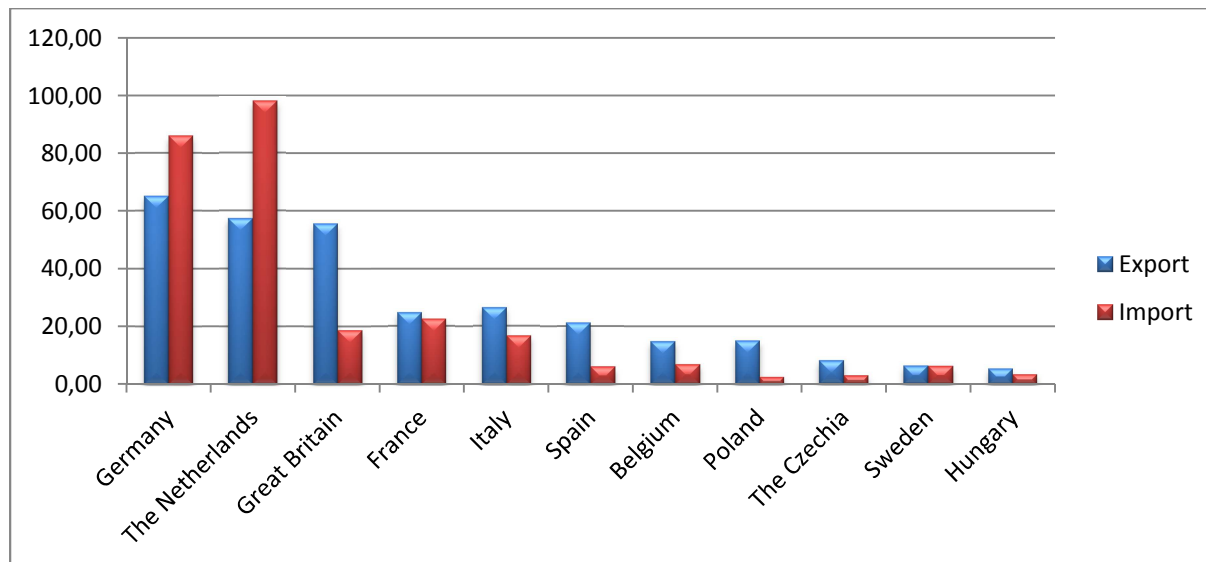
Among EU member states, the highest level of trade turnover with China in 2016 was reported by Germany (USD 151.37 billion), Great Britain (USD 74.4 billion), the Netherlands (USD 67.3 billion), France (USD 47.19 billion) and Italy (USD 43.1 billion), (China Statistical Yearbook, 2017).

Year by year, Poland imports more and more goods from China. It takes 12th position in import among 28 countries, while in turnover and exports 8th position. On the basis of the data of Central Statistical Office on the goods trade, it can be noticed that since 2004 the value of Polish import from China increased fourfold reaching the value of PLN 94.0 billion (comp. Figure 2). However, the trade deficit from Poland's point of view is huge. The value of Polish import of goods from China is much higher than the value of exports to this country (in 2016 the value of Polish export to China was PLN 7.5 billion).

Figure 2 - Poland-China: import-export [in PLN billion] Source: Own study based on the Yearbook of foreign trade statistics of Poland, Central Statistical Office, Warsaw 2017. Data includes the trade of goods.
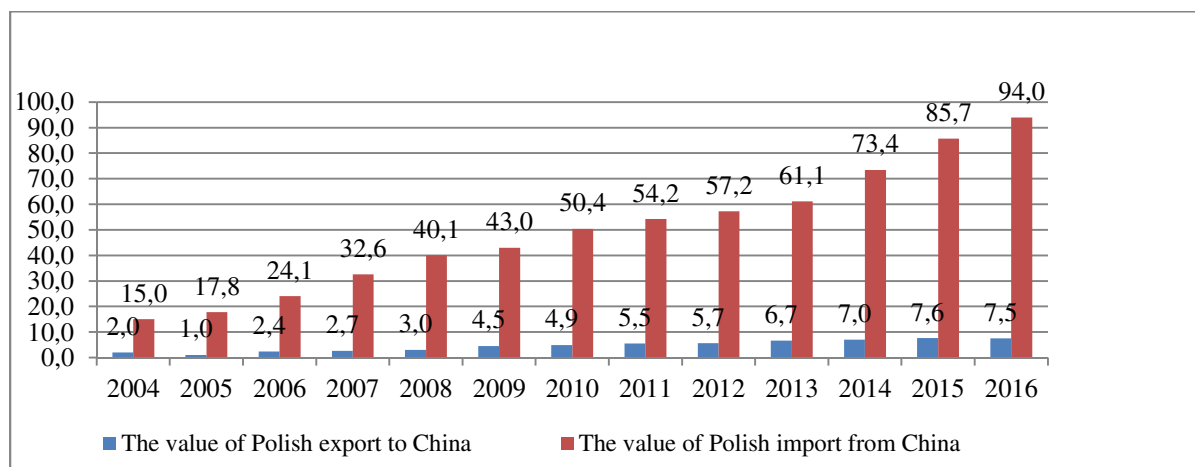
In the import of goods, divided into sections of the standard classification of international trade, abbreviated to SITC (Standard International Trade Classification) in 2016 more than half of them were machines, devices and transport equipment (55,1%) (Yearbook of foreign trade statistics of Poland, 2017).

An important section was made up of various industrial products (27,1%) and industrial goods mainly classified according to the raw material (12,5%). However, taking into account the export of goods in 2016, about 1/3 of the total of export were cooper and cooper products. Further, among the exported goods were machines, furniture, vehicles and electrical devices, as well as agro-food articles, mainly dairy products, meat, sugar and confectionery (Yearbook of foreign trade statistics of Poland, 2017).

Nowadays it is possible to provide train transport of goods between Europe and China beside ships or planes, which differ in lot of aspects such as speed, costs, safety or environmental impacts (Nožička, 2016). The increase of import from China to Poland was affected also by the opening of a railway connection between the city of Chengdu (Sichuan) and Lodz (Olechow) in 2013. The initiators of the opening of this connection were two transport companies: YHF Intermodal Logistics and the Lodz company Hatrans Logistics. Also in 2013 (October) a railway connection on the route Suzhou - Warsaw was launched. The operators of this connection are: Austrian company Far East Land Bridge and PKP Cargo Logistics Group. Transport takes place on 2 routes - north by Russia and Belarus and south by Kazakhstan, Russia and Belarus. Open rail connections caused that Poland has become an attractive partner for China and a gateway to the countries of western Europe (Yearbook of foreign trade statistics of Poland, 2017).

According to the data of the consortium of Changdu Hatrans YHF Intermodal Logistics Co. Ltd, rail freight has become an attractive and effective form of trade. Time of transporting goods and covering the distance of 10 thousand kilometers takes about 12-14 days and the cost of transporting 40 containers is around USD 8 thousand and is four to eight times lower than the cost of air transport (comp. Table 1.). Yuan Li, Kierstin Bolton and Theo Westphal indicate that transportation time takes about 10 and a half days now. The authors also state that: "many other trains between Europe and China actually have no fixed running time. Railway operators typically wait until the trains are filled up before setting off for the final destinations. Rongou, however, runs every Saturday. The rail networks connecting China with Europe are enhancing their trade relations". The research carried out by the authors also indicate that: "the railways increase the intensity of trade between China and its trading partners along the 'New Silk Road.' This holds true for the import of Chinese products, but only to a very limited extent for the export of European and Central Asian products to China" (Nožička, 2016).

Table 1 - Transportation time and cost of 40 containers on the route China-Poland by various means of transport

Type of transport	Transport time	Cost of transport
Air transport	from 5 to 15 days	from USD 40.000 to USD 80.000
Maritime transport	from 35 to 42 days	from USD 5.000 to USD 8.000
Rail transport	about 10 and a half days	around USD 8.000

Source: Own study based on data of Institute INTL, Changdu Hatrans YHF Intermodal Logistics Co., Ltd. "New version of Silk Road" China - Europe International AIR-TRAIN from Chengdu/China to Poland /Europe, [cit. 2017-08-04]. Available from: www.instytutintl.pl

The construction of the New Silk Road is becoming a chance for Polish entrepreneurs to develop and to enter into cooperation with Chinese companies. Therefore, to facilitate trade, support for entrepreneurs from both countries is important. Are Polish entrepreneurs interested in such a cooperation? The questionnaire survey (pilot study) carried out is an attempt to answer this question. It is described in more details in the next chapter of this article.

2 Material and Methods

In order to identify the plans and expectations of the entrepreneurs of Opolskie Voivodeship related to establishing the cooperation and exchange of goods with People's Republic of China and in order to identify their knowledge about One Belt One Road Initiative a questionnaire survey was carried out among managers of small and medium-size business enterprises – 23 companies located in Opolskie Voivodeship. It was a one-off and non-invasive study, carried out between 23rd February 2017 and 23rd October 2017. The questionnaire was composed of 16 research questions (these questions concerned, among others: established and planned cooperation with the Chinese side; the nature of this cooperation; the preferred form of transport; the support and consultations in the field of cooperation with the Chinese side; stages related to the exchange of goods between China and Poland during which the support for Polish entrepreneur is the most needed; information witch institutions in the Opole region provide support or consultation in establishing cooperation with Chinese enterprises; knowledge about the ancient silk route and the One Belt One Road Initiative; the demand for information about this initiative) and 6 questions related to the demographic and social affiliation of the respondents. In order to reach to as many respondents as possible, the Opole Chamber of Commerce was

contacted, and after obtaining their support for the research goals, their help was used to disseminate the survey form (EBadania, 2015) by e-mail among managers of the region.

Due to very little reply, attempts were made to arrange meetings with friendly enterprises. The group of respondents was formed by managers of small enterprises (employing up to 50 employees) and medium-sized enterprises (employing between 50 and 250 employees). The lack of official data on established and implemented trade initiatives between Opole and Chinese entrepreneurs, confirmed by the Center of Economic Development of Opole, prevented the use of an additional criterion narrowing the selection.

The gender structure of the respondents was as follows: 26% were women, 74% men. All people were aged between 35 and 60 (25-34 years - 4%, 35-44 years - 44%, 45-54 years - 48%, 55-60 years - 4%) and had higher education (higher undergraduate - 26%, master degree - 74%). Their enterprises were located in the following areas: rural (agricultural area - 4%, industrialized area - 9%) and urban (city 21-50 thousand - 17%, 51-100 thousand - 39%, 101-150 thousand - 31 %) and mostly dealt with production activities in the field of: electronics - 52%, construction services - 30%) and import / export of goods - 18%.

3 Results and Discussion

Most of the respondents have not cooperated with Chinese enterprises yet (87%), while more than half (57%) plan to start such cooperation in the future. Among the managers with experience related to trade with the Chinese side, only 4% are continuing this cooperation, and their current trade was mainly focused on importing: raw materials - 4%, semi-finished products - 9% and finished products - 9%. Over 1/3 of respondents (35%) plan to undertake such cooperation in the future. It would concern export and import of goods (65% of responses), technological exchanges (13%), tourist services (9%) and exchanges of personnel and cultural exchanges (4% each). Within the first category mainly import of: finished products (52%), semi-finished products (35%), raw materials (30%); and export: finished products (26%). Details are shown in diagrams 3-5.

Figure 3 – The current cooperation of Opole Silesia companies with China. Source: Own study.
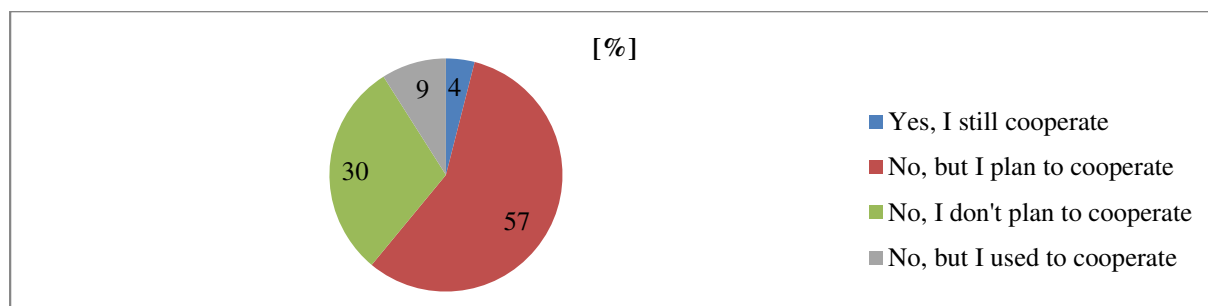
Figure 4 – The nature of expected cooperation with Chinese companies (multiple answers). Source: Own study.
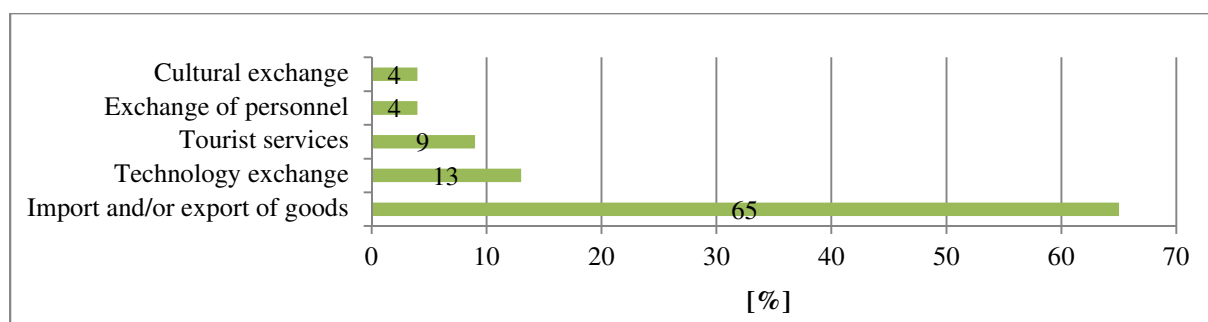
Figure 5 – The type of expected trade with China (multiple answers). Source: Own study.
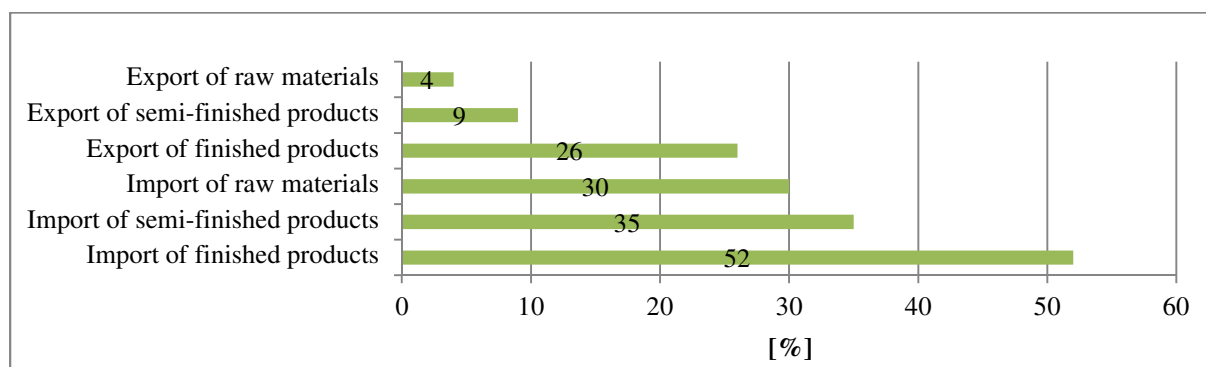
The preferred means of transport of goods from China and to China is sea transport (57% of responses) and rail transport (26%). This choice is only due to the price of transport services.

In business contacts with the Chinese representatives, the surveyed enterprises of the Opolskie Voivodeship mainly chose to consult in the field of brokering to establish business contacts and solve "minor" doubts (26% of responses) - diagram 6.

Figure 6 – Using the support/ consulting institutions from Opole Silesia to contact Chinese companies (multiple answers). Source: Own study.
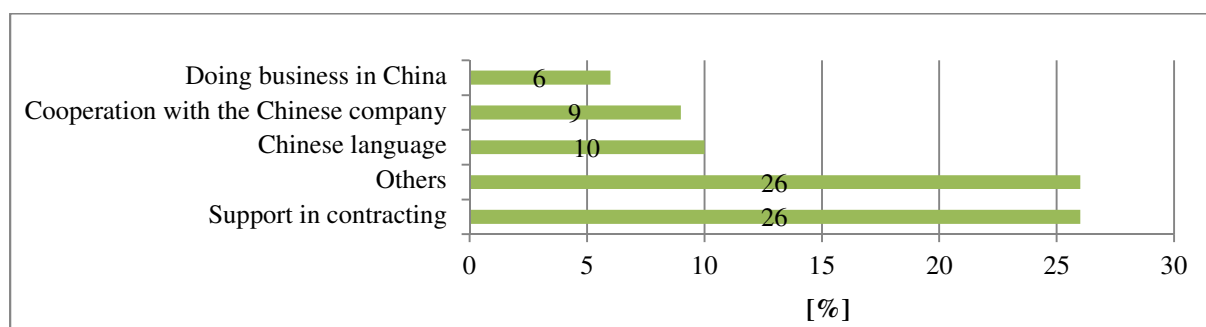
Managers in majority (87%) do not have information which institutions in the Opole region support or consult in order to establish cooperation with Chinese enterprises. However, the stages where the support of these institutions is most needed, according to respondents, are first of all: supply (100% of indications) and customs clearance (83% of indications) - diagram 7.

Figure 7 – The most preferred support for the Polish entrepreneur in the trade between China and Poland (multiple answers). Source: Own study.
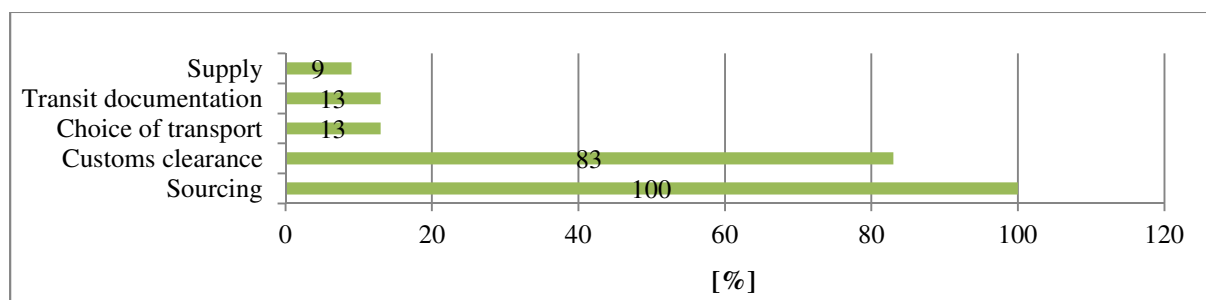
The categories of the Ancient Silk Road and the New Silk Road are usually recognizable by the respondents and mainly concern the following associations:

- transport, trade route,

- route/ communication route from East to West / from China to Europe,

- silk and goods transported "by the way" with silk,

- caravans,

162

- China,

- international trade,

- middle ages / ancient times.

In individual responses, there were also such categories as: Chairman Xi [习近平] and initiative leading China towards prosperity.The main sources of information about the New Silk Road are the media (Internet, press, television - 87%), relatives (family members and friends - 9%) and Polish associates or business partners (4%). Only 17% of respondents have not heard of the New Silk Road project before. Details are presented in diagrams 8 and 9.

Figure 8 – Available information about the OBOR Initiative in Opole Silesia provided by the consultancy institutions which support cooperation with Chinese companies. Source: Own study.
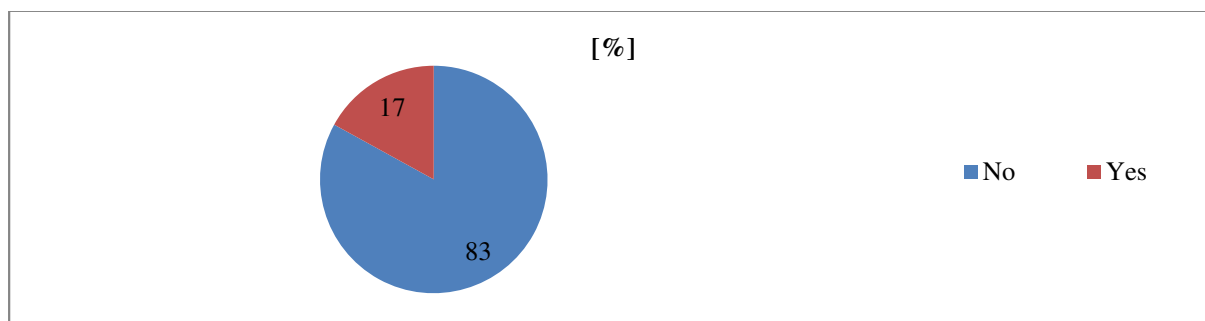
Figure 9 – The main source of information about the OBOR Initiative. Source: Own study.
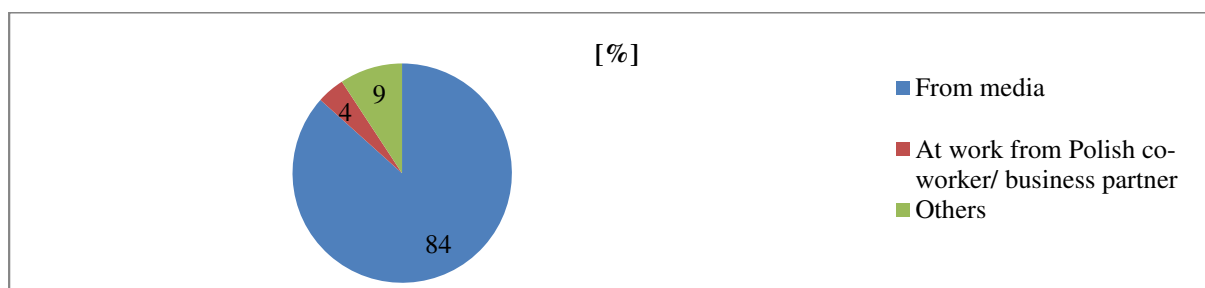
The managers reported a need for more detailed information about the Initiative (35% of responses), the need to obtain information on the actual possibility of cooperation with Chinese partners (22%), the time frames of the initiative (13%), institutions in the region responsible for coordinating activities under the initiative (13%), detailed information - other than provided by the media (9%), the unit/ institution responsible for the security of transactions (9%). Detailed answers are shown in Diagram 10.

Respondents asked about the willingness to take part in thematic trainings devoted to the One Belt One Road Initiative showed interest only in those trainings devoted to economic and legal conditions (35% of indications). Due to the lack of such offer / information about it - 1/5 could not determine its opinion (22%), and some (13%) did not show any interest.

Figure 10 – The area requiring more accurate recognition about the OBOR Initiative (multiple answers). Source: Own study.
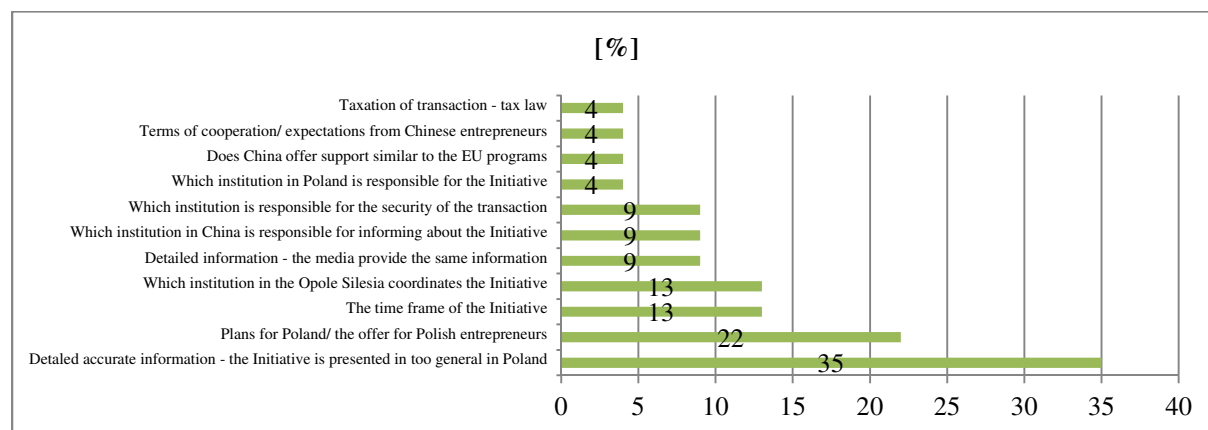
4 Conclusion

The implementation of the New Silk Road idea and the creation of a transport network between Asian and European countries is crucial from the point of view of trade between Europe and Asia. Not only China sees great opportunities in the OBOR initiative, but also Poland, thanks to its favorable geographic location and thanks to the launched rail connections with China, Poland may play a significant role in the future as a buffer country for Western European countries. It is also an opportunity for Polish companies which may establish cooperation with Chinese companies, as well as participate in the intermediation of trade between Europe and Asia.

The pilot study conducted among managers of small and medium-sized enterprises in the Opolskie Voivodeship allows to formulate the following preliminary observations:

- Entrepreneurs of Opole have not established business contacts with Chinese enterprises yet, but they show willingness to do so, which may be perceived as a clear interest of the One Belt One Road Initiative.

- Cooperation with China up to now included only the import of products. Further plans of entrepreneurs also concern the import and export of goods, based on previous experience and information on the profitability of such activities.

- In business relations with the Chinese representatives, Opole companies so far have mostly used the external support in the field of brokerage in establishing business contacts and in order to obtain answers to individual questions that appear on a regular basis. This indicates, among others, the need to establish an institution offering a hotline with consultants who will be able to answer the so-called "minor questions" appearing in cooperation with Chinese partners.

- The support of external institutions is most needed at the stage of supply and customs clearance, which indicates the actual need for intermediation in establishing business contacts and the poor knowledge of managers regarding the economic and legal specifics of such transactions. The companies did not use cultural diversity support. Only 1/10 needed linguistic help (in Chinese) or information on the specificity of cooperation with China. This may be due to the fact that contacts and transactions are mostly made in English, or because of the desire to reduce transaction costs or because of the lack of awareness that this may actually be useful.

- Few entrepreneurs have information on Opole institutions offering support for people interested in establishing trade cooperation with the PRC. Thus, the need to increase awareness and propagate information materials, and above all, to create a regional unit officially responsible for cooperation between representatives from Poland and China is evident.

- Sea transport is still preferred - mainly due to its lower cost in relation to rail and air transport.

- Categories: The Ancient Silk Road and the One Belt One Road Initiative are known to the respondents, nevertheless the first one brings more associations. However, respondents clearly associated these two categories with China and the communication route with a known beginning (China), but unspecified: the final place, time frames, coordination and security institutions (both on the Chinese and Polish side) and cooperation opportunities.

- Assumptions of the One Belt One Road Initiative are known mainly from the media. These are usually very general information that appear in different media in the same content, but in fact they do not help the surveyed

to acquire new and wanted information. Nevertheless, it seems that the Polish media are interested in the initiative, but probably do not have access to detailed information, or the initiative is so young that more detailed information will be presented soon.

- In addition, the initiative is perceived by respondents as a kind of counterpart of activities offered within the European Union. They are looking for funds twin to European projects, under which small and medium-sized enterprises could obtain non-returnable support. However, according to the authors, the initiative is of a different nature in the initial phase, it is rather the equivalent of the cover under which many projects are implemented, mainly addressed to the recipient - the cooperating state, rather than individual enterprises. Works are in progress to create the portal (Belt And Road Portal: https://eng.yidaiyilu.gov.cn/), through which entrepreneurs from the countries on the route will be able to obtain information they need, but now it mainly presents reports on visits and meetings of chairman Xi with representatives of the countries connected to the initiative and a list of Chinese and foreign companies (i.e. other than Chinese) along with brief characteristics of them. According to the information provided on the Belt and Road Portal, the Initiative is an "open" project for cooperation, not limited to the area of the ancient Silk Road, and is addressed to all countries, international and regional organizations in order to create mutual benefits. The state-enterprise and enterprise-enterprise stages seem to be successive stages, and access to more detailed information is only a matter of time. In addition, on June 29, two new departments of the Supreme Tribunal Court were opened - the International Commercial Courts (the First and Second International Commercial Courts of China) in Shenzhen and Xi'an to look after the legal side of the sea and land part of the route (CSPA, 2018).

Pilot studies that were carried out indicate that issues related to the One Belt One Road initiative perceived by managers of Opole companies require a deeper recognition, therefore they will be continued on a larger scale.

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The Approaches of the Slovak and Czech Experts to the Assessment of Effectiveness of the Active Labour Market Policy Tools

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Abstract

The unemployment represents a serious economic, social and also political issue for every country, leading to the state when the human capital and human potential of the unemployed are not being sufficiently utilized. Active labour market policy tries to create a balance between the supply and demand on the labour market through the support of putting the unemployed into suitable employment, which is the way how it contributes to a sustainable development of the region and the country as a whole. When applying the tools of the ALMP, public funds are being spent, therefore it is necessary to pay attention not only to what programmes are being supported from these funds, but mainly to how efficiently they are being spent. The aim of the paper is the identification, analysis and comparison of expert studies examining these issues, performed under conditions of the Czech Republic, Poland and Slovakia.

1 Introduction

The meaning of the economic policy of each country is to take such measures that remedy the market disturbances. One of such disturbances is the imbalance between the supply and demand on the labour market leading to the emergence of unemployment. The employment policy, or the labour market policy, strives to achieve the balance between the supply side and the demand side on the labour market. Kliková and Kotlán (2006) define the labour market policy as "the set of measures that co-create the conditions for the dynamic balance on the labour market and for the utilization of the labour force", thus also of the human capital, which is how this policy contributes to the sustainable development of the specific region and the whole country.

The unemployment poses a serious economic, social as well as a political issue for each country. In spite of the fact that the unemployment in the whole EU and also in the Czech Republic, Poland and Slovakia has been decreasing recently, each country uses a part of its public funds on the financial support of the labour market policy. The differences occur in the structure as well as in the amount of these expenditures among the individual countries.

The aim of the paper is the identification, analysis and comparison of expert studies examining these issues, performed under conditions of the Czech Republic, Poland and Slovakia. All these three countries have common regions next to their borderlines and they exhibit a high level of the cross-border cooperation within the aspects of the economy as well as culture.

2 Materials and Methods

This paper was written using mainly the secondary sources of data, and thus the professional literature focusing on the assessment of labour market policy (LMP) together with the databases for international comparison –

Eurostat and the database made by OECD. The data gained were processed via methods of analysis, synthesis and comparison. The processed data were interpreted via tables and charts.

2.1 The Amount and Structure of Expenditures on the LMP in the Czech Republic, Poland and Slovakia

Within the LMP, two parts of it are being financed and realised. The first is the passive labour market policy (PLMP) (unemployment allowances, payments to insurance companies for the registered unemployed, early retirement). The second part consists of the active measures on the labour market (active labour market policy – ALMP) that are focused on the support of putting the registered unemployed into a suitable employment (Vincúr et al., 2007).

The course, level of financing of LMP and the redistribution of funds between ALMP and PLMP are different for different countries. In all of these countries, there was a leap in the financing of the LMP in 2009-2010 in relation to coping with the impacts of the economic crisis (Table 1, Figure 1). However, it must be noted that the course of this indicator which is being used for the international comparison of the LMP financing is significantly influenced by the course of the GDP.

Table 1 – The course of the expenditures on the LMP in the Czech Republic, Poland and Slovakia between 2002 and 2015 (% GDP).

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Czech R.	0.45	0.45	0.43	0.40	0.68	0.67	0.53	0.47	0.54	0.59	0.62
Poland	1.27	1.15	1.00	0.90	0.94	1.02	0.70	0.75	0.84	0.79	0.74
Slovakia	0.59	0.64	0.57	0.68	0.91	0.91	0.77	0.68	0.62	0.55	0.53

Source: Eurostat

Figure 1 – The course of the expenditures on the LMP in the Czech Republic, Poland and Slovakia between 2005 and 2015 (% GDP). Source: Eurostat
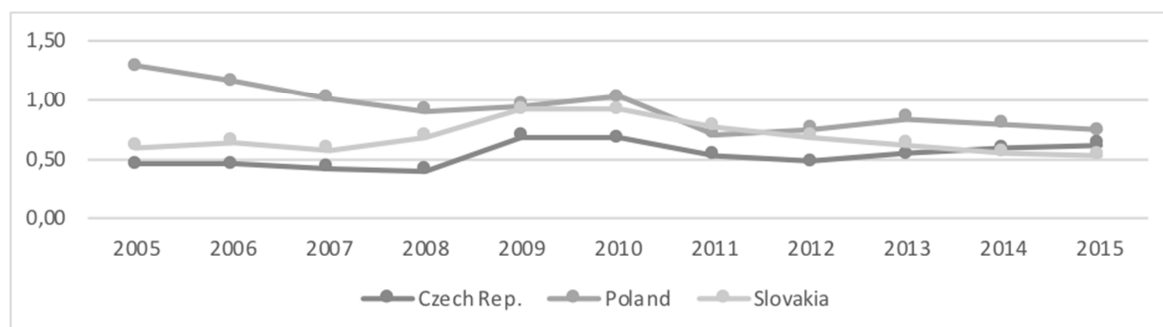
In the developed countries, the financing of ALMP tools is being preferred to the PLMP. According to the latest complex data available from 2015, the highest amount of public funds in relation to the GDP spent on the ALMP among the EU countries was recorded by Denmark (1.98%), Sweden (1.24%), France (1.01%) and Finland (0.97%) (Figure 2).

Figure 2 – Expenditures on the passive and active labour market policy (PLMP, ALMP) in the EU countries in 2015 (% of GDP). Source: Eurostat
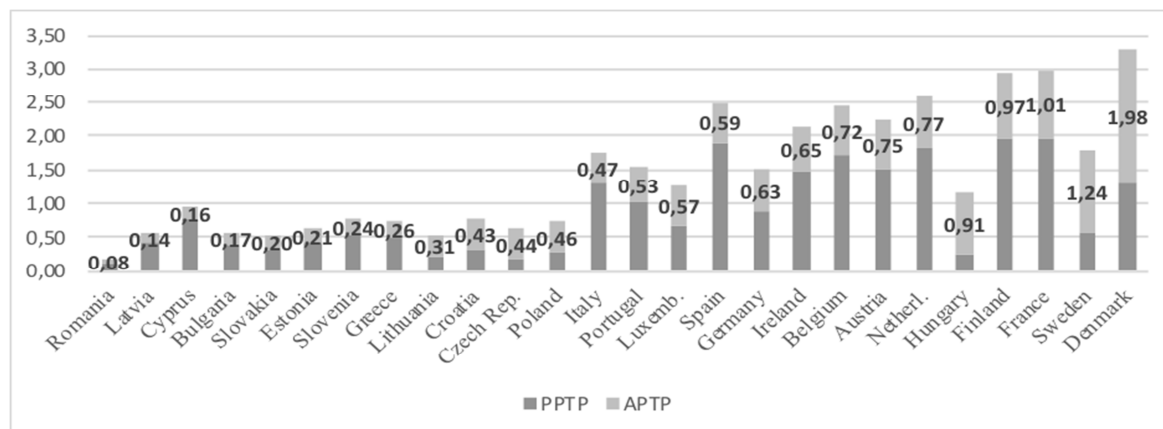
Slovakia dedicates a very low amount of funds to the implementation of ALMP in comparison to other countries of the European Union. In 2015 (last year with full data for all EU countries), it was only 0.20% of the GDP, which positioned the SR together with Romania, Bulgaria, Cyprus and Latvia at the end of the ranking. Poland (0.46%) and the Czech Republic (0.44%) spent around the same amount of public funds on the ALMP, but it is still a relatively low value when compared with the aforementioned Denmark (1.98%) or Sweden (1.24%). In addition, in the Czech Republic, Poland and in Slovakia, the expenditures on the passive policy exceed the expenditures on the instruments of active policy, which does not contribute much to the creation of stimulating conditions for generating new job vacancies.

There is a whole spectrum of different ALMP programmes being implemented by the EU member states and other countries in Europe. These programmes can be classified into six categories. The categories are rather similar to the corresponding classifications designed and being used by the OECD and Eurostat (Koňušíková, Kucharčíková, 2015).

The expenditures on the labour market policies (LMP) have their limits in the public interventions which are directed towards the groups of people with difficulties in the labour market: the unemployed, the employed at risk of involuntary job loss, and the inactive persons who are willing to enter the labour market. The total expenditures are divided into LMP services (category 1), covering the costs of the public employment service (PES) and all other publicly funded services for jobseekers; LMP measures (categories 2-7) (Table 2), covering the activation measures for the unemployed and other target groups including the categories of training, job rotation and job sharing, employment incentives, supported employment and rehabilitation, direct job creation, and start-up incentives; and LMP supports (categories 8-9), covering the out-of-work income maintenance and support (mostly unemployment benefits) and early retirement benefits (Eurostat, 2018).

Table 2 – The structure of expenditures on the ALMP in the Czech Republic, Poland and Slovakia in 2015 (% of GDP).

Programmes (categories)/ country	PES and administration (1)	Training (2)	Employment incentives (3-4)	Sheltered and supported employment (5)	Direct job creation (6)	Start-up incentive (7)	Total ALMP (1-7)
Czech Rep.	0.12	0.02	0.13	0.10	0.06	0.00	0.43
Poland	0.08	0.01	0.13	0.17	0.02	0.05	0.46
Slovakia	0.04	0.01	0.08	0.04	0.02	0.01	0.20

Source: OECD

In all of the countries studied, the training is the least financed part, whereas in the most developed countries the situation is opposite. The training is also considered to be an ALMP tool with long-term positive effects.

3 Results and Discussion

The characteristics related to the level of labour market policy funding in the countries of the EU are very differentiated and depend on the factors such as, for example, the duration of the insurance, the duration of the previous employment, participation in requalification programmes, family status, and so on (Dvořáková et al., 2012). The studying of the impact of these factors is not the aim of this paper. Nonetheless, it is the case of allocating the public funds, therefore it is necessary to focus the attention not only towards what programmes of the labour market policy are financed but mainly towards the efficiency of the financing. The state is obligated to use the funds available in an efficient way. These funds are being used not only on the tools and policies aimed at the labour market but also in other fields within the public sector. These issues attract the attention of many scientific and research works, represented, e.g., by the work of Vrabková, Vaňková and Ivan (2016). In the paper, the attention is paid to the identification, analysis and comparison of expert studies focused on these issues that were conducted within the conditions of the SR and the Czech Republic.

3.1 Methods Used for the ALMP's Assessment by Czech and Slovak Experts

Various authors suggest using various approaches to the evaluation of effectiveness of the instruments of ALMP. Harvan (2011) characterises the scientific and non-scientific approaches to the measurement of effectiveness, or of net efficiency of the programmes. Scientific approaches compare the average results of a representative treatment group of participants with a suitable representative control group of non-participants. They require the micro data at the level of individuals. Non-scientific approaches use aggregate data that are processed using the econometric methods, estimating the impact of programmes on the total employment. According to Harvan, methods are divided into experimental, non-experimental, quantitative, qualitative and economic.

The essence of experimental methods is the creation of two groups of participants, ex ante. One consists of the programme's participants and it is called the experimental group. The other is the control group which does not participate in the ALMP programme. Afterwards, the results are being compared in the field of employment (e.g. the amount of wages, position on the labour market) for both groups. The problem here is the time demands and the inability to create an identic control and experimental group. In case of non-experimental methods, it is about looking for persons for the control group maximally similar to the target, experimental group. An important part is the precision of applying the supportive econometric and statistical methods. These methods work with the ex-post data. The essence of qualitative methods lies in obtaining the opinions of programmes' participants via interviews and surveys. These methods represent the most suitable form for obtaining individual results. The above-listed experimental methods can be put here too. Quantitative methods are the simplest ones because they measure only the gross outputs. Through these methods, the participants are being evaluated after the programme ends during three months with the aim to find out whether they found the employment on the labour market. Among economic methods belong the cost-minimization analysis (CMA), cost-benefit analysis (CBA), cost-effectiveness analysis (CEA), and the cost-utility analysis (CUA) (Winkler, Wildmanová, 1999).

3.2 Czech and Slovak Studies Evaluating the Instruments of ALMP

One of the first studies from the 1990s, done by Burda and Lubyová (1995), was evaluating the impact of active labour market policy instruments on the decrease of unemployment during 1991-1994 using a regression analysis based on the so-called matching function, which puts the number of job vacancies into connection with the number of placed job applicants. It was a comparison of the Czech and Slovak Republic at the level of districts. In both countries, a positive relationship was revealed between the active labour market policy expenditures and the number of job vacancies. The ALMP expenditures also significantly influenced the process of job applicants' placement in a positive way.

The majority of conclusions from the study done by Lubyová (2007) was based on the analysis of the monthly data from the Ministry of Labour, Social Affairs and Family. The effectiveness of programmes was evaluated using the econometric regression between the amount of expenditures incurred on ALMP and the decrease of unemployment in the period of 1995-1996. It was revealed that the influence of the total expenditures on ALMP on the decrease of the unemployed was not unequivocal. There is a statistically positive effect of the total expenditures on ALMP on the number of people placed through the Labour Offices.

The field of evaluating the instruments of ALMP in the Czech Republic was studied in several works done by Sirovátka in 2007, 2012 and 2013. In the last study, which was conducted 0.5 – 1.5 year after the end of a certain programme, he was studying the targeting of ALMP programmes. He also studied whether the programmes influenced the position of the unemployed on the labour market, and he identified the factors that affect the impacts of ALMP instruments. He used the pairing method when based on the known attributes, similar individuals were being sought, and the risk rate of their unemployment was being studied after participation in ALMP programmes. A significant decrease of the unemployment risk rate was achieved by programmes for the support of job positions. It was worse in case of the reskilling where in the longer term (after 6 months), the risk of unemployment was almost the same as for the people not participating in such programmes. In case of public works, there is even a stronger tendency of the participants to stay unemployed than it is for not participating persons. These programmes rather help to create a specific segment of the labour force when the people rely on getting back into the programme again after its end. However, young people are not interested in these programmes. A significant shortening of the unemployment was observed for the graduate practice when young people almost never got back among the unemployed again (Sirovátka, Kulhavý, 2007).

In a study from 2013, the heads of district labour offices were evaluating how the individual measures of ALMP proved to be successful within the context of the economic crisis. It was revealed that a significant decrease of the unemployment risk is achieved mainly by the programmes for the generation and support of the job positions in the private sector and by the reskilling. Their importance is considerably higher in districts with the highest unemployment rate. The biggest reserves are there for ALMP in the area of improving the employment services by the individual communication with the unemployed. It applies also for the creation of an institutional framework leading to a better targeting of ALMP instruments (Sirovátka, Šimíková, 2013).

Harvan (2011) evaluates the ALMP in the SR from the perspective of the net effect on the employment of the job seekers and the economic effectiveness of the expenditures. The net efficiency is understood as the difference in comparison with the situation when the programme would not have been realised. The net efficiency = % of the employed members of the experimental group - % of the employed members of the control group = (number of employed participants / total number of participants) – (number of employed non-participants among the job seekers / total number of non-participants among the job seekers). The net efficiency is supplemented by the measurement of economic cost ratio of the net employment as the indicator of the

effectiveness in utilising the limited volume of public funds. The effectiveness = total expenditures / total net number of the employed = total expenditures / (net effectiveness in % * total number of participants).

An instrument can have a high net efficiency, but if the costs are high as well, it could be more effective to use the funds on a less costly programme. The measurement was conducted for the period of 2006-2009 for the programmes of the graduate practice and the allowance on activation activity. The participants of graduate practice achieved better results on average when compared with those not participating in this. On the other hand, the recipients of the activation activity allowance achieved worse results than the control group. The chance of employment of graduate practice's participants was 3% higher on average than it was for the non-participants. For the activation activity allowance, this chance was even 6.3% lower. Therefore, it is necessary to differentiate the use as well as the financing of the instruments in individual regions, but a reform is needed in the data monitoring, allowing to monitor and compare the results of relevant participants and non-participants on the labour market.

Barošová, Kešelová et al. (2012) performed an analysis of the total expenditures and the number of participants of active programmes in the SR and in 27 member states of the EU, and also an analysis of the application practice of the selected instruments of ALMP in the SR (allowance for self-employment, allowance for support of employment of disadvantaged job seeker, allowance for graduate practice, and activation activity allowance by the form of smaller community services for a community or smaller services for self-governing region). They found out that a certain benefit of the ALMP instruments can be stated, but there are no unequivocal conclusions about the effectiveness or ineffectiveness of these instruments. The main recommendation for making the measurement more effective is to create a database with sufficient quality and accessibility, integrate information systems within the department, and to continuously monitor the experimental and control group in the long term.

Utilisation of the activation works instrument and the employment of its participants on the labour market in the SR was studied by Mýtna-Kureková, Salner, Farenzenová (2013). They stated that the activation works are being performed in a double regime. They are regulated by the Act 5/2004 and by the Municipal Government Act. Often even the workers in the Offices of Labour, Social Affairs and Family themselves do not know about this parallel regime. In the majority of cases, two groups of job seekers participate in these activities, long-term unemployed with a low education level with low chances of employment, and the job seekers with potentially better prospects of employment but with other barriers, e.g. young parents. A great portion of the participants in the activation works is represented by the Romani people. However, this participation does not contribute to their higher employment rate. The key factors contributing to the continuous unemployment of the Romani people are the unfavourable situation on the labour market in the regions where many Romani people live, the lack of skills caused by a low level of the education achieved, and their ethnical discrimination on the labour market. There is also an interesting potential of using the activation works for more complex activities with higher demands in qualification.

Karasová (2013) studied the efficiency of 18 measures of ALMP for the period of 2007-2012, and she evaluated them according to the decrease of the unemployed in the districts of the SR in comparison with the expenditures on the interventions on the market. It was revealed that the strongest effect on the decrease of unemployment was achieved by the expenditures on active measures in the form of start-up impulses. The calculations of elasticity of the outflow of job seekers towards the expenditures on start-up impulses imply that EUR10,000 used on these measures monthly will increase the number of the employed by 8.98 person monthly on average. However, the impact of the total ALMP expenditures on the decrease of the registered job seekers is not unequivocal. Also, there is a weak connection between the total expenditures and the total decrease of the unemployed.

Bořík and Caban (2013) used the data from the evidence of the Central Office of Labour, Social Affairs and Family and the Social Insurance Agency, and they elaborated an extensive study of evaluation of 11 measures of ALMP in the period of 2010-2011 in relation to the period of retaining the job position of the supported person on the open labour market. The effect of such intervention on the individual was measured through the net number of months of employment of the supported target person in the impact period, i.e. two years after the intervention's end. The net number of months of employment means that the months during which there was a support from other ALMP instruments, partly qualifying the employment, are subtracted from the gross number of months of retaining the job position. From the perspective of retaining the job positon in the impact period, the most economic instruments were the education and training for the labour market and the allowance for the support of employment.

Hančlová and Šimek (2014) were studying and modelling the influence of individual instruments of ALMP on the unemployment in the EU countries during the years before the crisis (2000-2007) and after the crisis (2008-2012). According to the study, in the time before the crisis, the programmes of employment support were the most effective instruments, but their effectiveness dropped during the crisis. However, the educational

programmes or the direct generation of job vacancies increased their effectiveness during the crisis. It seems, that the programmes oriented on the supply side of the labour market were more effective before the crisis, but the programmes supporting the demand on the labour market are more effective during it.

The analysis conducted by the authors from the SAS strives to deliver a more comprehensive evaluation of ALMP in Slovakia. The results of the programme's participants were compared with the results of participants in a counterfactual situation, thus in the situation when they have not participated in the programme. The difference in the results of these two groups represents the quantification of the net effects of the programmes on participants. There were 6 selected measures analysed that were in effect in 2011 at the level of districts. The placements of participants of the selected ALMP programmes and of a control group were monitored from January 2012 till March 2013. The indicator of results was the ratio of job seekers placed on the labour market during 15 months after the programme's end in both groups. The study was supplemented with a cost-benefit analysis where the programme's costs were compared with the net revenues (gross revenues of the participants after subtracting the revenues of the state being obtained from the control group), and the payback period was calculated (Štefánik, Lubyová, Dováľová, Karasová, 2014).

Based on the analysis, the education (training) was identified as an instrument with a positive effect. A short-term positive effect was identified by the allowance for the support of regional and local employment, graduate practice, and activation activities. The differences exhibit mainly depending on the district and participants' level of education. Therefore, the authors recommend conducting more thorough analyses at the level of individual regional Offices of Labour, Social Affairs and Family.

3.3 Comparison of the Studies Identified

In Slovakia, Czech Republic, there were many researches and studies performed in which the programmes of ALMP were evaluated. The studies' authors used various methods for data processing and several methods for assessing the effects of ALMP instruments. These were assessed from various perspectives. Some studies were monitoring the effectiveness and efficiency, other were focused on the usefulness and impacts on the employment, unemployment, probability of finding a job, on wages, productivity and so on. The monitored impacts on the employment, or unemployment, differed depending on particular instruments and particular levels of measurement.

Based on examining the studies listed above, it seems that the programmes with positive impacts on the labour market are mostly the programmes of education and unemployment services (Bořík, Caban, 2013).

The programmes for the youths mostly do not have positive effects on the employment, but this does not apply for the unemployed with higher level of education. This is also confirmed by the found positive effects of the instrument of graduate practice, which were shown in the research of Štefánik et al. (2014). After finishing a graduate practice, the youths almost do not come back among the unemployed, which was confirmed by Sirovátka, Kulhavý (2007) and Harvan (2011). According to Sirovátka and Šimíková (2013), and Karasová (2013), the educational programmes and supportive stimuli or the start-up impulses for the private sector are considered as the programmes with a positive impact on the unemployment.

Public works or activation works have low effectiveness, they are considered to be a safety net, and they do not improve the chances of being employed (Sirovátka, Kulhavý, 2007; Harvan, 2011; Mýtna-Kureková et al., 2013).

The effectiveness of ALMP instruments within the course of the economic cycle was studied by Hančlová and Šimek (2014). According them, before the economic crisis in 2008, the programmes oriented on the supply side of the labour market seemed to be more effective, and after the crises, this applied for the programmes supporting the demand.

Regarding the high regional disparities in the unemployment rate in Slovakia, Slovak authors make an appeal to the emphasis of regional aspect in application and monitoring of active employment policy instruments (Barošová, Kešelová et al., 2012; Harvan, 2011; Štefánik et al., 2014).

In their studies, some authors analysed the cost side of ALMP instruments (Štefánik et al., 2014; Karasová, 2013; Lubyová, 1997), and several of them emphasise that it is needed to monitor the effectiveness (Barošová, Kešelová, 2012).

In many studies, in connection to the monitoring of the cost side of the ALMP instruments, it is stated that there is a problem with the database, which complicates the evaluation of the ALMP instruments, comparison of the results obtained, implementation, and gaining the feedback after the potential realisation of the corrective action. Thus, the combination of instruments is important, for example, in terms of the duration of effects and the number of participants, too.

Finally, it needs to be added that the success and efficiency of the ALMP tools is being affected by various external and internal factors, such as the quality of the relevant laws, work attitude of the employees in the public administration (Tokarčíková et al., 2015), economic and other conditions of business activities (Kucharčíková, Ďurišová, 2014), inflow of foreign direct investment into the region (Straková et al., 2016), willingness of managers in enterprises to cooperate with labour offices (Lorincová et al., 2016), quality of education process (Ďurišová et al., 2015), quality of implementation of the individual ALMP programmes, the value of human capital of the unemployed but also their motivation and willingness to accept the jobs offered and work (Hitka et al., 2015), and so on. The studying of these factors' impact on the efficiency of the ALMP represents a challenge for the future research.

4 Conclusion

The analysis and comparison of studies in which the Slovak and Czech experts evaluated the impacts of ALMP tools revealed that the ones considered to be the most effective are the training, start-up incentives and the programmes for the youths and women. The least effective and also the costliest are considered to be the activation works, which only help to maintain the working habits but do not decrease the unemployment. Based on the analysis and comparison of the identified research works, it can be claimed that there is a lack of a unitary methodology for assessment of the ALMP tools or for the measurement of their efficiency. It depends on the analysts, scholars and researchers which methods or approaches they choose and which aspects they study when assessing the selected ALMP tools. There is also an issue that the results of the research works and the recommendations for changes are not compulsory for the institutions responsible for the designing and implementation of the ALMP measures in various countries. They only show the possibilities, and it is up to politicians and people in the public administration how they implement the recommendations described in the studies and research works. Active labour market policy usually has a limited budget, and the effective and efficient use of public funds is a requirement based on the Act on Budget Rules of the Public Administration. Therefore, there is a need to implement a unitary methodology for assessment of the ALMP tools' in relation to their effectiveness and efficiency. At the same time, it is necessary to assure that the methodology reflects the specific conditions in the labour market of each country, e.g., the structure of the economy, the structure of education fields, and so on (Vozňáková, Juricová, Dlugoš, 2016).

In all of the studied bordering countries, thus the Czech Republic, Poland and Slovakia; the training is being funded the least, whereas in the most developed countries the situation is opposite. At the same time, training is considered to be the ALMP tool with long-term positive effects. At present, the development of technics, technology and innovation advances very fast, therefore the emphasis is being put on the life-long education. This is also a reason for the countries with lower unemployment to target their public funds dedicated to the ALMP to a greater extent into the educational and training activities that will flexibly and efficiently react to the requirements from the practice.

At the present time, 10 years after the economic crisis in 2008, the unemployment rate has significantly decreased, not only in the countries that were compared here. Gradually, a state comes when the demand in the labour market represented by the enterprises exceeds the supply of labour. This is an important reason for the countries to implement suitable methodology for the evaluation of the efficiency of ALMP tools and aim their attention to the tools with promising positive impacts on the labour market. This will prevent the wasting of public resources from happening.

Acknowledgements

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Development of Education and Tourism on the Example of Thematic Villages in the Polish-Czech Borderland

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Abstract

Education about history, ecology, culture and citizenship has been taken up in order to change, first of all, children and youths according to the ideas and educational goals common in the given society. Such education can be successfully conveyed through concepts of thematic villages. The varying nature of heritage of rural areas (e.g. feudal Medieval villages) constitutes a plane of their social development. The concept of experience economy, which acknowledges the statement "a new village is created in the head", means that tourist attractions have to be developed with the use of local communities' intellectual potential. Therefore, thematisation of villages is a concept of designing the environment based on a completely new (also made up, fairy-tale-like) history. The so-called thematic villages, with themes based on product brands and the village itself, are developing due to the use of local intangible resources. Their educational offer covers, for instance, educational paths combined with sightseeing, workshops, visits to educational households, questing i geocaching. Tourist offers of thematic villages include, for example, tasting local products, physical games and activities, cyclic cultural events.

In the border areas of the Czech Republic, there are thematic villages located in Germany, Austria and Poland (Lower Silesian). The paper's aim is to make an attempt at diagnosing forms of educational activity in thematic villages located in the Czech and Polish border area as well as to establish forecasts of their development. For this purpose, the author has used a distinctive method of desk research and expert opinions.

Keywords: *thematic village, education, tourism, development*

JEL Classification: R580, I250, O180, O220

1 Introduction

The development of rural areas is a resultant of a number of various factors. The traditional approach perceives it through the prism of individually unique resources which make valuable complement of cities' potential. They cover both material resources that serve to realize social and economic functions of the country, with its environmental assets (natural and scenic) and non-material ones, including, among others, traditions and culture (Strategia zrównoważonego rozwoju wsi, rolnictwa i rybactwa, 2012). In compliance with the long-term policy of multifunctional and sustainable development of rural areas, one can observe – on the one hand – the progressing process of deagrarianization of social and economic structures and – on the other one – inclusion of new non-agricultural and non-production functions (Sikorska-Wolak, 2009). In this wake, education and tourism are becoming an innovative and dynamic sector, being connected with establishment of thematic villages. Making use of the above-mentioned conception in the area of the Polish-Czech borderland along almost 800 km of the EU's inner borders, constituting 22.7% of the whole length of Poland's borders and 34.2% of the length of the Czech Republic's ones, can turn out to be a challenge (Urząd Statystyczny w Opolu, Olomoucu i Ostrawie,

2016). On the Polish side, the borderline with the Czech Republic (Czechia) runs along three provinces: Dolnośląskie (Lower Silesia), Opole and Śląskie (Silesia). The frontier areas in Czechia cover the territory of 5 provinces: Liberec, Hradec, Pardubice, Olomouc and Moravian-Silesian. In the Polish-Czech borderland, on the basis of relevant agreements, there were created (in the years 1991-2000) the following six euroregions: Nysa (Nisse) (Polish-Czech-German), Glacensis, Praděd, Silesia, Teschen Silesia and the Beskidy (Polish-Czech-Slovakian). In compliance with the recommendations of the European Parliament and the EU Council (with respect to the so-called local border traffic) the borderland area denotes a zone which does not reach farther than 30 km away from the borderline. Units of the administrative division acknowledged to be a borderland zone are determined by the interested states in bilateral agreements. A part of such a frontier zone is also a commune/county when their units are located by 30-50 km away from the borderline (Rozporządzenie (WE) nr 1931/2006 Parlamentu Europejskiego i Rady, 2006). From the point of view of statistical analyses, the borderland areas on the territory of Poland covers cities with district rights and counties, the seat of the authorities of which is located up to 50 km away from the border of Poland with neighboring countries or the coastline of the Baltic Sea (Urząd Statystyczny w Rzeszowie, 2018).

2 Material and Methods

For the needs of the present study the non-reactive method of existing data analysis (desk research) was applied. On the basis of studies of the literature of the subject and an analysis of experts' articles information was collected with reference to the significance of thematic villages, as well as general principles of their establishment and functioning. On the basis of the conducted research there were identified 18 thematic villages located on the territory of the Polish-Czech borderland, within the area of several counties of Dolnośląskie Voivodeship (the Counties of Kłodzko, Lwówek Śląski, Kamienna Góra, Jelenia Góra, Lubań and Zgorzelec).

Figure 1 shows the communes (*gminas*) and counties (*poviats*) in the Polish-Czech borderland (as of December 2009).

Figure 1 - The communes (gminas) and counties (poviats) in the Polish-Czech borderland (as of December 2009). Source: *Pogranicze polsko-czeskie w liczbach*, Urząd Statystyczny we Wrocławiu, Czeski Urząd Statystyczny Przedstawicielstwo Okręgowe w Libercu, Wrocław-Liberec 2010, p. 21.
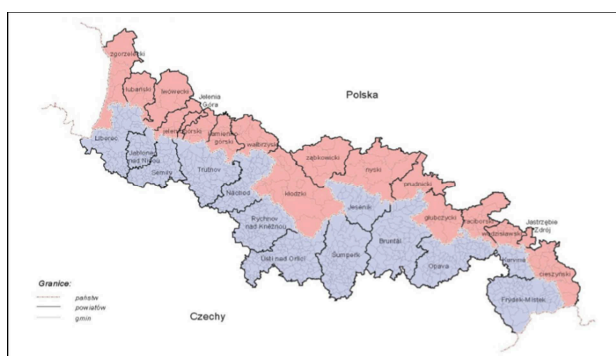
In the article, the author made use of detailed information contained on webpages of individual places, communes and counties which are included in the area covered by the research. The final part of the study features conclusions, in which the procedures of deduction and synthesis were applied.

3 Special Features of the Borderland

The Polish-Czech frontier is an area of multifaceted and intensive interaction between various economic and political factors, confrontation of culture and economy. This leads to – on the one hand – formation of positive attitudes of tolerance and trust towards others, but – on the other one – can give rise to antagonisms and conflicts on the basis of visible cultural differences (Śliz, Szczepański, 2016).

Despite their long common history, communities inhabiting the area have experienced a violated continuity of mutual communication and cooperation, chiefly because of the dramatic events that occurred in the 20th century (Strategia Zintegrowanej Współpracy Czesko-Polskiego Pogranicza, 2014). Borderland is subject to general truths of shaping social life and attitudes, while behaviors of its inhabitants come to be revealed especially under the influence of such factors as (Róg, 2013):
1. conflict, confrontation or contact with another group;
2. distinctiveness of one's own group against the surrounding;
3. number of the present members of the group;
4. emphasis on uniformity;

5. using the criterial features of membership;
6. calling on significant group norms;
7. the situation where a person acts in the role of a representative of the group;
8. the situation where a person from outside the group stresses, with his/her conduct, their belonging to the group, which provokes a feedback effect.

Due to the multifaceted nature of the analysis, the problem area of state borders, development of borderland and transborder cooperation makes an interesting and broad object of studies having the interdisciplinary character (Dołzbłasz, 2017). From the point of view of social studies, co-existence of borderland population can be an asset in itself and an inspiration to create a new quality resulting from social identity and existing cultural systems (Gołdyka, 2013). An important factor that generates this new quality of the range and forms of education and also tourism, can be built with the use of the innovatory conception of thematic villages. In "villages with an idea", the inhabitants deal with one major thing, yet on a broader scale and on many levels, which can be referred to as a new specialization of the country. The thematic village is an area where social innovations are developed and implemented; local area development is based on the social business model, where the generated profits are reinvested in activities developed in the countryside and have a social impact on the development of the territory (Atkočiūnienė, Kaminaitė, 2017). The driving forces of thematic village's development are: development of crafts and tourism, fostering folk traditions, presentation of culinary and cultural heritage (Atkočiūnienė, Kaminaitė, 2017). According to Wacław Idziak, the extended and new (thematic) specialization in rural areas can be oriented towards the markets of tourism, entertainment, mental health, education and food worth trusting (Idziak, 2012; Idziak, Majewski, Zmyślony, 2015).

4 Results and Discussion - Educational Offer in Thematic Villages in the Polish-Czech Borderland (Lower Silesia Province)

The beginnings of the establishment of specializing villages can be found on the Polish lands as early as in the Middle Ages (the 10th century) in the form of the so-called serving villages. The activity run by them was subjected to feudal rulers and their specialization covered, among others, traditional breeding of animals, growing crops or crafts. The names of today's villages often preserve the memory of their former specialization (Idziak, 2012). Contemporary initiatives of thematic villages were launched as early as in the 1990s within the framework of the Program for Renewal of the Country or that of other projects supported with financial means from local governments, various programs of development of the country and rural non-governmental organizations. Inhabitants of villages, while looking for the right idea ("the soul") to create thematic villages, are inspired by different phenomena, events or elements of life, which follow from history, tradition or contemporary life of local communities (Podolska, Niedźwiecka-Filipiak, 2016).

In three Poland's provinces bordering on Czechia, there are functioning over 90 thematic villages, but only several of them (a commune, a county) are situated in the borderland zone in Lower Silesia Province. Table 1 (1a, 1b, 1c) contains characteristic features of the thematic villages in the province, lying in the Polish-Czech borderland. Table 1a presented forms of educational offer in thematic villages in the poviat of Kłodzko of the Lower Silesia Province.

Table 1a - Specialization of thematic villages in the Polish-Czech borderland in the County of Kłodzko (Commune of Kłodzko) of the Lower Silesia Province.

Village	Thematic specialization	Subject (conception)	Exemplary forms of educational offer
Krosnowice	Village of Talents	Inhabitants' skills (*talents*)	Culinary and quilling workshops, field activities (A Tale of the Old Oak)
Romanowo	Winding Village (geocaching at each turn)	*New tradition* – a "freaky style" of spending time	Geocaching (looking for geocaching stashes containing presentations of the most interesting places in the village); didactic paths ("Karst phenomena", "Romanowo's Springs"); art and culinary workshops
Stary Wielisław	Bicycle Village	*New tradition* – bicycle as the characteristic feature of the village (due to its location the village is visited by many tourists-cyclists)	Art workshop, culinary workshop (e.g., "Let's live healthily – cycling bikes", "Art and passion of the Bicycle"), didactic tables, field games (Discoverers' Expedition); education farmstead (*Siedlisko* Apiary)
Szalejów Dolny	Retro Village	*New tradition* – everything presented in	Workshops in ecological education (Retro Park – dry and boggy meadows with

	the retro style		characteristic verdure, paths of senses, homes for insects, nest boxes for birds
Żelazno	Flower Village	*Nature* – existing horticultural holdings and the village inhabitants' love for traditional folk culture	Art workshops (painting wooden flowers, baking muffins with flowers), quest (tracking traces to the treasury)

Source: own elaboration on the basis of: A. Podolska, I. Niedźwiecka-Filipiak, *Wpływ wsi tematycznych na wizualne aspekty krajobrazu wsi*, Prace Komisji Krajobrazu Kulturowego, 2016, nr 34, pp. 124-129; *Wioski z pomysłem. Wioski tematyczne na Dolnym Śląsku* [online]. [cit. 2018-08-21]. Available: http://www.wioskizpomyslem.pl; Żelazno - Wieś Kwiatowa [online]. [cit. 2018-08-22]. Available: https://www.gmina.klodzko.pl/de/turystyka/wioski-tematyczne/elazno/1758-elazno-wie-kwiatowa.html

Table 1b presented forms of educational offer in thematic villages in the County of Lwówek Śląski of the Lower Silesia Province.

Table 1b - Specialization of thematic villages in the Polish-Czech borderland in the County of Lwówek Śląski of the Lower Silesia Province.

Village	Thematic specialization	Subject (conception)	Exemplary forms of educational offer
Grudza	Village Full of Colors	*Nature/new tradition* (this is the highest-located village in the Jizera Mountains)	Ecological workshops "As the twig is bent, the tree's inclined"; realization of the project "Tourist stop *Grudza*" and "Together walking for health – Nordic Walking path"
Nagórze	On the Top	*Nature/New tradition*	Field games and plays (orienteering in search of mountains and valleys with the use of a compass and map); culinary ("On Top of the Stove") and handicrafts (cross-stich embroidery "The needle goes on the Top, the thread goes Down") workshops
Płóczki Górne	Land of Forest Brownies	*New tradition* – discovering gnomes' mysteries	Field activities within the project „Land of Forest Brownies" (e.g., recognizing elements of the undergrowth, herbs and flowers), workshops (sewing, gluing clothing gnomes, creating objects of the found "Brownies'" treasure)
Proszowa	Village of Positive Energy	*New tradition*	Creative workshops (making candles of soya and rape, glycerin soap), baking home bread
Proszówka	Griffin's Village	*Legend* connected with Gryphon Castle [*Zamek Gryfa*], located in the village	Games and plays with logic, including elements of legends and puzzles, workshops in embroidery and woodcarving; Griffin's bowls, Griffin's domino, getting to know the knight's code, shooting an arrow
Rębiszów	Village of Wanderers. "Follow a field path to your own place"	*Nature/new tradition* - Rębiszów – UN_ common stop at the foot of the Jizera Mountains	Explorers' Expeditions; craft (ceramics, embroidery), culinary, wickerwork workshops; field game based on legends and assets of the countryside; didactic path

Source: Source: own elaboration on the basis of: A. Podolska, I. Nledźwiecka-Fllipiak, *Wpływ wsi tematycznych na wizualne aspekty krajobrazu wsi*, Prace Komisji Krajobrazu Kulturowego, 2016, nr 34, pp. 124-129; *Wioski z pomysłem. Wioski tematyczne na Dolnym Śląsku* [online]. [cit. 2018-08-21]. Available: http://www.wioskizpomyslem.pl; *Przystanek turystyczny Grudza* [online]. [cit. 2018-08-30]. Available: http://witamywgrudzy.pl/przystanek-turystyczny-grudza/; *Oferty tematycznych wsi Pogórza Izerskiego* [online]. [cit. 2018-08-28]. Available: http://wioski.lgdpartnerstwoizerskie.pl/oferty-tematycznych-wsi-pogorza-izerskiego/.

Table 1c contains characteristic forms of educational offer in thematic villages in the Counties of Kamienna Góra, Jelenia Góra, Lubań and Zgorzelec of the Lower Silesia Province. lying in the Polish-Czech borderland.

Table 1c - Specialization of thematic villages in the Polish-Czech borderland in the Counties of Kamienna Góra, Jelenia Góra, Lubań and Zgorzelec of the Lower Silesia Province.

Village	Thematic specialization	Subject (conception)	Exemplary forms of educational offer
Chełmsko Śląskie (poviat kamiennogórski)	Village of Weavers	*Tradition/crafts* – weaving (The only 18th-century wooden Houses of Silesian Weavers (the so-called 11 Apostles) in Europe	Visits to the Chamber of Weaving (e.g., antique spinning-wheels, looms, charcoal irons); workshops for children "About a little Mole who sewed little pants for himself" (children take the roles of animals which help the Mole and in this way learn the whole process of cloth production)
Chrośnica (poviat jeleniogórski)	Village of Colorful Plots (We are discovering colorful secrets)	*Tradition/crafts* – weaving, flax processing, natural dying of materials	Workshops (e.g., "Colorful magic", "What the story of flex was…", "Silesians and other animals"), field games (Explorers' Expeditions)
Henryków Lubański (poviat lubański)	The YewLand	*Nature* – within the limits of the village there grows a common yew tree which is the oldest tree in Poland (c. 1280 years old)	Art, handcraft (creating bead necklaces of yew) and culinary workshops (preparing traditional dishes), field games (Explorers' Expedition): recognizing trees, history of old Lusatian architecture
Olszyna Dolna (poviat lubański)	Village on the Table	*History/crafts* – manufacture of furniture (patent for an extending 13-meter-long table which seats 50 people), weaving	Workshops: decoupage, clay modeling, making butter, laying table, folding tissues; games and plays (e.g., "Plays on the Table", "News under the Plate")
Mała Wieś Górna (poviat zgorzelecki)	Valley of Night Spirits	*Nature* – rare species of bats	Activities within the program "Adventure close to nature": art and crafts "My night friend"; questing "Dark Valley", educational field games and plays, small theatre "About little ghosts of dark night", "Bats' bicycle rally"
Mikułowa (poviat zgorzelecki)	Nicholases' Village	*The name* of the village produces associations with St. Nicholas	Fine art workshops (e.g., decorating Nicholas' cakes, painting on glass), physical games and plays connected with the "Nicholas" theme
Spytków (poviat zgorzelecki)	Village of Witchcraft and Sorcery	*Historical*, local personage dealing with magic	Education workshops: art (e.g., "Conjured up out of wood"), questing; field games, didactic-recreation path around lake Witka, Magic Path of Senses

Source: own elaboration on the basis of: A. Podolska, I. Niedźwiecka-Filipiak, *Wpływ wsi tematycznych na wizualne aspekty krajobrazu wsi*, Prace Komisji Krajobrazu Kulturowego, 2016, nr 34, pp. 124-129; *Wioski z pomysłem. Wioski tematyczne na Dolnym Śląsku* [online]. [cit. 2018-08-21]. Available: http://www.wioskizpomyslem.pl; *Oferty tematycznych wsi Pogórza Izerskiego* [online]. [cit. 2018-08-28]. Available: http://wioski.lgdpartnerstwoizerskie.pl/oferty-tematycznych-wsi-pogorza-izerskiego/; *Aktualizacja Strategii Rozwoju Gminy Olszyna na lata 2016-2020*, Olszyna 2016, p. 7.

The basis to establish thematic villages is constituted by various leading motifs (conceptions, themes) founded on historical or cultural heritage, a variety of local or regional traditions and customs, as well as inhabitants' passions. This is then a "safe" inspiration to preserve the identity of the country (Podolska, 2018).

Organization of thematic villages should be tied to the so-called tourism of the new generation, based on supporting real experiences in the genuine world of the country, resting on local resources: heritage, nature and inhabitants (Sikorska-Wolak, 2009; Lane, Kastenholz, 2015). New conceptions, when it is difficult to find something relevant or intriguing in the existing material and non-material resources, come from references to world's culture (Idziak, 2012) or appear as an effect of creativity of the local community and creation of maps of ideas. The approach of this type, however, encounters a good deal of criticism on the part of opponents who ponder over establishing thematic parks in the country (popularly referred to as "Disneyland" by them). At this

point, what they emphasize is that despite the fact that the developed "artificial objects" do make use of the assets of the given village, outside the natural environment they are usually financed by external sources of limited duration and – in consequence – these unauthentic forms of activity pose a threat to the identity of the "genuine world" that rural areas can represent (Lane, 2007). Each thematic village, on the other hand, possesses its own methodology and strategy of development as an intended (synoptic) strategy or emerging (incremental) one.

5 Conclusion. Prospects for the Development of the Educational and Tourist Offer in Thematic Villages in the Border Zone of the Lower Silesia Province

Thematic villages in Poland are basically at their initial stage of functioning. Each thematic village possesses its own unique character, becoming a peculiar type of tourist, educational and promotional product on offer. As a product of thematic tourism there is provided the possibility of communing with the culture of local society through genuine and direct performance of characteristic actions and tasting (thematic workshops), and also through participation in a variety forms of "discoverers' expeditions" called, for instance, questing or geocaching. Successes of the project of thematic villages come primarily from the involvement of inhabitants of the villages and their creativity. The educational offer for organized groups of visitors (e.g., school children and youth) includes learning through playing and experiencing. An important form of educational activities are various thematic workshops – art, crafts, ecological and culinary. The exceptional character of both the form and the content of such activities create a new kind of tourist destination, based on direct, authentic experience and emotions ("I'll do it and I'll understand it"). Nevertheless, a specific role is attributed to "discoverers' expeditions" (Chrośnica, Henryków Lubański, Mała Wieś Górna, Rębiszów, Stary Wielisław) in the form of questing (Spytków), that is an innovative, educational "unattended field game" (Wilczyński, 2016). It is defined as a model of regional education which is focused on discovering man's closest environment, getting to know and gaining knowledge on historical, cultural and natural heritage (Clark, Glazer, 2004; Pawłowska, 2014). The participants, by using rhymed intriguing clues (tasks, puzzles) follow an unmarked tourist route in search of "treasures" and reach places which have already faded into oblivion but are often exceptional as regards their heritage (including legends and folk tales). Virtues of questing result not only from low costs of one-time launching the whole game and its various paths (without the necessity of creating a whole tourist base) (Wilczyński, 2011), but first and foremost from a multi-level use of inhabitants' and volunteers' knowledge (educational, integration and cultural values within the framework of its creating) and participants' experience (education, integration, rivalry, playing). "Explorers' Expeditions" offer an example of an innovative tourist product created on the basis of local heritage. While designing and making use of questing routes in compliance with the principle "3xE" (entertainment, emotion, education), there intertwine the tourist and educational functions, and the routes themselves make an instance of enterprises for the development and popularization of thematic tourism addressed to different groups of people (Pawłowska, 2014). Geocaching is also becoming an interesting form of regional education. This is a type of field game based on using the GPS to locate and discover a "treasure" (e.g., Romanowo – a "freaky frontier village"). Other instruments which are useful here as well are, among others, mobile applications, schematic maps (geographical coordinates) or dedicated Internet services (Romanowo wita, 2018).

Making use of innovative forms of education founded on participants' authentic experience gained in the thematic villages in the Polish-Czech borderland can make another effective form of shaping a good social climate and this not only for the current needs of contemporary days, but also for the prospective ones in the future.

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Neighbour's Language on the Websites of Local Government Administration Units Located on the Czech and Polish Borderline

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Abstract

There is a strong belief that the impact of cross-border cooperation on the development of cross-border economic areas is significant. This cooperation depends on actions taken both by central and local authorities.The scope of these activities includes the promotion of advantages of border areas. In the 21st century, the promotion uses information in the language of a potential recipient published through websites.

Authors using the methodology of website preparation methodology and their substantive content compared the state of accessibility to the website with the option of translating their content into the neighbor's language by the public administration and local administration units located in the border areas of the Opolskie Voivodeship, as well as Olomouc and Moravian-Silesian areas of the Republic Czech Republic located on the other side of the state border. There was a different approach to the problem, both on the Polish and Czech side.

1 Introduction

The development of information technologies has increased the use of websites as sources of information pertaining to areas of interest. Nowadays, websites can be created by individuals, organizations, enterprises or territorial governmental administrative units. In order to facilitate access to public information, such e-administration developed websites have become sources of information about the website's creators as well as the essential business communication of the developing agencies. Many scientific studies examined translation solutions. In a narrower scope, these studies examine the usage of a language other than the official language of the given country in the content available on the websites of governmental administrative units. Research in this field is rare, especially when pertaining to the Polish and Czech borderline area. Some aspects are analysed in the light of electronic (automatic) translation of texts used in e-government [Brown (2013), p. 149; Gottlieb (2011), p. 8]

The authors of this study examined if the creators of websites use languages other than native language and English on the Polish and Czech border. In particular, the authors analysed the number of Czech websites translated into Polish and Polish websites translated into Czech. It was assumed that the websites represent the lowest level units of local government administration on both sides of the border located on Opole Voivodeship borderland as well as in Jesenik and Bruntal. Also, attention was paid to the extent of the creation of public websites that have been developed by municipalities located along the Czech and Polish border. It was assumed that the websites represent the lowest level units of local government administration. The preliminary analysis revealed a significant difference in both the number and size of the Czech and Polish municipalities, which are located on the Czech and Polish border. The study identified 168 Czech municipalities and 18 Polish municipalities. According to the Polish system of local administration, it is possible to separate villages as the auxiliary entities of municipalities [Gołębiowska (2017) p. 8]. Sometimes the size of these combined entities corresponded to the number of inhabitants of the comparable Czech municipalities, sometimes numbering as many as 500 people [Kubas S. (2015) p. 124]. Therefore, it seemed statistically valid to compare the Internet activity of the Czech municipalities with the aggregated Polish municipalities and villages.

The districts of Głubczyce, Nysa and Prudnik, which are located on the border of Opole Voivodeship, include 333 villages. However, not all of these villages have launched websites. Thus, the study encompassed the websites run in 168 units of the local Czech administration: in the case of the Jasenik district the review included websites of 24 municipalities. The Bruntal district included 67 local administration units and the Opava district included 77 municipalities. The research reviewed 18 municipalities whose public Polish websites had also been translated into Czech, including public presentations of 144 villages. In the Głubczyce district 23 websites (in 4 municipalities and 19 villages), in the Nysa district – 67 websites (10 municipalities and 57 auxiliary entities), and 72 websites in the Prudnik district (4 municipalities and 68 villages). The analysis covered all websites active as of July 2018 which were launched as presentations of the aforementioned public administration units.

2 The Frequency of Website Translations

A) Translation solutions offered in Polish

In July 2018, in the analysed public administration units the Polish-speaking site-visitor could access Czech websites translated into Polish in nearly every fifth municipality. In absolute numbers, most websites translated into Polish were available in Bruntal. Among the 66 of Bruntal municipalities, 15 (22.4%) offered Polish translations of their websites. A similar Polish option was provided by almost half of municipalities in Jesenik. The lowest number (12; 15.6%) of websites available in Polish translation was in Opava. (See: Table 1)

Table 1 - The number of municipalities which run public website[a] that is also available in Polish in Bruntal, Jesenik and Opava.

No.	Name of the district	Number of municipalities				
		All	With the public website			
			All		With the Polish translation available	
			Number	%	Number	%
1.	Bruntal	67	66	100.0	15	22,4
2.	Jasenik	24	26	100.0	11	45,8
3.	Opava	77	78	100.0	12	15,6
	Total	168	170	100.0	38	22,6

[a]– Websites launched for government and European programmes have been omitted

Source: www.mesta.obce.cz; www.bela.cz; www.bilavoda.cz; www.hradec-novaves.cz; www.javornik-ho.cz; www.jesenik.org; www.lipova-lazne.cz; www.pisecna.cz; www.skorosice.cz; www.uhelna.cz; www.vapenna.cz; www.andelskahora.info; www.mubruntal.cz; www.hbenesov.cz; www.obecjindrichov.cz; www.kstudanka.cz; [access date: 16.07.2018]; www.obec-krasov.eu [access date: 27.07.2018]; www.krnov.cz; www.lomnice.cz; www.mskocov.cz; www.noveherminovy.eu; www.oupetrovice.cz; http://inforymarov.cz; www.stare-herminovy.eu; www.obecstaremesto.cz; www.uvalno.cz; www.vaclavovubruntalu.cz; www.ouzator.sweb.cz; www.bratrikovice.cz; www.muhradec.cz; www.kravare.cz; www.opava-city.cz/cs/obce-spravniho-obvodu [access date: 28.07.2018]; www.pist.cz; www.pist.cz/obec-7/virtualni-panoramata/pist; www.sosnova.cz; www.steborice.cz [access date: 27.07.2018]; http://pl.db-city.com/Czechy--Moravian-Silesia--Powiat-Opawa--Sudice; www.velkeheraltice.cz; www.vitkov.info [access date: 16.07.2018].

The Czech municipalities have been able to recast their websites in foreign languages by using Facebook and Google Translate to translate them. Rarely did the authors of the websites use both of these technical solutions. Both Facebook and Google Translate were used only in the city of Krnovand the museum of Bruntal. The combination of Polish translation and access to Facebook was equally rare. This type of solution was introduced on the website launched by the information centre in Rýmařov and Úvalno in Bruntal district as well as Kravaře in the Opava district.

In nine cases Czech websites were translated into Polish and they were the only translation available. They included five websites in the Jasenik district and four in the Opava district. This type of translation solution was also used on one of the subpages in the Bílá Voda municipality, on two subpages in Mikulovice municipality and in basic editions of websites in municipalities of Javorník and Skorošice, as well as Vápenná in Jasenik. In Jasenik the possibility of using the Google Translate was offered three times. In the case of this type of text translation, the visitors could choose between four (English, German, Polish and Czech), ten (Polish, English, French, Spanish, Dutch, German, Russian, Slovak, Hungarian and Italian) or 103 foreign languages. In Jesenik district the selection of ten languages was available in Hradec-Nová Ves municipality, and selection of 103 languages was available on Česká Ves, Uhelná and Žulová websites. The set of 103 languages was most popular in the Bruntal district. It was introduced by 11 municipalities: Bruntál, Horní Benešov, Jindřichov, Krasov,

Krnov, Moravskoslezský Kočov**,** Petrovice**,** Staré Heřminovy, Staré Město and Václavov u Bruntálu. In the case of the Opava district the solution offered by Google has been applied only once on Branka u Opavy municipality's website.

B) Translation solutions offered in Czech

The studies showed that 44.4% of municipal websites were available in the Czech language. In the Głubczyce district three out of four (75%) municipalities offered the translation of their websites in Czech, nearly one of three (30%) in the Nysa district and two out of four (50%) municipalities in the Prudnik district. The fewest options to access municipal websites in Czech were provided in the Nysa district, where only 3 out of 10 existing websites were available in Czech (See: Table 2).

Table 2 - The number of municipalities which run public website [a] that are also available in Czech in the districts of Głubczyce, Nysa and Prudnik.

Name of the district	Number of municipalities				
	All	With the public website			
		All		With the Czech translation available	
		Number	%	Number	%
Głubczyce	4	4	100.0	3	75.0
Nysa	10	10	100.0	3	30.0
Prudnik	4	4	100.0	2	50.0
Total	18	18	100.0	8	44.4

[a] – Websites launched for government and European programmes have been omitted

Source: www.baborow.pl; http://branice.pl; https://glubczyce.pl; www.kietrz.pl/#; www.nysa.eu/; https://nowe.glucholazy.pl/; www.kamiennik.pl/; http://www.korfantow.pl; www.lambinowice.pl/; http://paczkow.pl; http://pakoslawice.pl; www.renskawies.pl/; www.skoroszyce.pl; http://glogowek.pl; http://biala.gmina.pl; https://lubrza.opole.pl/ [access date: 20.07.2018]

In the case of Polish villages, of all public websites maintained by auxiliary entities were translated into Czech only in three municipalities. Such translations were provided in the Branice municipality in the Głubczyce district as well as in Biała and Lubsza in the Prudnik district. In the Nysa district, the Czech translation of websites provided by auxiliary entities were not available. In the Korfantów municipality in the district of Prudnik in 8 out of 9 villages (88.9%), the public websites were available in the Czech language. In the municipalities of Głubczyce and Kietrz in the Głubczyce district, as well as in Głogówek and Prudnik in the Prudnik district the Czech translation of websites launched by auxiliary entities were not available. In fact, these administrative units did not launch any websites. Similarly, in the villages of the Kamiennik, Nysa, Otmuchów, Pakosławice and Skoroszyce municipalities, as well as in Łambinowice, Paczków and Reńska Wieś in the Nysa districts such websites were not available (See: Table 3). Surprisingly, some of these places host regular and popular events such as the Flower Festival in Otmuchów or the Exhibition of Folk Artists and Artistic Crafts of the Polish and Czech Borderland in Prudnik [Musialik, Śmietański (2016) p. 100-109].

Table 3 - The number of websites [a] run by villages and cities[b] also available in Czech and linked to Facebook in the municipalities of the Głubczyce, Nysa and Prudnik districts

No.	Name of the municipality	Number of villages						
		All	With the public website				Facebook	
					With the Czech translation available			
			All	%	Number	%	Number	%
The Głubczyce district								
1.	Baborów	12	1	8.3	1	10.0	–	–
2.	Branice	19	19	100.0	19	100.0	–	–
3.	Głubczyce	45	–	–	–	–	5	11.1
4.	Kietrz	13	–	–	–	–	3	23.1
	Total	89	19	21.4	19	21.4	8	9.0
The Nysa district								
1.	Głuchołazy	18	14	77.8	–	–	3	16.7
2.	Kamiennik	13	–	–	–	–	–	–

186

3.	Korfantów	24	9	47.5	8	88.9	–	–
4.	Łambinowice	12	10	83.3	–	–	–	–
5.	Nysa	27	–	–	–	–	7	25.9
6.	Otmuchów	31	–	–	–	–	5	16.1
7.	Paczków	12	11	91.7	–	–	1	8.3
8.	Pakosławice	12	–	–	–	–	2	16.7
9.	Reńska Wieś	15	13	86.7	–	–	–	–
10.	Skoroszyce	10	–	–	–	–	1	10.0
	Total	159	57	35.9	8	14.0	19	12.0
The Prudnik district								
1.	Biała	29	29	100.0	29	100.0	–	–
2.	Głogówek	22	21	95.5	–	–	–	–
3.	Lubrza	11	8	72.7	8	100.0	–	–
4.	Prudnik	11	3	27.3	–	–	3	27.3
	Total	73	68	93.2	37	54.4	3	4.1
	TOTAL	321	144	44.9	64	44.4	30	9.4

[a] – Websites launched for government and European programmes have been omitted

[b] – Websites of towns with the rights of the municipality/district have been omitted

Source: See Table 2

Some villages replaced public websites with Facebook accounts. This solution was adopted by 9% of the total number of villages, most often in the Nysa municipality (26.9% of villages), Otmuchów (17.9% of villages) and Pakosławice (16.7% of auxiliary entities) (See Table 3).

Villages available on Facebook can translate their profiles into other languages (using the Google Translate), but this tool do not translate all the content and quite often the translation is not accurate. Very often the Google Translate tool was used to translate websites into Czech. In all cases visitors could also choose English, German and Polish language.

3 Substantive Scope of Translations

In July 2018, the access to Czech content translated into Polish was not always available. Quite often lack of the Polish translation was indicated by the icon placed at the municipalities' websites. The limited access to the Polish translation occurred in the municipalities of Úvalno and Zátor in Bruntal district. Another two such cases were found on the websites launched by municipalities of Bratříkovice and partially Hradec nad Moravicí in the Opava district. Moreover, Polish translation provided on Czech websites did not always cover all of the Czech content. The full range of information in Polish was found only in the municipality of Skorošice in the Jasenik district and Jindřichov in the Bruntal district.

In six cases selected subpages were available in Polish. Usually, this solution was offered to provide tourist information or to provide information about the European programmes. Tourist information available in Polish was introduced in municipalities Mikulovice in the Jasenik district, Jindřichov and Rýmařov in the Bruntal district as well as Hradec nad Moravicí and Kravaře in Opava district. Sometimes, the content translated into Polish was directly related to the granted European funds as was the case of the website of Bílá Voda municipality and the introduction of the "Evropa pro obywatele – Europa dla obywateli" [Europe for the citizens] programme.

In 41 of presented municipalities public websites provided translation of bookmarks. Most frequently (36.6%) the translation was provided by the Google Translate. As a result, quite often the content was distorted. For example the name of the Czech village "Uhelná" in the Jasenik district was translated into "Coal". However, this is not a common practice.

In the Opava district, the translation of the website's expanded content on the third level (available after opening the tabs of subpages) was used in the village of Branka at Opava. This accounted for 16.6% of websites translated into Polish.

Translating website tabs into Polish was not always followed by the translation of the entire content available on the website. For example, in the municipality of Moravskoslezský Kočov the website tabs in Polish were linked to the content in Czech. The same solution was used to provide historical information about the municipality of Bělá pod Pradědem. Very often the website tabs were translated into Polish when it was necessary to provide some detailed explanation and a longer text on the website. Longer texts were presented in the PDF files, however they were always written in Czech.

The above method was also used when translating Facebook pages. 41% of the examined websites used this solution.

The analysis of the translations available on the examined websites revealed that approximately 73% of them were provided based on the tools offered by Google.

In regards to Polish websites translated into Czech, the translation covered either the history of the village, or some basic knowledge about the municipality. In the Branice municipality the history of the village was translated into Czech. Sometimes the names of the website tabs and content were translated together.

4 Demographic Features of those Communities that Translate their Websites into the Language of their Neighbours

In 2011, information technology on the Polish side of the border, available in the neighbour's language was adopted in villages of various sizes with Biała in Biała municipality in the Prudnik district being the smallest with the population of at least 61 people and Jabłonka in the Branice municipality the largest with 2,454 inhabitants. On the Czech side of the border, the municipal populations ranged from the smallest at 141 (Bratříkovice in Opava district) up to the largest at 26,078 inhabitants (Krnov in the Bruntál district). The Polish side was dominated by areas with a population of 200 people or less. Such places constituted 47.06% of all analysed villages. 70.9% of villages were inhabited by 100-200 people. On the north side of the border, 94.12% of administrative units which offered websites translated into Czech were villages with up to 1,000 people (See Annex, Table A).

In the case of the Czech Republic, municipalities with up to 1,000 residents accounted for 45.95% of administrative areas with websites available in Polish. Those communities did not include any municipality with a population of 100 or less. In 5.9% of the municipalities had 200 people or less. Over 2,500 inhabitants lived in 32.4% of the surveyed Czech municipalities (See Annex, Table A). In the Czech Republic websites translated into Polish were developed by larger communities than websites translated into Czech in Poland.

The discrepancies in the accessibility of the websites available in the neighbour's language were most likely related to the level of the municipalities' income. In Poland, the village funds were made up of PLN 10 multiplied by the number of inhabitants. Along with a low income (due to deduction of corporate income tax and personal income tax), it is beyond the means of the villages with a low number of inhabitants to develop and maintain their own websites. As a result, the majority of small village websites have been developed as subpages of the larger municipality's websites. The possibility of translating content into Czech is relevant as long as it is incorporated into the main website. The larger Czech municipalities do not face such funding problems.

5 The Impact of Professional and Economic Activity

In regards to the level of economic activity of the inhabitants of the presented areas, a significant difference becomes evident. In Polish societies, the ratio of people professionally active to the general population ranged from 54.1% in the village of Czartowice in the Biała municipality (the Prudnik district) to 72.3% in the Wódka village in the Branice municipality (the Głubczyce district).The average percentage of people professionally active on the Polish side was 63.2%. In the Czech Republic there were 85.95% of people professionally active who lived in Stará Ves municipality (the Bruntal district) up to 39,5% in Bílá Voda in the Jasenik district. The study showed that on average there were 61.05% of people professionally active in analysed Czech municipalities. In regards to Polish municipalities, the percentage of professionally active Poles was 2% lower than the Czechs[18]. The collected data indicated a decrease in the dynamics of interest in translated websites with an increase in the percentage of people professionally active. However, the authors of the study were not able to compare the average age of members of the analysed communities (no data available for Polish villages), as well as the distinction in the group of professionally inactive (pre-and post) people (no data available for the Czech municipalities).

The study showed a significant correlation between municipal websites and the number of business entities operating within the city. On the Czech side of the border, websites are most often developed in municipalities with over 100 business entities (81.1%). Polish communities do not reach this number. In order to attract investors the Branice municipality offered a two-year real estate tax break for investment in its website. However, according to the Rural Renewal Programme, the municipalities of this district did not plan to attract investors from the Czech Republic. In 2011 and in 2014, some of the Polish villages launched websites and subpages were translated into Czech because local authorities believed that their residents might either study or

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[18] Own calculations based on http://mesta.obce.cz/zsu/vyhledat-15391.htm; and
http://mesta.obce.cz/zsu/vyhledat-401.htm; http://www.polskawliczbach.pl [access date: 9.08.2018]

work in Opava or Krnov. However, such views were not shared by the authorities of Czech municipalities. Perhaps it is due to the larger number of individual enterprises located on the Czech side of the Polish and Czech border.

6 The Degree of Mutual Interest in Neighbourly Communities

The level of mutual interest was assessed based on an analysis of the accommodation provided on both sides of the border. According to the Central Statistical Office (GUS), border area Czech municipalities are visited by a much larger number of foreign tourists than are the Polish border districts.
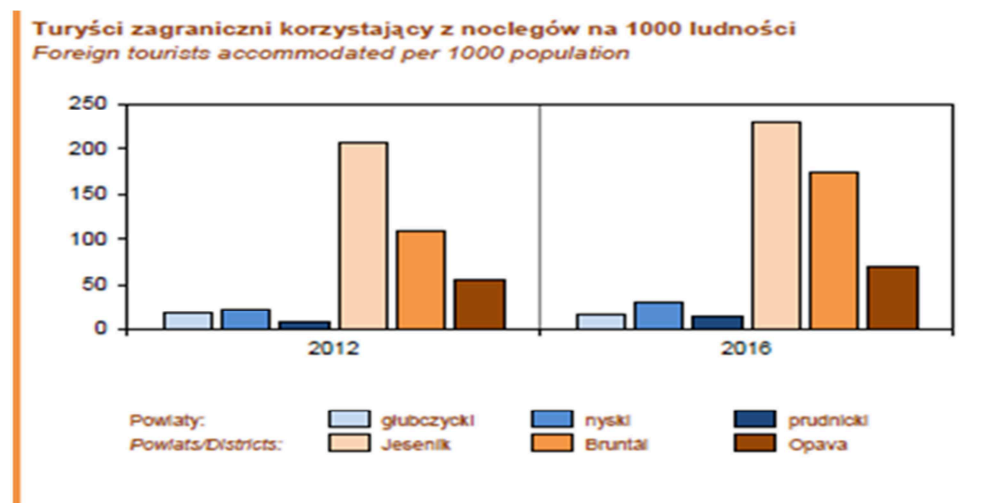
Source: Tourism on the Polish and Czech borderland, The Polish Central Statistical Office (GUS), Opole, Ołomuniec, Ostrava 2016, p. 3.

The Czech borderland seems to be more attractive to tourists. In 2016, most tourists visiting the Polish borderline stayed in the Nysa district. It is almost seven times less visitors than in the case of Poles accommodated in the Bruntal district. The difference was due to the number of accommodation facilities available in the border municipalities. Among Polish places that offered access to websites translated into Czech, some did not have any accommodation facilities. For them, the journey to become popular tourist destinations through website promotion has just begun.

7 Conclusion

The administrative divisions of Polish and Czech borderlands are significantly different. These differences make them difficult to compare. The studies showed that Czech municipalities translated more websites into neighbour's language. In comparison to Poland, they have been represented by communities with a larger number of inhabitants and a larger number of business entities. The Polish borderline areas have been comprised mostly by individual homesteads. Also, the Polish websites that are translated into Czech are less sophisticated than Czech websites that are translated into Polish. Polish websites translated into Czech were introduced by municipalities that did not cooperate with the local authorities on the Czech side of the border. The municipalities have to identify their target audience, the scope of their interests, and the tool(s) they will use to translate website's content into the neighbour's language. This would help in avoiding significant errors resulting from not knowing the neighbour's language.

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Labor Migration to Poland and the Czech Republic – a Comparative Analysis

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Abstract

Mass labor immigration is a relatively new phenomenon in the labor markets of Central European countries. Dynamic economic growth of countries in this region, including Poland and the Czech Republic, became a factor attracting employees, coming mainly from economically weaker countries. The aim of the article is to determine the scale and dynamics of the inflow of employees to Polish and Czech labor markets. The analysis concerned data imaging the immigration structure, e.g. country of origin of foreigners, economy sectors in which they commence work.

1 Introduction

The phenomenon of modern migrations is inseparably related with the progressing process of globalisation of national economies. The analysis of migration behaviours that currently occur leads to conclusions that a major part of them has the economic character, mainly earning. Experiences from last ten-odd years of functioning of the European Union acknowledged a significant importance of migration e.g. as a factor favouring flexibility of labor markets, enabling adjusting the level of employment to changing demand conditions. In addition, foreign migrations shape the demographic balance, because they affect the increase or decrease in the population and the ratio of the number of people at working age to the number of people in the post-working age. The entry of Central and Eastern European countries into the EU has created a number of opportunities for the economic development of the region, in addition, citizens have gained the possibility of free movement within the Community. Significant differences in the levels of remuneration between 'old' Member States and new ones resulted in an intensification of the stream of labor migration to Western and North-Western European countries. The outflow of part of the labor resources along with the decreasing number of working age population has exacerbated in many European countries the problem of the deficit of employees with appropriate qualifications and skills in various industries and sectors of the economy. The aim of the article – having a partial character and not constituting a complete verification of the issue – is an attempt to identify the scale and structure of labor immigration in Poland and the Czech Republic. The analysis was conducted basing on data obtained from Eurostat, The Czech Statistical Office, Ministry of Family, Labour and Social Policy in Poland.

2 The Method of Research Proceeding

Mass labor immigration is experienced in labor markets of the West and North-West European countries for many decades, but it is a relatively new phenomenon in Poland and the Czech Republic. As a result, the phenomenon was not earlier a subject of too numerous studies. Knowledge about factors deciding about commencing work in the above mentioned countries by foreigners, their work conditions, including remuneration or difficulties related with commencing job is only just formed.

This study attempts to determine the scale and dynamics of labor immigration in states under the study, using available data from Eurostat, the Czech Statistical Office, the Ministry of Family, Labour and Social Policy in

Poland. The considerations began with a brief introduction into the subject issue of labor migrations, considering their consequences for the host country, followed by presenting data depicting the scale of labor immigration in analysed countries. The ways of classifying information about the economical activity of foreigners in Poland and the Czech Republic are different, thus comparisons may be somewhat difficult. Nevertheless, basing on the official data, one can notice that attractiveness of Poland and the Czech Republic as a place to work is increasing for foreigners along with the economical growth of these countries.

3 Labor Migrations – the Essence and Consequences

When analysing the phenomenon of contemporary migrations, one should consider the fact that they are significantly different from migrations occurring in the past. It is predestined by several features. According to M. Zięba, they concern information, norms in force, and multiculturalism (Zięba 2008, pp.16-17). Globalization of the flow of information about the phenomenon of migration results in the fact that currently made decisions concerning migration become easier. On the other hand, in the past, migration took place on the margin of the mainstream of social life, e.g. due to communication barriers. Along with the globalization of information about migration conditions, there is also a gradual convergence of norms concerning migrants and their families, what is related with dissemination of human rights all over the world. The third characteristic feature of contemporary migrations is their multiculturalism being a great challenge for the host countries.

Migrations of people taking place under economical motives in order to improve living conditions are called economical or labor. It is generally accepted that labor migrations are "spatial migrations of the professionally active population undertaken in order to improve life conditions of oneself and family members or to acquire financial resources necessary for keeping previous forms of life and management, perceived as a condition to maintain cultural identity"(Skoczek 1997, p.13).

The analysis of the literature of the subject allows one to specify various types of foreign labor migrations, considering e.g. their duration, qualifications of employees, or social and professional status of migrants. According to the last of the above criteria, we can distinguish several types of labor migration (Skoczek 1997, p15):

1) migrations of highly qualified employees, mainly representing free professions (medicine doctors, academic teachers, engineers);

2) migrations of people not having a profession, mainly young people thinking that they have greater chances to meet their needs abroad;

3) migrations of unqualified persons, looking for a job due to difficulties in finding a job in their home locations;

4) seasonal migrations of people from rural areas, aimed at obtaining additional incomes

According to researchers, to a significant extent, labor migrations have the character of seasonal leaves, mainly with a plan to return home, deciding cause of which is a will to improve the economical situation of a migrant and his/her family (staying in the place of migrant's origin). These migrations are defined as incomplete (bivalent), as they assume a rotary mobility of one (or several) family member (Okólski 2008, p.28).

The increase of interest in international migrations result from their growing scale and consequences they cause. Narrowing considerations to labor migrations, we should stress that the progressing globalization, meaning an increasing interdependence of national economies, changes the model of movement of labor force. In developing countries of a relatively small number of population and weakly developed industry, due to a lack of proper number of employees of certain qualifications, there are implemented facilitations in the access to labor market for foreigners. In case of industrialised countries, apart from demographic factors, one of key determinants is the economical development. The reported demand for employees concerns highly qualified staff as well as those commencing work in economy sectors which are less attractive for natives (agriculture, utilities, etc.). An often practice is that hard, dangerous and poorly remunerated jobs are performed by employees from poor countries, while natives more often choose better paid and requiring higher qualification works.

In the literature one can find opinions that in the countries of Central and Eastern Europe, together with the growing dynamics of economic growth, the structure of labor demand will be similar to that characteristic for industrialized countries (Böhning 1998, p. 10).

The issue of labor force deficit and the need to open up the labor market for immigrants was emphasized in the UN report of 2000. At that time, it was forecasted that Western European countries would need from 1 to 13 million additional employees a year until 2050. The fact is that the progressing process of ageing at the decrease of the fertility rate creates new problems. Emigration of citizens from East-Central countries past 2004, having a long-term character, had an influence on negative changes in the age structure of societies of sending countries.

A particular threat, caused in the course of an outflow of persons in mobile productive age (18 – 44), is a progressing process ageing of labor force in countries that emigrants come from.

It was pointed out that immigration would not solve all the problems resulting from the aging population and the falling birth rate. As Castles and Miller note, "... the demographic benefits of immigration are short-lived" (Castles, Miller 2011, p.275) because immigrants are also becoming beneficiaries of the host country's social security system. Therefore, the phenomenon of labor migration should be perceived in terms of the phenomenon that would only solve the problem of unmet employee demand in the short term.

Demographic forecasts up to 2070 indicate that Central and Eastern European countries will have to consider wider opening of their labor markets for citizens from other countries due to the expected reduction in the working age population (Table 1).

Table 1 - Working age population (15-64) as % of total population in Central and Eastern Europe – Demographic Projections (2016-2070).

Country	2016	2020	2030	2040	2050	2060	2070	Ch 16-70
Bulgaria	65,4	63,7	61,6	58,6	54,5	52,8	55,1	- 10,3
Croatia	66,0	64,4	61,6	59,9	57,7	56.5	5,6	-10,5
Czech Republic	**65,9**	**63,7**	**62,5**	**60,3**	**55,7**	**54,5**	**57,**	**-9,0**
Estonia	64,7	63,2	61,4	59,8	56,8	54,6	55,9	-8,8
Lithuania	66,1	64,1	57,9	55,6	53,6	51,4	55,8	-10,4
Latvia	64,9	62,8	58,5	56,8	52,9	50,7	55,0	-9,9
Poland	**68,7**	**66,0**	**62,6**	**61,1**	**55,9**	**52,5**	**53,6**	**-15.1**
Romania	67,1	65,4	63,2	58,6	55,2	54,1	55,3	-11,8
Slovakia	70,0	67,7	64,5	61,9	56,8	53,9	54,7	-15,2
Slovenia	66,4	64,0	61,0	58,2	54,6	54,9	56,7	-9,8
Hungary	67,1	65,0	63,0	60,4	57,4	55,6	56,0	-11,1

Source: *The 2018 Ageing Report: Economic and Budgetary Projections for the EU Member States* (2016-2070) p.205.

The growing dynamics of the phenomenon of labor migration requires a look at its various consequences. Migration flows run both ways, in this study the focus has been on the consequences of labor immigration for the host country. The increasing dynamics of the phenomenon of labor migrations requires an insight to its various consequences. Migration movements take place in both directions and this work focuses on consequences of labor immigration for accepting countries (Table 2).

Table 2 - Consequences of labor migrations for the host country

Advantages	Costs
Inflow of new labor force enabling maintenance of economic growth	Costs of protecting infrastructure related with inflow of people and the necessity to provide accommodation, health care, social benefits, education.
Supplementing deficiencies of staff in sectors and branches which are less attractive for native employees (services, agriculture), in which constant or seasonal deficiency of employees maintains.	Along with an increasing inflow of labor immigrants, there raises a fear of limitation of certain occupations for citizens of the host country. In general, however, as immigrants enter "a niche" of employment, this problem is not much stressed as costs of receiving country but can evoke discontent and concerns of local employees.
Access to highly qualified staff without the need of bearing costs of their training	Inflow of immigrants representing another culture carries the risk of race, religious, social conflicts, what can be interpreted as threats for public safety in accepting countries in certain circumstances.
Decrease of labor costs due to employing immigrants (legally or illegally) – hiring new employees provides employers chances of decreasing wages, what leads to maintaining production costs at low levels.	
Increase of the global demand due to an increase of consumption expenditures of migrants living in an accepting country.	
Slower process of ageing in the host country	

Source: own elaboration based on (Maryański 1984, p.13, Kawczyńska-Butrym 2008, pp.53-55.)

The above mentioned disadvantageous demographic conditioning favours an intensification of the need to open labor markets to citizens of third countries. It should be emphasized here that the demand for labor of foreigners can have various characters. According to J. Meller, the demand for labor can have successive or invasive character. In the former case, immigrants work at posts not attractive to native workers or abandoned by them (e.g. due to migration or a drop of interest in working in a particular sector or branch). The latter type of demand is related with the situation when an employer prefers to hire employees from abroad giving up from national labor resources. In such case, the view that native employees are "pushed out" by foreigners disseminates (Meller 1998, p.9).

Considering dependences between a labor market and migrations, one should take the fact that their character is bilateral into account. On the one hand, migrations can have an influence on the situation in a labor market, on the other hand, conditions dominating the market (e.g. remuneration level, unemployment rate) can stimulate migration streams.

4 Scale and Structure of Labor Immigration in Poland and the Czech Republic

The demand of a certain country for highly and low qualified labor force has an influence on the ways of managing migration by particular governments. Experiences of most of highly developed countries show that there is a growing need of opening labor markets for citizens of other countries in order to complement deficiencies of labor force in various branches and sectors of economy. Last years of good economic situation in Poland and the Czech Republic have whet the problem of deficiency of staff, as well as confirmed a great interest in working in this region by immigrants. According to data by Eurostat, the number of first residence permits dynamically increased during the whole analysed period, reaching a record level of over 680 thousand permits in 2017. In case of the Czech Republic, after a temporary drop in 2014, an increase was again noted in the following years. Data for 2016 show that there were issued two times more permits in comparison to 2010 (Table 3).

Table 3 - First residence permits issued in Poland and Czech Republic, 2010-2017.

GEO/TIME	2010	2011	2012	2013	2014	2015	2016	2017
Total								
Czech Republic	34 653	20 978	42 123	45 544	35 458	68 804	80 070	:
Poland	101 574	108 036	146 619	273 886	355 521	541 583	585 969	683 228
From 3 to 5 months								
Czech Republic	3 473	2 571	6 243	5 942	5 044	11 303	9 092	:
Poland	71 902	19 702	18 422	25 499	105 372	178 123	248 663	293 931
From 6 to 11 months								
Czech Republic	7 192	4 085	3 367	2 356	3 573	7 449	8 562	:
Poland	24 651	81 102	125 685	241 911	243 719	345 168	292 657	342 368
12 months or over								
Czech Republic	23 988	14 322	32 513	37 246	26 841	50 052	62 416	:
Poland	5 021	7 232	2 512	6 476	6 430	18 292	44 649	46 929

Source: Eurostat

The analysis of the structure of first issued residence permits confirms the economical character of migrations to a significant extent (Table 4). It is explicitly visible in case of Poland, where over 80% of first issued residence permits in the years 2016 – 2017 were related with the will of commencing work. Such great share in the structure of first residence permits was not noted in the Czech Republic, as e.g. in the years 2016 – 2017, they constituted only 29% of total first issued permits. The closer analysis of the data, taking into account the time of work related permits for which they were granted, indicates that the Czech Republic was dominated by those that allowed a minimum of one year's stay. This is a different situation than in Poland, in this case permits granted for shorter periods, usually 6 months. It is related with the provisions of law, enabling part of foreigners an access to the labor market on the basis of a simplified employment procedure. According to studies, the majority of immigrants would like to work in Poland for a longer period of time than 6 months. Regulative barriers remain a key difficulty for employers who care to have the smallest possible rotation of employees. According to their opinions, it is necessary to prolong the period of legal work for foreigners and a less number of formalities,

194

which are still most often indicated as the main problems in hiring e.g. Ukrainians (Personnel Service Report 2018, p28).

Table 4 - First residence permits issued by employment in Poland and Czech Republic, 2010-2017.

GEO/TIME	2010	2011	2012	2013	2014	2015	2016	2017
Total								
Czech Republic	11 606	3 315	17 888	18 263	11 083	19 931	23 097	:
Poland	86 839	76 525	97 031	141 668	206 279	375 342	493 960	596 916
From 3 to 5 months								
Czech Republic	268	375	2 038	2 319	1 405	2 237	1 053	:
Poland	67 637	15 486	12 895	16 106	94 712	165 981	236 557	280 970
From 6 to 11 months								
Czech Republic	2 273	513	754	338	868	1 405	1 313	:
Poland	19 064	58 372	84 126	123 461	108 227	196 633	230 396	278 908
12 months or over								
Czech Republic	9 065	2 427	15 096	15 606	8 810	16 289	20 731	:
Poland	138	2 667	10	2 101	3 340	12 728	27 007	37 038

Source: Eurostat

Information about employment of immigrants in Poland and the Czech Republic are provided by data collected by national statistical offices. This work uses data obtained from statistics presented on the websites of the Polish Ministry of Family, Labor and Social Policy, and the Ministry of the Interior and the Ministry of Labour and Social Affairs in the Czech Republic.

Foreigners, who are neither nationals of the EU/EEA and Switzerland nor their dependants, can perform work on the territory of the Czech Republic on condition that they have received a work permit and a residence permit or an Employee Card, a Green Card or a Blue Card, provided that the Act on Employment does not set down otherwise. Figure 1 presents data depicting the number of foreigners registered at Czech employment offices and those who have a trade licence authorising them to undertake economical activities.

Figure 1 - Employment of foreigners in the Czech Republic by status in employment. Source: The Czech Statistical Office https://www.czso.cz/csu/cizinci/1-ciz_zamestnanost
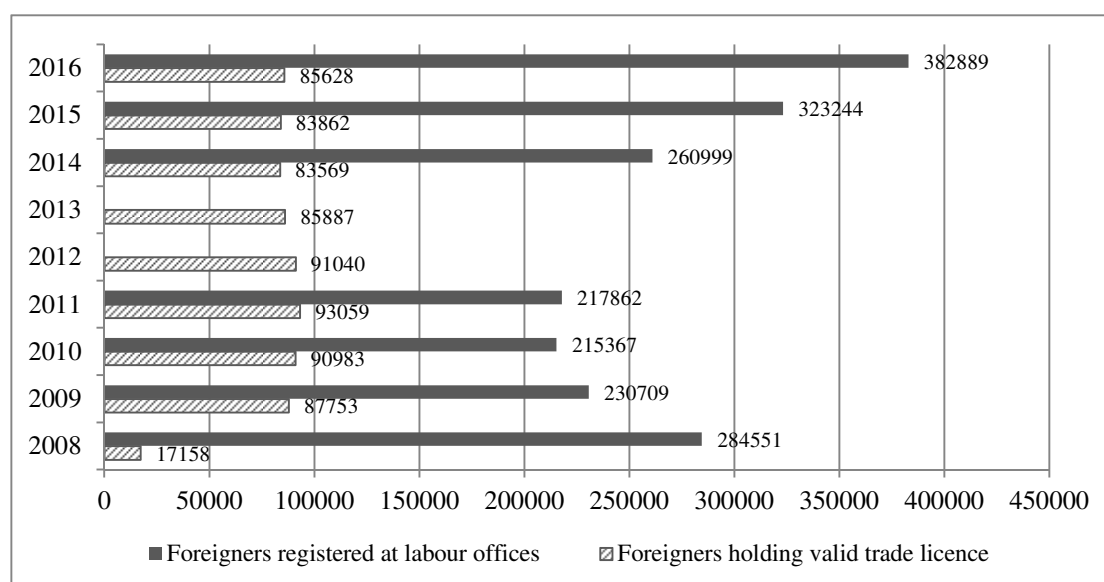
*Lack of data for the years 2012-2013, estimated data for the years 2014-2016

It should be stressed that data of the number of foreigners working in the Czech Republic in the years 2014 – 2016 are approximate. However, it may be stated that the number of foreign employees requiring a work permit, an employee card or a blue card is decreasing, but there increases the number of foreigners who do not need a work permit, as well as the number of EU / EEA and Swiss citizens and their dependants who have a free access

to the labor market. Most represented foreigners working in the Czech Republic in 2016 are citizens of Slovakia (38%), followed by Ukrainians (16%) (Figure 2). Data from 2017 acknowledge an inflow of Ukrainians.

Figure 2 - Employed foreigners by citizenship, 31.12.2016, Source: The Czech Statistical Office, https://www.czso.cz/csu/czso/3-economic-activity-of-foreigners-l4m8rmq1ck.
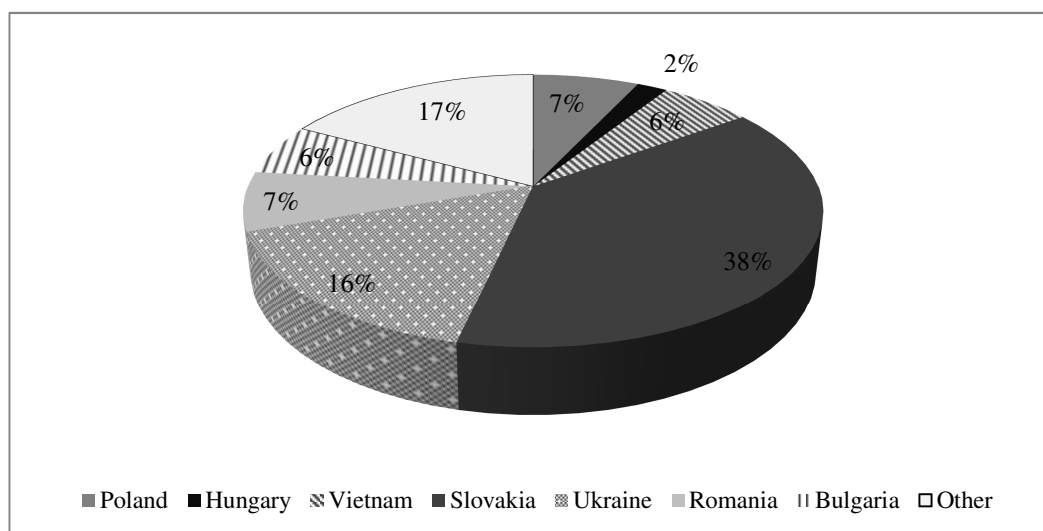
The situation on the labor market in Poland is slightly different. For last few years, we observe a dynamic growth of issued work permits for foreigners as well as registered statements about a will to provide employment to them (Table 5). 2016 is characterised by a record number of issued work permits for foreigners (127.394) what constituted a 90 percent increase in relation to 2015, and the registered number of statements on the will to hire immigrants amounted to over 1 million.

Table 5 - The number of work permits and statements concerning hiring immigrants registered in the years 2010 -2016 in Poland and the year to year rate.

Year	Number of issued work permits	Year to year change	Number of registered statements[19]	Year to year change
2010	36 622	24,82%	180 073	-4,4%
2011	40 808	11,43%	259 777	44,26%
2012	39 144	-4.08%	243 736	-6,18%
2013	39 078	-0,17%	235 616	-3,3%
2014	43 663	11,73%	387 398	64,4%
2015	65 786	50,67%	782 222	102%
2016	127 394	93,65%	1 314 127	68%

Source: own calculation based on data from the Ministry of Family, Labor and Social Policy in Poland.

The analysis of issued work permits per citizenship of foreigners unambiguously shows a domination of employees from Ukraine. In 2016, about 83% of work permits concerned Ukrainians (106.223)., while it was 76,71% in 2015 and over 60% in 2014. Other represented countries of immigrants include: Belarus (increase by 139% in respect to 2015), Moldova, India, China, Nepal (The Ministry of Family, Labor and Social Policy, 2017).

The increasing number of foreigners commencing work in Poland and the Czech Republic raises the question about the structure of the work demand that is satisfied by them. If we want to answer such question, we should consider various ways of classifying information concerning this issue in the countries under the study. The Czech Statistical Office presents data concerning the economical activity of foreigners, e.g. according to particular economy branches. According to data from the year 2014 – 2016, foreigners registering at labor offices are mainly employed in manufacturing, construction, wholesale and retail trade, administration and support service activities. For example, in 2016, the largest number of foreigners registering at labor offices represented the following branches: manufacturing (29,4%), administrative and support service activities (15,6%), whole sale and retail trade (10,5%) (www.czso.cz. 2017).

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[19]The number of foreigners who commenced work due to a registered statement doesnot have to be equal to the number of registered statements. This results e.g. from the fact that for some foreigners there were issued more than one statements, refusals of granting a visa or that some of them resigned from arriving to Poland.

As far as Poland in concerned, the structure of the demand for work satisfied by immigrants can be determined e.g. on the basis of statements about the will to employ foreigners. In the years 2014 – 2016, employers indicated the readiness to hire foreigners – mainly Ukrainians – in the following sectors: agriculture, industry, administration and supporting activities (Table 6).

Table 6 - Share of statements registered in selected sectors of economy in accordance to the Polish Classification of Activity in the years 2014 – 2016.

Polish classification of activity	2014	2015	2016
Agriculture, forestry and fishing	47,11%	35,40%	25,62%
Administrative and support service activities	8,72%	15,99%	28,82%
Manufacturing	11,67%	11,53%	12,69%
Construction	14,48%	14,16%	12,80%
Wholesale and retail trade; Repair of motor vehicles and motorcycles	4,27%	4,54%	3,94%
Transportation and storage	3,29%	3,79%	4,76%
Accommodation and food service activities	1,25%	1,49%	1,90%
Activities of households as employers; undifferentiated goods and services producing activities of households for own use	3,38%	3,19%	1,50%

Source: data from the Ministry of Family, Labor and Social Policy in Poland.

Finally, it should be emphasized that in both countries, there dominate persons in working age, ready to change place of living, workplace or possible changing a profession.

5 Conclusion

The need of satisfying the demand for work basing on foreigners is particularly visible in case of countries experiencing outflows of the workforce and progressing ageing of the population. Both Poland and the Czech Republic became countries experiencing immigration relatively not long ago. A dynamic economical growth in this region at limited work resources resulting from demographic conditions (low rate of natural increase, emigration) favoured opening labor markets. As a result, we observe an inflow of foreigners commencing work in analysed countries for several years. According to the conducted analysis, Ukrainians are dominating among labor immigrants in Poland. They complement lacks of staff in agriculture, industry, constructions. As far as the Czech Republic is concerned, the greatest groups of foreigners who are professionally active are citizens of Slovakia, followed by Ukrainians and Vietnamese. Considering current economical growth in the countries under the analysis, one should suppose that the problem of deficiencies of employees will go deeper in the situation of limited national labor resources. This results in the necessity to adjust regulations on hiring foreigners to the economical reality. However, one should consider the fact that the phenomenon of labor immigration shall enable solving the staff problems, but will be a challenge for the host country when the scale becomes mass.

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The Influence of the Cross-Border Infrastructure Corridor on the Development of Medium-Sized Upper Silesian Cities on the Example of Bohumín and Jastrzębie Zdrój

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Abstract

The southern part of the A1 motorway (D1 in Czech designation) is a functioning infrastructure corridor connecting the Czech and Polish parts of the Upper Silesian Agglomeration, which is significant for the development of medium-sized cities in this region. This article is a continuation of research that was conducted in 2013. A research on Czech Bohumin and Polish Jastrzębie Zdrój was repeated with regard to the developmental aspects of these two medium-sized cities in the context of the functioning A1 motorway. The changes that have taken place in recent years in the spatial structure of the mentioned cities have been analysed.

Research and analyses were conducted using ArcGIS software on data made available by the European Environment Agency and other spatial data sources.

The development opportunities and risks identified in the previous studies were verified. The research focused on the following issues in terms of development opportunities: availability of new well-connected investment areas, dynamic development of public transport between cities.

Regarding the risks, the analysis was focused on the following: scattering of buildings towards the motorway junction, decrease of basic services currently available in the city, its districts and neighbouring units, related to the accessibility of large shopping centres.

Keywords: development, spatial development, urbanization, urban space

JEL Classification: R100, R110, R400, R420

1 Introduction

This article serves as a report on research conducted in 2013[20] and continued in 2018 on the development of two medium-sized cities: Polish Jastrzębie Zdrój and Czech Bohumin, in the context of the location of these cities in the cross-border region (CBR). The aim of the research is to analyse changes in the spatial structure of both cities, to assess development opportunities and risks for them and to verify these against local and regional policies, and also to define their role in the context of the developing Polish-Czech cross-border region of Upper Silesia. The year 2010 is considered a starting point of the research, subsequent studies were conducted on the basis of data recorded in 2015. It is assumed that the study is going to be continued in the following years.

In spatial planning, a region is defined as a part of the country's territory distinguished by specific geographical, natural, economic, social, historical or cultural features (Chmielewski, 2010). A cross-border region is – according to a fairly broad definition formulated by D. de Rougemont in 1978 – a region which is uniform in terms of i.a. geography, history, environment, economy, but is divided into areas under different national

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[20] As in footnote no. 1

jurisdiction. In context of cross-border areas, the region should be viewed from the perspective of the border separating two countries.

The forming process of European regions is widely discussed in the international literature (i.a. Paasi 2010, Perkmann 2003 & Scott, 1999). Cross-border regions (CBRs) are particular examples of European regions. Increasing European integration, which has been ongoing for several decades, is changing the perception of the border. A border within the European Union is no longer a barrier between people, an obstacle in their daily lives nor a reminder of a complicated history and is becoming a place of intensified communication and cooperation between neighbouring countries (AEBR, 2010). Various types of cross-border cooperation are being implemented, thanks to the EU's cohesion policy and the EU funds invested in the implementation (in particular under the Interreg programme). Markus Perkmann points out that the process of 'constructing' a CBR is time-consuming, should be evaluated on various levels (economic, social, historical, political) and may not always be successful (Perkmann, 2003). Developments of cross-border regions in Northern Europe (e.g. Öresund Region, Fehmarnbelt Region) clearly show that cross-border communication infrastructure is one of the most important factors stimulating the development of cross-border regions. Cities, as junctions of regional economy and culture, play a significant role in the process of creating CBRs and benefit from their functioning.

2 Research Method

2.1 The Purpose and Subject of Research

The aim of this article was to analyse the impact of the A1 cross-border corridor (D1 in Czech designation) on the spatial development of two medium-sized cross-border cities, i.e. Czech Bohumin and Polish Jastrzębie Zdrój, as well as discussing the associated benefits and risks. Both cities are located by the motorway and are connected to it by traffic junctions. Examples of other Polish cities, such as Katowice or Wrocław, show that the presence of a modern transport infrastructure corridor close to the city along with convenient connections with it may contribute to significant changes in the spatial structure of the city and its suburbs.

The research was undertaken prior to the opening of the Upper Silesian section of the motorway, which is one of the most important connections between Polish and Czech parts of Upper Silesia. The emergence of a cross-border infrastructure corridor, connecting two cities on opposite sides of the border, has a significant impact on their development potential. Perhaps the most spectacular example is the Öresund bridge – a combined railway and motorway bridge over the Öresund strait opened in 2000 connecting the Swedish city of Malmö and the Danish capital of Copenhagen. Both cities gained a completely new dynamic after the bridge was built and, together with a network of smaller Swedish and Danish urban centres, became the driving force of Öresund CBR (Matthiessen, 2005).

The A1 motorway is part of European route E75 and the Pan-European Corridor VI. In the future, the completion of the planned E75 route will significantly increase the transport significance of the A1 motorway. Moreover, a connection between Katowice and Ostrava by high-speed rail (*Joint Spatial Development Document V4 + 2*, 2010) is being discussed and planned. The largest railway crossing between Poland and the Czech Republic is located near Zebrzydowice, close to Jastrzębie Zdrój[21], so the opportunity for additional reinforcement of mentioned Polish-Czech infrastructure corridor arises[22].

Bohumin and Jastrzębie Zdrój were selected for analysis due to the following common features:

- location near the A1 motorway and the location of motorway junctions that enable transport to the analysed city via motorway (Table 2),

- location at the Polish-Czech border, and thus within a short distance from each other (Table 2, Figure 1),

- demographic data of cities indicating their medium size and the decreasing population (Table 1),

- convenient spatial connection with the Katowice Agglomeration and the Ostrava Agglomeration (Table 3),

- location in the historical land of Upper Silesia.

Moreover, both Bohumin and Jastrzębie Zdrój underwent a period of intensive spatial and demographic development related to the expansion of heavy industry in Upper Silesia.

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[21] The distance between the railway station in Zebrzydowice and the Town Hall in Jastrzębie Zdrój equals 12.9 km (Source: GoogleEarth Pro).

[22] Compare urban planning for the Trans-European Transport Network (TEN-T)

Table 1 – Population and unemployment rate in Bohumin and Jastrzębie Zdrój in the years 2000 – 2015.

Year		Population	Share of the registered unemployed in the working age group		Population	Share of the registered unemployed in the working age group
2000		23 580			97 537	
2001		23 160			97 162	
2002		23 116			96 821	
2003		23 075			96 475	12.1
2004	Bohumin	23 078		Jastrzębie Zdrój	96 009	11
2005		23 028	10.39		95 482	9.9
2006		22 974	9.41		94 716	8.5
2007		22 914	7.33		93 939	6.7
2008		22 976	6.14		93 554	4.5
2009		22 818	9.43		92 988	5.5
2010		22 631	8.59		92 622	6.5
2011		21 897	8.40		92 105	6.4
2012		21 726	no data		91 723	6.6
2013		21 663	no data		91 235	7.4
2014		21 482	9.07		90 794	6.5
2015		21 249	7.65		90 283	5.7

Sources: Český Statistický Úřad; http://www.czso.cz/csu/redakce.nsf/i/home and Central Statistical Office, Local Data Bank; http://www.stat.gov.pl/bdl

Note: The data highlighted in grey were added to the data adopted in the initial phase of the study.

2.2 The Research Method

The proposed research method is based on two modules.

In **the first module** the location of Bohumin and Jastrzębie Zdrój is analysed against the background of the developing Upper Silesian CBR, in the context of distance and time of travel from the city centre and the A1 motorway and distance from the cities in question to the Polish-Czech border (Table 2), distance and time of travel between Bohumin and Jastrzębie Zdrój (Table 3), and distances between the discussed cities and capitals of the Polish Silesian Voivodeship, i.e. Katowice, and the Czech Moravian-Silesian Region, i.e. Ostrava (Table 4). Distances and times of travel were measured from town halls of the cities. Data for this study was obtained from publicly available websites (googlemaps.com and pkp.pl) and Google Earth Pro software.

The aim of this research module was to present how the accessibility times of the analysed urban centres have changed after the motorway became operational and how these data compare to the time of travel by train. An additional objective was assessing the availability of the centres of the analysed cities to the A1 motorway.

In **the second module**, the state of land use and changes in this respect are analysed form the start of motorway operation within the administrative boundaries of the cities and in the areas of motorway junctions. The analysis was conducted using ArcGIS 10 software with data provided by the European Environment Agency and by Polish and Czech geoportals. For the purpose of this study, it was assumed that the area of the motorway junction is delimited by a circle with a radius of 3 km, the centre of which is located inside the motorway junction, at the intersection of the A1 motorway axis and the road leading from the motorway junction to the analysed city. It was also assumed that the centre of the analysed city is determined by the location of the Town Hall. Therefore, Mszana junction (intersection with the voivodeship road no. 933) is considered the centre of Jastrzębie Zdrój, and Bohumin 370 junction (intersection with trunk road no. 67) is considered the centre of Bohumin. The types of land cover most relevant for the analysis of changes in spatial development were selected (Table 5).

In the initial phase, the aim of the research was the analysis of the state of land use within the administrative boundaries of the city and in the areas of motorway junctions as a basis for further analysis of changes in the spatial structure of the analysed cities.

3 Results of the Research

The results of the conducted research, after their verification and enhancement in relation to the results of the research published in 2013, are presented in the tables below. Tables 2, 3 and 4 include the summaries of the studies of **the first module**.

Table 2 – Location and accessibility of Bohumin and Jastrzębie Zdrój in reference to A1 motorway.

		Bohumin	**Jastrzębie Zdrój**
Distance between motorway junction and the administrative boundaries of the city [km] ¹)	Distance [km]	Motorway junction within the administrative boundaries of the city	1.8
	Time [min]		4
Distance between motorway junction and the Town Hall [km] ¹)	Distance [km]	2.7	6.8
	Time [min]	5	12
Distance between the Town Hall and the Czech-Polish border [km] ²)		2.9	4.3

Source: GoogleEarth Pro software

Notes: [1]) distance measured along the axis of the access road, [2]) distance in the straight line

Data illustrating the location of the analysed cities in relation to the A1 motorway and their accessibility from the transport corridor indicate a similar situation in both cities. In Bohumin, the time of travel from the motorway to the city centre is slightly shorter as a result of the location of the motorway junction within the administrative boundaries of the city, relatively close to the city centre.

Table 3 – Communication links between Bohumin and Jastrzębie Zdrój.

		Distance in a straight line	Local roads	Motorway	Railway	Distance in a straight	Local roads	Motorway	Railway
		Bohumin				Jastrzębie Zdrój			
Bohumin	Distance [km]	-	-	-	-	19,1	26,8	25	-
	Time [min]	-	-	-	-	-	34	24	-
Jastrzębie Zdrój	Distance [km]	19,1	26,8	25	-	-	-	-	-
	Time [min]	-	34	24	-	-	-	-	-

Source: Urban Atlas for Europe, www.maps.google.pl, www.pkp.pl.

Table 4 – Transport links connecting Bohumin and Jastrzębie Zdrój with the most important cities in the region.

		Distance in a straight line	Local roads	Motorway	Railway	Distance in a straight	Local roads	Motorway	Rail way
		Katowice				Ostrava			
Bohumin	Distance [km]	230,42	71,4	82	-	8,47	11,7	15,4	-
	Time [min]	-	73	59	120	-	17	17	7
Jastrzębie Zdrój	Distance [km]	220,73	50,8	67,2	-	26,18	38,8	36,2	-
	Time [min]	-	58	52	-	-	52	32	-

Source: Urban Atlas for Europe www.maps.google.pl, www.pkp.pl.

Note: measurements made between respective town halls – Bohumin: ul. Masarykova 158; Jastrzębie Zdrój: Al. Józefa Piłsudskiego 60; Katowice: ul. Młyńska 4; Ostrava: Prokešovo náměstí 8.

The data presented in Tables 3 and 4 indicate a significant reduction of the time spent on car journeys between the analysed cities after the opening of the motorway. This is particularly beneficial given the time of travel by rail or the lack of rail connections in some cases, which obstructs constructing a cross-border region and forces local people to use road transport.

The results of the analyses of **the second module** are presented in Table 5.

Table 5 – Land cover within administrative boundaries and within the motorway junction area for Bohumin and Jastrzębie Zdrój.

	Bohumin 2010		Bohumin 2015		Jastrzębie Zdrój 2010		Jastrzębie Zdrój 2015	
	Within the administrative boundaries of the city	Area of the motorway junction	Within the administrative boundaries of the city	Area of the motorway junction	Within the administrative boundaries of the city	Area of the motorway junction	Within the administrative boundaries of the city	Area of the motorway junction
Area [km^2]	30.45	16.06	30.98	16.05	84.97	4.94	85.32	4.97
Continuous Dense Urban Fabric (S.L. > 80%) [%]	4.46	7.55	4.46	7.56	2.51	3.60	2.5	3.58
Discontinuous Dense Urban Fabric (S.L. 50% – 80%) [%]	8.73	7.02	8.74	7.02	11.20	15.87	11.21	15.55
Discontinuous Medium Density Urban Fabric (S.L. 30% – 50%) [%]	2.64	1.55	2.65	1.55	1.18	1.57	1.25	1.87
Discontinuous Low Density Urban Fabric (S.L. 10% – 30%) [%]	0.05	–	0.08	–	0.03	–	0.18	0.12
Discontinuous Very Low Density Urban	–	–	0.08	0.06	–	–	0.36	0.54

Fabric (S.L. < 10%) [%]								
Industrial, commercial and military units [%]	9.66	14.91	9.44	14.64	5.67	10.16	5.64	9.92
Construction sites [%]	1.41	1.25	0.59	1.03	0.11	0.18	0.48	–
Land without current use [%]	0.01	–	0.03	0.04	0.10	–	0.16	–
Agricultural areas [%]	33.79	27.68	40.98	10.93	no comparable data			
Green urban areas [%]	2.68	2.56	2.8	2.68	3.08	8.38	3.28	9.07
Sports facilities [%]	0.98	1.31	0.98	1.31	1.90	3.09	1.89	3.07
Forests [%]	8.24	7.26	8.32	7.25	9.34	8.50	9.74	12.09

Source: results of own research and analysis performed in ArcGIS 10.6.1.

The performed analyses provide the basis for the following conclusions:

- The share of continuous dense urban fabric in the Bohumin motorway junction area is higher than in Jastrzębie Zdrój, which is related to the location of the junction in the city area, but the opposite applies to the discontinuous dense urban fabric, which is relatively denser in the Jastrzębie Zdrój junction area.

- A similar and marginal share of the low density urban fabric in the area of motorway junctions of both analysed cities.

- A much smaller share of agricultural land in the area of the junction in Jastrzębie Zdrój, which is a consequence of a much smaller area of the city within the junction.

- No changes in the spatial structure of the analysed cities in 2010–2015, i.e. in the initial period of functioning of the A1 motorway.

4 Conclusions

4.1 Conclusions Regarding the Scale of the Analysed Cities

As expected, the presence of A1 motorway contributed to a significant improvement in the quality of interconnections between the analysed cities and their connections with leading CBR centres and other Central European cities. However, in the initial period of the motorway's operation, it did not affect the spatial structure of the cities.

On the basis of the above analyses and examples of other cross-border cities, potential development opportunities and risks related to the functioning of the A1 infrastructure corridor can be identified. The opportunities and risks listed below are research hypotheses; the next scheduled stage of research will be aimed at their verification.

The most important development opportunities:

- Making new, well-connected investment areas available,

- Development of cross-border labour market associated with well-connected Polish and Czech cities,

- More dynamic development of inter-city public road transport[23].

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[23] See the conclusions of *Urban spatial characteristics and transport* report conducted by the European Environment Agency. The document is available on www.eea.europa.eu

Developmental risks:

- Scattering of buildings towards near the motorway junction. This factor may have a particular impact on the spatial development of Jastrzębie Zdrój and the areas located between the city and the motorway junction.

- A decrease of basic services currently available in the city, its districts and neighbouring units, related to the accessibility of large shopping centres[24].

- Intensification of road traffic, with particular emphasis on private passenger cars; an increase of inconveniences related to this matter (noise, pollution, vibrations). It may be particularly inconvenient for Bohumin due to the location of the motorway junction within the border of the city.

To optimise the spatial development of the two analysed cities localised in the cross-border infrastructure corridor, collaboration in the field of planning works and development of programmes for the implementation of these plans is recommended.

4.2 General Conclusions Regarding the Scale of the Upper Silesian Cross-Border Region

The infrastructure corridor connecting the Czech and Polish parts of Upper Silesia has opened the new development opportunities for the region. The analysis of the Northern European CBRs, such as the Öresund Region, which have been in operation for years, or the Fehmarnbelt Region, which is under construction, shows that their intensive development is related to the functioning of a cross-border infrastructure corridor connecting the major cities of the region. In the case of the Danish–Swedish Öresund Region, it is a bridge over the Öresund strait and in the case of the German-Danish Fehmarnbelt – an offshore tunnel connecting Germany and Denmark, which is scheduled to be completed in 2021 (Matthiessen, 2011). Matthiessen identifies five development stages of the Öresund Region: i) the concept and analysis, ii) strategic investment decisions and their implementation, iii) the overall change in the approach to the integration of the cross-border region from a negative to a positive one (people, policy, market), iv) identification and neutralization of development barriers, v) integration of the region (Matthiessen, 2005). This confirms that the process of 'constructing' the CBR is time-consuming and should be evaluated on various levels (economic, social, historical, political), which should be considered in the debate on the development of the CBR of Upper Silesia.

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[24] See the results of an *Urban spatial characteristics and transport* study conducted by the European Environment Agency. The document is available at: http://www.eea.europa.eu/data-and-maps/indicators/urban-spatial-characteristics-and-transport

Figure 1 – Use of land within the area of Bohumin and Jastrzębie Zdrój.
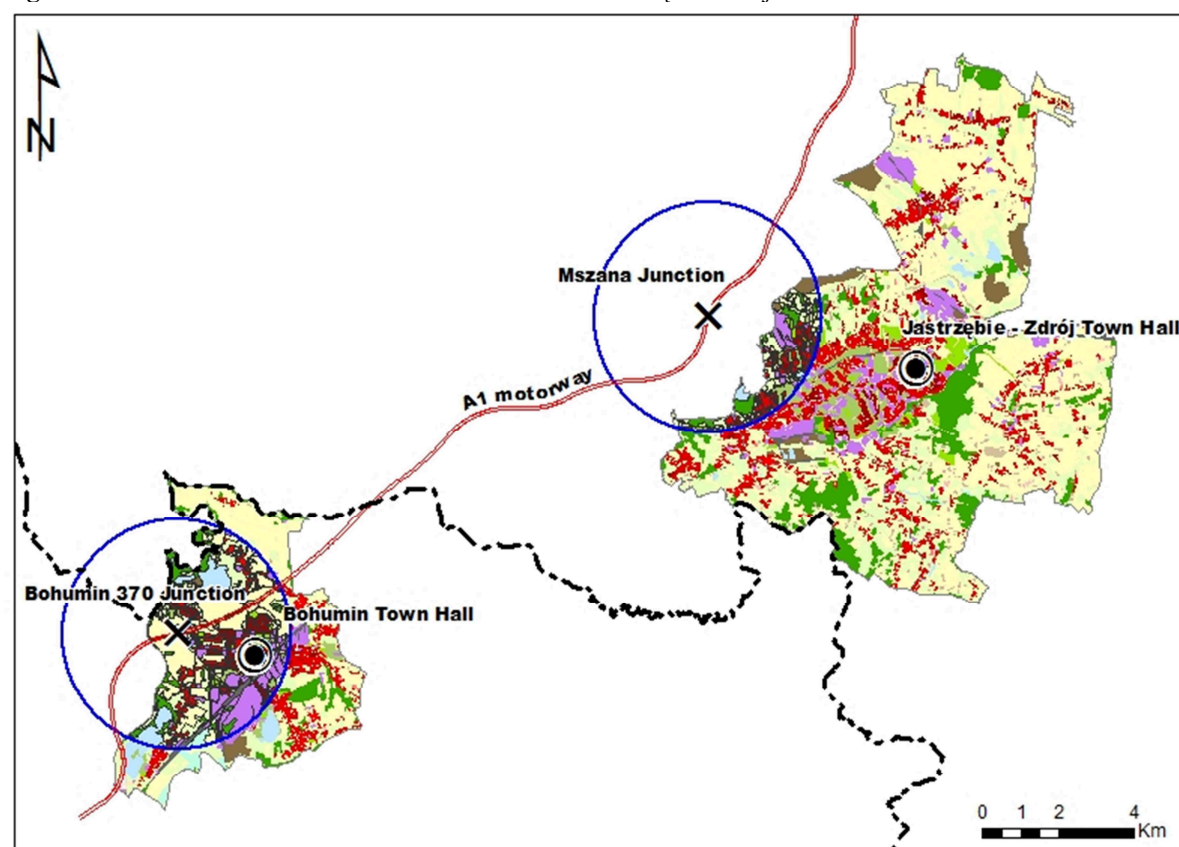
Legend

Czech - Polish border

◉ Bohumin Town Hall

◉ Jastrzębie - Zdrój Town Hall

✗ Bohumin Junction

✗ Mszana Junction

A1 motorway

Motorway junction 3km buffer

Bohumin city border

Jastrzębie-Zdrój city border

Użytkowanie terenu

Continuous Urban Fabric (S.L. > 80%)

Discontinuous Dense Urban Fabric (S.L. 50% - 80%)

Discontinuous Medium Density Urban Fabric (S.L. 30% - 50%)

Discontinuous Low Density Urban Fabric (S.L. 10% - 30%)

Discontinuous Very Low Density Urban Fabric (S.L. < 10%)

Industrial, commercial, public, military, private and transport units

Construction sites

Land without current use

Isolated structures

Mineral extraction and dump sites

Green urban areas

Sports and leisure facilities

Agricultural areas (annual crops)

Grassland

Forests

Artificial non-agricultural vegetated areas

Water

Swamps

Railways and associated land

Fast transit roads and associated land

Other roads and associated land

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The Development of Entrepreneurship in Rural Areas According to Leaders of the Village Renewal Program (a Case Study of Opole Voivodeship)

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Abstract

The use of diverse and specific competitive advantages is one of the main objectives in the modern planning of socioeconomic development of regions. Therefore, it is necessary to take into account local and regional strengths to a greater extent. The use of local natural and socioeconomic characteristics should foster greater efficiency and diversity of enterprises in rural areas. Therefore, the policy of the development of rural areas should ensure that these specific opportunities and competitive advantages are properly used, meet new challenges related to the need of diversifying economic functions by introducing new forms of non-agricultural employment and supporting a system of services and facilities for different populations living in rural areas.

This article aims to provide an opinion on the development of entrepreneurship in rural areas according to leaders of the Village Renewal Program. The Opole Village Renewal Scheme has been operating since 1997 and is the longest-running regional program in Poland. It is a distinguishing feature and hallmark of the region and one of the most important national social innovations in the field of development of rural areas.

1 Introduction

The aim of this article is to make a presentation of opinions concerning the development of entrepreneurship in rural areas, which are expressed by leaders of the Village Renewal Program (VRP). In order to achieve the set goal, research of the literature of the subject was carried out, bringing the subject matter of entrepreneurship closer, taking into account local conditions behind its development and paying particular attention to the fact that definitions of entrepreneurship contain two integral elements, that is the person of an entrepreneur and their market, as well as institutional environment. Then, relevant material is given to illustrate the developmental possibilities of rural areas, including development of entrepreneurship and emphasizing the appearance of barriers it faces. Obviously, the existence of the barriers does not mean that rural areas do not run chances of development. Recent years have seen some improvement in these areas, regarding such spheres as: social capital (among others one of the effects of the VRP), access to information and the state of the infrastructure. So as to ensure development of entrepreneurship in rural areas their local assets should be taken into consideration to a greater extent. Consequently, taking advantage of the local specifics of nature and socioeconomic conditions should enhance greater effectiveness and variety of enterprises which are active in rural areas. The article ends with presentation of the material which was obtained as a result of the empirical questionnaire-based research conducted with the help of survey questionnaires. While choosing the subjects of the research, the method of purposive sampling was applied – the group of respondents were recruited from leaders of the VRP (active in villages located in Opole Voivodeship). The construction of the survey questionnaire was subjected to the aims of the research, the questionnaire itself consisting of five parts and relating to: basic socioeconomic data (respondents' particulars), the Village Renewal Program, development of entrepreneurship in rural areas, level

and development of education in rural areas and social competences. In the article, the results obtained in the part dealing with the development of entrepreneurship in rural areas were discussed. The analysis of the collected material was made by means of the descriptive and statistical methods.

1.1 Entrepreneurship and the Significance of Local Conditions of its Development

Entrepreneurship is a discipline of knowledge placing itself on the border between economy and management studies. Nowadays entrepreneurship is a domain which takes advantage of the outputs of many sciences, among others, economics, management, mathematics, psychology, sociology to mention but a few. In the literature of the subject, one can find a good number of definitions of entrepreneurship and ways of grouping it. Definitely, entrepreneurship is an interdisciplinary concept of large capacity and, indeed, multifaceted. It was introduced by French economist Richard Cantillon who used the word "entrepreneur" to define a person taking risk in connection with their running economic activity [6].

In the general framework, entrepreneurship can be characterized as an activity that strengthens the potential which consists of: the attitude, skills and competences in the areas such as: inventions, innovations, setting up/starting up new enterprises [13]. On the other hand, R.W. Griffin claims that "entrepreneurship is a process of organizing and running an economic activity, as well as taking risk in connection with this," whereas an entrepreneur is somebody "who takes up activities covered by the term entrepreneurship; somebody who organizes and runs a business activity and takes risk" [7]. The role and significance of the person of an entrepreneur, as well as their skills, were also underlined by J. Schumpeter, who – as the first researcher – acknowledged an entrepreneur to be an innovator who – by means of their innovative ideas – upsets the market equilibrium existing to date and raises economy on a higher level of development. An entrepreneur, according to J. Schumpeter, is a person who keeps on making newer and newer combinations of means of production with the aim to create innovations [16]. The researcher is of the opinion that every person who introduces innovative products and technologies in economy can stay an entrepreneur, independent of the capital at their disposal. Besides, an enterprising person, according to J. Schumpeter, must make themselves distinguished by inventiveness, innovativeness and diligence to successfully overcome barriers and stereotypes [3]. In 1985, R. Hisrich defined entrepreneurship as a long-term "[…] process of creating something new and valuable through devoting time and effort, acceptance of the accompanying risk of financial, psychological and social kinds, with the expectation of material and personal satisfaction" [14].

Entrepreneurship is most often defined in the following two dimensions:

- Entrepreneurship connected with the person of the entrepreneur and this is their characteristic feature;
- Entrepreneurship as a function manifests itself in stimulating socioeconomic development based on making use of opportunities flowing from the market and institutional environment [11].

Among the many definitions of entrepreneurship, one can distinguish those which take into consideration elements of the environment to a greater extent. Thus, for instance, P.F. Drucker interprets entrepreneurship as a way of the entrepreneur's and the company's behavior consisting in readiness and ability to meet new problems and solve them in a creative and innovatory manner, as well as in the skill of taking advantage of chances that occur and threats, and also flexible adjusting to the changing conditions [5].

In turn, T. Kraśnicka states that entrepreneurship is a particular type of activity of people who function individually or inside an organization, which consists in taking advantage of opportunities perceived in the environment through realization of enterprises (having the character of introducing innovations, creating new organizations or revitalizing the already existing ones), ones that bring economic and (or) non-economic effects to subjects and the environment [11]. On the other hand, K. Krajewski defines entrepreneurship as the resultant of individual characteristics of people, covering such features as: talent, skills, energy, imagination, common sense, readiness to take risks, and socioeconomic features which are generated within their environments, including, for example, availability of resources, local economic traditions, society's potential to absorb business initiatives, socioeconomic policy or local climate forming around business activities [10].

The liaison of micro and small enterprises with their local environment, as well as their ability to influence each other are indispensable to these companies to help them reach their strategic targets. This environment renders the fundamental resources available to them, provides institutional support and diminishes the instability of markets. The relations between small and medium-sized enterprises were written about by, among others, T. Noronha Vaz and F. Nicolas. According to these authors, the development of the local market depends on the functioning of small entrepreneurship in it. In particular, micro and small companies found their activity on local resources of production means. Local communities are directly engaged each time in mutual interactions between small firms and the local environment and, in consequence, obtain considerable benefits from this. The role of the local environment in the development of micro and small firms does not limit itself to mere supply of

resource, though. It is also extremely important that this environment should create a climate that is friendly to small entrepreneurship. This is interpreted as a certain kind of closeness – cultural, social and geographical [17].

Consequently, the development of small and medium-sized enterprises within the local environment, apart from the resources of production means, is determined by the presence of local "culture of entrepreneurship", support of local public institutions, and creativity of local communities.

1.2 Opportunities of Development of Rural Areas, Including Entrepreneurship Development

The development of rural areas is of the local nature. The local development as a category of socio-economic development is defined as comprehensive creation of the best possible living conditions in the local environment or improvement of the organization, structure and functioning of local development resources [4].

I. Pietrzyk has acknowledged that the main factor of regional and local development is the mobilization of the endogenous potential in regions, whose aim is to launch the sustainable dynamics of local development. Therefore, the local development can be defined as an endogenous "bottom-up" way of generating development dynamics in a wide spatial scale. It is a process of mobilizing local material and human resources using various "micro-initiatives" [15].

The endogenous potential of rural areas has its source in human and social capital, natural and cultural values, natural conditions to specific forms of management, including for agriculture or tourism and in technical and social infrastructure. [9]

The prerequisite for strengthening development in the local scale is creation of a local environment, which consists of people and institutions concentrated on and collaborating for an acceptable and understandable program. The local development occurs in the economic, cultural, political and social spheres. The local development at the social level consists in the possibility of articulating group interests, formation of associations and taking responsibility for the spheres of everyday life and their managing in the fields of education, culture, health and social care [4]. According to Pietrzyk, successful local development depends on the existence of the effective leadership, wide-ranging participation of the population in the undertaken activities, mutual trust, seeking consensus in cooperation and public-private partnerships. The quality of the local social capital is of particular importance in the bottom-up development processes [15].

Nowadays, when doing business in rural areas, two factors are of great importance: distance from urban centers and low population density which generates significant challenges. As E.J. Malecki and B.Moriset notice, the big distance from towns means more difficult access to markets, factors of production, costly and time-consuming business trips. The lower population density means bigger dispersion of local resources (mainly human resources (human capital)) and sales markets. The dispersed nature of production and places of residence of the population causes their peripheralization in the access to traditional sources of knowledge and markets [12].

However, the existence of many development barriers does not mean that the rural areas have no chance for development. It is in recent years that the improvement of the social capital and access to information can be noticed in the rural areas. Therefore, it is necessary to take into account local and regional strengths. The use of local natural and socio-economic characteristics should foster greater efficiency and diversity of enterprises in rural areas. The use of diversity and specific competitive advantages is one of the main objectives in the modern planning of socio-economic development of regions. Therefore, it is necessary to take into account local and regional strengths to a greater extent. The use of local natural and socio-economic characteristics should foster greater efficiency and diversity of enterprises in rural areas.

For example: emphasizing distinctive cultural features, promoting regional and local products, caring for specific elements of the landscape architecture, use of natural resources, etc. In the regions, the businesses with features arising from the location in relation to large urban centers and their accessibility, the quality of the natural environment and specific economic and socio-cultural functions of the area should be developed. [1]

K. Heffner is of a similar opinion and believes that the sources of positive changes in rural areas can be found in the greater use of local resources and potentials understood as material and non-material development factors. The first group consists of the cultural heritage elements of the village, such as the settlement system, the type of buildings as well as the technical and social infrastructure. Its condition and usability significantly affect development opportunities of the village. This group of resources includes also human capital, whose quality and size is a key factor in development. In the group of immaterial resources of the village, those characteristics of inhabitants are fundamental, which are associated with experience, skills, entrepreneurship, education and innovativeness. A separate asset of a village, which not only significantly affects but very often determines implementation of a village renewal scheme is the quality of the natural, cultural and social environment. [8]

Therefore, the policy of the development of rural areas should ensure that these specific opportunities and competitive advantages are properly used, meet new challenges related to the need of diversifying economic functions by introducing new forms of non-agricultural employment and supporting a system of services and facilities for different populations living in rural areas.

1.3 Rural Renewal Program in the Opolskie Voivodeship

Germany is a pioneer of the Village Renewal Schemes in Europe. While analyzing the decades of experience resulting from the West European Village Renewal Schemes, it can be concluded that there are two ways of their implementation. The first one could be observed in Germany, especially in Bavaria, Baden-Württemberg and Rhineland-Palatinate, while the second one in Lower Austria. Due to differences in the implementation process of village renewal schemes in these countries (historically conditioned), there are two ways which can be mentioned: "Bavarian" top-down and "Lower Austria" bottom-up [18],[2]. However, it should be emphasized that despite some differences, both ways aim at the same goal of improving living conditions in rural areas and engaging residents in the development of their rural areas.

The Opole Village Renewal Scheme has been operating since 1997 and is the longest-running regional program in Poland. It is a distinguishing feature and hallmark of the region and one of the most important national social innovations in the field of development of rural areas.

Village Renewal is generally a process of improving living conditions of rural residents. Due to the fact that the renewal concerns both the spiritual, cultural and material heritage, it is quite difficult to formulate a clear definition of this process.

According to R. Wilczyński: "Village renewal is a process of shaping living conditions of people in rural areas, whose animator and subject is the local community. It affects the standard of living and its quality as well as sources of income, while preserving the village identity reflected in values of rural life, strengthening and development of the spiritual, cultural and material heritage of the village." [19]

Village renewal is a result of the cooperation of inhabitants, who want to improve their environment through changes in infrastructure, services, architecture, culture, social life, education, agriculture, space, communication, etc. The village renewal is also an opportunity to change the mentality of its inhabitants and stop the disintegration process. It is reflected both in economy, architecture, social life, culture and the environment. In the places, where village renewal occurred as a process of development, it brought a number of effects. There have been significant changes in the appearance of public spaces, properties and community facilities improving community life and recreation in the villages. Traditions, history and memorabilia have been used on a massive scale to reproduce the past of villages and use it as development "material". Village renewal helps also to preserve vitality of rural areas and stimulate the increase of their attractiveness as a place of work and residence, and consequently to improve living conditions of the rural population. Being the leader of a village renewal scheme, or at least the advanced stage of this process, causes that the village starts to stand out from the commune and even the region becoming a more attractive place to invest, since a success of a project is more probable.

2 Material and Methods

In order to obtain opinions on the development of entrepreneurship in rural areas, expressed by leaders of VRP implemented in Opole Voivodeship, studies of the relevant literature and proper survey research were carried out, the latter taking place in the third quarter of 2017. While selecting the subjects for the research, the method of purposive sampling was used, the group of respondents being finally recruited from leaders of the Program, whose activity was run in villages located in Opole Voivodeship. They were people who, through the inhabitants' cooperation in realization of projects, intended to ameliorate their environments as far as the infrastructure, services, architecture, culture, social life, education, agriculture, space, communication, and the like are concerned. As a result of the research, 84 properly filled in questionnaires were collected. The construction of the questionnaire was subjected to the assumed goals of the research. Accordingly, the questionnaire itself comprised five parts which related to the following: basic socioeconomic data (particulars relating to the respondents), individual components of the Village Renewal Program, development of entrepreneurship in rural areas, the level and development of education, as well as social competences in rural areas. The analysis of the gathered material was made by means of the descriptive and statistical methods.

3 Results and Discussion

It follows from the data presented in Diagram 1 that regarding their assessment of local conditions (advantages, weaknesses of the area or villages), the respondents qualified the following factors to have a substantial share as the weak points: elementary schools, early school education, job market, availability of work (the share of the responses under the heading "Decidedly a weakness" at the level of several percent). Of the factors mentioned, special attention should be paid to the job market and availability of work due to also a high share (over 34%) of the indications labelled "Rather a weakness", which means a relatively low supply of workplaces in rural areas, yet – on the other hand – considerable possibilities and potential to develop entrepreneurship in these areas, as well.

It is also worth commenting on the evaluation of the element of inhabitants' entrepreneurship: despite the fact that the questionnaire was addressed to leaders of the VRP, that is people who are active and realize a number of projects, both non-material and material ones, ones who have already had a fair dose of experience at their disposal, quite a number of the respondents were not able to determine whether inhabitants' entrepreneurship is an asset of a weakness of the area. Over 45% of the questioned gave the answer under the heading "Hard to say", over 32% were of the opinion that this is rather or decidedly an asset, whereas over 22% classed this as decidedly or rather a weakness.

In their assessment of the advantages of their environment, the respondents pointed the most favorably to such elements as: nature-scenic assets, geographical location, the state of natural environment (the declarations of "Rather an asset" or "Decidedly an asset" altogether being at the level ranging from 71.43% to 75%). This means that rural areas in Opole Voivodeship enjoy decisive preferences for the development of agritourism and ecological farming, that is activities, the running of which will rest on making use of such resources as: natural environment or nature-scenic assets.

It also follows from the results of the questionnaire-based survey that the respondents' assessment of such items as: integration (social bonds) of the inhabitants, activity of non-governmental organizations, as well as traditions, customs and culture (the share of the sum of the indications classed as "Rather an asset" and "Decidedly an asset" being at the level of over 50%) was very positive. This means that, in the respondents' opinions, these elements certainly make an advantage of the given area. This can represent (at least in a part) a high level of human resources of local communities which create a favorable climate to running business activity. In comparison with the elements discussed earlier, the questioned qualified the following elements: offers of cultural events, tourism, entertainment, sports and recreation or monuments, as showing on the average no clear-cut tendencies.

Furthermore, it follows from the data contained in Diagram 2 that the majority of the questioned (57.14%) – village leaders of the VRP – are rather satisfied with the conditions they have to run their economic activity, although those who are rather not satisfied with them (almost 30%) make a relatively large share, too.

Figure 1 - Responses to the question: Which of the factors, in your opinion, make an advantage and which are a weakness to the area/village in which you live? Source: author's own elaboration.
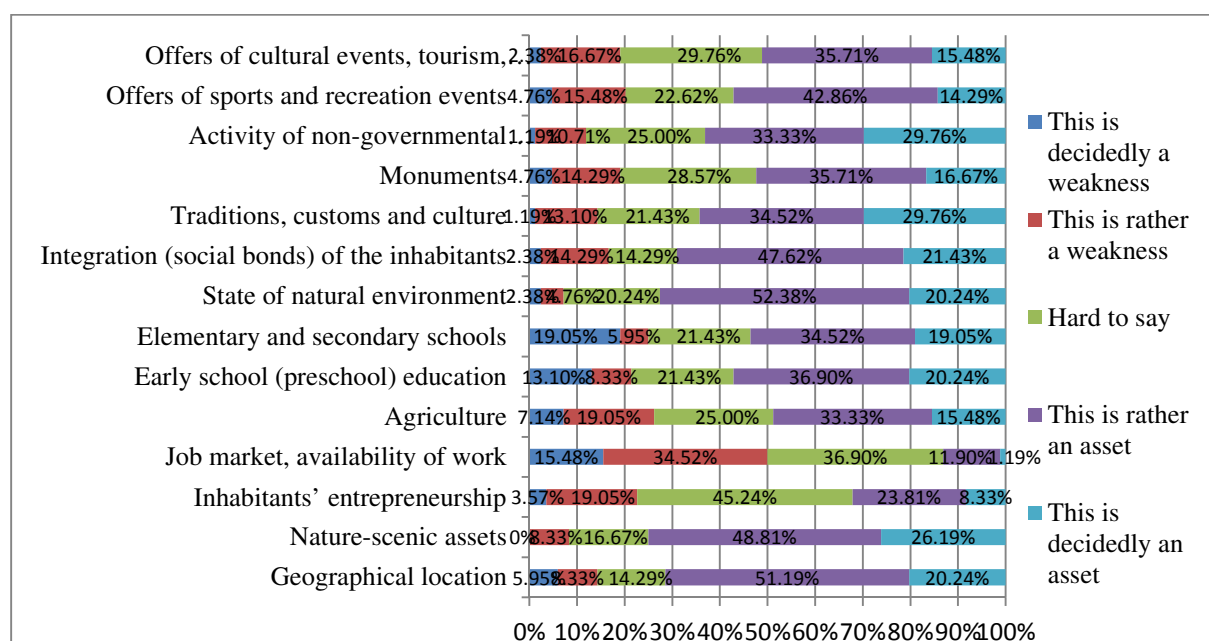
Figure 2 - Responses to the question: Are you satisfied with what the conditions to run business activity are like in your village? Source: author's own elaboration**.**

3.57%	57.14%	11.90%	27.38%

■Decidedly yes

■Rather yes
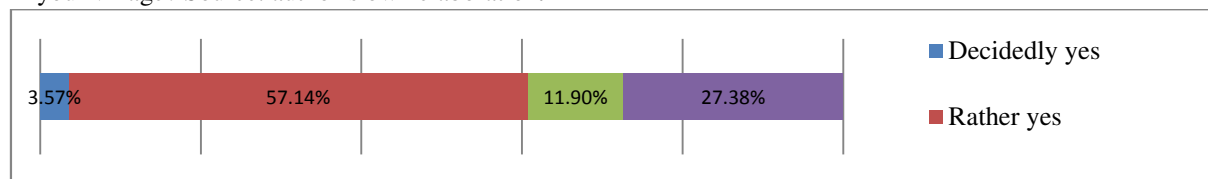
As far as the assessment of the conditions of running business activity in villages are concerned (the relevant data presented in Diagram 3), the respondents thought the highest of the infrastructural conditions (networks of water and sewage services, telecommunications and waste disposal) and the communication accessibility (road network), the share of the categories "Decidedly an asset" and "Rather an asset" being at the level of over 60%. It seems that such a positive assessment of these conditions results mainly from the respondents' acceptance of the model that the development of entrepreneurship means establishment of micro and small enterprises which do not have exorbitant requirements connected with the infrastructural environment. It needs stressing that the majority of the examined (people engaged in realization of the VRP) pay special attention to the issue of sustainable development, taking care of scenic advantages, protection of environment or visual assets of their villages. Moreover, it followed from talks with them and field interviews that they accepted the development of entrepreneurship on condition that the traditional character of the rural area is preserved. The positive evaluation of these conditions follows also from the fact that recent years have seen the realization of a good number of investments which have substantially improved the state of the infrastructure.

Figure 3 - Responses to the question: What is your assessment of the conditions of running business activity in the area of the village? Source: author's own elaboration.
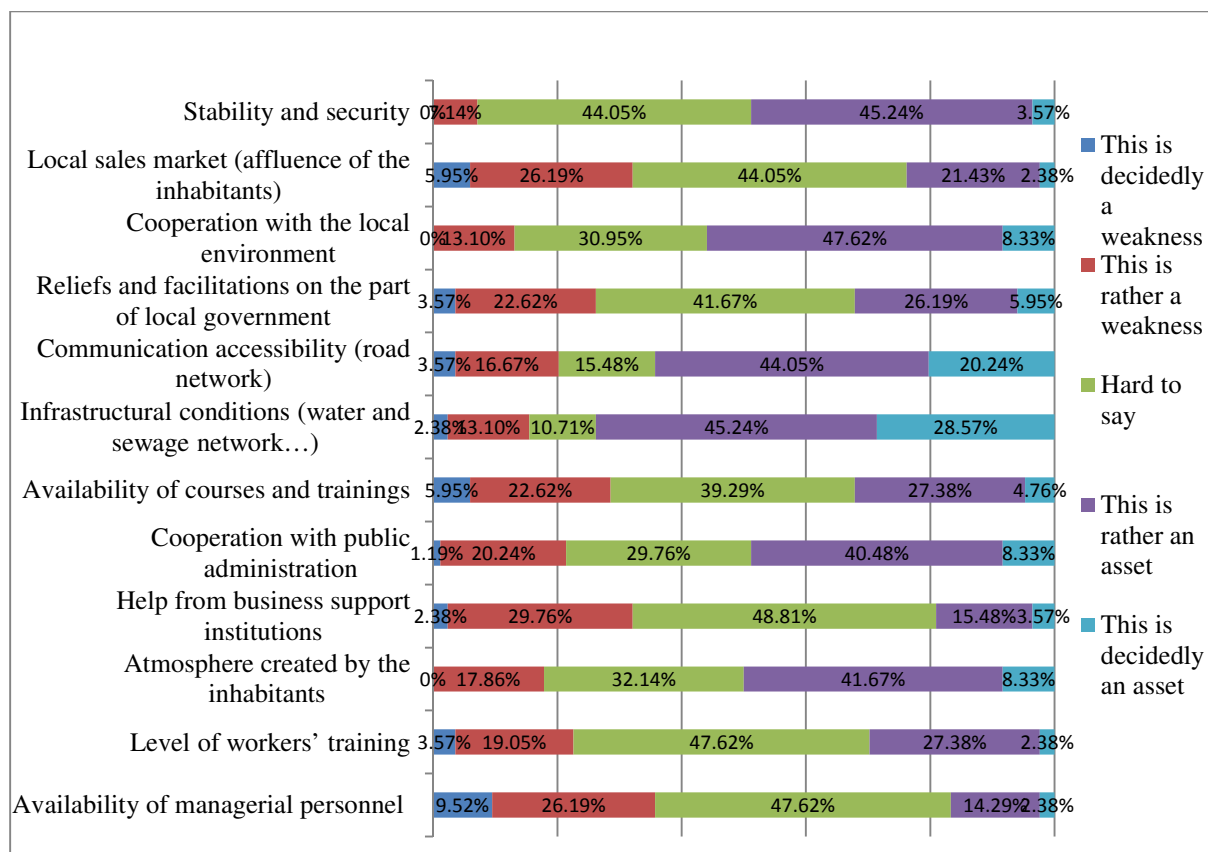
The respondents also evaluated positively the following conditions: cooperation with the local environment, the atmosphere created by the inhabitants and cooperation with public administration. This indicates that micro and small businesses can count on favorable treatment in the local environment and, in consequence, thanks to mutual engagement – on benefits flowing from this. The examined leaders ranked the lowest, from the point of view of the assessment of the conditions of running business activity in the area of their villages, such conditions as: availability of managerial personnel, local sales market (affluence of the inhabitants) and aid extended by business support institutions. This is obviously a consequence of obtaining lower incomes by households in rural

213

areas (which is also confirmed by the data provided by the Central Statistical Office), as well as migration of youth from rural areas to larger centers or abroad. Additionally, the respondents noticed a weakness of instruments which are designed to support the development of entrepreneurship. Many of them generally ranked poor such conditions as: reliefs and facilitations on the part of local governments and availability of courses and trainings.

Figure 4 - Should, in your opinion, supporting entrepreneurship be realized within the sphere of public tasks in the village? Source: author's own elaboration.

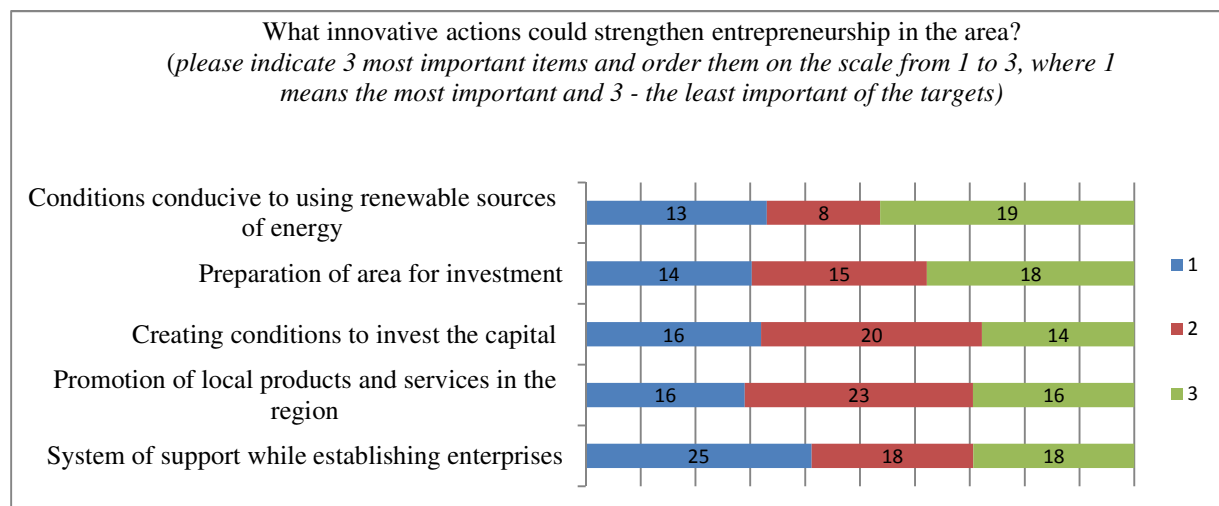|			
10.71%	57.14%	32.14%	■ Decidedly not
			■ Rather not
			■ Hard to say
			■ Rather yes
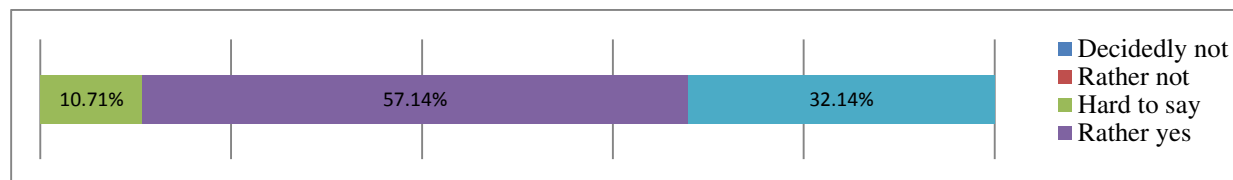
The attitude of the respondents towards the very entrepreneurship itself and supporting its development is illustrated by the data presented in Diagram 4. It follows from the data that none of the examined leaders was of the opinion that public tasks which support entrepreneurship should not be undertaken. The decisive majority of them (nearly 90%) thought that such tasks ought to be supported, while slightly more than 10% had no opinion on this issue, that is they chose the option "Hard to say".

Fifure 5 - Responses to the question: What innovative actions could strengthen the entrepreneurship? Source: author's own elaboration.

What innovative actions could strengthen entrepreneurship in the area?
(*please indicate 3 most important items and order them on the scale from 1 to 3, where 1 means the most important and 3 - the least important of the targets*)

	1	2	3
Conditions conducive to using renewable sources of energy	13	8	19
Preparation of area for investment	14	15	18
Creating conditions to invest the capital	16	20	14
Promotion of local products and services in the region	16	23	16
System of support while establishing enterprises	25	18	18

The last question that was asked to the respondents, concerning the issue of entrepreneurship, was that about innovative actions which could strengthen the entrepreneurship within the area of the village. Most of the respondents, that is 61 out of 84, confirmed that this should be a support system to set up companies (25 of them chose this as the most significant goal). The next targets which the examined declared important to support entrepreneurship (55 and 50 of them, respectively) were promotion of local products and services in the region and outside it, as well as creation of conditions for investment by the external capital. It needs noticing here a clear correlation with the choices given by the respondents, related to the negatively ranked conditions of developing entrepreneurship, like: availability of managerial personnel and help from business support institutions or the local sales market (affluence of the inhabitants). To a much lesser extent the questioned selected the following targets as those supporting entrepreneurship: preparation of areas for investment and creating conditions conducive to usage of renewable energy sources.

4 Conclusion

Regarding the generally outlined problems connected with the development of entrepreneurship in rural areas, the aim of the studies was, following a short presentation of the idea of the Village Renewal Program implemented in Opole Voivodeship, to get to know the opinions of village leaders of the Program with reference to the advantages and weaknesses of rural areas conditions behind conducting economic activity in this area, the question of activities and the necessity of supporting entrepreneurship.

The findings can lead to making the following final conclusions:

1) While evaluating the local conditions, the respondents – leaders of the Village Renewal Program – indicated the job market and availability of work to be the disadvantageous element of the rural areas in the Voivodeship, this being a consequence of a poor supply of workplaces in these areas. The finding confirms the conclusions drawn in many other studies, ones which underlie the fact that, unfortunately, rural areas are located far from markets and areas of production and have limited connections with urban markets.

2) In their evaluation of the advantages of their environment, the respondents appreciated such elements as: natural-scenic assets, geographical location and state of natural environment. This means that the rural areas in Opole Voivodship display clear-cut preferences for the development of agritourism, ecological farming and the like.

3) As regards the leaders' of the VRP evaluation of local conditions, the respondents offered very positive opinions on such items as: integration (social bonds) of the inhabitants, activity of non-governmental organizations, as well as traditions, customs and culture. This may mean (at least in part) an improvement in the level of competence of human resources creating the right climate to run business activity as an effect of the advanced many-year realization of the VRP.

4) The majority of respondents were rather satisfied with what the conditions of running economic activity were like in the given area. They assessed favorably especially such conditions as: infrastructural conditions, cooperation with local environment, the atmosphere created by the inhabitants and cooperation with the public administration. As a result, micro and small companies can count on favorable atmosphere within the local environment and – in consequence – thanks to mutual engagement they can rely on benefits resulting from this.

5) From the viewpoint of the respondents' evaluation of the conditions behind running business activity, the questioned ranked the worst the following items: availability of the managerial personnel, local sales market (wealth of the inhabitants) and aid from business support institutions. It is obviously a consequence of migration of youth from rural areas to larger centers or abroad, as well as obtaining lower incomes by households in rural areas. The respondents also drew attention to the weakness of the instruments designed to support the development of entrepreneurship.

6) In consequence of their evaluation of the conditions of running business activity, the respondents decided that entrepreneurship in rural areas should be supported (none of the questioned declared that public tasks supporting entrepreneurship should not be taken up). The majority believed that (from the point of view of the significance), this ought to primarily be a system in support of establishing enterprises and then – promotion of local products and services in the region, as well as creation of conditions of investment for the external capital.

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Rural Renewal Program in the Aspect of Sustainable Development of Rural Areas in the Opinion of Respondents from the Opole Voivodeship

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Abstract

Sustainable development has a complex nature and is represented by economic, social and ecological pillars. Connected with the concept of multifunctionality on the rural areas it translates by diverse economic activities carried out with respect for environmental aspects, with the development of social and cultural functions, and with the attention to ensure good living conditions for the inhabitants. Effective achievement of sustainable development goals needs constant and consistent raising of public awareness, as well as an increase in the public access to information and its participation in the decision-making process.

The aim of the paper is to assess, basing on the respondents' opinions and actions taken within the Rural Renewal Program, whether the Program, that started in Opole Voivodeship over 20 years ago, promotes the sustainable development of rural areas in Opole Voivodeship. For this purpose the research results are presented. The research was conducted among the leaders of the Rural Renewal Program of Opole Voivodeship, and it attempts to determine the impact of the implementation of this program on sustainable development of the area. The research sample covered 85 of more than 600 rural administrative units (601 units in 2015) participating in the Program, that is over 14% of their entire number. That 20 year experience is sufficient to draw conclusions regarding the benefits of the program, its successful aspects and the areas that need to be changed. The sources of data used in the literature research included: evaluation reports on public interventions implemented in the Opole Voivodeship in 2004-2013 and in Poland in the field of international territorial cooperation, as well as publications devoted to the researched issues.

As the Rural Renewal Program is a result of local community initiative, so it reflects both the awareness of the need for sustainable development and specific actions that may support this development. Research results indicate that social needs are ahead of the other two dimensions of sustainable development.

1 Introduction

"Development does not start with goods; it starts with people and their education, organization, and discipline. Without these three, all resources remain latent, untapped, potential" [17] These words written by Schumacher are probably the best basis for further analysis as they include the essence of the matter. Resources are the subject of change, but people are force that causes them. Of course, there are many factors influencing development: education and quality of intellectual capital, activity of local and regional authorities in creating conditions for growth, attitude of residents and culture [7], which makes this issue complex and difficult, but at the same time interesting.

Sustainable development is generally defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs"[19]. It is a process of changes that allows the long-term use of the environment, so that economic development remains possible, while maintaining

the environment quality at an acceptable level. It contains within it two key concepts: the concept of needs and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs [9]. Different groups of people have different goals and interpretations of what sustainable development is. Business may interpret sustainable development as economic sustainability, focusing on profit, while environmental non-governmental organizations may interpret it as ecological sustainability [12]. The long-term stability of the economy and environment is only achievable through the integration and acknowledgement of economic, environmental, and social concerns throughout the decision making process [4]. It can be also stated that sustainable development means social progress combined with economic growth without entailing a rise in the entropy of the natural environment [10].

For rural areas this process is based on an integrated approach that combines the following aspects under the same legal and instrumental framework: adaptation and development of agriculture, economic diversification, natural resource management, improvement of environmental activities, putting into value the cultural heritage and tourism. The diversification of economic and social activities should foster private sector development through: investments, technical assistance, services, infrastructure, education and training [3].

Discussion on sustainable development started primarily in global aspects, however, sustainable development on a global scale must begin from local and regional level. The result of change of political system in Poland in 1989 created the right conditions for the development of bottom-up initiatives. At next step in 2004 Poland's accession to the European Union enabled the local communities to obtain funds for common goals, which were primarily launched within the framework of programs aimed at rural development.

The notion "rural territory" refers to an area characterised by low population density and by a mixed type of economy, in which, alongside agriculture, there are also other economic activities, such as handicrafts, tourism and small and medium-sized industrial concerns. This combination of integrated economic activities tends to favour balance and respect for the environment [8]. In many countries, rural areas are less developed areas with many specific problems, as depopulation, territorial polarization and shrinking processes during last decades. One of the tasks of local municipalities of rural territories has been to find ways of attracting people and promoting further development of rural territories [1].

This is the case as well in Poland as in the Czech Republic, where rural areas have been out of the general public interest for many years. This resulted in an undesired situation of farmers, the small ones in particular, high unemployment rate, shortage of finance and legislative support, which would promote business investments and new jobs creation. The situation has changed after the EU entry [18]. Rural areas in Poland are characterised by unfavourable structure of farms, differences in profitability between small and large farms and extensive production methods and low capital intensity, accompanying by high labour intensity [14]. The rural areas' inhabitants have limited possibilities of employment outside agriculture and consequently, law incomes and the quality of life [2]. The support for this measure envisages investments in rural areas for creating and upgrading physical infrastructure, creation and development of basic public services for the rural population, protection of cultural heritage of local and natural interest in rural areas [11].

To support the sustainable development of rural areas we need to provide alternative sources of income and to shape agricultural production in accordance with the environmental requirements ensuring the preservation of the landscape assets. Such public support is crucial as far as the improvement of social and technical infrastructure is concerned. To reduce unemployment, including structural one, all the actions should be designed in respect for multifunctionality concept. Constant and consistent raising of public awareness, as well as an increase in the public access to information and its participation in the decision-making process is a main factor of changes in rural areas, according to the Rio Declaration, which underlines the need of conscious society participation.

Rural renewal program is a direction of development for rural areas, combining respect for tradition with the need to search for an appropriate place for the village in a changing world. It is considered to be a process of constant adaptation to social and economic, internal and external changes, which leads to the overall shaping of the living conditions of the rural population. The concept of rural renewal comes from German Dorferneuerung because this movement began in Germany in the sixties of the last century, later Austria, Luxembourg, Hungary, Romania, Slovenia, the Czech Republic, Slovakia and Poland joined the movement. In Poland, the program started in 1997, as a formal movement, covering the region of southwestern Poland [5]. The first region that started it was Opole voivodeship. After twenty years of experience it is worth to conclude its previous phase. The aim of the paper is to assess whether the Rural Renewal Program promotes the sustainable development of rural areas in Opole Voivodeship.

2 Material and Method

The aim of the research was to obtain leaders' opinions about the performance of Rural Renewal Program. The employed research method was an electronic questionnaire consisting of 30 closed questions with a possibility to complement the given answer in an open question "Other (specify)" – which, however, was very rarely used by the respondents. This paper presents only those responses that refer to issues related to sustainable development. The questionnaire was established accordingly to the model of rural renewal [21], whose key areas include:

- shaping the intangible conditions that contribute to the quality of life (neighborhood and interpersonal relations, participation in community life, possibility of creating and using the cultural, educational, leisure and recreation opportunities, and meeting current living needs),
- improving the living standards through the development of the material sphere (technical infrastructure, local community facilities, housing, equipment),
- improving the economic conditions (working and earning opportunities and related investments, as well as raising funds for common goals by the local community).

As regards sustainable development, all three areas of sustainability components were verified: economy (eg. investments, economic activation, job creating, training, unemployment reducing), ecology (eg. securing natural resources and places with high natural values) and society (the sense of social bond and knowledge flow eg. by organizing free time of inhabitants, easier access to sports, cultural and recreational facilities, care for the survival of traditions by organizing meetings with folk artists).

The presented research was conducted in a period from July till October 2017 among the leaders of local action groups, i.e. the people most involved in the implementation of Rural Renewal Program in Opole Voivodeship. This program can be found as especially interesting as it shifts the responsibility for the future of the local community to its own – making it an entity and a major motor of change [20].

During last 20 years, sufficient experience has been gained to draw conclusions regarding the benefits of the program, its successful aspects and the areas that need to be changed. The Rural Renewal Program is a particularly interesting example, because the local community is not only the beneficiary, but mainly the initiator of the actions taken and so it reflects both the awareness of the need for sustainable development and specific actions that may support this development.

The structure of responses also made it possible to assess to what extent the undertaken activities are sustainable.

The research sample covered 85 of more than 600 rural administrative units (601 units in 2015) participating in the Program, that is over 14% of their entire number. The biggest number of respondents represented Opole district (18 respondents), Strzelce Opolskie district (15 respondents), Prudnik district (12 respondents) and Nysa district (10 respondents), the rest of the districts were represented by 30 respondents.

The results were confronted with corresponding observations from evaluation research thematically related to the Opole Voivodeship or sustainable development published until 2016.

3 Results and Discussion

The respondents were asked about the influence of Rural Renewal Program on the area they inhabit. The structure of the responses given by the target group of the Rural Renewal Program indicates that they are most likely to include local residents and leaders, local government organizations, youth, women and children. In the opinion of the surveyed respondents, the program activities relate to senior citizens, farmers, tourists and men on an average basis, while to the slightest and to a small extent they concern the unemployed, the disabled and entrepreneurs. Among the operations implemented within Rural Renewal Program organization of social, cultural and sport events as well as building/renovation of social-cultural and sport facilities were most often mentioned - accordingly 73 and 71 indications. These two elements reflect the first of three components of sustainable development. Next group of operations chosen by respondents are: investment in tourist attractiveness of the area (41 responses), building/renovation of small tourist facilities (37), investment in cultivating local traditions (35), renovation of historic buildings (31) and promotion of tourist values of the area (29). This group of activities firstly reflect economic aspect, but at the same time are based on natural potential of rural areas, therefore it can be stated that they link economy and ecology (see Fig.1).

This corresponds to the indications regarding main directions, in which local communities should invest. In the case of this research sample, one can notice the dominance of social goals, because they are most often indicated as the leading goal. At the same time, this observation agrees with the conclusions of the evaluation studies carried out for the whole of Poland, in which analysis of case studies indicates primarily the following effects of programs [16]:

- improving the quality of life thanks to the built / modernized infrastructure,

219

-   creating a new offer of services / events,
-   activation of the local community and change of mentality, approaches to certain matters (eg for cycling) under the influence of cooperation with a culturally different partner - especially thanks to small projects / microprojects.

Similar social effect of opening new opportunities is also visible in the response added by the respondent, who pointed out that the beneficial effect of the program was also "making the society believe that nothing is impossible".

As an effect of the Rural Renewal Program, respondents evaluated its benefits. Good and highest ratings were granted firstly to the increase of opportunities for promoting the community (61 indications). In the second place they rated increase in the activity of village residents and ex aequo enriching socio-cultural life. The latter directly corresponds to the first place granted to the social, cultural and sport events as main activity finansed from the program. Spatial ordering of villages and public properties took the third place. Economic activity increase was mostly assesed insuficcient or got the lowest rating (45 in total). It underlines the focus on social dimension of perceived benefits.

Figure 1 - Operations implemented within Rural Renewal Program. Source: own elaboration.
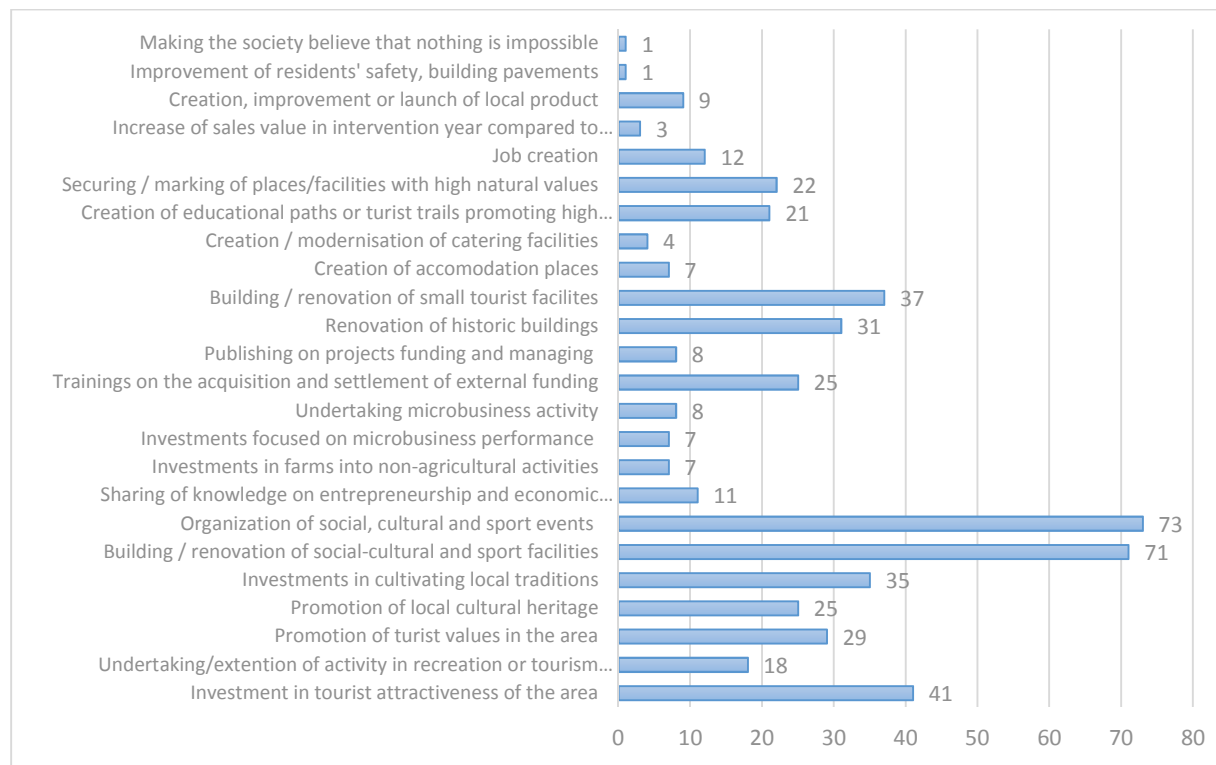
The majority of actions undertaken were community-based and could increase the intensity of local community contacts. This indicates that the needs of building social relationships in the rural environment represented by the respondents are constantly growing [13]. Respondents also see solutions to their problems mainly in social activities. Furthermore, the investments on which the respondents are focused (cf. 2) reveal their social preferences: outdoor meeting places and organisation of cultural events. It is worth noting that some of the selected investments combine more than one function, as in the case of cycle paths (77 "Rather yes" and "Definitely yes" answers) and auxiliary tourist architecture (73 answers). The listed categories combine ecological and social functions, thus comprising the basis for the development of economic functions of the relevant area (improvement of tourism conditions).

Research results indicate that social needs are ahead of the other two dimensions of sustainable development. This may result from the fact that social needs of the sample examined were not fully satisfied. This encourages local communities to give them priority. Perhaps, however, as the gap in social actions and economic activity is filled, the propensity to undertake pro-ecological activities will increase. This also seems to be demonstrated by the declared level of interest of local government units in participation in projects involving green economy in the current financial perspective (2014-2020). Activities that go beyond the social dimension that is familiar to respondents and the market-oriented economic dimension, namely those belonging to environmental activities, require external financing [15].

Figure 2 - Investments preferences of respondents. Source: own elaboration.

Similar phenomenon can be observed in Latvia, where for a survey of the development of the social environment in rural areas financed by National Research Programme for the period 2014-2017 of the Government of Latvia (EKOSOC LV projects 5.2.4., 5.2.8.). It shows that these practices are fragile yet and need support [6].

In the broader context interesting observation was made in Romania [3]. The main principals for succesful sustainable rural development mentioned by V. Chiritescu include following statements that should be promoted:

• the principle of simplification: the rural policy, particularly in the agricultural sector, should be simplified so as to ensure greater coherence of activities (regulations limited to general rules and procedures, decentralization, etc.).

• the design of unique programs for rural development by zones, characterized by coherence and transparency, which should represent a unique tool for the rural development of the zone;

• funding the rural development programs. An efficient local administration cannot be conceived in the absence of adequate financial means. The financial resources of local projects are based on local resources and rural credit, for a better mobilization of public and private finance;

• increasing the management capacity and the efficiency of regional and local authorities, as well as of local community groups, etc. The sustainability concept used in agriculture development includes the following features:

• environment and natural resources protection, while maintaining the production potential without destroying other species;

• the possibility of getting involved in long-term agricultural activities that are profitable for farmers;

• providing sufficient and quality food for the population;

• agricultural activities should have a fair and human nature;

• to be socially acceptable and to promote ethics.

Rural Renewal Program includes activities that are in line with these guidelines; however, it should be emphasised once more that the selection of specific activities depends on the priorities given to particular actions by local communities and their leaders. The sustainable development of rural areas can be achieved through an active rural area development policy, based on the development in agreement with the rural population's needs and potential. The production of public goods and the protection of the environment require the commitment of the part of both the inhabitants and other entities functioning in these areas.

4 Conclusions

The dimensions of sustainable development of the rural areas are strongly connected between themselves. No high quality of life can be accomplished without an adequate economic development, which should ensure the inhabitants in the rural areas with decent incomes and attract adequate infrastructure, adequate professional training, cultural level based on traditions but also on the realities of the current millennium beginning.

The answers given by the surveyed leaders seem to provide – in line with their perspective – a high level of interest in social development aspects and concern for economic opportunities. This sequence is visible in all answers: those concerning actions taken under RRP, desirable directions of investments as well as the structure of benefits. This may demonstrate that these are perceived as areas of still unmet needs of local communities. The very fact of respondents' activity within the framework of the Rural Renewal Program should be positively assessed in the context of social capital building. It should be noted that sustainable development as well as development itself of the rural areas should be supported by local governments, since it is the local government that decides about the launch of various promotional, institutional and legal instruments. Political and administrative wavering and the lack of long-term vision for development of villages, including high expectations in the short time, may lead, among the other negative results, to decline in activity of the local community [22].

Rural Renewal Program has a positive impact on the social capital, that is of key importance to define, implement and improve priorities of sustainable development of a relevant area:

• by enabling the start of bottom-up initiatives relevant to local communities,

• by multiplying contacts between their members in new social contexts, not related to work or functions and life roles, but rather to the local environment.

Due to the fact that the respondents were leaders, the conducted research is of a partial and preliminary character and will require, at the subsequent research stages, to be supplemented with opinions of a wider group of rural areas inhabitants in Opole Voivodeship. The possible development of the study could provide more detailed picture of social, economical and ecological awareness of rural areas inhabitants as it determines the sustainable development choices.

As it is often stated people are able to make development sustainable. With increasing access to information and all the knowledge as a result, with right attitudes, good habits, health, vital energy, creativity and potential, it should eventually happen.

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Performance of Platform Business Models

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Abstract

Companies that utilize platform-based business models change markets and create unprecedented value. Many companies, even those that operated as regional initiatives, changed their scope when platforms entered their markets. Some companies reacted by creating their own platforms, others joined initiatives managed by other companies or operate in markets impacted by platforms. In this paper I calculated the increase in market capitalization of six companies that use platform architecture and analyze increase in price of shares in search of long-term differences, which would suggest that investors value them differently depending on business model, strategy and results.

Keywords: business models, management, platforms, value

JEL Classification: O32, O33, M16, M15, M13

1 Introduction

Platform business models are managed by companies such as Apple Inc., Amazon.com, Alphabet, Microsoft, Facebook, Tencent and Alibaba. In August 2018 these 7 companies have the highest market capitalization among listed companies globally. The old leaders such as: Berkshire Hathaway, JP Morgan and ExxonMobil were left behind during the last 3 years.

Some of these companies were created as platforms (e.g. Alibaba, Facebook), others (e.g. Apple, Microsoft) added platforms to their business models. Companies that manage multiple business models including platforms are called platform powered ecosystems [3].

Platforms change markets and alter customers' behaviors. Airbnb, created in 2008, currently offers over 5 million accommodations, in 81.000 cities, in 191 countries. In just 10 years it provided services to over 300 million guests and changed hotel, tourism and travel industries. The scope and impact of Airbnb on hotels is growing as it promotes services to companies. In 2018 Airbnb claims to serve 700.000 business clients.

Most platforms operate globally, impacting both regional and global markets. Some initiatives are focused on connecting users from a selected region. OLX connects buyers and sellers of goods and services narrowed down to towns and regions. Similar business models are used by platforms offering health and beauty services (Booksy) or tables in restaurants (Opentable). Platform companies impact global and regional markets. Business model choice remains one of the main management challenges [1].

Research related to platforms is based on case studies of individual companies. In many cases authors refer to value growth without quantifying it. This study attempts to fill that gap by quantifying the growth in value of six platform companies with the highest market capitalization, during the last decade. It also provides for growth in prices of shares adjusted for market index changes to eliminate the effects of changes in the stock markets.

1.1 Origins and definitions of platforms

First platforms were created by credit card companies [7, 8] but the development and growth of Internet and mobile communications created a new environment for their growth [4]. Gawer presents various concepts of platforms in research [3]. Reillier and Reillier defined platforms as business creating significant value through the acquisition, matching and connection of two or more customer groups to enable them to transact [6].Van

Alstyne, Parker and Choudary state that platforms provide the infrastructure and rules for a marketplace that brings together producers and consumers [9]. The influence of platforms will increase as technology is moving to smart products [5].

2 Platform Performance Measures

Performance of corporations is measured using various measures. Shareholders, governments, employees and suppliers assess different aspects of company's performance. For shareholders the most important measure is value created by the company.

2.1 Performance Measures for Shareholders

The basic financial measure of value creation is market capitalization. It is usually measured by multiplying the number of shares (n) by the closing price per share (p_t):

$$MC = n \times p_t \tag{1}$$

Growth in market capitalization can be explained by two main factors: increasing prices on the stock exchange and growing prices of specific stock. To assess the active return on investment of specific stock, nominal returns can be adjusted for stock market index growth.

Rate of return is calculated using the formula:

$$rr = {(p_t - p_0)}/{p_0} \times 100 \tag{2}$$

rr – rate of return; p_t – price in year t; p_0 price in 2008 (2012 for Yahoo and 2014 for Alibaba).

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$$rr_{ADJUSTED} = r_{NOMINAL} - r_{INDEX} \tag{3}$$

The adjusted rate of return is called the alpha return or skill return [2]. Rate of return is usually presented on annual basis (per annum). In this paper I present the increase in price of shares compared to 2008.

2.2 Data

I use stock market data for stock market price quotations and annual reports for number of shares outstanding for the years 2008-2017 and first two quarters of 2018. I calculate the value for Apple Inc., Alphabet Inc., Microsoft Inc., Amazon.com Inc., Facebook Inc., which are quoted on NASDAQ and Alibaba, which is quoted on New York Stock Exchange (NYSE). The data for Tencent is not directly comparable as the company is quoted on the Hong Kong Stock Exchange in Hong Kong Dollars (HKD). In order to avoid exchange rate considerations Tencent data is provided separately.

In this analysis a period of 10 years has been chosen. The year 2008 Apple introduced the iPhone, which started the smartphone market and was an important milestone in the development of mobile technology. Amazon.com, Google, Alibaba and Facebook were established and operating, although the last two were not quoted on the stock exchange.

Return on investment in shares is calculated based on closing price of stock, on the last trading day of the year, adjusted for splits and dividends. Nasdaq Composite Index is used to calculate the adjusted rate of return. NASDAQ Composite index, compared to S&P 500 or Dow Jones Average, is heavily weighted towards information technology companies.

2.3 Results

The six platform companies under consideration increased their market capitalization by 3,5 trillion USD during the last 10 years (Figure 1). The seventh company mentioned – Tencent, was valued at approximately 500 billion dollars at the end of 2017 (it has the highest market capitalization in Asia). In total the largest seven platforms increased their market capitalization by 4 trillion dollars in 10 years.

All seven companies increased their market capitalization but growth was not equal (Figure 2) nor was it constant. This indicates that investors recognize the differences in strategies, business models or results and believe that altering them can create value.

Figure 1 - Total market capitalization of six largest platform companies (2008- July 2018). Source: own
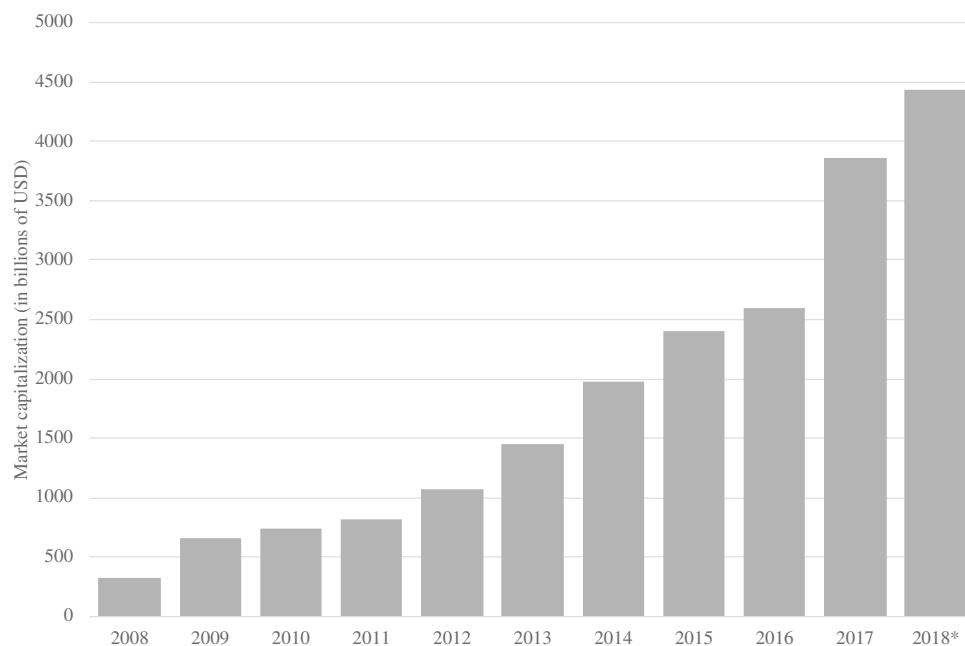
Figure 2 - Market capitalization of largest platform companies (2008- 2017). Source: own

In August 2018 market capitalization of Apple Inc. exceeded 1 trillion USD.

Following the financial crisis that started with the fall of Lehman Brothers in September 2008, stock prices dropped significantly. In the following decade stock prices and stock market indexes recovered and grew to new unprecedented heights. To check if growth in valuation of platform-based companies is not the result of stock market prices growth in general I have calculated the changes in price of shares adjusted for Nasdaq Composite Index changes.

During the last decade returns on investments in platform companies were (except Microsoft until 2014) higher than changes in Nasdaq Composite Index. There are considerable differences in investment returns in shares even among those companies. Return on investment in shares of Amazon.com stands out. Investments in Apple and Facebook offered lower returns then investments in Amazon.com but they were still substantially higher than in the case of Alphabet, Microsoft and Alibaba (Figure 3). Some of the impact shown may however result

from the interest in mobile technologies, rather then platforms. Apple introduced their iPhone in 2007 and Google (currently quoted as Alphabet) introduced their Android mobile operating system soon after.

Figure 3 - Changes in price of shares (2008=100)* for the period 2008 - July2018. Source: own
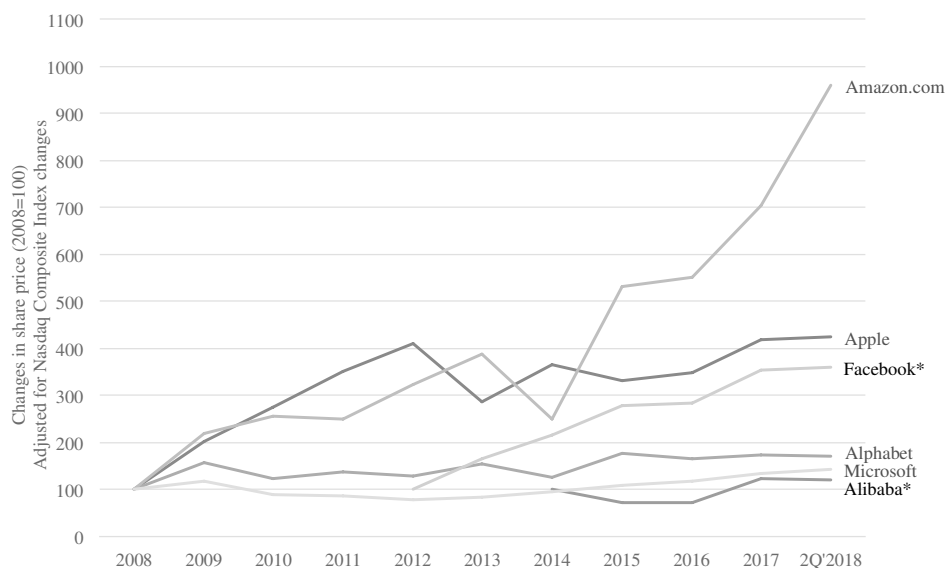
* Facebook 2012=100 and Alibaba 2014=100

If five years are analyzed (Facebook IPO was in 2012) differences are still substantial (Figure 4) and favor platform business models over companies that utilize platform business models and traditional business models (Apple and Microsoft). Financial results and main markets where companies operate (US vs China) may explain differences between Amazon.com, Facebook, Alphabet and Alibaba.

Figure 4 - Changes in price of shares (2013=100) for the period 2013 - July2018. Source: own
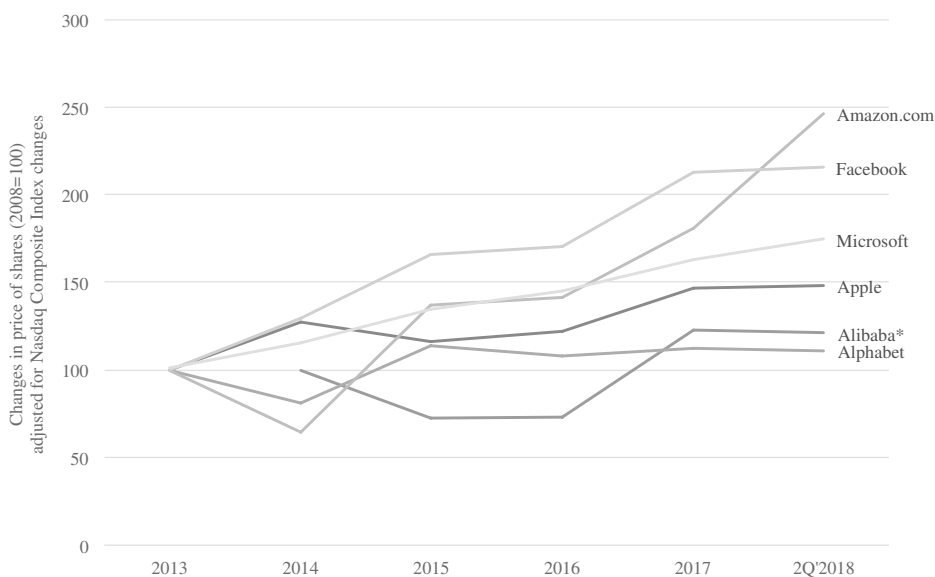
Alphabet, Microsoft and Alibaba were closer to Nasdaq Composite Index, which traces technological companies.

In general results indicate that there are considerable differences in performance assessment of individual companies and that investors do not perceive platform companies as a homogeneous group.

3 Conclusions

Platforms are changing markets and attract investors' attention. Many technological companies attracted attention during the last decade as the global economy recovered crisis. Market capitalization of 7 largest platform companies increased by 4 trillion USD during last decade. Return on investment in shares of individual

companies was higher than growth in NASDAQ Composite Index but varied substantially. Differences may result from different business models, financial results and main markets where the companies operate (US vs China).

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Financing of Secondary Education in the Moravian-Silesian Region

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Abstract

The paper deals with possibilities of secondary education financing on the example of grammar schools in the Moravian-Silesian Region. The main focus is given to analysis of exhaustively determined financial resources from the perspective of the current way of allocating finance (direction per pupil) and the proposed reform system (direction per teacher). The main aim of the empirical section in the paper is to significant over-direction resources in the period between 2015 and 2017 in 29 public grammar schools in the Moravian-Silesian Region using comparative analysis. Selected criteria are Profit from complementary activity – renting; Profit from other complementary activities; Grants from the Ministry of Education, Youth and Sports (Excellence) and European Union Grants Erasmus +. The results of analysis proved that the grammar schools run by the Moravian-Silesian Region show specifics and differences in approach to gaining public and non-public financial resources. Beyond the directions, the schools received most of financial resources from Donations and grants from other subjects and on the contrary, the least from the Grants from the Ministry of Education, Youth and Sports (Excellence). An increasing tendency is particularly evident in the area of the European Union Grants Erasmus +.

Keywords: education, financial resources, Moravian-Silesian region

JEL Classification: H72, H75, I220

1 Introduction

Education is a process of single-minded and systematic learning. It contributes to the development of intellectual abilities and practical skills, which are necessary for the existence of person in society. It means that education can be classified in the public sector according to security needs into the branch of human resource development. These are services that keep and cultivate human potential. From the global point of view, education is essential for economic and social progress. According to Europe 2020 strategy the aim of education is to harmonize provided knowledge and skills within educational system with the needs of labour market (European Commission, 2018). One of important areas of educational politics is the way of education funding. It is not only about the amount of financial resources expended on the area of education, but also about determining priorities in education funding. Issues of education financing, its trends and reforms are dealt with many authors and scientific surveys. The trends of public expenses on education, their legitimacy and the necessity of financing from public sources analyses (Roser, Ortiz-Ospina, 2018). It makes education publicly accessible, which is by Stiglitz (1988) accounted for justice. Other authors Clarke, Jones and Lacy (2015) deals with the relationship of expenses on education with the economic growth. In the international context, the countries are under an obligation to use the maximum of their available resources to realize the right to education (Right to Education Initiative, 2018). As Arcalean, Schiopu (2010) say, it cannot be omitted that the general growth of public educational expenses replaces general level of private subsidies and increases proportion of resources that households give on education. Chevaillier (2014) speaks about financial mechanisms depending on the level of education and about division of resources between public and private sector. The evaluation of financing of

selected public sector areas and public services in EU countries with the focus also on public expenses on education is a concern of e.g. (Halásková, Halásková, 2014). In connection with education, there is also focus on many other current questions, e.g. Hudek, Kisic and Kelemen (2015) solve criteria of excellence in primary and secondary education on the level of regional self-government.

The aim of the paper is to compare financing of public grammar schools established by the Moravian-Silesian Region (hereinafter referred to as MSR) in the period 2015 - 2017. It compares public and non-public financial resources (it means obtained resources from complementary activity, grants from the developing EU programmes, educational programme Erasmus+, educational programme MEYS Excellence, donations and grants from other subjects than MSR. The attempt of the paper is to give better picture of out normative financial resources of school subjects with the use of comparative analysis.

1.1 Financing of Education

Education in the Czech Republic is financed by the resources of public budget on the central (state budget) and local level (regional and city budgets). The largest amount of financial resources comes to the area of regional education. Financing of the individual school divisions is provided by the Ministry of Education, Youth and Sports (hereinafter referred to as MEYS) from the budget in chapter 333.Within this section, there are provided financial resources for so called direct costs on education for the schools and school facilities established by towns and unions of towns and regions, non-investment grants for private and religious education and there is also fully provided financing of directly managed organizations (MŠMT, 2018).

Educational activity is in the Czech Republic defined by law no. 561/2014 Sb. about preliminary, primary, secondary, higher professional and other education, as amended (hereinafter referred to as "the education law"). The inseparable part of the education law is also financing of regional education, the crucial part of educational process. The development of the educational system in the Czech Republic and its financing is the concern of e.g. Greger, Walterová (2007). Current methodology of calculation of financial resources according to the education law is dependent on state and region norms "per student". That makes schools indirectly economically motivated to accept new students regardless of their quality. This system is not in agreement with the aims of the Long-term aim of education and development of the educational system in the Czech Republic in the period 2015-2020. For that reason, the way of regional education financing will achieve great changes, probably since 2020. According to the new financing system, the state will send money to regional schools according to the amount of realized classes. The financing should be more rightful (Endrštová, 2018).

Contemporary school politics demands also bigger activity from schools and school facilities in the area of gaining and securing sufficient amount of financial resources into their budgets by their own (Valenta, 2004). Apart from resources which are exhaustively assigned from public budgets to schools can be resources for education gained also by the own activity of the school. Therefore schools try to obtain financial resources for their development from other sources. In the past few years the complementary activity becomes more important, because it contributes to better economic situation, but it cannot be incompatible with the main activity of school and show the loss. As an example there can be mentioned productive activity of students, lecturing and other activities. Complementary activity involves also renting of classes, offices or sports grounds, their listing is mentioned in the detail by Poláková, Blůzl, Dvořák and Kubíče (2005). It depends on the options and abilities of the school whether they can provide these excess resources. As these can be considered, apart from financial resources from the realization of complementary activity or with the help of project activity within EU programmes, also donations and grants from other subject than founder. The alternative sources of financing differ a lot for the individual schools. Gaining of financial resources by own initiative has been topic in the studies of e.g. Valenta (2004) or Pešková (2007).

Considerable financial resources can obtain educational institutions in the Czech Republic through EU grants in the period 2014-2020 under the terms of EU system programmes directed to the area of education from the Operational Programme Research, Development and Education (hereinafter referred to as OP RDE) (MŠMT, 2013) from the educational programme Erasmus+, that supports cooperation and mobility in all spheres of education, in professional preparation and in sports, youth and informal education (DZS, 2016). Public resource for schools is also development programme MEYS (e.g. Excellence, support of gifted students). Schools can accept donations and grants from other subjects than founder. Also these resources can be put into alternative resources, where the school have to invest own activity and effort to gain them.

2 Material and Methods

During the paper processing has been used professional literature from the field of education in the Czech Republic and compulsory school documentation (school educational programmes, annual reports, reports about

the activity and fulfilment of tasks of funded organization, compulsory records). For processing are used statistical data from the reports about the activity and fulfilment of tasks of funded organization in years 2015-2017, from the amount of received resources which have not been provided from the MSR budget and from the results of management including division into the funds in the period 2015-2017, that are added into charts and diagrams as internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017. Selected group is comprised by 29 secondary schools (grammar schools) established by MSR. The empirical part of paper uses comparative analysis that compares grammar schools established by MSR in the period 2015-2017. For the comparison have been chosen these criteria - Profit from complementary activity – renting; Profit from other complementary activities; Donations and grants from other subjects; programme Excellence, support of gifted students; programme Erasmus+ grants.

In the context of term comparative analysis it is about decomposition of certain phenomenon and their comparison with the effort to draw conclusions leading to the possibility of acquiring inspiration and improvement of original state (Linderová, Scholz and Munduch, 2016). Specifically, in this paper are compared all grammar schools of MSR according to above mentioned criteria in the period of three years (2015-2017), the aim of analysis is to assess development tendency for single subjects and also from the global point of view of the single criteria. The attempt of the paper is to find the causes of progressive or degressive development and to determine possible actions. Acquired data have been graphically drawn by bar chart.

3 Results and Discussion

This part of the paper gives attention to the comparison of chosen financial resources of 29 grammar schools established by MSR with focus on public and non-public resources. Public resources are represented by EU grants (Erasmus +, OP RDE), developing programme MEYS Excellence, support of gifted students, city and town grants and non-public resources are represented by donations from entrepreneurial and other subjects, resources from complementary activities, from lecturing and other activities and from renting.

3.1 Comparison of Alternative Financial Sources of Grammar Schools Established by MSR

To compare alternative sources of incomes on regional level has been chosen 29 secondary schools (grammar schools) in the Moravian-Silesian region. These schools are established by the region and for the comparison are selected financial resources which the schools has gained by their own activity. Chosen period are years 2015-2017. The comparison of individual resources is closely documented in the chart 1.

Table 1 – Income of selected secondary schools (grammar schools) MSR obtained from own activity in 2015-2017 (CZK/pupil).

	Profit from complementary activity – renting			Profit from other complementary activities			Donations and grants from other subjects			Programme Excellence, support of gifted students			Programme Erasmus+ grants		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Gymnázium and SOŠ Rýmařov	159,23	426,07	287,62	5 455,32	521,03	891,49	297,20	719,65	507,82	0,00	0,00	59,27	0,00	0,00	0,00
Gymnázium and SOŠ Nový Jičín	477,05	1 144,19	824,58	0,00	0,00	0,00	4,41	7,20	113,18	0,00	0,00	110,98	0,00	0,00	0,00
Sportovní gymnázium Zátopkových Ostrava	215,05	303,07	408,42	1 794,79	20,32	20,13	398,92	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Gymnázium O. Havlové, Ostrava-Poruba	437,10	384,56	417,50	347,19	309,35	316,52	2 848,90	848,31	745,76	133,61	193,67	142,16	2 192,32	0,00	613,56
Wichterlovo gymnázium, Ostrava-Poruba	171,62	242,41	240,18	121,03	243,86	286,67	169,68	353,95	1 333,92	199,57	211,57	370,07	0,00	314,46	1 064,10
Gymnázium, Ostrava-Zábřeh, Volgogradská	120,71	79,00	82,74	254,53	79,75	131,56	192,21	449,61	1 057,25	155,61	278,79	21,80	0,00	0,00	0,00
Gymnázium, Ostrava-Hrabůvka	255,17	325,33	379,39	203,69	221,76	305,28	335,12	52,40	34,67	30,26	55,97	72,84	0,00	0,00	0,00
Gymnázium Hladnov, Ostrava	134,71	397,31	522,81	236,97	310,57	237,74	1 695,74	1 405,24	1 120,08	70,19	57,10	63,41	0,00	1 137,43	363,98
Matiční gymnázium, Ostrava	289,26	335,70	354,43	0,68	0,00	0,00	1 224,14	271,91	975,37	2,94	44,52	70,44	0,00	0,00	0,00
Gymnázium and SOŠ, Frýdek-Místek	430,65	438,29	350,10	40,68	11,15	0,00	9,94	17,42	0,00	0,00	13,61	40,53	0,00	0,00	0,00
Slezské gymnázium, Opava	681,84	464,70	216,38	1 132,62	463,99	264,52	251,80	425,44	160,03	199,96	0,00	113,11	0,00	1 393,65	1 116,02
Gymnázium Krnov	126,45	145,53	164,77	627,48	27,57	54,36	1 851,45	340,40	281,16	52,62	123,17	126,82	0,00	0,00	0,00
Gymnázium Hlučín	588,48	477,00	352,32	132,66	0,00	0,00	389,58	117,85	401,36	76,98	40,00	127,73	0,00	0,00	0,00
Mendelovo gymnázium, Opava	328,60	314,81	330,54	126,05	145,33	118,91	1 453,62	1 161,88	1 537,14	232,28	248,22	230,56	0,00	0,00	299,83
Jazykové gymnázium P. Tigrida, Ostrava	203,53	228,26	253,47	312,49	50,76	80,62	1 538,29	888,00	1 073,50	25,31	0,00	21,79	1 608,17	76,12	680,81
Gymnázium F. Živného, Bohumín	98,12	67,83	61,38	72,62	80,42	82,33	1 003,42	1 254,74	1 228,34	150,82	135,93	68,07	0,00	0,00	0,00
Polské gymnázium, Český Těšín	69,60	123,32	119,30	132,31	1,39	4,10	2 172,74	230,77	552,05	0,00	36,05	0,00	0,00	503,69	333,75
Gymnázium and OA Orlová	208,11	792,72	866,71	42,92	108,11	121,40	131,07	0,00	0,00	24,97	22,97	102,42	0,00	0,00	5 224,24
Gymnázium Havířov-město	329,16	402,45	329,56	239,65	0,00	0,00	296,94	434,49	343,45	72,26	207,03	179,60	0,00	874,83	271,84
Gymnázium Havířov-Podlesí	200,81	292,20	425,78	38,29	42,70	20,64	189,41	314,48	279,74	143,76	97,56	100,51	0,00	0,00	0,00
Gymnázium J. Božka, Český Těšín	35,07	37,25	239,54	176,53	166,88	74,78	2 121,42	733,85	354,15	0,00	0,00	94,67	1 212,06	0,00	0,00
Gymnázium Karviná	164,48	285,25	304,55	122,68	102,30	139,16	718,57	347,17	348,52	361,46	76,76	85,26	0,00	573,22	0,00
Gymnázium Bruntál	133,74	107,24	106,06	1 080,09	74,51	199,96	909,89	303,52	425,82	14,72	17,18	90,27	0,00	286,89	0,00
Gymnázium Třinec	635,62	311,69	132,96	95,12	126,42	82,11	1 017,27	757,58	399,86	116,58	197,81	229,16	0,00	0,00	325,61
Gymnázium Frýdlant nad Ostravicí	10,68	162,19	97,63	102,49	102,52	126,81	374,80	40,54	215,11	77,85	0,00	0,00	5 306,60	2 339,42	3 811,88
Gymnázium Frýdek-Místek	810,22	214,35	217,50	181,80	26,42	30,95	433,48	433,19	396,23	117,12	269,16	148,91	0,00	0,00	0,00
Gymnázium Příbor	1 228,46	639,66	504,05	204,67	94,99	139,96	94,90	23,51	173,72	50,55	92,24	128,31	0,00	0,00	0,00
Gymnázium and SPŠ Frenštát pod Radhoštěm	501,30	293,91	438,30	1 503,97	125,13	134,22	121,17	452,78	767,85	150,36	299,14	113,54	0,00	588,02	0,00
Gymnázium Bílovec	1 647,70	632,88	506,72	2 764,12	11,72	81,00	2 599,00	519,25	221,06	140,70	302,90	307,66	0,00	842,02	0,00
	The highest value in given category is marked dark grey														
	The lowest value in given category is marked light grey														

Source: Internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017

Chart 1 shows the best evaluation of school according to the given criterion in particular year Marked by dark grey colour and by contrast, figure which represents the worst result of particular year at single sources of

income for the school is marked by light grey. As it follows from the chart 1, the orientation of schools is not quite the same and the differences appear. On the basis of information from annual report it shows that it is caused by the size and particularity of the region, size and orientation of the school and also by the school climate, it means by the activity of teachers themselves and management of school, interests of students and their abilities. The comparison of the schools according to the economic results shows that Gymnázium Bílovec, which has space, in particular sports ground, which is rented to public and sports organizations in return for payment, was the first in 2015. Year 2016 was the best in area of renting for Gymnázium and SOŠ Nový Jičín, where significant amount of finances was gained from renting of property other than sports grounds (classrooms, technical workplaces etc.). In 2017, Gymnázium and OA Orlová gained the most finances from renting because of the renting of sports grounds and also other properties. In comparison, the least financial resources gained in 2015 Gymnázium, Frýdlant nad Ostravicí, because it did not have any sports ground or gym in this year. Currently, this grammar school has a new sporting hall and its incomes from renting have risen. In 2016 the least finances from renting gained Gymnázium J. Božka, Český Těšín and in 2017 Gymnázium F. Živného, Bohumín, in renting of sports grounds and other properties. In other complementary activity Gymnázium and SOŠ Rýmařov is the most productive in all three years. The reason is naturally the structure of branches of studies; vocational school goes in for productive activity of students within the classes, which is very profitable unlike grammar school education that has limited possibilities. It makes it surprising that in this area in all three years shows zero figures Gymnázium and SOŠ Nový Jičín, a school with similar structure. Very high figures in the area of donations and grants from other subjects than MSR achieved in 2015 and also in the whole period Gymnázium O. Havlové, Ostrava-Poruba. These are mostly donations for school equipment, extension of student´s activities, especially donations under the terms of partnership in project with University in Ostrava and a block grant for English theatre. In 2016, it was Gymnázium Hladnov, Ostrava and in 2017 Mendelovo gymnázium, Opava. In both cases those were finances directed to soft school activities (arranging of performances, courses for students etc.).Contrarily, the lowest amount of donations and grants from other subjects than MSR in 2015 received Gymnázium and SOŠ Nový Jičín, zero figure in years 2016, 2017 posted Sportovní gymnázium Zátopkových Ostrava and Gymnázium and OA Orlová and in 2017 Gymnázium and SOŠ, Frýdek-Místek. All above mentioned resources enable school to invest, for the most part, into the activities according to their choice. While grant Excellence is directly guided to the evaluation of teachers for the preparation of successful students in competitions of the state and international range (MŠMT, 2016). Indirectly given criteria characterize the quality of education at given school. Here the highest figures showed in 2015 Mendelovo gymnázium, Opava, in 2016 Gymnázium Bílovec and in 2017 Wichterlovo gymnázium, Ostrava-Poruba. Zero figures in all three years are made by Sportovní gymnázium Zátopkových Ostrava. The school focuses apart from grammar school education also on professional growth of top-class sportsmen. Sporting performances are not included in the evaluation of Excellence. Abnormality is visible at Gymnázium, Frýdlant nad Ostravicí in gaining of financial means from Erasmus+ grants. It achieved its first place in years 2015 and 2016. In 2017 the highest grant from educational programme was given to Gymnázium and OA Orlová, on the second place was Gymnázium, Frýdlant nad Ostravicí. By contrast, 14 grammar schools in the period of three years did not take advantage of the possibility to derive grants from this EU programme.

3.1.1 Comparison of grammar schools according to Profit from complementary activity – renting

Comparison of the activity of grammar schools in the area of Profit from complementary activity – renting is shown in Figure 1. The results show that approximately seven schools in given period shows figures lower than 200 CZK/pupil, contrarily above 1000 CZK/pupil were only three schools. Upward tendency is noticed at six observed subjects, downward at four from which two achieved at least in one year figure 1200 CZK/pupil. Fluctuation of figures can be caused by lowered or increased interest in renting, lowering or increasing of competitiveness of given schools, but also by new investment, especially in the area of supporting of development of sports grounds.

Figure 1 – Profit from complementary activity – renting (CZK/pupil). Source: Internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017
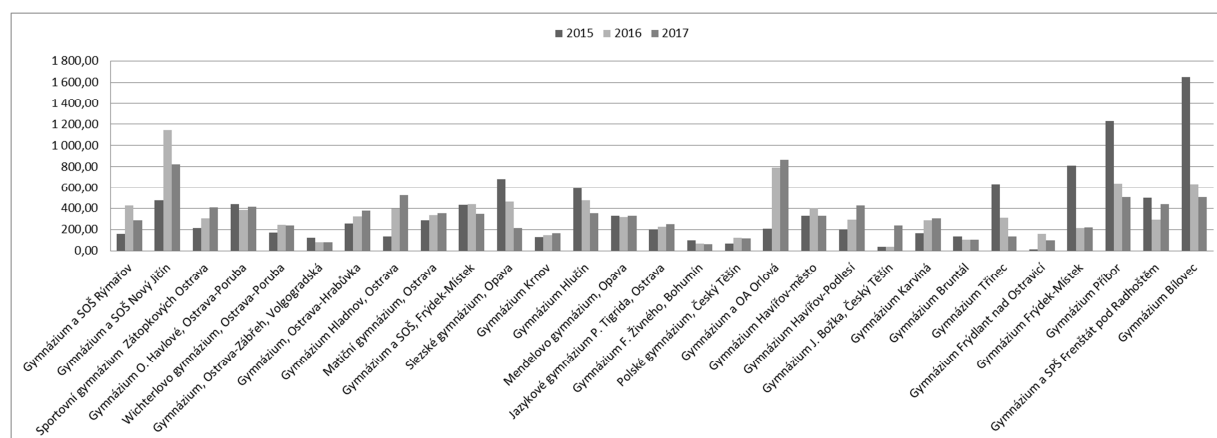
3.1.2 Comparison of grammar schools according to Profit from other complementary activities

Figure 2 – Profit from other complementary activities (CZK/pupil). Source: Internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017
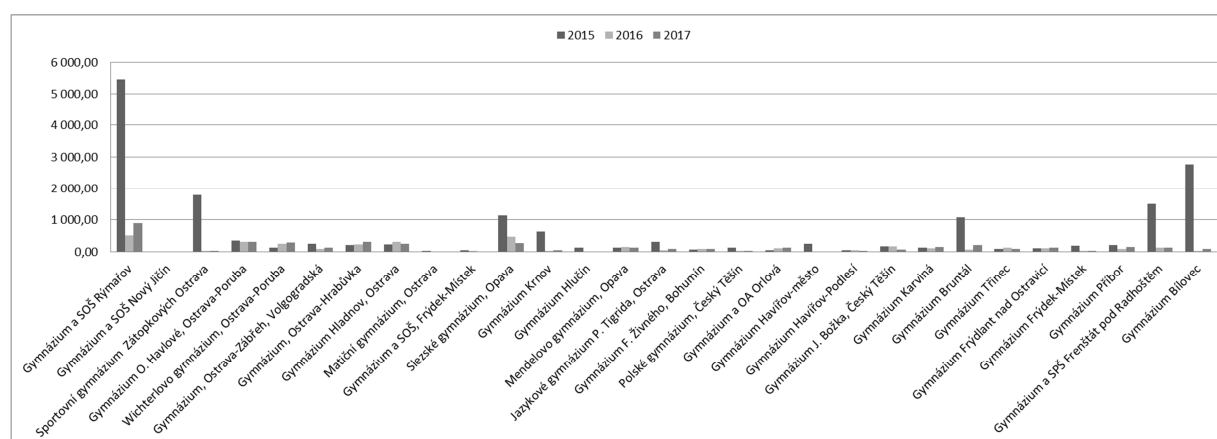
The comparison above (Figure 2) shows Profit from other complementary activities at single grammar schools. Most of the schools (23) from the chosen group of grammar schools (29) make still very low figures in Profit from other complementary activities. It is caused in most of the cases by zero productivity of students, which is not real with grammar school students. Grammar schools can still do within complementary activities lecturing activity for public, interest groups or in the past few years there are very popular preliminary courses for applicants for study. All in all, tendency in this area is downwarding, it is often difficult for schools to succeed in competition with entrepreneurial subjects and also to fulfil legal condition of profitability of complementary activity.

3.1.3 Comparison of grammar schools according to Donations and grants from other subjects

It can be stated by the comparison in Figure 3 that there exist considerable differences not only between the schools but also at the particular schools in single years. High figures appears at eight schools at least in one year (above 1500 CZK/pupil). By contrast, ten schools make in all the years figures lower than 500 CZK/pupil. Gaining of resources this way is certainly influenced by many factors, e.g. locality, solvency of entrepreneurial subjects and their interest, but also by the effort of grammar schools to expend needed activity.

Figure 3 – Donations and grants from other subjects (CZK/pupil). Source: Internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017

3.1.4 Comparison of grammar schools according to Programme Excellence, support of gifted students

According to Figure 4 can be stated that approximately eight schools take leading places in obtaining resources from the grant programme Excellence, which tries to financially support gifted students. Contrarily, about four schools show low level in the amount of receiving financial resources. It can be caused by present composition of students in the relevant school. It is necessary to point out that the study of development is from the point of view of three years very short-term. It is quite a new motivation for schools to improve outputs, progressively presented field that is assessed and so the options for schools to gain these resources widen.

Figure 4 – Programme Excellence, support of gifted students (CZK/pupil). Source: Internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017
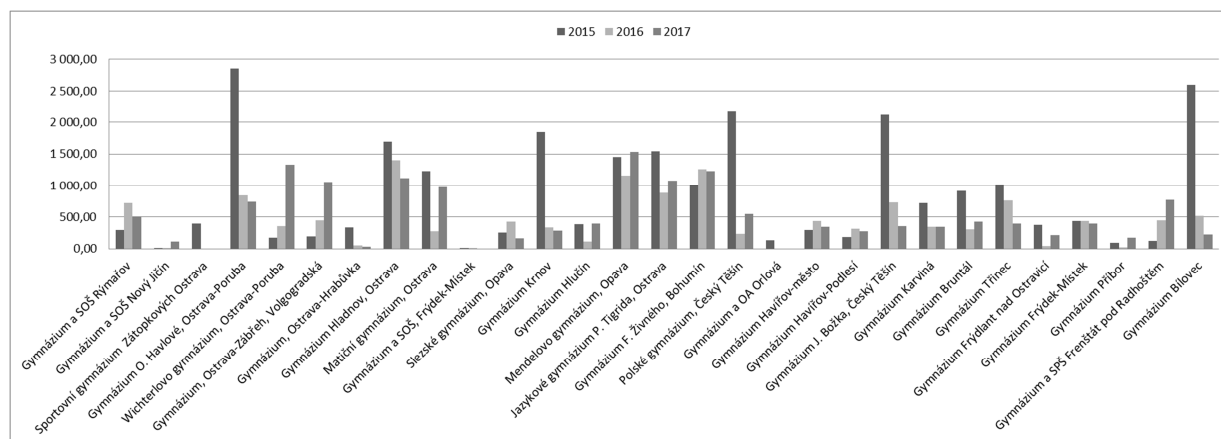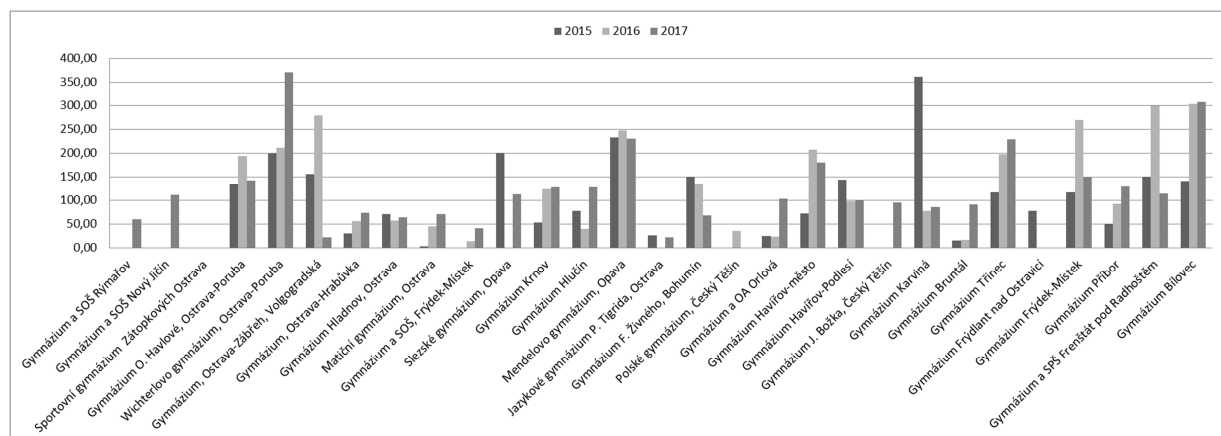

3.1.5 Comparison of grammar schools according to Programme Erasmus+ grants

Figure 5 observes that almost half of the schools (14) in the given period did not gain any financial resources from programme Erasmus+ grants. Positive fact is that in 2015 only four schools took part in projects, but in 2016 and 2017 it was 11 of them. To raise the interest of particular schools higher transparency of the programme and its global support is of course important.
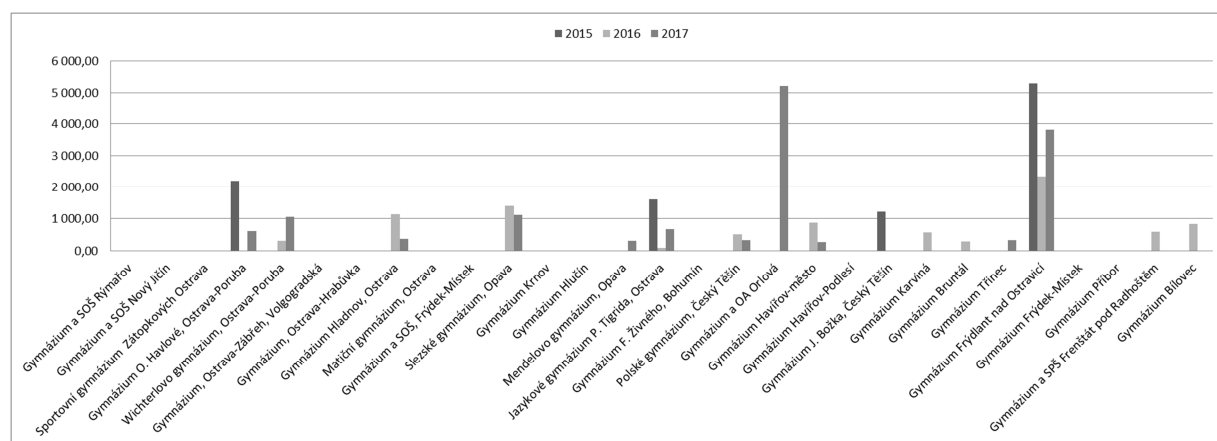
Figure 5 – Programme Erasmus+ grants (CZK/pupil). Source: Internal documentation and statistical reports of the Moravian-Silesian Region for the period 2015-2017

3.2 Total Assessment of Results of Realized Comparative Analysis

From the analysis emerges that observed schools in the period 2015-2017 show the best result in maximum of 2 from 5 of chosen criteria. On the basis of this can be stated that the schools focus mostly on selected activities chosen by themselves and leading to gain alternative resources. The viewpoint of their choice is conditioned by material facilities of school, but also by abilities of management and other employees including their interests.

The smallest differences between single schools in all three years are at Excellence, support of gifted students, even though every year three to seven schools show zero figures. The biggest differences are at Erasmus+ grants. Here almost half of the schools still make zero figures. There is evidence to suggest that this source could be very interesting for schools that have not participated yet.

It is also necessary to mention that the schools in the research are public subjects, whose primary aim is providing services to public, not lowering the dependence on the founder.

4 Conclusion

One of the most important and the most numerous groups of schools that play considerable role in education politics are subjects involved into regional education. There belong all school subjects established by towns or unions of towns (especially primary schools) or by region (especially secondary schools including grammar schools). Apart from the fact that they gain the largest amount of financial resources from the chapter of budget 333, current educational politics requires higher activity in the area of gaining and procuring adequate amount of financial resources into their budgets by the means of their own initiative (gaining alternative resources) with the aim to improve their economic level and to invest obtained public and non-public financial resources into the development of education. The alternative resources, their structure and purposefulness are discussed in professional magazines directed into the area of education, such as Školaprofi, Učitelské noviny, but also tu the public section, such as Moderní obec. Alternative resources can obtain school subjects by their own activity within complementary activity which involves various forms of renting, productive activity of students, organization of public courses, interest groups and other interest activities for students etc. Considerable resources can be also donations from entrepreneurial and other subjects than founder. In the past few years there is also given bigger attention of schools to project activity within EU programmes (Erasmus+, OP RDE), eventually to MEYS programme (Excellence, support of gifted students).

Research has confirmed specifics and differences in the approach to gain public and non-public financial resources for grammar schools established by MSR. By the comparison of selected public and non-public financial resources at all (29) grammar schools in the period of three years emerged that permanently the highest sources of incomes shows in the area of Profit from other complementary activities Gymnázium and SOŠ Rýmařov, which is given also by the structure of branches of studies and by technical orientation of the school, which allows evolving productive activity of students. Positive aspect is also long-term and significant gaining considerable financial resources from the programme Erasmus+ grants at Gymnázium, Frýdlant nad Ostravicí. Since 2014 this grammar school has obtained projects focused on education of teachers and also on schools programmes for international activity of students every year.

Total significant decrease since 2015 is noted in the area of Profit from other complementary activities and Donations and grants from other subjects. This could be circumstances that are influenced by school subjects

with difficulties. The other way around, from the view of progress of three years it is possible to point out the increase of financial resources from programme Erasmus+ grants, not only by total amount but also by the number of involved schools. Generally the most important item of sources of incomes in all years 2015-2017 is Donations and grants from other subjects, and the least at programme Excellence, support of gifted students, which is also given by the mechanism of dividing resources and by its amount.

It is important to survey economical results and economic activity of individual schools in long-term context and to assess their development including year-on-year changes and main factors which have influence on the management of schools. With the range, structure and financial dimension of schools and school facilities there are still opened questions for another qualified assessment that could be the topic for further research.

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Practical Challenges in the Municipal Waste Economy of Poland

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Abstract

Waste is a material which can be processed many times and the closed circuit economy can use its potential. There are very large possibilities to effectively use the resources in Poland as well as in the Czech Republic. It is worth to notice that in the recent years awareness of the advantages coming from protection of the environment which is a base to change the model of the waste management increased significantly.

 Business advantages related to the circular economy, innovative approach to use the waste materials and also responsibility of the manufacturer are added value in the process. The main task for the coming years will be raising the awareness of residents of both countries in the field of proper management of municipal waste in order to achieve increased levels of recovery from recycling under EU commitments.

The aim of the article is to assess the fulfillment of UE conditions in the field of waste management in Poland.

Keywords: closed circuit economy, municipal waste, recycling

JEL Classification: L980, Q010, R110

1 Introduction

The basic document in Poland which sets goals for realization in the municipal waste economy is 'National waste management plan 2022' agreed by resolution no. 88 of the Council of Ministers in 2016 [4]. The plan is a part of the strategy included in the EU documents such as the 1386/2013/UE decision of the European Parliament and European Council establishing the seventh community action program in the field of the natural environment. In the document there were defined tasks of the waste economy such as:

• protection of the environment and human health through prevention of the negative impact of the waste creation and their management;

• usage of waste management's hierarchy, i.e. prevention, preparation for re-use, recycling, other methods of recovery and neutralization;

• transforming of the waste into resources,

• gradual withdrawing of the waste storage which can be recycled or recovered;

• ensuring the highest quality recycling if usage of the recycled material does not lead to general negative effects for the environment or human health. [1]

As it results from the above the aim should be to create 'recycling society' which target will be 'avoidance of waste creation and usage of the waste as resources'.

2 Circular Economy - Aim, Material and Research Method

The EU member states in May 2018 agreed a regulatory package which has to adapt the EU regulations regarding the waste to the requirements of the circular economy's policy [2]. The new regulations in the field of the waste are the most modern legislation in the world defining, among others target values for the municipal waste recycling, i.e. getting 55% recycling level till 2025, 60% till 2030 and 65% recycling level of generated waste in 2035.

Table 1 - New target values for the recycling of packaging waste.

| Type of packages	till 2025	till 2030
All packages	65%	70%
Plastics	50%	55%
Wood	25%	30%
Ferrous metals	70%	80%
Aluminium	50%	60%
Glass	70%	75%
Paper and cardboard	75%	85%

Source: [2]

There is an obligation of selective collection of paper and cardboard, metals, plastics and glass (in Poland it is required determined by the law obligation of 50% recycling these four mentioned types of waste till 2020). It deserves attention that according to the new regulations the obligation of the selective collection will concern also hazardous waste – from 2022, bio-waste – from 2023 and textile materials – from 2025. In the new EU regulations there are predicted appropriate instruments including economic ones which aim is to apply the waste hierarchy. The new requirements concern, among others systems of extended responsibility of producers for their products. The requirements in relation to the packaging waste must be established till 2024. The amount of the municipal waste storage must be reduced to 10% of the produced waste till 2035. In the EU legislation large emphasis is placed on prevention of the waste generation where wasting of food plays a significant role; a sustainable development is needed in this field. In individual EU member states – the waste economy is at differential level, nonetheless there is a constant improvement of the situation. In 1995 in the EU there was stored average 64% of waste, in 2000 there was stored 55% and 25% of the waste was recycled. In 2006 the recycling level increased in the EU to average level of 46% and the storage decreased to 24%. There are countries where the storage was reduced almost to zero, however 10 member states still storage more than 50% of the municipal waste. Thus, in the waste economy there is still a lot to be done to be possible to achieve significant effects in implementation of the circular economy in the next few years. Turning the waste to the circulation is a vision of sustainable and resource-efficient economy which creation is dependent on ordering of the current system.. The aim of the article is to assess the fulfillment of UE conditions in the field of waste management in Poland. Research methods and material using to the purpose will be analysis and evaluation of the current legal status as well as literature of the topic.

3   Current System of the Municipal Waste Economy in Poland

The current system of the waste economy in Poland is based on the act of waste [3] and the act of maintenance of cleanliness and order in the communes [3]. There was imposed obligation on the communes to organize a municipal waste collection system from real estates' owners (producers of the municipal waste). The communes charge fees from the residents for the waste management accepting duties and responsibilities for complying the legal regulations in this area. Rate for the waste management is determined by the municipal council by way of a resolution. The principles of functioning of the current system are presented in the figure 1. [9]

Figure 1 – The municipal waste management system in Poland
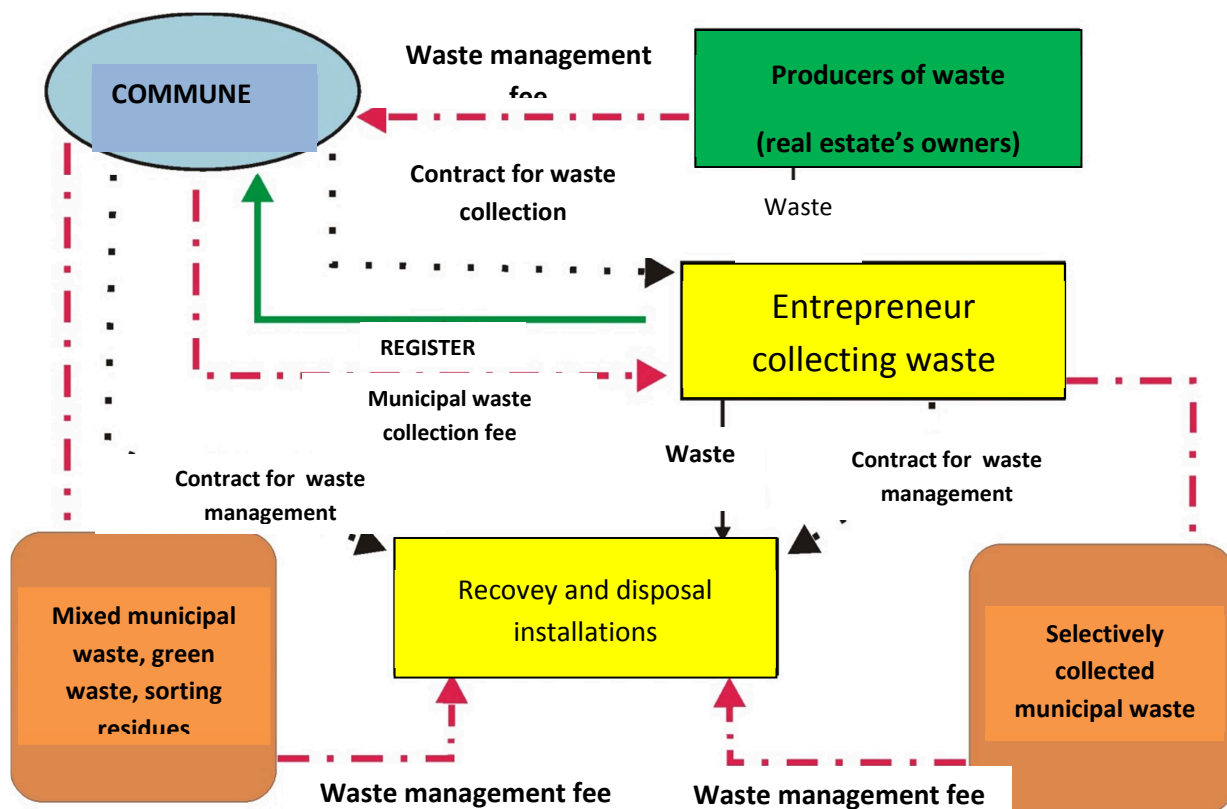
The commune plays primary role in the whole waste management system and it is obliged to create conditions to build a modern, comprehensive system based on the selective waste collection ensuring achievement of the recycling levels and waste storage reduction required by the law [13]. The system which is recommended in the national and provincial waste management plans is based on a network of regional waste processing installations functioning within designated regions and it was presented in the figure 2. [10]

Figure 2 – The waste municipal economy system preferred in Poland
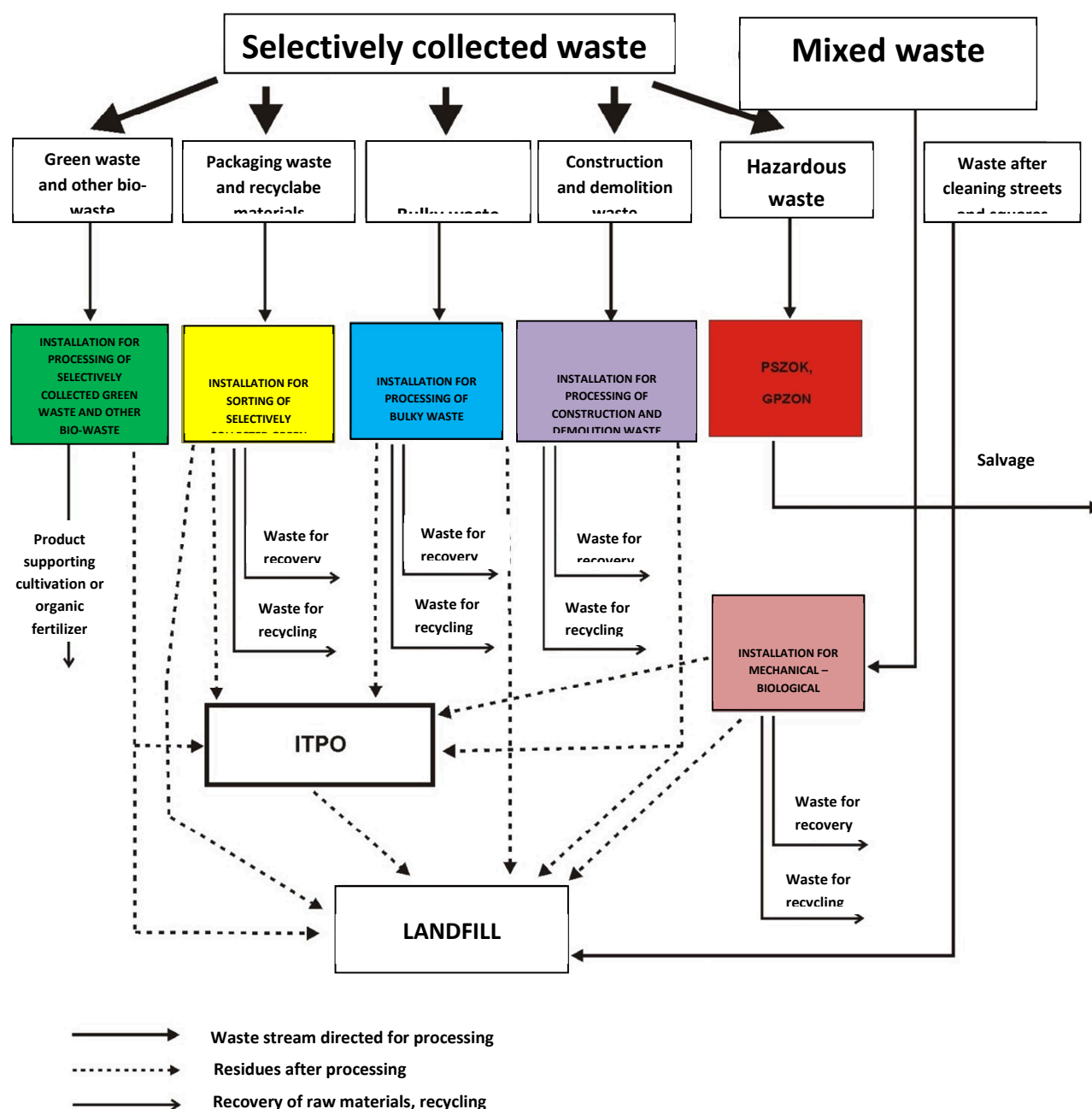
The idea of this system is, above all, to collect waste selectively, direct the mixed waste to the mechanical-biological processing (MBP) and all other waste after processing which have flammable features – convert thermally using energy in the installations for thermal processing of the municipal waste (ITPO).

4 State of the Municipal Waste Economy in Poland

Information about changes of the received and processed municipal waste's amounts in Poland in the period 2004 – 2016 is presented in the table 2.

Table 2 – Municipal waste received and converted in the period 2004 – 2016 (according to KPGO 2022).

Waste indicators	2004	2006	2008	2010	2012	2014	2016
Mass of the received waste **[million Mg]**	9.76	9.88	10.04	10.04	9.58	10.03	11.6
Mass of the received waste per 1 inhabitant **[kg]**	256	259	263	263	249	268	303

% of waste converted biologically	2.4	3.0	2.6	6.1	9.7	11.2	16.4
% of waste converted thermally	0.9	0.5	0.6	1.0	0.5	15.1	18.0
% of stored waste	94.2	91.0	86.6	73.4	74.7	52.6	56.0

Source: [5]

It is worth to notice that 1,461 companies receiving the municipal waste from the manufacturers functioned in Poland in 2016 where 920 were private companies what accounted 63%. Mass of the waste collected selectively increases systematically; totally about 3 million Mg were collected in 2016 what was about 23% of all the collected municipal waste. Statistically, a Polish citizen collected selectively 77 kg of the waste in 2016, including [8]:

- 11.6 kg of glass waste,

- 7.9 kg of plastic waste,

- 6.6 kg of paper waste,

- 21.4 kg of biodegradable waste,

- 8.8 kg of bulky waste,

- 20.0 kg of other waste (multi-material packages, textile clothing, used equipment, EiE,

  hazardous waste).

Each commune in Poland according to the selective waste collection system is obliged to organize at least one point of selective municipal waste collection (PSZOK) which is a place where every inhabitant can provide his or her waste intended for recycling. There were 2,146 PSZOK in Poland in 2016. The dominant technology in Poland used for the mixed municipal waste is their mechanical-biological processing (MBP). There are about 170 MBP installations which the vast majority are regional installations included in the voivodship waste management plans. Moreover, there are also installations for processing of the selectively collected green waste and other bio-waste (composting plants) in the number of about 100 with the status of regional objects and also sorting stations for pre-treatment of the selectively collected waste [5, 8].

There were build 6 modern installations for thermal processing of the municipal waste in Poland in 2007-2013 which total processing capacity is on the level of 1 million Mg/year. Produced fuel from the waste in the MBP installations is directed to burning in cement plants.

Currently, the number of active landfills of the municipal waste is 320, in the period from 2005 there were closed almost 700 of such types of the facilities. It should be noted that successively decreasing mass of the stored municipal waste is related not only to the significant increase of using the new waste processing methods, the increase of recycling but also the current regulation of the Minister of Economy regarding criteria and waste storage admission's procedures [6]. According to the regulation it is forbidden to storage of the mixed municipal waste and the waste remaining after the mechanical-biological processing installations if the waste is characterized by combustion heat more than 6 MJ/kg. A factor which can reduce mass of the stored municipal waste is introduced change of the waste storage fees' rate in 2018. According to the regulation of the Council of Ministers regarding the fees for using the environment [10] the rates are increased significantly. In addition to the costs resulting from exploitation of a landfill, the fee for delivering waste (both mixed and after processing) to the environment is:

- 2018 r. – 140 PLN/Mg of waste,

- 2019 r. – 170 PLN/Mg of waste,

- 2020 r. – 270 PLN/Mg of waste.

The previous rates were as below:

For the mixed municipal waste 120 PLN/Mg of waste

For the waste after processing in the mechanical-biological installation:

- over-sieve fraction (ballast) – 76.12 PLN/Mg of waste,

- stabilized product – 24.15 PLN/Mg of waste.

Conditionally, if the stabilized product, i.e. the waste fraction after the biological processing meets relevant criteria (parameters describing possibility of safe storage – defined by laboratory examination) – the fees' rate for storage of the traction can be reduced to 25%.

Significant increase of the fees' rates for storage of the waste therefore should motivate the communes to activities aiming to obtain higher and higher effects of the selective waste collection. From the other hand the communes should increase as much as possible efficiency of the mixed waste processing in the mechanical-biological installations, in the mechanical section to obtain maximum amount of waste directed for recycling and in the biological section to obtain parameters of the stabilized product qualifying it to apply the reduced rate in case of its storage.

However, it should be noted that the agreed level of the waste storage fees in the Regulation [11] to 270 PLN/Mg of the waste in 2020, what is around 64 EUR seems to be high, however in relation to many EU countries which have achieved the highest standards of the waste management and the lowest amount of the stored waste – there are used fees for the waste storage at an average level of 100-150 EUR/Mg of waste.

Operators of the installations processing the municipal waste are therefore motivated to take actions to reduce the waste stream directed to storage by implementation of the innovation technologies and modernization of the functioning technological lines. Analysis of various options of the management of residues after waste processing in the MBP showed [12] that the price of receiving the waste for the mechanical-biological processing may increase on average by 50% to 80% what will be transferred into increase of the waste management fees paid to the commune by the residents.

5 Directions of Activities for Achieving Goals in the Municipal Waste Economy

The main goal in the municipal waste economy for the coming years is to create such system which will fully realize the circular economy's approach. It is especially related to the requirement of management of the largest possible amount of the municipal waste by recycling. The selective collection of the waste requires a significant intensification because only such proceeding gives guarantees of obtaining of good quality raw materials applicable in the recycling processes.

The obtained recyclable materials from the mixed waste generally can be used in other than recycling recovery processes, e.g. in the thermal processing. The necessity of improvement of the currently functioning system of the municipal waste economy was included in the document: 'Road map of transformation towards the circular economy' – submitted for consultation by the Council of Ministers in January 2018. In the document there were presented propositions of activities coordinated by the Ministry of the Environment for the municipal waste economy which would result in legislative changes allowing increasing of the secondary raw materials' use in the economy.

 The activities were defined as follows:

• Analysis of efficiency of the current regulations regarding the municipal waste: the analysis is dedicated to concern effectiveness of the current system by view of the raw materials originated from the municipal waste which are significant raw materials for the industry in Poland.

• Identification of barriers in increasing the efficiency of collecting and management of the municipal waste on the local government level: it will be done analysis on the local level concerning the elements which create barriers in increasing the level of collecting and recycling of the municipal waste. Such estimation should cover both consumers and entrepreneurs as well as authorities dealing with the waste from the local level.

•   Execution of pilotage and analysis of implementation of the alternative (in relation to the currently existing ones) methods of collecting the municipal waste: the pilotage will concern the alternative methods of the selective collection together with social, economic, environmental analysis and selection of solutions allowing increasing of quantity and quality effects of the obtained raw materials.[14]

Implementation of the economy's assumptions in the circular system is undoubtedly connected with ordering and improvement of the current condition on many levels related to the waste economy both management, monitoring, ordering as well enforcing effects required by the law. Some works on improving knowledge about the waste among others, are dedicated to be used to the purpose what example is currently created central waste's database in the Ministry of the Environment which will be connected with databases on the voivodship's' levels. There will be gathered information about products, packages and waste put into circulation in the database. The base will be gradually extended; it is postulated to prepare and implement also database about quantity, components and properties of the municipal waste based on the research carried out on a large scale in the country. It is very important because the communes responsible for meeting the recycling levels (e.g. in 2020 to achieve 50% of paper, metal, plastic and glass recycling respectively in their contents in the entire stream of the generated waste) – without knowledge about characteristic of 'their' waste have difficulties in presentation of correct reporting in the area.

Basic priority directions of the activities in the municipal waste economy specified in the KGPO 2024 [5] are as follows:

1. building of infrastructure for the selective waste collection including the PSZOK together with systematic and systemic educational activities,

2. building and modernization of the installations for processing the green waste and other bio-waste collected selectively,

3. extension and modernization (no need to build new ones in Poland) the mechanical-biological installations for processing waste to increase the effects in obtaining secondary raw materials,

4. building and modernization of the installations for 'additional cleaning' of the selectively collected material fractions (sorting plants)'

5. building of the installations for thermal processing of the residual municipal waste remaining after the selective collection and recycling together with combustible waste separated in the MBP installations,

6. extension of landfills' sites only in the case of capacity deficit's occurrence for storage of the residual waste (without building of a new objects).

All the installations being built, extended and modernized must meet BAT requirements. Therefore, the possibilities of implementing innovative technical and technological as well organizational solutions are opening what will allow for such modification of the municipal waste economy's functioning to limit their production on the one hand and to use them maximally and return to the economic circle on the other hand. Let the example be Unibag company founded by high school students who sew bags from used advertising banners. They have so much orders that they cannot keep up with the production. Except the bags and wallets produced from the banners there can be applied for the production also utilized rubble bags used during renovation of apartments, they can be also used as protective foil during painting, etc. The banners are useful averagely a few weeks while the material they are made of – several hundred years. So it is worth to think about their better use. We realize that the article does not present the examined problem but indicates directions of further research and analysis which duration is specified in the quoted legal regulations, both EU and national.

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The Comparison of Housing Affordability in Czech and Polish Regions

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Abstract

The Czech Republic is a country with one of the highest growth of real estate's prices in Europe. The paper is focused on the analysis if this long-term growth of real estate's prices influences the availability of housing, i.e., if the price growth is in balance with the growth of households income and what is the situation in the Czech Republic and Poland especially. There will be presented inter European data describing housing affordability as well. The housing affordability in Czech and Polish regions will be compared using the basic indicators of housing affordability such as P/I ratio and P/R ratio. The aim of the paper is to find out (with the help of mentioned ratios), if the prices in inspected regions are overvalued or undervalued. To evaluate the results the sum of P/I and P/R ratios will be used. The Czech real estate market is very specific even from the point of new construction. It is famous that the level of new building permits in Czech Republic is not in accordance of the high price of flats. Exactly the level of new constructions is very low. There will be inspected some consequences, using the data from Czech and Polish statistical offices to find what can be the reason of low rate of issued building permits in Czech Republic. According to some of theories will be inspected whether one of the reason why there is the low rate of new construction in Czech Republic depends on the type of ownership.

1 Introduction

The paper focuses on analyse of housing affordability in Czech and polish regions. Many countries in the world have been experiencing boom in house prices for a couple of years, and the European countries are no exception. The house price is one of the highly monitored indicator. To analyse housing prices and housing bubbles is very common topic in literature. The house price analysis has become very common in connection with crisis in 2008. From the time up to now the economists make many of researches to explore potential risk of house price increase. Now in 2018 again many of papers are analysing the potential real estate bubble. Under condition of rising prices of homes and rising amount of mortgages there are some worries of Czech National Bank, that there can be some real estate bubble expected.

This paper is related to the increasing literature, which focuses on the empirical investigation in housing market. The main goal of this paper is to make an analysis of the situation in the housing market in selected European countries. Using the main housing ratios, which are often used as indicators of overvaluation of housing prices, I will examine the reasons of their overvaluation or undervaluation.

To identify the overvaluation or undervaluation of house prices is not so easy. There are many of different view and factors how to identify the real estate bubble. Under the condition of Czech Republic there are several authors who analyse the situation of house prices in Czech Republic. J Cadil (2009) tries to analyse the real estate bubble in Czech Republic using the R/I ratio and regression analysis. He states the price bubble is the expectation of price acceleration of particular asset, which results in higher demand and such increase in demand is pushing prices up. The self – reinforcing mechanism is working until bubble bursts.

There are some other authors who try to analyse the Czech real estate market from the point of real estate bubble. Hlavacek, Komarek (2010) define real estate bubble as residual of housing price growth that cannot be explained by the aforementioned "standard" factors. The main factors for increase of real estate prices in national economy they define as:

1. a process of catching-up with the usual level in developed economies combined with macroeconomic convergence,

2. a correction in relative prices,

3. the development of the Czech housing market and

4. the constantly expanding mortgage market in the Czech Republic.

They analyse the property prices using three alternative approaches – an approach based on simple indicators of housing price sustainability (price-to-income and rental returns) and two simple econometric models (a time series model and panel regression).

Zemcik and Mikhed (2009) in their paper investigate the situation of decreasing of U.S. real estate market after the beginning of the financial crisis. Thea use the regression analysis to explain the main fluctuations.

Many of sources use for identification of price real estate bubble the simple housing market indicators. There are mainly compared the historical levels of indicators with the current level of indicators. The most typical indicator using by accredited institutions (national and international financial institutions such as Goldman Sachs, Czech National Bank etc.) is P/I ratio. The comparison of P/I can indicate potential real estate bubble.

The main simple real estate indicators can be divided into the four separate groups:
1. housing affordability measures

2. housing debt measures

3. housing ownership and rent indicators

4. housing price indexes

The aim of the paper is to find out, if the prices in inspected Czech and Polish regions are overvalued or undervalued.

2 Material and Methods

To analyse the Czech and Polish real estate market the data from the July 2018 were from online renewed web pages collected and recorded. As the main source of data the internet analytical portal www.trzniceny.cz for recording of data describing Czech real estate market was used. To record the data describing Polish real estate market the portal www.otodom.pl was used. The other needed data were recorded from official national statistical offices www.czso.cz and www.stat.gov.pl. For the inter European analysis the data were from www.numbeo.com and Eurostat recorded.

There were inspected the basic parameters of Czech and Polish real estate markets such as prices of flats in separate regions, rents of flats in separate regions and wages. For the specific purpose of this research there were recorded data describing the kind of flat ownership in regions and number of new issued construction permits. Specificly, because of inter comparison the data were modified. They were transformed to the average values - flat price per m^2, year payed rent per m^2 and year gross salaries.

To analyse the housing affordability it was decided the next indicators will be use:

1. PI ratio

2. PR ratio

The price to income ratio (see the formula 2.1) is the basic affordability measure for housing in a given area. It is generally the ratio of average house prices to average familial disposable incomes, expressed as a percentage or as years of income. This ratio, applied to individuals, is a basic component of mortgage lending decisions.

PI ratio = P/I   (2.1)

where

P................. Average price of flat

I................. Average net personal income

The price to rent ratio express the inverted value of capitalization. It says how many year rents will cover the current price of flat. As lower the P/R ratio is as more convenient to buy the flat. Trulia established the following thresholds for the P/R ratio: less than 15 indicates it is much better to buy than rent; from 15 to 20 indicates it is typically better to rent than buy; and 20 or more indicates it is much better to rent than buy (Investopedia, 2018).

$$PR \text{ ratio} = P/R \tag{2.2}$$

where

P……………… Average price of flat

R……………… Average gross year rent

The separate values of above ratios will be added up into the global indicator. The overvaluation or undervaluation will be counted from the next mathematic formula (2.3.):

$$OU (\%) = ((P/In + P/Rn) – (\text{sum} (P/I + P/R)/U)) / (\text{sum} (P/I + P/R) * 100 \tag{2.3.}$$

where

P……………… Average price of flat

I……………… Average gross year rent

R……………… Average gross year rent

n……………...The particular country (region)

U………………Number of inspected units (countries or regions)

OU……………..Over (+) valuation, under (-) valuation of particular country (region)

3 Results and Discussion

The results valid for the particular countries are in percentage shown and valid for centrum areas and outside of centrum areas as well as average value of values for centrum and outside of centrum areas. The rank is assigned to the countries according to their average value. The results are in next Table 1 shown.

Table 1- Overvaluation and undervaluation of flat prices in %, July 2018.

Country	Overvaluation, undervaluation in % city center areas	Overvaluation, undervaluation in % outside of center	Average	
			value	rank
Albania	22,75	3,23	12,99	6,00
Austria	13,06	18,96	16,01	5,00
Belgium	-21,53	-10,03	-15,78	26,00
Bulgaria	-16,28	-12,59	-14,44	24,00
Croatia	18,32	25,42	21,87	4,00
Cyprus	-35,57	-30,30	-32,94	30,00
Czech Republic	**31,75**	**32,55**	**32,15**	**2,00**
Denmark	-12,89	-10,13	-11,51	21,00
Estonia	-2,60	0,84	-0,88	15,00
Finland	2,66	-5,18	-1,26	16,00
France	39,99	33,01	36,50	1,00
Germany	11,88	13,04	12,46	7,00
Greece	-6,24	6,72	0,24	14,00
Hungary	10,75	0,56	5,66	12,00
Ireland	-29,34	-31,82	-30,58	29,00
Italy	12,50	2,88	7,69	11,00
Latvia	-6,87	-10,44	-8,65	20,00
Lithuania	7,60	10,73	9,16	9,00

Luxembourg	7,69	15,13	11,41	8,00
Malta	-16,87	-18,91	-17,89	28,00
Netherlands	-16,77	-17,18	-16,97	27,00
Poland	**-9,24**	**-6,68**	**-7,96**	**19,00**
Portugal	-6,62	-16,87	-11,75	22,00
Romania	-6,70	0,87	-2,91	17,00
Slovakia	-16,22	-7,92	-12,07	23,00
Slovenia	3,38	13,22	8,30	10,00
Spain	-12,04	-17,54	-14,79	25,00
Sweden	29,71	24,37	27,04	3,00
Ukraine	0,09	-9,68	-4,79	18,00
United Kingdom	3,61	3,74	3,68	13,00

Source: Own calculations, www.numbeo.com, Eurostat 2018, World Bank 2018

The overvaluation and undervaluation is calculated due to the deviation of average values counted from the given parameters. The methodology of calculation is presented in previous chapter.

The results from Table 1 show the overvaluation of flats in Czech Republic. The price overvaluation of flats is 32.15% above the average value for the file of presented countries. The rank assigned to the country is 2. The Czech Republic is the country with one of the most overvalued flats in Europe.

The most overvalued flats in Europe you can find in France with the rank 1, where the level of overvaluation exceeds 36%. The rank number 3 belongs to the Sweden with its overvaluation of 27.04%. The data show undervaluation of flats in Poland. The average undervaluation of flats is 7.96%, which is the 19th position from inspected countries.

On the other hand the most undervalued prices of flats are Cyprus (-32.94%, rank 30), Ireland (-30.58%, rank 29) and Malta (-17.89, rank 28). It is assumed the increase of price flats in the future in these countries.

From the Table 1 it is seen even the difference between overvaluation/undervaluation of flat prices in city centrum areas and overvaluation/undervaluation of flat prices in outside city areas. The difference between overvaluation of city centrum areas and outside of centrum areas is -0,80% in case of Czech Republic. It imply there is nearly no difference between cities and rural areas. The demand covers all the areas equally.

The highest difference is indicated for Albania (+19.52%). While the overvaluation in cities there is indicated at the level of 22.75%, the situation in outside of central areas indicates the overvaluation only +3.23%. The next country with the high difference is Belgium (-11.49%). Undervaluation of central city areas is equal to -21.53% which is more than in outside of city areas (-10.03%). The third position belongs to the Portugal (10.25%). Its city centrum areas are undervalued by -6.62% while the outside city centrum areas are undervalued by -16.87%.

3.1 Czech and Polish Regions

In the next table there is the basic overview presented. The most expensive is Praha with the price over 88 thousand Kč per m^2. The lowest price of flats is in Ustecky Region. Its price is on the level of 14% of the price in Praha region. In Praha there is indicated even the highest level of rent as well as highest salaries.
The most expansive Polish region is Malopolski. The price of flat per m^2 is more than 50 thousand per m^2. On the other hand the highest year salary in Polish regions is indicated in Mazoviecki region.

Table 2 - The basic data, July 2018.

Region	Price per m2 in thousands Kč	Monthly rent per m2 in Kč	Year gross salary in Kč
Praha	88,9	353	461232
Małopolskie	50,7	250	320494
Jihomoravský	46,2	212	352152
Karlovarský	35,7	157	315444
Lubuskie	33,7	163	280594
Středočeský	37,6	185	360828

Královéhradecký	32,4	167	331428
Podkarpackie	30,6	175	276856
Plzeňský	32,7	178	348648
Jihočeský	27,6	146	323292
Pomorskie	41,7	268	338683
Olomoucký	28,7	158	319908
Pardubický	28,8	159	324024
Vysočina	28,1	153	331932
Zlínský	30,3	175	317172
Mazowieckie	49	343	400654
Lubelskie	31,5	208	280306
Liberecký	28,2	163	336120
Świętokrzyskie	24	142	274196
Wielkopolskie	31,5	207	304103
Podlaskie	28,2	193	275993
Zachodniopomorskie	31,9	236	304103
Kujawsko-pomorskie	26,2	192	279084
Warmińsko-mazurskie	24,8	185	263412
Opolskie	21,8	158	294110
Moravskoslezský	19,4	132	325500
Dolnośląskie	28,9	245	331134
Łódzkie	22,3	186	296913
Śląskie	19,2	158	336598
Ústecký	13,2	134	336348

Source: www.trzniceny.cz, www.otodom.pl, www.czso.cz, www.stat.gov.pl, own calculations 31.7.2018

The table 3 presents over valuations and undervaluation of flats in searched regions. The most overvalued flats it is seen are in Prague region. In comparison with other regions the flats in Prague are overvalued by 65%. The sum of P/I and P/R ratios is more than 34. From that point of view the housing affordability in Prague is the worst. In Prague you can find the highest value of P/I (13,4) and P/R (20,9) ratios. The analysts would not recommend you in such situation to buy the flat. On the other hand the most undervalued flats the table show you can find in Ustecky region. The undervaluation is 47,5%. The sum of P/I and P/R ratios is 10,9, which is one third of the Prague level.

The most overvalued Polish region seems to be Malopolski. Within the searched regions its overvaluation is 34,2%. The sum of P/R and P/I ratios is 28. The most undervalued Polish region seems to be Slaski. Its undervaluation is 32,2%. The highest value of P/I indicator in Polish regions you can see in Malopolski region. The lowest value of its indicator is in Slaski region. The highest value of P/R ratio you can find in Lubuski region (17,1) , while the lowest value is indicated in Dolnoslaski region (9,8).

Table 3 – Values of indicators.

Region	P/I ratio, flat 70m2	P/R ratio	P/I + P/R	over/under valuation in %
Praha	13,4	20,9	34,4	65,0
Małopolskie	11,0	16,9	28,0	34,2
Jihomoravský	9,1	18,1	27,3	30,9
Karlovarský	7,9	18,9	26,8	28,6
Lubuskie	8,4	17,1	25,5	22,4
Středočeský	7,2	16,9	24,2	16,0
Královéhradecký	6,8	16,1	23,0	10,1
Podkarpackie	7,7	14,5	22,2	6,5

Plzeňský	6,5	15,3	21,8	4,7
Jihočeský	5,9	15,7	21,7	4,0
Pomorskie	8,6	12,9	21,5	3,2
Olomoucký	6,2	15,1	21,4	2,5
Pardubický	6,2	15,0	21,3	2,0
Vysočina	5,9	15,3	21,2	1,6
Zlínský	6,6	14,4	21,1	1,1
Mazowieckie	8,5	11,9	20,4	-1,8
Lubelskie	7,8	12,6	20,4	-1,8
Liberecký	5,8	14,4	20,2	-2,8
Świętokrzyskie	6,1	14,0	20,2	-3,1
Wielkopolskie	7,2	12,7	19,9	-4,3
Podlaskie	7,1	12,1	19,3	-7,3
Zachodniopomorskie	7,3	11,2	18,5	-10,9
Kujawsko-pomorskie	6,5	11,3	17,9	-14,2
Warmińsko-mazurskie	6,6	11,1	17,7	-15,0
Opolskie	5,2	11,4	16,6	-20,0
Moravskoslezský	4,1	12,2	16,4	-21,3
Dolnośląskie	6,1	9,8	15,9	-23,6
Łódzkie	5,2	9,9	15,2	-26,9
Śląskie	4,0	10,1	14,1	-32,2
Ústecký	2,7	8,2	10,9	-47,5

Source: www.trzniceny.cz, www.otodom.pl, www.czso.cz, www.stat.gov.pl, own calculations 31.7.2018

3.2 New Construction Permits and Ownership

According to the housing theories it was investigated whether there is any relationship between ownership structure in regions and future flat construction. The regions were sorted into the 4 groups - the overvalued flat regions, undervalued flat regions and separately Czech and Polish regions. It was assumed, that in overvalued regions will be significant correlation between ownership and new issued housing permits. It was created the OLS model with the parameters which is presented in the next table 4.

Table 4 – OLS Estimation Results.

Ownership	State/Municipal	Cooperative	Corporate	Exclusive	Condominium	Other and mix
Overvalued	-0,03	-0,41	-0,06	0,58**	-0,68***	0
Undervalued	0,25	0,16	0,35	-0,04	-0,38	0,31
Czech Regions	-0,38	-0,56**	-0,26	0,8***	-0,42	-0,72***
Polish Regions	-0,35	-0,07	-0,23	0,5**	-0,4	0,08

Source: own processing
Notes: ***, ** and * symbols imply statistically significance at the level of 1%, 5% and 10% respectively.

The OLS estimation results in table 4 show the relationship between the share of issued housing permits and the share of housing ownership. It seems that the main growth engine of new housing construction is the exclusive ownership. The column of exclusive ownership indicate positive and significant correlation in three of four searched groups. The results show the relationship between exclusive ownership and issued housing permits in overvalued regions, Czech regions and Polish regions. The relationship with its R square can be justified from 34%, 64% and 25%.

On the other side the rest of ownership kinds show the negative and significant correlation. Cooperative ownership in Czech Republic with its justification of 32%, condominium kind of ownership in overvalued regions with its justification of 47% and probably the most significant negative relationship – mixed ownership and other with its justification of 51%.

In undervalued regions was not identify any significant relationship. Clarification of these results provides some explanations. It seems any kind of co – ownership demotivates the bodies to develop an initiative to new flat constructions, even in situation the market is overvalued and according to the standard theories the supply of new constructing flats must increase. In overvalued regions the most significant negative relationship is presented by condominium co-ownership. In Czech Republic it is even the more significant in case of cooperative (co-ownership) and in case of mixed co-ownership.

The likely reasons for this situation consist in high cost of co – ownership in comparison with exclusive ownership. Get an approval to the new housing constructions is too complicated and brings high negotiation costs. This probably demotivates the participants of co ownership club to negotiate. The next result of the situation can reflex the higher prices of flats in regions with higher share of co-ownership.

4 Conclusion

The results made by simple indicator analysis show the overvaluation of real estates in Czech Republic in comparison with the European countries. The inter region comparison in Czech Republic and Poland certify the general overvaluation of flats in Czech Republic with the special position of Prague where was identified the over valuation of 65%. To compare the situation of the Czech real estate market with the other European countries, the Czech Republic occupies the second position, just behind France and Sweden (see the table 1).

To reduce the overvaluation by increase of new flat construction can be disabled by too complicated ownership relations. The most problematic seems to be any kind of co-ownership (cooperative, condominium, mix of ownership). As the result of the too high rate of flat in co-ownership seems to be the higher flat prices in regions with high rate of co-ownership in comparison with regions with high rate of exclusive ownership, where in general the prices are lower.

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Sustainable Urban Development: Theoretical Concept or a Real Method of Urban Design?

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Abstract

The principles of sustainable urban growth have been developed by researchers from a variety of disciplinary backgrounds. They all have tried to provide compelling visions of an economically, socially, environmentally and spatially balanced urban environment. In other words, they have striven for a concept of a city that is harmonious in terms of housing, spatial accessibility, preservation of cultural heritage and political stability. It appears that for some actors of urban life, the sustainable development model has become a blueprint for action while for others it represents a kind of utopia, a contemporary image of the ideal city and state.

Keywords: ideal city, sustainable city, urban development

JEL Classification: R1

1 Introduction

Observing the course and dynamics of the processes of urbanization in various regions of the world, it is difficult not to question the possibility of clearly determining which spatial form of the city meets the criteria for sustainable development and whether there exists only a single model. In recent years, we could observe the rapid development of social approach to planning and organizing urban space which focuses on the needs and expectations of the residents. At the same time, it is assumed that the concept of sustainable urban development is, by definition, socially conditioned. However, it might be worth considering whether the implementation of the principles of sustainable development in all their aspects would provide the inhabitants of the city with happiness, satisfaction and harmony; or maybe, it is yet another top-down attempt to arrange the city dwellers' living environment by planners and theorists.

The concept of sustainable development as the goal of socio-economic development has been accepted as a desirable course of action by researchers and politicians in many countries and regions of the world. However, it should be emphasized that this is a direction that is often declared in various types of documents, declarations, strategies and development visions. It is more difficult to find examples of the effective implementation of the goals of sustainable development. This does not mean that no specific results have been achieved, especially in places where pro-environmental movements have had an impact on political life.

The most widely known definition of sustainable development comes from the Brundtland Commission, which defined sustainable development as **"development that meets the needs of the present without compromising the ability of future generations to meet their own needs."**

We should remember that sustainable development is not limited to ecological or environmental problems. The representatives of ecological economy emphasize the importance of achieving balance in the social and economic sphere as well as in development. Quite quickly, this concept found its expression in discussions about the course of the processes of urbanization.

2 Problems of Contemporary Cities and the Idea of Sustainable Urban Development

In the face of the crisis of the modernist city manifested mainly in the lack of balance in many negative processes like the uncontrolled growth of urban sprawl, limited access to water, growing number of urban residents living in slums (in the developing countries), car-oriented cities (in developed countries) as well as many others, a new vision and concept of development of the city is needed. Here we face a number of questions: what should a postmodern city be like?, how it should be planned and how it should function?

Let us remember that the concepts (maybe utopian visions) which dominated city planning since the 1930s until the 1980s included three fundamental concepts:

- the garden city by Howard
- Le Corbusier' s concept
- Broadacre City by Frank Lloyd Wright

Today these concepts have exhausted their role. They created better living conditions for workers and the general population against the background of the 19th-century city. These concepts were not implemented literally but pointed towards some important directions. What is more, the implementation of these ideas brought unexpected results. The vision of free-standing houses for free people has become an inspiration and a model for the development of American suburbia. Within the 50 years after the Second World War, a large-scale suburbanisation took place and gave rise to the phenomenon of urban sprawl. Similarly, Corbusier's vision of the residential unit provided housing in the war-ravaged Europe. However, the one-sided implementation of his ideas (particularly in the countries of the communist block) resulted in the creation of gigantic monofunctional housing estates which today offer very little satisfaction to the residents.

In the face of the escalating problems of the postmodern city, the concept of sustainable development seemed attractive and comprehensive and led to the idea of sustainable urban development. Generally speaking, referring to the above-mentioned classic definition of sustainable development **sustainable city is a city designed with consideration for social, economic, environmental impact, and resilient habitat for existing populations, without compromising the ability of future generations to experience the same**. Sustainable communities are cities that have purposely been designed to be healthy and resilient environmentally, economically and socially.

During the preparatory meetings for the URBAN21 Conference (in Berlin in July 2000) the following definition was developed to define sustainable urban development: Improving the quality of life in a city, including ecological, cultural, political, institutional, social and economic components without leaving a burden on the future generations. A burden which is the result of a reduced natural capital and an excessive local debt. Our aim is that the flow principle, that is based on an equilibrium of material and energy and also financial input/output, plays a crucial role in all future decisions upon the development of urban areas.

However, there are many more definitions that are broadly accepted within the community of urban planners. For instance, sustainable community development is defined as the ability to make development choices which respect the relationship between the three "E's"-economy, ecology, and equity:

- *Economy* - Economic activity should serve the common good, be self-renewing, and build local assets and self-reliance.
- *Ecology* - Human are part of nature, nature has limits, and communities are responsible for protecting and building natural assets.
- *Equity* - The opportunity for full participation in all activities, benefits, and decision-making of a society [1].

3 Sustainable Urban Development as an Important Point in the European Union's Urban Policy

Despite the ambiguity of the terms "sustainable development" and "sustainable urban development", they have been adopted as the binding rule and direction of development in many official documents.

The European Union (EU) document entitled "Promoting sustainable development in Europe-achievements and opportunities" notes that [2]:

- urban areas are the frontline in the battle for social cohesion and environmental sustainability
- the development of disadvantaged urban areas is an important step in unleashing economic powers by creating more cohesive and attractive cities.

- promoting sustainable urban development is a key element of European Cohesion Policy seeking to exploit Europe's full economic potential.

In the same document, in the chapter entitled "Towards a common European methodology for sustainable urban development" the key elements of sustainable urban development are enumerated and they include:

- Developing a city-wide vision that goes beyond each project and is embedded in the city-regional context (analysis of target areas; strategy building; defining long- and medium-term objectives, priorities, measures and projects);

- The integrated approach as an added value (strong 'horizontal', cross-sectoral coordination of urban regeneration measures and physical urban renewal as the main elements of an integrated approach to sustainable urban development, covering aspects of local economic development, business and employment, education, training and qualification, social inclusion, culture, environ- mental measures, urban mobility and high-quality public spaces; strong 'vertical' coordination with all relevant levels, coherence with European, national and regional objectives);

- Financing and investing to achieve a lasting impact; concentration of resources and funding on selected target areas;

- Creating strong local and regional partnerships (increased involvement of citizens and local and regional stakeholders, including the private sector; shared responsibilities, implementation bodies); new instruments of urban governance, administration and management;

- Capitalising on knowledge, exchanging experience and know-how (benchmarking, networking);

- Monitoring the progress (ex-ante, mid-term and ex-post evaluations, set of criteria and indicators) [3].

Undoubtedly, these are important objectives; however, I doubt whether they can be considered a precise methodology of sustainable urban development.

4 Is Sustainable City a Modern Model of the Ideal City?

It often turns out that sustainable urban development must cover many areas which include:

- Economy

- Social issues

- Environment

- Housing

- Spatial accessibility

- Identity and culture

- Politics

A city that would reach balance in all these areas would be a kind of an ideal city. Trying to determine the essence of a sustainable city, three key factors can be indicated in its creation. In this approach, the sustainable city can be depicted with the help of a triangle. One vertex is the city form/density, the other is movement/transport and the third is buildings/energy (use and production) [4]. Developing this approach, we can point out that achieving sustainable urban development requires simultaneous action in various areas related to the city's functioning:

- urban planning and design

- organization of urban transport

- the city's natural environment

- building design and use of building materials

- production and consumption of energy

- water management

- waste management

The concepts outlined here are only examples of various approaches and possibilities of understanding the concept of sustainable urban development. Undoubtedly, there is a certain level of compatibility regarding the general understanding of this idea. However, we may feel inclined to ask:

- what criteria allow us to assess whether the city can be described as sustainable

- by which measures we can assess the level / degree / sustainability of development

- how to assess a group of cities according to the level of sustainability

- how far these criteria can change over time / whether a condition recognized as sustainable ten or 15 years earlier would still meet the standards of sustainability?

We will not get clear answers to these questions and, understandably, a number of doubts have arisen among the researchers investigating the concept of sustainability. Even some titles reflect the authors' doubts. For instance:

- "Sustainable cities: Oxymoron, Utopia, or inevitability?" [5]-"some people argue, by definition and common sense, cities cannot be sustainable. Others say that the idea is utopian, but that can learn from literacy examples. Still others assert, cities, must, and are becoming sustainable" . As Françoise Lieberherr pointed out „We need utopias! Realistic utopias focusing on sustainable development, which is not only an intellectual trend, an electoral pitch or an all-embracing slogan. It is a matter of urgency, it is becoming a necessity, for it will be our future" [6]

- "Sustainable Cities: Oxymoron or the Shape of the Future?" [7] - in this work, the authors point to successes in achieving specific sustainability goals and examples of existing and functioning centres referred to as ecocity, New Songdo City in South Korea or Dongtan City in China / near Shanghai /. These are, of course, interesting and encouraging examples, but one cannot say that they represent the mainstream of urbanization processes around the world.

- "The paradox of the sustainable city:…" [8]-we can agree with the idea expressed in this work that the use of the term "sustainable city" may limit the potential for further enhancement of sustainability in future projects; using the term "transition to the sustainable city" may be more accurate and more effective. The results show that reducing energy consumption through efficient use, and relying on renewable sources of energy will be vital for reaching urban sustainability "

5 Conclusion

Summing up of the discussion, it is hard to deny that the idea of sustainable urban development is difficult to specify. It can be articulated in a variety of ways and is generally a kind of utopia that shows a certain ideal that we should strive to achieve. At the same time, despite all doubts, we need this idea when we take into consideration the dynamics of the urbanization processes, deepening imbalances in large metropolises of the developing countries and the fact that cities themselves will choose which development model will be dominant. Apparently, in the current situation of the cities, we do not have many alternative ideas in relation to sustainable urban development, even if they appear very utopian.

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Inclusive Entrepreneurship of the Elderly in Poland and the Czech Republic

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Abstract

The situation of older people on the European labor market is constantly changing, but in the countries of Central and Eastern Europe indicators of both professional activity and employment still reach lower values than in Western European countries. The article analyzes the phenomenon of inclusive entrepreneurship of older people as a manifestation of their economic activity.

Inclusive entrepreneurship should be taken as the concept of including social groups excluded from the labor market, which enables representatives of these groups to use their skills and competences to implement projects, mainly on the nature of business ventures.

It is assumed that an inclusive system unleashes and drives creativity and entrepreneurship by strengthening positive bonds based on a sense of security, trust and a community of interests. The motivation to start own business, in the majority stems from external factors, among which the difficult situation on the labor market is mentioned first, which means that the activities related to extending the economic activity of older people focus primarily on maintaining current employment.

For the purpose of this paper indexes showing the number of elder entrepreneurs and self-employment among people aged 50+ in European countries, in particular in Poland and the Czech Republic, are treated as expressions of inclusive entrepreneurship. For this purpose, the desk research method will be used, and Eurostat data will be used as the data source.

1 Introduction

The dynamically changing situation in labour markets of most of the European countries has an influence on the necessity of searching for new solutions and developing ideas which can enable a better functioning of employers as well as employees. The situation in labour markets especially depends on demographic variables, which have a direct influence on the amount of labour supply as well as the internal structure of labour resources. Both factors are strong determinants of made decisions and developed programs aimed at supporting the situation in the labour market. The aim of this work is to determine the size of self-employment understood as a manifestation of inclusive entrepreneurship. The analysis shall concern the situation in Poland and Czech Republic with respect to EU-28 states. It is assumed in this work that the situation in the labour market of people aged over 50 should be improved and one of tools for improving the situation can be increasing the size of self-employment.

According to prognoses of the Eurostat and the UN, changing demographic proportions taking place during last decades indicate that Europe is currently facing a demographic crisis, which will go deeper. According to demographists, the demographic crisis will lead to a depopulation decline, i.e. a drop of the population in working age, as well as to an increase of the ageing indicators. The intensity of mentioned transformations is so large that some part of European states do not see any possibility of solving the situation basing only on own

labour resources. The above mentioned transformations along with increasing indicators depicturing an average life expectancy as well as duration of life in good health lead to searches for solutions based on the maximal utilisation of existing resources of labour force. These activities are aimed at an increase of the engagement of elder people and an improvement of the efficiency of using the potential of seniors. In practice, this can mean activities towards an increase of indicators of professional activity and employment on one side, and prolonging the period of professional activity on the other. It can be expected that the mentioned stimulations shall have an influence on an improvement of the situation from perspectives of employers but also employees, e.g. by improving their personal economical situation. On the other hand, one can not forget about barriers related with the functioning of elder people in the labour market. Ageism and stereotypes concerning older employees or legal restrictions related with e.g. the protection of pre-retirement age employees can efficiently limit possibilities and the will of employing older people. They can also have an influence on a lower activation of older employees.

The above mentioned factors can be such essential limitations that even in the periods of an advantage of demand for labour force over labour supply, there can be situations of a lack of finding a job, including by older people. One interesting concept in situations of such type is promoting entrepreneurship among elder people, e.g. in the form of self-employment. This approach fits in EU strategies of active ageing aimed at social as well as professional activity of seniors, including through development of entrepreneurship. What is more, the Europe 2020 strategy spotlights the realisation of an essential aim, i.e. excitation of entrepreneurship in European countries, including among elder people.

Entrepreneurship is not a univocal concept. In the economical literature, it is a very wide category including economical, social, psychological, cultural, or ethical aspects. It can be understood as undertaking initiatives or as life resourcefulness and operability. The essence of entrepreneurship should be searched in initiating creation of projects as well as new forms of activity that would serve satisfying needs and would have an influence on gaining profits, as well as reproduction and development of entrepreneurship (Kożuch A., Dyndalewicz A., 2004). Most often, entrepreneurship is considered in three aspects, which are commonly related and complement themselves. They include: attitude, behaviour, and process. The literature of the subject most often analyses entrepreneurship in terms of the process. It is assumed that it means development, creation of new ventures. This perspective of entrepreneurship is a process covering the consecutive stages, assuming utilisation of an innovative idea and considering possibilities of an occurrence of risk, as well as aimed at generating benefits (Piecuch T., 2010). In an OECD report (1998) titled „*Fostering entrepreneurship*", entrepreneurship is defined as a dynamic process creating wealth, consisting in perceiving and using market occasions by entrepreneurs.

The process entrepreneurship representation, manifested in activity, as a result of which a new business venture is developed, is currently regarded as the basic manifestation of individual entrepreneurship in modern market economy (Sadowska M., 2017).Narrowing down the concept of entrepreneurship to undertaking activities aimed at running economical activities, on can assume that self-employment is a manifestation of individual entrepreneurship. The term of "self employment" can be used interchangeably with such terms like "for one's own account" or "own business activity". Self-employment is one of forms of performing work, while self-employed persons are those who run one-man business.

Polish law lacks a definition of self-employment what made a precise definition of this type of professional activity difficult. What is more, a uniform definition of this concept has not been developed in European countries. Nevertheless, it is assumed that self-employment means one-man business activity run by a natural person for one own account and risk, acknowledged by an entry in the business register. Most of all, one should assume that a self-employed person acts in order to gain benefits. This form of activity is identified with running own business activity on the basis of cooperation agreements, such as a mandate contract or a contract for specific work, in which it is specified that a contractor runs a business activity. It is assumed that a business entity and an entrepreneur constitute a unity, what implies the necessity of considering these two elements jointly. By assumption, self-employment consists in personal performance of work by a self-employed person (Niewiadomska A., 2016; Lasocki B., Skrzek-Lubasińska M., 2016). A uniform definition of this phenomenon has not also been developed by the Eurostat. According to *Europe In figures* publication (2012), self-employed persons are both those who run one-man business activity and co-owners of companies not having a legal personality. As self-employed, one can also include:

- employees without remuneration - family members;

- persons performing home-based work (working outside the main work place, e.g. at home);

- persons performing work aimed at meeting own needs, including those for accumulation of own capital - such work can be done individually or collectively.

2 Towards Inclusive Entrepreneurship

From the social and economical perspective, regardless the scope it concerns, the process of inclusion is a desirable state, but not easy to achieve.In practice, it is difficult to find an efficient way to realise such process. Subjective and objective variability of phenomenon in relation to which inclusive programs are developed require tools that are always selected individually. In respect to elder people, it seems that a selection of tools for inclusion of them into professional activity through a development of their individual entrepreneurship is a complicated issue, requiring great sensibility. If we assume that the situation in the labour market of persons aged over 50 is special, it is more important that the inclusion considered needs and problems of this group.

Inclusive entrepreneurship is the concept of including social groups that are excluded from the labour market, in wider scope, also from the capitalist economy by precluding persons from these groups from using their skills and competences in realisation of various projects. Such projects should not have a business character, but it mainly concerns economical ventures. Within the scope of this process, the assumed aim is to provide equal various social groups in chances in realisation of their aspirations and dreams, business and economical ventures. In other words, to equalise chances of entrepreneurship occasions in order to make these chances possible to be realised. *Inclusive entrepreneurship* is mainly stressing barriers that potential entrepreneurs and nascent entrepreneurs can meet, coming from social groups that are under represented in statistics concerning private entrepreneurship (Wach K., 2015).

According to E. Mączyńska, the inclusion should be mainly regarded as the driving force of the innovativeness, competitiveness, and efficiency, having an influence on improving the quality of life of people. The inclusive system has the features of releasing and driving the creativity and entrepreneurship by strengthening positive bounds based on the sense of safety, trust, and common interests. One should consider that each exclusion is a brake of development as it always limits the social capability to use the knowledge. What is more, exclusions mainly result from a weakness of institutional solutions, including social and economical mechanisms.

Inclusive entrepreneurship requires an analysis in the scope of fields and scopes of support. The studies should concern e.g. a diagnosis of competence limitations of elder people. The group of such limitations will of course include areas related with e.g. legal help in establishing and running a business activity, evaluation of an idea of business activity, sources of acquiring resources, including EU funds or simplifying procedures and developing a legal system favouring a development of entrepreneurship. After conducting a detailed analysis of forms of support and their use, one can assume that self-employment can be an alternative for people aged over 50 to a full time job, especially that it allows using knowledge and professional and life experiences in accordance to own believes. However, this requires a promotion of entrepreneurship among this age group and supporting people aged over 50 in overcoming barriers related with starting own business activities (Smutek H., 2015).

3 Methods and Analysed Data

In this article, a research method in the form of desk research was used, while data obtained from the European statistics are the source of data. However, it is worth to mention that the Eurostat does not keep separate data concerning the labour market and self-employment. Data available at the Eurostat are an effect of processing data sent by particular member states obtained from the Labour Force Survey (LFS).

Table 1 - Self-employed aged 50-64 in the EU-28, Poland and the Czech Republic in 2008-2017.

Specification	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Employment (in thousand)										
EU-28	52 476,8	53 329,4	54 367,3	55 849,2	57 355,8	58 713,4	60 734,3	62 596,1	64 774,7	66 829,8
Poland	3 422,0	3 566,9	3 706,5	3 871,2	3 958,4	4 003,5	4 088,7	4 167,1	4 149,1	4 199,2
Czech Republic	1 335,0	1 302,8	1 272,8	1 273,3	1 283,8	1 305,5	1 344,4	1 372,7	1 409,6	1 456,9
Self-employed persons (in thousand)										
EU-28	10 191,0	10 324,1	10 689,8	10 769,5	11 030,0	11 135,4	11 448,3	11 609,2	11 803,1	11 946,5
Poland	850,1	900,1	930,1	969,5	985,1	979,5	968,5	981,8	944,2	933,1
Czech Republic	220,4	234,5	235,8	244,4	264,7	256,0	270,1	271,1	270,8	273,1
Share of self-employed in the employed population (in %)										
EU-28	19,42	19,36	19,66	19,28	19,23	18,97	18,85	18,55	18,22	17,88
Poland	24,8	25,2	25,1	25,1	24,9	24,5	23,7	23,6	22,8	22,2
Czech Republic	16,5	18,0	18,5	19,2	20,6	19,6	20,1	19,7	19,2	18,7

Source: own elaboration based on Eurostat.

Table 2 - The structure of self-employment in EU-28, Poland and Czech Republic by sex in the age group 50-64 in 2008-2017 (in thousand).

Specification	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Self-employed persons with employees (employers)										
EU-28	3 302,7	3 290,2	3 356,9	3 335,3	3 356,2	3 401,4	3 495,6	3 590,4	3 680,9	3 713,4
Poland	188,2	195,0	209,7	214,8	223,4	219,2	217,6	201,5	194,7	194,8
Czech Republic	60,2	62,9	57,2	61,5	64,0	62,3	63,7	62,2	58,9	59,2
Self-employed persons without empoyees (own account workers)										
EU-28	6 888,3	7 033,9	7 332,9	7 434,1	7 673,7	7 734,0	7 952,7	8 018,7	8 122,2	8 233,1
Poland	661,9	705,1	720,4	754,7	761,7	760,4	750,9	780,3	749,5	738,4
Czech Republic	160,2	171,6	178,7	183,0	200,7	193,7	206,5	208,9	212,0	213,9
Self-employed persons - males										
EU-28	7 212,3	7 298,0	7 563,1	7 606,8	7 750,3	7 787,0	7 985,1	8 022,2	8 110,7	8 218,4
Poland	568,5	602,6	621,1	648,7	671,7	673,4	670,9	676,9	649,7	642,4
Czech Republic	158,7	162,7	167,0	169,7	176,1	174,5	185,0	184,5	182,2	185,1
Self-employed persons with employees (employers) – in the male population										
EU-28	2 521,5	2 515,4	2 562,7	2 539,3	2 546,6	2 553,4	2 631,6	2 666,4	2 710,8	2 745,2
Poland	135,9	140,4	150,0	152,0	156,0	157,0	153,4	140,9	137,8	135,4
Czech Republic	42,5	45,7	43,2	46,3	47,0	45,6	47,9	47,2	45,7	44,0
Self-employed persons without empoyees (own account workers) - in the male population										
EU-28	4 690,8	4 782,6	5 000,4	5 067,5	5 203,7	5 233,6	5 353,5	5 355,9	5 399,9	5 473,2
Poland	432,6	462,3	471,1	496,7	515,7	516,4	517,5	536,0	511,9	507,0
Czech Republic	116,2	117,0	123,8	123,4	129,1	129,0	137,2	137,3	136,5	141,1
Self-employed persons - females										
EU-28	2 978,7	3 026,1	3 126,7	3 162,7	3 279,6	3 348,3	3 463,3	3 586,9	3 692,4	3 728,1
Poland	281,6	297,5	309,0	320,8	313,4	306,2	297,6	304,9	294,5	290,8
Czech Republic	61,7	71,8	68,8	74,7	88,6	81,5	85,1	86,5	88,6	88,1
Self-employed persons with employees (employers) – in the female population										
EU-28	781,2	774,7	794,3	796,0	809,6	848,0	864,0	924,1	970,1	968,2
Poland	52,3	54,6	59,7	62,8	67,4	62,2	64,1	60,6	56,9	59,4
Czech Republic	17,7	17,2	14,0	15,2	17,0	16,7	15,8	15,0	13,2	15,3
Self-employed persons without empoyees (own account workers) - in the female population										
EU-28	2 197,5	2 251,4	2 332,5	2 366,6	2 470,0	2 500,4	2 599,2	2 662,9	2 722,3	2 759,9
Poland	229,3	242,9	249,3	258,0	246,1	244,0	233,4	244,3	237,6	231,4
Czech Republic	44,0	54,6	54,9	59,5	71,6	64,8	69,3	71,6	75,5	72,8

Source: own elaboration based on Eurostat.

4 Discussion of the Analysed Data

According to data included in Table 1, the number of employees aged 50 – 64 in the analysed period of 2008 – 2017 was systematically increasing in EU-28 states as well as in Poland and Czech Republic. As far as the size of the self-employment is concerned, a systematic growth can be observed in total for EU-28 states, However, in case of Poland, the growth trend was observed till 2012, after which the number of self-employed decreases, resulting in the amount in 2017 close to the one for 2010. The situation in Czech Republic in this scope is slightly better. During the analysed period, the number of the self-employed was increasing, at slight drops in 2013 and 2016. Other conclusions can be drawn when analysing the share of the self-employed in the total number of employed people aged 50 – 64. The used indicator allows one to notice that the share of self-employed during the whole analysed period was higher in Poland, despite a noticeable drop of this indicator value. It is worth to mention that this indicator is at a higher level than for EU-28 states, however for both cases demonstrating a decreasing trend, In Czech Republic, this indicator increases up to 2012, after what it systematically decreases (apart from 2014).

Comparing self-employed ones hiring employees and those who do not hire employees, one can notice a great advantage of the latter over former. Such situation is characteristic for EU-28 states in general, as well as for Poland and Czech Republic. What is more, data presented in Table 2 allow one noticing a great advantage of male entrepreneurs over female ones. This concerns Poland, Czech Republic, as well as the EU in general. The sex of the self-employed does not play any significant role as far as employment or lack of employment of workers is concerned, In great majority, both male and female entrepreneurs run their business activity on their own.

Interesting information about entrepreneurship are provided by the largest international project of studying entrepreneurship and popularising knowledge of entrepreneurship is the Global Entrepreneurship Monitor (GEM), currently covering 73 countries all over the world. Its main aim is to compare a wide spectrum of manifestations of entrepreneurship using originally developed uniform methodology. Basing on the above mentioned report by A. Pilkov, M. Holienk, and J. Rehak (2014) who analysed GEM data for 28 European Union states and developed the senior entrepreneurial activity rate for respondents aged 55 - 64. This indicator

constituted a separate part of population as far as the traditional total entrepreneurial activity indicator is concerned. The highest value was indicated in Sweden (0,90) and the lowest in Slovakia (0,21). Using statistical analyses, three groups of countries with high, average, and low value of this indicator were distinguished. Among six countries of the lowest values of the indicator, five are new membership states, including Poland with 0,32. Czech Republic with the result of 0,37 are classified in the group of average activity of seniors' entrepreneurship of seniors.

In the process of analysing sizes and structures of self-employment, one should remember about conditions favouring decisions about starting own economical activity and existing barriers in this scope. Due to a lack of original studies, an analysis of the literature of the subject and chosen results of foreign studies was conducted. Considering that all manifestations of entrepreneurship should be regarded as activities having an influence on improving the general economical situation, at the same time, leading economical and social development. P. Kubicki (2012), when presenting chief conclusions obtained from studies titled "Mature entrepreneurship", states that respondents aged over 50, when asked about motives of starting a business activity, chose a difficult situation in the labour market as the basic reason. Thus, it must be regarded that the majority of people aged over 50 thinking about starting own business shall be "forced" to such thinking due to a difficult situation in the labour market, Thus, the main motivation having an influence on starting an own economic activity is external factors like a difficult situation in the labour market, what makes activities related with extending the professional activity of elder people focused mainly on maintaining a current employment. It is often equal to changing the form of employment to self-employment. This may result from an assurance approach of employers towards employees of near retirement age subject to legal protection of employment. Similar conclusions can be drawn from studies conducted within the scope of the project titled *Best Agers – Using the knowledge and experience of professionals in their primes to foster business and skills development in the Baltic Sea Region.* Entrepreneurs aged over 55 asked about motives they followed when starting their business, stated that opening their current companies did not result from searching of an autonomy but was an alternative for a lack of another job. An essential role was also played by a will to improve a life situation (Richert-Kaźmierska A., Wasilczuk J., 2014).

Deducting from the above, factors making elder people leave labour markets are the factors favouring running own business activity. One of key factor why people aged over 50 decided to start their own business result from a difficult situation in the labour market and a lack of possibilities to find a regular job. In turn, this implicates the type of business activity which, most often, has the form of one-man economical activity run mainly in order to have incomes to satisfy individual needs (Kubicki P., 2013). Thus, an own company seems to be a mean for realisation of the aim which is surviving during a difficult pre-retirement period.

T. Kautonen, S. Down, and M. Minniti, when looking for dependences between the age of a potential entrepreneur and the probability of entrepreneurship behaviour, in the scope of running a business activity, observed three dependences between the above mentioned variables. Persons who strive to run a business activity (owners -managers) are characterised by the probability of becoming an entrepreneur increasing up to the age of about 45 years, after when the probability starts to decrease. In case of people who are classified as entrepreneurs out of necessity, one can observe a trend of a flat curve of probability, what means that the influence of age on the decision about self-employment is slight. The probability of starting a company in the group of employees considering running an own business activity (self-employment) increases along with the age, what is motivated by acquired entrepreneurial resources such as experience, knowledge or financial resources (Figure 1).

Figure 1 - The relationship between the age of the potential entrepreneur and the probability of entrepreneurial behavior. Source: Kautonen T., Down S., Minniti M. (2014), *Ageing and entrepreneurial preferences,* Small Business Economics nr 42(3).
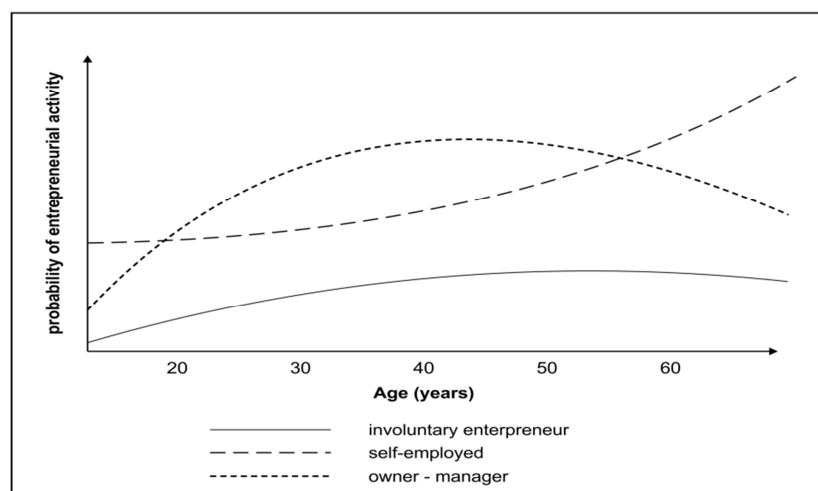
5 Conclusion

Difficulties of people aged over 50 on the labour market imply the necessity of searching for alternative solutions that could enable maintenance of professional activity for the longer possible time. Most basic activities directly aimed at employers are those which would counteract stereotypes concerning elder people, discrimination due to age (ageism), as well as to provide economical arguments convincing people to hire persons aged over 50. Another direction of activities is a development of entrepreneurship among older employees. For sure, this path can be an alternative to a full time job but also can favour a social and economical development through an inclusive dimension.

The presented data concerning size and structure of self-employment show that the form of professional activity during last 5 years in Poland in decreasing, while the indicator in Czech Republic is stable, concerning the size of self-employment of persons aged 50 – 64. The rate of self-employed in the total number of employed persons aged 50-64 indicates that in this age group, the highest number of running a business activity is observed in Poland and Czech Republic. It is worth to mention that there are men than women who are entrepreneurs, both in Poland in Czech Republic as well as in the whole European Union. What is more, it should be stated that the share of entrepreneurs who do not hire employees is higher than those who declare hiring employees. The presented statistical data indicate fields at which there is a need of activisation if a state cares that the percentage of the self-employed aged over 50 was raised. Thus, self-employment among women should be promoted. It is also necessary to support them in respect to entrepreneurs who decide to hire employees.

One should remember that an improvement of indicators of self-employment significantly depends on motives that people open business activities follow. Considering the barriers of self-employment specified in the article, one should consider also the event that some part of the self-employed persons wants to keep the status quo and finish the activity after obtaining retirement entitlement.

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Ageing Process of Moravia-Silesia Region and Silesian and Opole Voivodeships

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Abstract
The main aim of this paper is to compare differences of the population ageing process between three European regions. These include: the Moravia-Silesia Region, the Silesian and the Opole Voivodeship. They are very important border areas of the Czech Republic and Poland. Sustainable development is fundamentally linked not only to the population size of the region but also to its age structure. Hence, more advanced states tackle a number of aspects related to the development of the child component and the elderly component within their own social policy. The aim of our expert study is thus to assess the change in the representation of both significant age groups in the population of the three border regions. The analysis of the ageing process will be carried out in three territorial units (NUTS 2) since 2000 and further supplemented by the population projection to 2030. The ageing process will be assessed not only by the relative weight of children and seniors, but also by the ageing index.

1 Introduction

The population ageing will be assessed not only by the relative weighting of children and seniors, but also by the ageing index (Dlugosz, Kurek, 2009). The ageing process is that we are monitoring the changes in the age structure of the population of the region under consideration in the longer term (Šotkovský, 2012). In examining the ageing process, a number of key concepts are being discussed today, such as "age transition" (Weeks, 2015), "longevity" (Gavrilov, Gavrilova, 2006), "retirement age", and more. The very detailed age composition provides data according to one-year age ranges with a time span of one calendar year. We can then work with data on the representation of all one-year age ranges best at the end of each calendar year and with the ability to capture a longer time series. The age ranges thus captured show, besides the possibility of assessing the ageing of the population, a number of other aspects. As the most interesting we can state:

- differences in the representation of key age groups, which are children, seniors and residents economically active,
- differences in the representation of men and women in the population,
- differences from the perspective of the average age (or age of modal or median)
- the ability to calculate life expectancy at birth,
- differences in the economic behaviour of different age categories,
- different social needs of individual age groups or generations,
- different opportunities or needs of the market in terms of economic activity of the population,
- impact on the education process (numbers of preschool, schoolchildren, students),
- problems of young or old populations (Lundquist, Anderton, Yaukey, (2015),

- impact on state social policy, etc.

There is a relatively large area of use of knowledge about the age structure of the inhabitants of regions and municipalities. In our case, we will try to show similarities and differences in the age structure of three regions: Moravia-Silesia (MS), the Silesian Voivodeship (SV) and the Opole Voivodeship (OV). The analytical time axis is the period between 2000 and 2017, i.e. the last 18 years. In the Czech Republic we have a total of 8 NUTS2 units, in Poland 16 NUTS2. In our three Cohesion Regions, today we live on an area of over 27,000 km^2 with a total of 7,125 million inhabitants (262 inhabitants/km^2). Over the last eighteen years, the population of all three cohesion regions has fallen, with a total decrease of more than 380,000 (Table 1).

Table 1 – Basic information about chosen NUTS 2 territories.

Code	NUTS-2					Population (mil.)		Density	
	Name origin	Name English		Country	Area (km^2)	2000	2017	2000	2017
CZ 08	Moravskoslezsko	Moravia-Silesia	MS	Czechia	5,427	1.278	1.207	235	222
PL 22	Województwo Ślaskie	Silesian Voivodeship	SV	Poland	12,333	4.775	4.548	387	369
PL 52	Województwo Opolskie	Opole Voivodeship	OV	Poland	9,412	1.072	0.990	114	105

Source: author

For our analysis, this is the starting point of approximately 7 million inhabitants, for which we will monitor the ageing process by evaluating three indicators:

- condition and change of relative representation of children,
- status and change of relative representation of seniors and
- state and change of age index.

While the first two indicators make it clear that it is the percentage of children and seniors in the entire population, the age index indicates how many seniors are per hundred children. At 100, it is clear that the representation of children and seniors is the same. For a value of less than one hundred, the predominance of children over the elderly is higher in the population, and the value of over one hundred in the population is the predominance of seniors over children. In order to identify the child population, the age range between 0 and 14 is unified at the global level. It is a period that mainly includes basic schooling and preschool age. The definition of seniors in different parts of the world is different. For European countries, however, this group is generally defined by age 65 and over (65+). Some demographers (Poston, Bouvier, 2017) monitor the population ageing by assessing the weight of seniors aged 60 and over (elder population) or 80 or more years (oldest-old population). We observe the process of ageing both from the point of view of the lower part of the age pyramid and from the point of view of the upper part of the age pyramid. Since the tendency of population decline over the past 18 years is the same for all regions, we can emphasize that the comparison of their ageing process is not significantly affected by the change in population size itself. Which means that there is no different effect of both the natural currency and the migration balance in particular on the ageing process.

2 Ageing View of Changes in the Representation of Children in the Population

We can speak of the start of the ageing process when examining the representation of a child's component in the population at a time when the weight of children drops below 20-22% and the relative seniors' ratio exceeds 10%. It is obvious, according to expert estimates, that for many centuries the weight of the children in the population has been in excess of 40%, which is twice as high as the value given to us to begin the ageing process from the bottom of the age pyramid. The beginning of this process in the Czech population can be found in the early 1970s, almost half a century ago. Apparently very similar to the Polish population. Our methodology of ageing process works in four phases, both in assessing the changes of the senior children's component, as well as in assessing the index of age index. The four phases of ageing, when we see changes in the representation of the child's component, are:

1. slightly ageing population (the weight of children over 17.5%),

2. ageing population (weight of children 13.5 to 17.4%),

3. elderly population (weight of children 12.5 to 13.4%) and

4. very old population (weight of children less than 12.5%).

The weights of children are declining in all the evaluated regions after 2000 (Figure 1), most of them in the Opole Voivodeship. Here the relative frequency of children decreased by 5% (64 thousand). The smallest decrease occurred in the Moravia-Silesia Region (decrease of 2%, 37 thousand) and Silesian Voivodeship (decrease by 3%, 174 thousand). Total childhood loss in the sum of three regions has reached nearly 275,000

children over the last 18 years. Moravian-Silesian and Silesian Voivodeship can be described by our methodology as an ageing population, the Opole population then an older population. It is clear that in the last almost ten years the situation has improved, so the weight of children is growing slightly. However, this positive process is so mild that the current projections up to 2030, which mainly reflect total fertility and the migration process, are still pessimistic and assume the subsequent even modest decreases in the weight of children. But none of these populations should reach the weight of children below 12.5% and thus in the age group.

Figure 1 – Development of the relative representation of children in the population of the regions after 2000. Source: author, data from Czech and Poland Statistical office
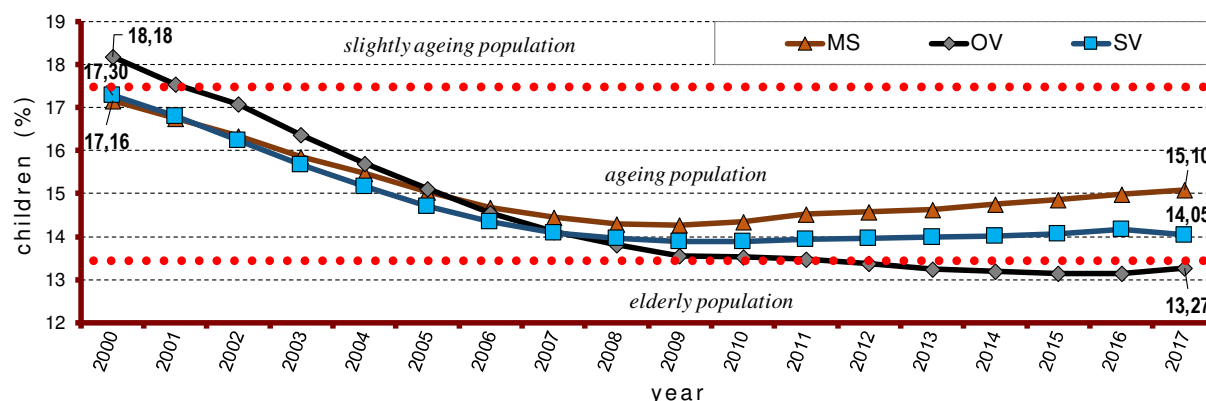
If today we have more than 960,000 children in three regions, then we expect them to reach approximately 765,000 by the end of 2030. In 2000, their number was 1,240,000. Our prognosis for children's regions for the regions looks as follows (Table 2):

Table 2 – Development of children's component of selected regions by 2030.

region	children (%)												
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MS	15.24	15.10	14.94	14.79	14.67	14.57	14.46	14.38	14.28	14.21	14.07	13.95	13.80
OV	13.36	13.41	13.43	13.39	13.34	13.30	13.24	13.17	13.10	13.01	12.91	12.79	12.58
SV	14.46	14.53	14.56	14.50	14.45	14.41	14.35	14.28	14.20	14.11	14.01	13.89	13.68

Source: author again data from Czech and Poland Statistical office

- The smallest relative number of children will continue to be in the Opole Voivodeship with a one-percent decline over the next twelve years.
- The Silesian Voivodeship and the Moravia-Silesia Region should be approximately equal in weight between 13.7% and 13.8%.
- The total decrease in children in the regions will reach almost 200 thousand.
- The largest absolute decrease in children will be the Silesian Voivodeship (125 thousand), Moravia-Silesia (41 thousand) and the Opole Voivodeship (33 thousand).

3 Ageing with a View to Changing the Representation of Seniors in the Population

The completely opposite trend towards the development of children's representation over the past twenty years (Graph 2) is evident at the relative frequency of the ageing component (citizens aged 65 and over). The largest increase in relative representation of seniors can be registered with the Moravia-Silesia (almost 7%, 74 thousand), Silesian Voivodeship (6%, almost 268 thousand) and Opole Voivodeship (5%, 42 thousand). Altogether, there were almost 383,000 seniors in the three regions. The four stages of ageing, when we see changes in seniors' representation, are:

1. slightly ageing population (seniors less than 17.5%);

2. ageing population (seniors weight 17.5 to 22.4%),

3. elderly population (Seniors weight 22.5 to 27.4%) and

4. very old population (the weight of seniors is over 27.4%).

Figure 2 – Development of the relative representation of elderly in the population of the regions after 2000. Source: author, data from Czech and Poland Statistical office
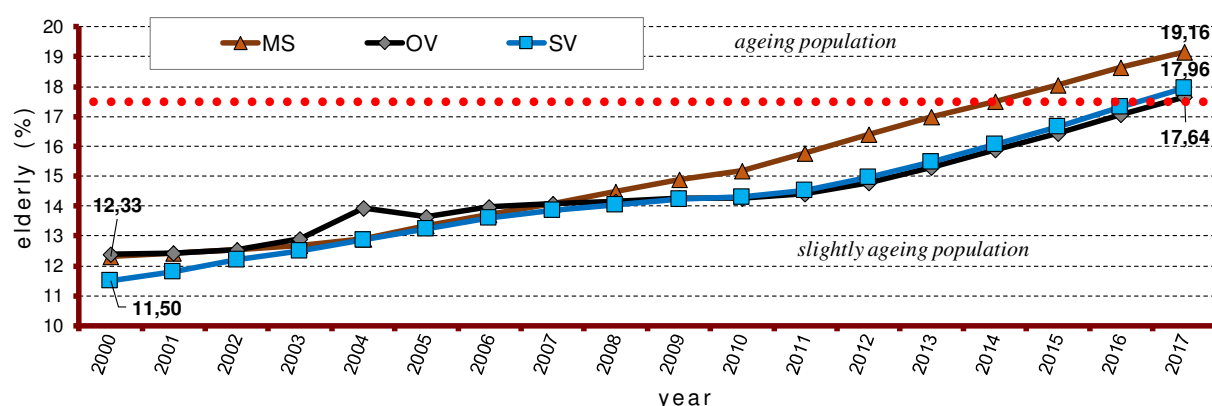
When comparing the changes of the two main age groups, it is obvious that more significant changes are experienced by older people (citizens aged 65+). This is also apparent from 2000 data (Figure 2). We can well compare that in the last 18 years the maximum percentage change in the child component was 5% (Opole Voivodeship), then the maximum percentage change in the seniors was almost 7% (Moravia-Silesia). Even the total values for the three regions show that the transformation of the senior component is much deeper. In addition, professional prognoses (Czech Statistical Office and Polish Statistical Office) also assume six to seven percent increase in seniors, but only in 12 years.

Table 3 – Evolution of seniors' representation in selected regions by 2030.

region	elderly (%)												
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
MS	19.71	20.32	20.76	21.26	21.77	22.25	22.63	22.94	23.28	23.66	24.16	24.71	25.18
OV	18.25	18.89	19.55	20.20	20.85	21.52	22.19	22.80	23.36	23.88	24.38	24.85	25.30
SV	18.62	19.27	19.95	20.61	21.28	21.94	22.54	23.VI	23.46	23.84	24.18	24.50	24.79

Source: author again data from Czech and Poland Statistical office

If today we have more than 1.2 million senior citizens in the three regions, then we expect at least 1.6 million by the end of 2030. In 2000, the seniors were less than 840 thousand. So we anticipate a doubling of the weight of seniors in just 30 years in the territory of three regions. For children, we expect a percentage change over the next twelve years to be around 1.0-1.5%, but for the ageing component we expect this change to be much greater. If, in the next 12 years, we estimate a decrease in the relative representation of children in the population by 1 to 1.5 percent, then we estimate the increase of the seniors by more than 5 percent over the same period. We assume that:

- In 2030, the 25 percent threshold for seniors in the Moravia-Silesia Region and the Opole Voivodeship will be exceeded.
- To cross this border in the Silesian Voivodeship will occur with a delay of one or two years.
- The total increase in the number of seniors in the surveyed regions is estimated at 340-350 thousand.
- Most seniors will be added to Silesian Voivodeship (240 thousand).
- In the Moravia-Silesia Region and the Opole Voivodeship, more than 100,000 seniors will be added together, which will share approximately the same weight.

4 Analysis of Ageing Process Using Age Index

A very widespread indicator of the intensity of age changes is the age index (*is*), which documents how many seniors per hundred children are in the population. The same representation of the two key groups represents the value of the index at 100. If the children population prevails over the elderly, the value is less than 100. Otherwise, the value is over 100. For many millennia, the human society was very young and the age index was well below the value 100, often even lower than 10. Today, this is only true for most African continent countries.

Our ageing process methodology is working again with four phases when evaluating ageing by age index:

1. slightly ageing population (the age index is less than 100 but more than 50);

2. ageing population (the age index is between 100 and 174);

269

3. elderly population (age index is 175 to 249) and

4. very old population (age index is 250 or more).

Figure 3 – Evolution of the ageing process of the regions' populations after 2000 (shown by age index). Source: author, data from Czech and Poland Statistical office
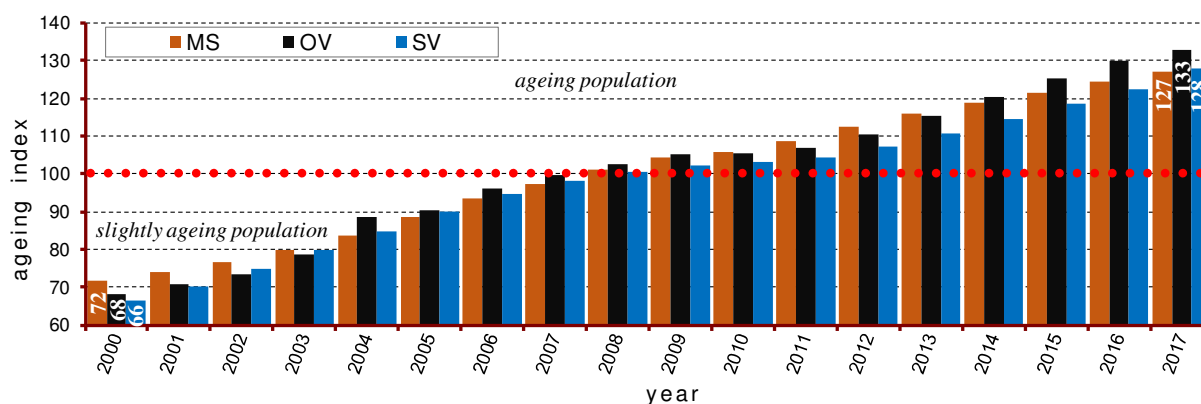
The process of ageing in the evaluated regions began already at the turn of the 1970s and 1980s. According to the indicator, it is clear that all three regions have a very similar evolution of the ageing process over the last eighteen years. By 2007, it was possible to include them in the development stage of a slightly ageing population. During 2008, however, all three regions outperformed 100 and thus ranked in a group of areas with an ageing population. Today, their ageing index values range from 125 to 133 (Figure 3). We can therefore see them as regions with an ageing population where the predominance of seniors over children is visible.

5 Conclusion

We consider demographic ageing (Rowe, Kahn, 1998) to be one of the most important long-term demographic processes of the present. Significant change in the age structure of the population is associated with most countries and regions of the world. Today, we are witnessing an acceleration of the ageing process, which is due to a significant decline in fertility rates (ageing from below) and mortality rates with the subsequent prolongation of human life (Hank, 2011). The ageing population of our state tells us that we have been a long-term ageing society, where, since the beginning of 1996, more than the child population of the population aged 60 years has been prevailing, and since 2006 also seniors aged 65 and over. This state is a good proof of the achieved value of the ageing index in 1996, when there were already 101 people aged over 60 per 100 children. At 31 December 1920, the size of the indicator was only 35, which meant 2/3 of the overpopulation of the child population. If we consider the ageing population to be over 65 years old, then we register their superiority since 2006. Today we know that by the end of 2017, the oldest citizens in the Czech population are already 4% more than children (it absolutely means seniors dominance of 370 thousand). At the same time, one hundred years ago, the children's component was almost 2.8 million and elderly (65 years and more) were only 620 thousand on the Czech Republic territory.

According to our forecast, all three regions will be enter to the group of elderly population after eight years. Their ageing index will be more than 175. Approximately 2030 is estimated to be 200 for the Moravia-Silesia and Silesian Voivodeship and 230 for the Opole Voivodeship. The population of the Moravia-Silesia and the two Polish Voivodeship will be very old around 2050 when their age index exceeds 250. There is no question of any significant deepening of the ageing process in populations of economically developed regions (Šotkovský, 2014, 2017). For practical purposes, it is advisable to have forecasts for the development not only of the total population size of the regions (Šotkovský, 2016) but also of the forecasts of the relative or absolute frequency of the two basic age components, children and elderly. Especially in relation to social and educational policies and their parts, which are aimed directly at improving the quality of life of both age groups.

The ageing population of all three regions is so similar and shows that the weight of the ageing process of these regions is above the average of the two countries. It turns out that the most serious problem of the ageing process is a significant increase in the weight of seniors aged 65 and over. Today they are around 18 to 19 percent in the evaluated regions. And according to the forecast, their relative weight will be around 25% in 2030. The current relative weight of the children of the regions is between 13 and 15 percent. Again, according to the forecast, their weight will be around 12.6 to 13.8% in 2030 (Figure 4).

Figure 4 – Population pyramid of Moravia-Silesia, Opole Voivodeship and Silesian Voivodeship in 2017. Source: author, data from Czech and Poland Statistical office
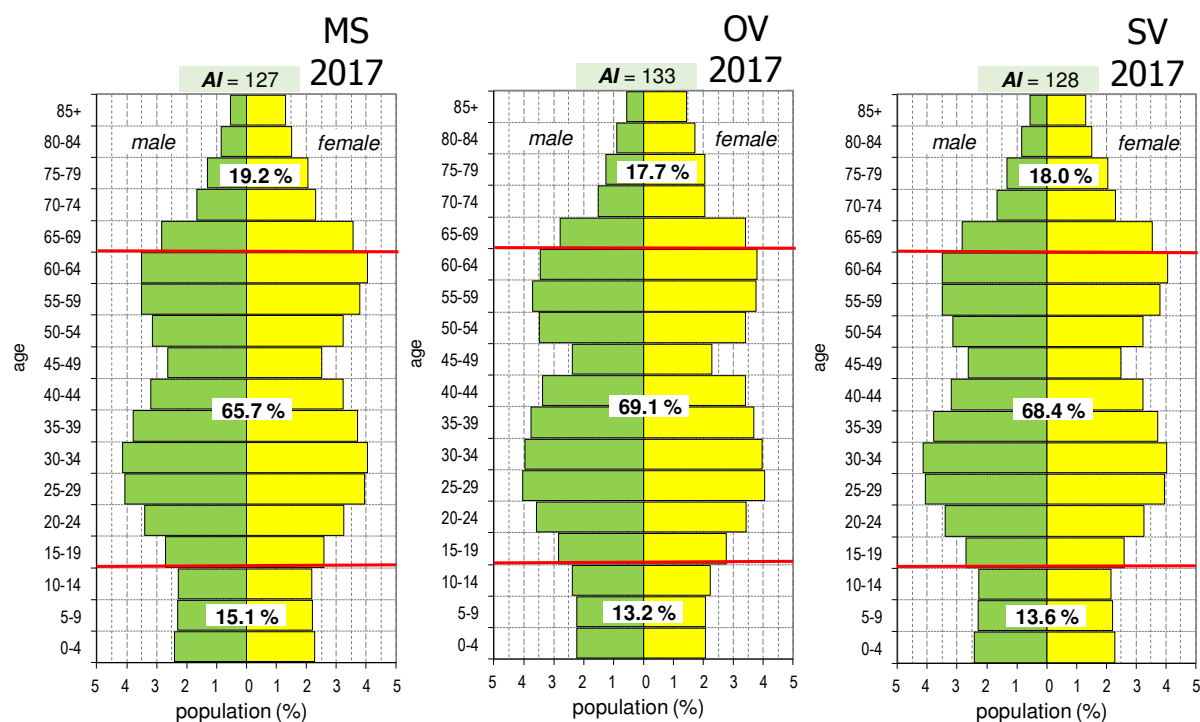
Relative representation of seniors in the regions is increasing not only by the increase in their absolute number at a level exceeding twenty thousand per year since 2000 but also due to:

- extending life expectancy at birth (about 80 years for the Czech Republic and Poland and their total population),
- decrease of the absolute and relative weight of the child component,
- reducing the population size of the regions (mainly due to negative net migration).

Over the last 18 years, the population loss of three regions (approximately 380,000 inhabitants) has equalled population growth of elderly people. Both remaining important age groups (children and the economically active population) are declining in absolute number. And this will be further amplify the problem of economically securing the needs of the elderly.

Obviously, Europe is ageing very strongly as the only one. The main strength of the ageing process is, of course, the growth of the total number of elderly people. We expect them to grow in the assessed territory at the level of 340 to 350 thousand by the end of 2030. We can equally weigh the ageing process in the next twenty years. By 2050, this process should culminate and the relative representation of seniors should be around 30-33%. It is obvious that the similarity of the ageing process between the Moravia-Silesia and the two Polish Voivodeships is very pronounced. Therefore, approaches to addressing this structural change could be discussed together, including proposals or implementing a number of measures.

The world's current ageing index is 32. Only about 2030 will the ageing process begin (*AI* will be more than 50). In more than 130 countries, the ageing index is now less than 50. Their child population exceeds the population of seniors twice. The ageing process concerns only less than a third of the world's states (62 countries) where live around 38 % of world population on the 47 % of the land area. Ageing population is typical of all European states (44 countries). Three-quarters of European population are in the second phase of the ageing process (ageing population). Only two country have very old population – Japan (*AI* is now 210, this mean more than 175) and Monaco (but this microstate is a very atypical case). Ageing index more than 100 has 33 European countries and only Japan, Canada and Korea.

The population of the three regions decreased about 0.59 million people from 7.3 million in 1990 to nearly 6.7 million in 2017 (about 8 %). The population decrease was in Opole Voivodeship (8.9 %), then Silesian Voivodeship (8.3 %) and Moravia-Silesia (6.5 %) for the last 28 years. Population of Moravia-Silesia and both Polish Voivodeships are ageing population from 2008. Ageing index of Opole Voivodeship is 133, Silesian Voivodeship 128 and Moravia-Silesia 127. Our forecast is very likely to reach more than 200 around 2030. The number of children has fallen by more than 275 thousand in the last 18 years. On the contrary, the number of seniors increased by more than 380 thousand. We expect the increase of the elderly by more than 340 thousand

by 2030 and the decrease of the children by 200 thousand for the same period. The total population of the three regions will fall by about 260 thousand.

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Public Administration as an Active Tool (to Maintain) Sustainable Development

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Abstract

The contribution is devoted to the issue of sustainable development tools, the relevant legal regulations, which stipulate the rights and obligations of the public administration in applying the principles of sustainable development to achieve the balance of its economic, social and environmental components.

In the research part of the contribution, which is based on questionnaire survey and interviews, the training of public administration officials in the field of sustainable development as well as the application of acquired knowledge and experience into practice will be analysed. The public administration officials are considered to be able to directly or indirectly influence the behaviour of sustainable development actors.

The aim of this paper is to verify how the administrative authorities use their legal rights in sustainable development to achieve the balance of its economic, social and environmental components.

Keywords: *administrative authority, decision-making, law, obligation, principles, official, sustainable development*

JEL Classification: K32

1 Introduction

The Principles of Sustainable Development were formulated by the Prime Minister of Norway G.H. Brundtland in 1987:

Sustainable development is a development that meets today's needs without compromising the possibilities of future generations to meet their own needs. It is basically a process of change in which resource utilization, technology development and institution transformation are aimed at harmonizing the current and future potential of meeting human needs and aspirations [1].

The State Environmental Policy of the Czech Republic defines a plan for implementing effective environmental protection in the Czech Republic by 2020.

The main objective is to ensure a healthy and quality environment for citizens living in the Czech Republic, to contribute significantly to the efficient use of all resources and to minimize the negative impacts of human activity on the environment, including cross state border impacts, thus contributing to improving the quality of life in Europe and globally[4]. That is also the reason, why this paper focuses on current states and education levels of employees from public administration in areas of environment protection, education and enlightenment.

2 Raising Public Awareness of Environmental Issues

In the Czech legal order sustainable development is defined in Act No. 17/1992 Coll., On the Environment as amended. Sustainable development of society is a development that preserves opportunities for the present and

future generations to meet their basic life needs while not reducing the diversity of nature and preserving the natural functions of ecosystems [9].

The Government of the Czech Republic is aware that sustained care for the environment is closely related to the state of environmental education of inhabitants [7] and public awareness and strives that Czech Republic continues to be a full-fledged partner fulfilling the conditions of membership in the European Union [5]. Environmental education, enlightenment and public awareness must be intertwined by all ministries and their managed departments. In addition, the structure and content of environmental education, enlightenment and, above all, public awareness in the Czech Republic must be based on legal norms, government resolutions, state environmental policies, international commitments and also regulations of European Union which all are binding on the Czech Republic.

Enlightenment, education of the public and public awareness are conducted in a way that they lead to thinking and acting in accordance with the principle of sustainable development, to the responsibility of maintaining the quality of the environment and its individual components, and to respecting life in all its forms[8].

Interdepartmental cooperation of the Ministry of the Environment was based on the belief that the implementation of the State Program of Environmental Education, Enlightenment and Public Awareness in the Czech Republic SP EVVO (State Program of Environmental Education, Enlightenment and Public Awareness – SP EVVO) will have an impact on the increased responsibility of the state administration, self-government, business community and the public to provide environmental education, enlightenment and increase public awareness, including the use of services and expertise of scientific institutions and their experts.

In its activities, the state administration must also support and use the capacities of its specialized institutions, non-governmental non-profit organizations (NGOs), the activities of educational institutions and all those interested in cooperation, including media.

In spite of all possibilities, the population of the Czech Republic is not sufficiently informed about the principles of sustainable development and is not even sufficiently prepared for their application in practice, as evidenced by a number of documents at the state and European Union level.

Raising public awareness of environmental issues is a way and a tool to improve the situation. The Ministry of the Environment of the Czech Republic therefore appeals to the basic principles of education and training. *"The basic prerequisite for the successful implementation of the state environmental policy of the Czech Republic is the adequate public awareness of the environment. Raising public awareness of the importance of environmental protection and its sustainable use leads the public to better understand context of economic, environmental and social development of society, to enhance the quality of decision-making of citizens as consumers and also to improve the quality of life."* [6]

The limiting problem of environmental education is insufficient preparedness of most pedagogical staff in the field of ecology and environmental education, as well as didactics of environmental education and upbringing. This reflects the fact that environmental awareness is significantly different from that in some other European countries.

An important position in the systematic education [3], enlightenment and awareness of the population in the field of sustainable development and environmental protection is position by the public administration. That is why the content of the paper focused on the survey at the state level of education of employees in the state administration and the self-government in the field of nature protection, environment and environmental education in general.

3 Results of the Research Investigation

The method of interview, analysis and induction was used in the theoretical and practical part of the paper. The method of analysis was used to analyse knowledge of respondent of legal norms. The authors used a qualitative data acquisition technique, a controlled interview (a formal group interview based on a categorization of the number of respondents) thanks to that authors were given ability to analyse the data given by respondents in the questionnaire.

To evaluate and draw conclusions, the induction method was used, creating opinions on solving the problem.

Results of the empirical survey were carried out among officials of selected municipalities and regions in the field of sustainable development issues.

The questionnaire survey was conducted in February 2018 and 153 respondents participated. Due to insufficient data 19 questionnaires were eliminated and 134 questionnaires were processed. First questions were of general

nature to determine gender, age, territorial self-governing unit and position in the state administration of the respondent.

Table 1 - Evaluation of respondent's personal data.

Age Sex	20-29	30-39	40-49	50-59	+60	Total
1. Men	9	9	10	8	2	38
2. Women	16	29	31	16	4	96
3. Total	25	38	41	24	6	134

Source: Own processing of the primary survey among the selected respondents

From completed questionnaires 26 respondents were officials of a statutory city, 85 respondents were officials of municipalities with extended powers and 23 were from municipalities with authorized municipal office.

From the point of view of the professional representation of the respondents, the layout was as follows:

- 23 respondents were from internal audit departments,
- 17 respondents were from population records departments / personal documents,
- 22 respondents were from environmental departments,
- 15 respondents were from the Trade Licensing Office,
- 11 respondents were from local tax collection departments,
- 5 respondents were from economic departments,
- 10 respondents were from education departments,
- 25 respondents were from the building office,
- 8 respondents were from area of crisis management,
- 10 respondents were from the Department of Transport,
- 12 respondents were from the Department of Control,
- 13 respondents were included in group "others"

Table 2 - Can you briefly define the concept of sustainable development.

	Yes	Partly	No
Question 2	102	30	2

Source: Own processing of the primary survey among the selected respondents

From the above data, it is clear that officials of municipalities, regions have knowledge and know the definition of the term, only 30 of them were able to define this concept at least partly and 2 respondents weren't able to define it, but have stated that the issue will be clarified by their own words.

Question 2 sought to find out the awareness of the issue of sustainable development by civil servants of municipalities and regions who were, on the basis of a selection procedure, accepted to the activities of a municipality or a region. It can be stated that the monitored respondents have a higher level of awareness.

Table 3 - Do you know some of the laws that aim to protect the environment? Name at least one.

	Yes	Rather not	Just barely	I don't know	No
Question 3	112	13	4	5	0

Source: Own processing of the primary survey among the selected respondents

Respondents responded positively. Yes answered 112 respondents, almost everyone from 112 answered correctly the environmental law. On the other hand, there were several respondents who have introduced the Charter of Fundamental Rights and Freedoms and the Civil Code and were aware of these facts.

Question 3 aimed to determine the respondent's knowledge of the legislation in question. It can be stated that respondents have knowledge of environmental legislation. The interview revealed that the environment is an inherent issue for respondents, not only in terms of job classification, as they said, it is necessary to pay attention

to it, to monitor its compliance with the law and instructions. And more severe punishments to those who disrespect the law.

Table 4 - Do you use the National Open Data Catalogue?

	Yes	**Yes, sometimes**	**No**	**I'm not aware it**
Question 4	96	28	8	2

Source: Own processing of the primary survey among the selected respondents

The questionnaire contained a question of transparency and open access to information. The aim of question 4 was to find out whether and how respondents use the National Catalogue of Open Data, operated by the Ministry of the Interior of the Czech Republic on the Public Administration Portal.

It is clear from Table 4 that respondents know the possibilities of using the National Catalogue of Open Data and they confirm that they work with open public administration data. Only 10 respondents do not use it or were not aware of the catalogue.

Table 5 - Agenda 21, what does the document relate to?

	Yes, it's related to environment	**It's about protection and management of natural resources**	**I don't know**
Question 5	89	29	16

Source: Own processing of the primary survey among the selected respondents

Of the total number of respondents, 89 respondents replied that the document is related to environment and also stated that the material contained 4 parts. More than 21% of respondents replied that the material is related to the protection of natural resources, and almost 12% of respondents didn't have the information that the document even exists. Some of the respondents referred to the Agenda 2030 from September 2015.

Table 6 - Are you applying sustainable development within your sphere of responsibility?

	Yes	**Rather not**	**With limitations**	**It's not in my job description**
Question 6	42	17	19	56

Source: Own processing of the primary survey among the selected respondents

The question concerned the application of sustainable development in the sphere of competence of the respondents, 42 respondents answered yes, 17 respondents stated that rather not, 19 respondents responded that they apply sustainable development with limitations, 56 respondents responded, i.e. almost 42 % of responders, that is not within their job description.

Table 7 - Have you been trained on the issue? If so, in what direction?

	Yes	**Occasionally**	**Training is related to the activity**	**No**
Question 7	42	13	71	8

Source: Own processing of the primary survey among the selected respondents

The aim of the question was to find out whether respondents in the framework of compulsory training of 18 hours per year also participate in training on sustainable development topics. From all surveyed responders 42 respondents stated that they attend training periodically, mainly due to amendments by the legislation, 13 responded occasionally, 71 respondents, i.e. almost 53 % choose the topics related to their expertise, 8 respondents stated that they haven't been trained at all for this issue.

Table 8 - Does your office or municipality provide systematic work in the preparation of education, enlightenment and awareness raising in the field of sustainable development?

	Yes	**I have no knowledge**	**Irregularly**
Question 8	112	5	17

Source: Own processing of the primary survey among the selected respondents

Respondents were offered the question of the possibility of further education which authors consider important. 112 respondents responded yes, 5 responded negatively, but 17 respondents said the office is providing education, but it is not on regular basis. The text of the questionnaire showed that representatives of municipalities and regions create the conditions for respondents to acquire further knowledge both in their field and in other areas of separate and delegated competencies. A special offer of training packages, as they say, is always in the course of amendments to the legal regulations or issued by the governing bodies.

Table 9 - Does your office (municipality) offer professional support (e.g. counselling, helpline, newsletter) to citizens in solving problems related to the fulfilment of sustainable development principles (e.g. waste disposal, energy savings, volunteer work, bio food, etc.). Please give examples.

	Yes, on a regular basis	**Offers selected issues**	**Offers irregularly**
Question 9	112	5	17

Source: Own processing of the primary survey among the selected respondents

The figures in the table only confirm the previously established fact that municipalities play a significant and important role in environmental protection, promoting sustainable development. Numbers show that municipalities should be valued for their activities and efforts to educate citizens to protect the environment and to build a society based on wise and safe management of nature, waste, energy and water.

4 Conclusion

The study of materials only confirmed the importance of enhancing and improving preparedness of environmental experts, especially for the sphere of public administration in accordance with the requirements of the European Union. This highlights the importance of increasing the capacity of the public administration to take decisions in administrative proceedings. Last but not least, it is well founded to create conditions for economically efficient development that conserve natural resources and energy and reduces necessary costs of eliminating environmental damage caused by neglect of public or an individual. Results of carried research prove in most cases that municipalities are to be appreciated for their leading citizens to environmental protection. The society based on a wise and safe usage of nature, waste disposal, energy and water recycling etc., that is the society of the future.

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International Comparison of Sources of Municipal Budget

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Abstract

The basic term in the measurement and assessment of public expenditure is a public finances monitoring, the essence of which is to monitor selected indicators concerning problems of management and use of public finances. Public finances monitoring may involve the management of the relevant spending/incoming processes as well as monitoring of economic indicators related to the rational use of resources. One of these indicators can be also incomes of municipalities or municipal budget that the municipality itself is able to influence to a certain extent by determining its amount in a range set by the law. The paper focuses on the income part of the municipal budget with an emphasis on the comparison of the current situation in Slovakia and the Czech Republic. In these two countries, local taxes and charges are compared, administration charges pointing to the specific differences in individual categories. We can claim that a state determines the amount of administration fees without the possibility of their adjustment on the part of municipalities. But by determining the amount of local taxes and charges, a state leaves a certain freedom of their determination in both countries.

Keywords: comparison, municipal budget, taxes

JEL Classification: E62, H71, R51

1 Introduction

One of the current topics at the time of the global economic crisis is management of entities (private and public). While management of business entities can be controlled at various levels and it is possible to modify their control mechanism, the municipalities are evaluated only on the basis of legal regulation of their activities since 2004 [9]. According to [5, 7] budgets of local self – governments (municipalities, regions) contain the following:

a) incomes and expenses related to activities of the local self-government and state administration within the scope of delegated competence,

b) financial relations

- with the public sector,

- with business entities,

- with the budgetary system, i.e. the state budget,

- with other municipalities and regions,

- with other entities.

In practice, various points of views on municipalities, municipal budget or self-government could be founded [2, 3, 11]. In accordance with Slovak legislation (Act no. 583/2004 Coll.) the municipal budget contains income and expenditures which express financial relations with legal and natural persons. The Czech legislation (Act no. 250/2000 Coll.) considers these financial relations to be separate and therefore they form the third component of the municipal budget.

2 Sources of Municipal Income

[4] divide sources of municipal income into taxes, subsidies, non-tax incomes and debt-based instruments. [7] outline several breakdowns of income, among which they included, for example, the following:

a) whether or not income is repayable/not repayable income,

b) time perspective (common, capital),

c) liability (obligatory, facultative),

d) planning (planned, unplanned).

The above breakdown is followed by [8], who outlines the structure of the municipal budget in the Figure 1.

Figure 1 – Sources of municipal income. Source: Toth (1998).
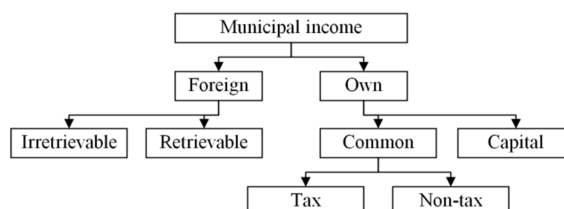
According to [6] the income of the municipality should be above all:

a) sufficiently profitable - to increase the degree of economic self-sufficiency of municipalities,

b) dependent on the municipality's activities - i.e. which the municipality can influence,

c) geographically distributed as evenly as possible - in relation to the needs of municipalities,

d) planned - short, medium and long-term plans,

e) not too demanding - the lowest administrative and tax collection costs and fees.

The comparison of the sources of municipal income in the Slovak Republic and the Czech Republic, which is also more analyzed at national level by [1, 9, 10], is outlined in the following table.

Table 1 – Sources of municipal income in SR and CR.

Slovak Republic - Act no. 583/2004 Coll.	Czech Republic - Act no. 250/2000 Coll.
- local taxes and fees	- income from property and property rights
- non-tax revenues from the ownership and transfer of ownership of the municipality's property and from the activities of the municipality and its budgetary organizations	- income from the results of its own activities
- revenues from municipal funds	- income from economic activities of legal persons (if established by the municipality)
- sanctions for violating financial discipline imposed by the municipality	- income from municipality's own management activities including revenues from the government activities imposed upon the municipality
- donations in favor of the municipality	- local fees
- share of taxes paid to the state	- tax revenues, share of taxes
- subsidies from the state budget reimbursing costs incurred when exercising governmental activities in accordance with the Budget Act valid for the respective financial year and subsidies from state funds	- subsidies from the state budget and from state funds
- other subsidies from the state budget in accordance with the Budget Act valid for the respective financial year	- subsidies from the budget of the region

- subsidies with special purpose from the budget of a higher territorial unit or from the budget of another municipality for the implementation of contracts under special regulations	- means obtained through the proper operation of other state administration bodies
- funds from the European Union and other funds from abroad provided for a specific purpose,	- received donations
- other income provided for by special regulations	- other income that, according to separate regulations, falls within the income of the municipality

Source: Own processing

The municipality in the Slovak Republic can also use funds, profit from business activities, repayable sources of financing and associated resources to fulfill its obligations. In the Czech Republic, the municipality can use funds provided through the National Fund as well as repayable resources.

2.1 Taxes as the Main Source of Income for the Municipal Budget

Taxes are one of the components of municipality's income (in CR - class 1) and they represent the price for public goods. Tax is legally binding, irreversible, usually a regular recurring payment to the public budget without the right to an equivalent payment from this budget. Act no. 563/2009 Coll. on Tax Administration specifies taxes according to special regulations (13 laws, e.g. Act No. 595/2003 Coll., on Income Tax) including interest on late payment, interest and fines according to special regulations (2 laws) and local tax for municipal waste and small construction waste according to special regulations (Act no. 582/2004 Coll.). Czech legislation (Act No. 280/2009 Coll. on Tax Code) understands the tax as follows:

a) payment which is legally designated as a tax, duty or fee,

b) payment which shall follow tax regulations (provided that the relevant law states so),

c) payment under divided management.

Taxes enter the municipal budget in two ways. The first way represents the entitlement of the municipality to a share of collected national taxes – either exclusive taxes (the municipality is the sole recipient of taxes, e.g. property tax) or shared taxes (the municipality earns a statutory percentage, e.g. from the income tax of natural persons). The second way represents local fees which are imposed by the municipality solely upon its own discretion. Tax revenues of the municipality in the Czech Republic consist of the following:

a) income tax of natural persons (shared tax - as the only one labeled as such in the Slovak Republic as well),

b) corporate tax (partly shared and partly exclusive tax),

c) value added tax (shared tax),

d) real estate tax (exclusive tax) - in the Slovak Republic it is a part of local taxes (fees),

e) local fees (exclusive tax),

f) administrative fees (exclusive tax).

2.2 Exclusive Taxes

The municipality is the sole beneficiary of exclusive taxes (Table 2). This group includes local taxes, administrative fees and real estate tax(which belongs to local taxes in the Slovak Republic). In the Czech Republic, the issue of real estate tax is regulated by Act no. 338/1992 Coll. This law sets tax rates and coefficients according to which the municipality can amend the amount of the property tax to be levied. Local taxes, as municipal income, are defined by Act no. 582/2004 Coll., on Local Taxes and Local Fee for Municipal Waste and Minor Construction Waste and Act no. 565/1990 Coll. on Local Fees. The Slovak law works with the concept of tax, while the Czech law works with the concept of fees.

Table 2 – Local taxes (fees) in SR and CR as of 1 July 2013.

Slovak Republic - Act no. 582/2004 Coll.	Czech Republic - Act no. 565/1990 Coll.
- property tax	- fee for dog's ownership
- dog tax	- fee for a healing or recreational stay
- tax for the use of the public space	- fee for the use of the public space
- accommodation tax	- fee on the entrance fee
- tax on vending machines	- accommodation fee

- tax on non-winning gaming machines	- fee for entry and stay of a motor vehicle in the specific partsof the city
- tax for entry and stay of a motor vehicle in the historic part of the city	- fee for collection, transportation, sorting, utilization and disposal of municipal waste
- tax on nuclear facility	- fee for the assessment of the building plot/the possibility of its connection to the water supply or sewerage system
- local fee for municipal waste and small construction waste	**Act no. 202/1990 Coll.**
	- revenue from levies imposed upon lottery and other similar games

Source: Own processing

A significant difference in the comparison of local taxes in the Slovak Republic and the Czech Republic is the determination of the tax rate. In the Slovak Republic, the municipality determines the tax rate for each specific tax (e.g. m2, number of days). Its amount is not limited by law, with the exception of real estate tax, nuclear facility tax and local tax for municipal waste and small construction waste.

Table 3 – Local tax rates in the Slovak Republic (in EUR).

Land tax	0,25 %/m^2, max. 1,25 %
Building tax	0,033 – 0,33 EUR/m^2
A tax on residential and non-residential premises in an apartment building	0,033 EUR/m^2, max. 0,33
Local fee for municipal waste and small construction waste	0,0033 – 0,0531/l (dm^3)
	0,0066 – 0,1659/kg
	0,0066 – 0,1095 /person/day
Tax on nuclear facility	0,0006 – 0,0039 depending on the nuclear facility

Source: Own processing

In the Czech Republic Act no. 565/1990 Coll. sets the upper limit for individual fees.

Table 4 – Local fee rates in the Czech Republic (in CZK).

Local fee	**Fee rate**
- fee for dog's ownership	- max. 1500 CZK/dog (legal exceptions - 200 CZK) - for the second and every other dog it is possible to increase the upper limit by 50%
- fee for a healing or recreational stay *	- max. 15 CZK/person/day
- fee for the use of the public space *	- max. 10 CZK/ person/day **
- fee on the entrance fee *	- max. 20 % of the total amount of the entrance fee (possible to agree on a lump sum)
- accommodation fee *	- max. 6 CZK/used bed/day
- fee for entry and stay of a motor vehicle in the specific parts of the city	- max. 20 CZK/day
- fee for collection, transportation, sorting, utilization and disposal of municipal waste	- max. 250 CZK/person/year + max. 750 CZK/person/year (according to the actual costs of the previous year)
- fee for the assessment of the building plot/ the possibility of its connection to the water supply or sewerage system	- must not exceed the difference between the price of the building plot without utilities and the price of the building plot with utilities/m^2
- fee for the operation of a gambling machine	- 55 CZK/VHP + 20 % partial levy***

Source: Own processing

* the law provides for exemptions that are exempt from paying the fee
** with regard to sales or advertising facilities, lunaparks and other attractions max. 100 CZK
*** the fee is further divided between the municipality and the state pursuant to Section 41i of this Act

The amount of administrative fees is determined by Act no. 145/1995 Coll. on Administrative fees or Act no. 634/2004 Coll. on Administrative fees. However, the two Acts do not clearly identify the administrative fees

payable to the municipality. For illustration, we outline the amount of the administrative fee for the act performed within the scope of the municipality in the Slovak Republic and the Czech Republic.

Table 4 – Selected administrative fees in the Slovak Republic and the Czech Republic as of 1 June 2013.

Administrative fee	Slovak Republic - Act no. 145/1995 Coll.	Czech Republic - Act no. 634/2004 Coll.
Signature verification	1,5 EUR/1 signature	30 CZK/1 signature
Checking into the Registry office's books	1,5 EUR/1 page	20 CZK/1 page
Permission to remove a building	20 EUR	100 CZK
Enabling landscaping	20 EUR	1000 CZK
Statement of citizenship	4,5 EUR	100 CZK
Issuing a driving license	6,5 EUR	50 CZK

Source: Own processing

3 Conclusion

We can consider the budget of a municipality that represents the lowest component part of public finances as the core of a system of municipal finances. Through its budget, the municipality provides its own activity as well as activities delegated to it by the state. One of the components of the municipal budget, the exclusive recipient of which is the municipality, are local taxes and fees as well as administrative charges. This way, the state allows municipalities in relation to their citizens to adjust their amount within the range set by the law. The difference in this adjustment lies within the specified range. In some cases, the Slovak legislation defines the range, in which the municipality can move, in some cases, however, the state leaves the municipality free hand in setting this rate, i.e. it does not set a ceiling on the rate, which can create a healthy competitive environment. The Czech legislation in setting tariffs limits municipalities to set their upper limit. However, the amount of administrative charges is defined by the state as a lump sum in both countries, which makes it impossible for municipalities to modify them; on the other hand, it clearly determines the value of the provision of a public good for ordinary consumption, as e.g. signature verification. We believe that the rate of local taxes and fees may represent an effective competitive advantage for the municipality and a tool for optimizing the financial revenues of the municipal budget.

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Technical Efficiency of Public Libraries of Small Municipalities

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Abstract

This article deals with the evaluation of technical efficiency of 66 municipal libraries of municipalities with 1,000 – 9,900 inhabitants using the Data Envelopment Analysis model for 2011 and 2015. Efficiency is estimated in input and output-oriented models. The inputs are the number of library units, the number of pieces of periodical literature, the number of new library units, the number of educational and cultural events for the public and the expenditure on the main activities in CZK. Outputs are registered users, visitors and loans. The results achieved show that the municipal libraries achieve the same efficiency in input and output models in the given years. In 2011, 45% of municipal libraries were fully efficient, and in 36% of municipal libraries were fully effective in 2015. The average total technical efficiency in 2011 was 0.96 (96%) and the average technical efficiency in 2015 was 0.86 (86%).

Keywords: Data Envelopment Analysis, efficiency, public library

JEL Classification: C67, H4, H10

1 Introduction

The efficiency of public services, in the light of population needs, public budgets, social change and scientific and technological progress, is often discussed at both political and expert levels. The consumer and strategic importance of public services in the area of culture, leisure activities and education is locally diverse, less and more socially attractive and urgent. The above types of services include those provided by public libraries. Public libraries are the most represented facilities in the Czech Republic providing specific public services in the field of education and culture. The definition of these services is regulated by Act No. 257/2001 Coll., On Libraries and Conditions for the Operation of Public Library and Information Services, as amended. According to the National Information Center for Culture (NIPOS), 5,353 public libraries were in the Czech Republic as of 31 December 2016, of which 4,555 were non-professional staff established by municipalities (small municipal libraries).

Public libraries set up by municipalities, the Library Act refers to them as basic libraries, they depend on the limited resources of public budgets and consequently on the interest of citizens in their services. Given that public service delivery is difficult to express through financial inputs and outputs, due to lack of direct customer service payments, it is possible to use technical efficiency for its use (Worthington, 1999; Stroobants, Bouckaert, 2014). Measurement of technical efficiency is a topic reflected in many research papers of the last fifty years. During this time, a number of different efficacy measures have been developed, including multi-criteria efficacy estimation methods, in particular Data Envelopment Analysis (DEA).

The aim of the article is to evaluate the technical efficiency of 66 public libraries of municipalities with a population served from 1,000 – 9,900 inhabitants using the Data Envelopment Analysis model for years 2011 and 2015.

The aim of the article was formulated on the basis of the theoretical bases and published knowledge on the issue of effectiveness of libraries in the Czech Republic (eg Stejskal et al., 2013, Richter, 2015, Vrabková, 2016, Vrabková et al., 2017, Vrabková, 2017). In general, it is possible to assume that smaller towns and municipalities

have lower numbers of registered readers and visitors than medium and large cities and have a lack of current library library, which is a key production potential of public libraries.

2 Methodology

Expression and estimation of different types of economic performance of production units (eg schools, hospitals, libraries, museums, theaters) not only according to Data Envelopment Analysis models but also other methods and models based on multi-criteria evaluation is related to the choice of specific performance indicators (Pirozek et al 2015, Papadaki et al., 2016, Vavrek et al., 2017, Ardielli, Becica, 2018). The results of the effectiveness of production units are always limited by the set of inputs and outputs evaluated. Examples of inputs and outputs in the model of technical efficiency according to Data Envelopment Analysis in the conditions of public libraries in different countries are illustrated by a number of publication outputs (Vitaliano, 1998; Worthington, 1999; Hammond, 2002; Miidla, Kikas, 2009; De Witte, Geys, 2011; Li, Yang, 2014; Stroobants, Bouckaert, 2014).

2.1   Model DEA

The DEA is considered to be a universal evaluation tool, which means that it can be used in the productive sector as well as in the profitable and non-profit sector, given the homogeneity of production units. DMUs - Decision Making Units (DMUs) form a set of units that deal with the production of identical or equivalent effects that are referred to as outputs of these units (Jablonský and Dlouhý, 2015).

The calculation of efficiency according to the CCR model is performed using the Charnes-Cooper's transformation and converted from linear-fractional programming into a standard programming task. The CCR model assumes constant returns to scale (CRS). In case of the CCR model oriented on the inputs, the calculation is formulated as follows:

maximize
$$z = \sum_i^r u_i\, y_{iq,}$$
(1)

on conditions
$$\sum_i^r u_i\, y_{ik} \leq \sum_j^m v_j\, x_{jk,} \qquad k = 1, 2, \dots, n,$$

$$\sum_i^r u_i\, y_{iq} = 1,$$

$u_i \geq \varepsilon$
$\qquad i = 1, 2, \dots, r,$

$$v_j \geq \varepsilon, \qquad\qquad j = 1, 2, \dots, m.$$

If the z value equals one, the U_q unit is efficient. For inefficient units, it applies that their degree of efficiency is lower than one, i.e. $z < 1$ (Coelli et al., 2005).

The CCR model oriented on the outputs (2) follows the same assumptions as the above-mentioned model (1). Again, in this model, the coefficient of efficiency is determined by the ratio of weighted sum of inputs and weighted sum of outputs; however, such weights are being looked for, so that the g coefficient's value is higher or equal to one. So, for an efficient unit U_q, it applies that the coefficient $g = 1$, and for an inefficient unit that $g > 1$.

The primary CCR model oriented on the outputs is formulated this way:

minimize
$$g = \sum_j^m v_j\, x_{jq,}$$
(2)

on conditions
$$\sum_i^r u_i\, y_{ik} \leq \sum_j^m v_j\, x_{jk,} \qquad k = 1, 2, \dots, n,$$

$$\sum_i^r u_i\, y_{iq} = 1,$$

$u_i \geq \varepsilon$
$\qquad i = 1, 2, \dots, r,$

$$v_j \geq \varepsilon, \qquad\qquad j = 1, 2, \dots, m.$$

The calculation of efficiency according to the BCC model has one additional variable in its objective function (in comparison with the CCR), which corresponds with the restricting condition – condition of convexity, and which will not be restricted by conditions of non-negativity. The BCC model assumes variable returns to scale (VRS).

The on the inputs oriented BCC model's calculation has the following form (3):

maximize
$$z = \sum_i^r u_i\, y_{iq} + \mu,$$
(3)

on conditions
$$\sum_i^r u_i\, y_{ik} + \mu \le \sum_j^m v_j \qquad k = 1,\ 2,\ \ldots,\ n$$

$$\sum_j^m v_j\, x_{jq} = 1,$$

$u_i \ge \varepsilon,$ $\qquad k = 1,\ 2,\ \ldots,\ r$

$v_j \ge \varepsilon,$ $\qquad k = 1,\ 2,\ \ldots,\ m,$

$\mu - free.$

The on the outputs oriented BCC model's calculation has the following form (4):

minimize
$$g = \sum_i^m v_j\, x_{jq} + v, \tag{4}$$

on conditions
$$\sum_i^r u_i\, y_{ik} \le \sum_j^m v_j\, x_{jk} + v,\ \ k = 1, 2, \ldots, n,$$

$$\sum_i^r u_i\, x_{iq} = 1,$$

$\quad u_i \ge \varepsilon,$ $\qquad i = 1, 2, \ldots, r,\ v - free.$

The degree of technical efficiency, which is calculated according to the CCR and BCC models, is a basis for the calculation of the so-called scale efficiency (SE) according to the formula (5). Cooper et al. (2007) define the scale efficiency as the ratio of the degree of efficiency of a decision-making unit gained by the CCR θ_{CCR}^* and the BCC θ_{BCC}^* model, where the degree of the decision-making unit's SE is lower or equal to one. The formula (5) stated below, considers the orientation on the inputs, whilst the same indicator and procedure can be applied in case of the orientation on the outputs.

$$SE = \frac{\theta_{CCR}^*}{\theta_{BCC}^*} \tag{5}$$

The decomposition of the technical efficiency (6) allows to express the so-called pure technical efficiency (PTE) and the scale efficiency (SE).

$$CCR\ \theta_{CCR}^* = \theta_{BCC}^* \times SE, \tag{6}$$

The above-stated facts show that the degree of efficiency calculated by the CCR model is being noted as the total technical efficiency (TE), and the degree of efficiency calculated by the BCC model as the pure technical efficiency (PTE). This specific decomposition explains the sources of inefficiency, thus whether the cause of inefficiency lies in the operation (pure technical efficiency), or in unfavourable conditions (scale efficiency), or in both.

The DEAFrontier Add-In for Microsoft Excel program was used to model the technical efficiency of public libraries.

2.2   Data: Inputs and Outputs

The technical efficiency of 66 municipal libraries (OK1-OK66) for 2011 and 2015, evaluate on the specific inputs (X1-X5) and outputs (Y1-Y3) were selected. Inputs and outputs are expressed and analyzed in recalculated values per 1 ths. inhabitant the of a particular municipality (eg number of library units per 1 000 inhabitants, etc.). The data was obtained courtesy of the libraries concerned from the non-public database of the Benchmarking Libraries project. Estimation of technical efficiency according to the DEA model includes an assessment of input and output-oriented efficiency models, which assume constant yields from the range (CRS) and variable yields from the range (VRS). The CCR CRS and BCC VRS models estimate the static technical efficiency in 2011 and 2015.

The inputs are:

- X1 number of library units; X2 the number of pieces of periodical literature; X3 the number of new library units; X4 the number of educational and cultural events for the public; X5 the expenditure on the main activities in CZK.

The outputs are:

- Y1 registered users, Y2 visitors and Y3 loans.

The average values of inputs and outputs of 66 municipal libraries are characterized in Table 2, which contain the average recalculated values for each year and the period 2011-2015. A mere comparison between years shows that input and output figures do not show a clear increase or decrease. Entries moderately tend to grow

over the five-year period and outputs tend to decline slightly. Between 2011 and 2015, in addition to the X3 library input, a positive absolute increment $\bar{d}$ was recorded for all inputs.

The most positive positive growth factor $\bar{k}$ between 2011 and 2015 was recorded by X4 (4.4%). In the case of outputs, negative absolute increment $\bar{d}$ is recorded only for Y2. The positive absolute increment $\bar{d}$ is at the output Y3.

Table 2 - The average values of inputs (X1-X5) and outputs (Y1-Y3), years 2011-2015.

N = 66	2011	2012	2013	2014	2015	2011-2015	$\bar{d}$	$\bar{k}$
X1	6,101.1	6,018.0	6,101.2	6,160.4	6,102.5	6,096.6	0.4	1.000
X2	10.1	9.7	10.1	10.3	10.2	10.1	0.0	1.010
X3	248.3	231.9	234.2	238.5	231.8	236.9	-4.1	0.982
X4	18.9	20.6	20.7	21.6	22.6	20.9	0.9	1.044
X5	273,529.9	269,313.4	280,363.4	290,139.5	305,973.9	283,864.0	8,111.0	1.029
Y1	163.1	165.1	164.5	163.5	163.4	163.9	0.1	1.000
Y2	3,193.6	3,247.5	3,254.8	3,322.7	3,138.5	3,231.4	-13.8	0.995
Y3	5,511.5	8,308.3	8,331.7	8,052.2	7,820.6	7,604.9	577.3	1.092

Source: Own calculations. The internal data of the Benchmarking Libraries project.

The table 3 focuses on the boundary years of the observed period and shows, in addition to the average values, the results of the variation of the input and output ranges (the difference between the maximum and the minimum) and the variance in the standard deviation. Input and output values in Table 3 show a high degree of diffusion from the arithmetic mean.

Table 3 - Basic statistical description of inputs (X1-X5) and outputs (Y1-Y3), years 2011 a 2015.

N=66	2011				2015			
	min.	max.	average	SD	min.	max.	average	SD
X1	1,451.8	19,591.7	6,101.1	2,982.9	1,857.1	19,645.1	6,102.5	2,670.0
X2	1.2	45.1	10.1	7.0	0.0	73.3	10.2	9.4
X3	22.3	2,181.6	248.3	257.2	86.7	701.1	231.8	107.7
X4	0.7	89.3	18.9	15.7	0.7	108.5	22.6	17.7
X5	60,249.0	548,500.0	273,529.9	105,245.0	66,899.8	713,215.6	305,973.9	134,496.7
Y1	76.2	355.0	163.1	64.9	71.7	344.1	163.4	60.5
Y2	690.1	6,946.3	3,193.6	1,424.0	1,005.1	6,976.3	3,138.5	1,275.5
Y3	1,008.0	11,242.3	5,511.5	2,230.4	2,630.6	17,954.5	7,820.6	3,700.5

Source: Own calculations. The internal data of the Benchmarking Libraries project.

The comparison of the average input values between 2011 and 2015 shows that only one entry of X3 has its average value in 2015 compared to 2011, while for other inputs these values have risen or stagnated. A comparison of average outputs shows that Y1 output in 2015 rose slightly compared to 2011, while output Y3 increased significantly.

3 Results and Discussions

The summary results of static technical efficiency are shown in Table 4 (input – oriented model for 2011 and 2015) and Tab. 5 (Output - oriented Model for 2011 and 2015).

In the models predictive of constant returns (CRS), which reflect the overall technical efficiency (TE), the efficiency of municipal libraries is slightly worse than in VRS models that show net technical efficiency (PTE) both in both input and output oriented models. Overall results show that better results are OK in 2011 than in 2015. This confirms the number of effective units (e = 1), the average value of efficiency and the value of the standard deviation.

Tabulka 4 – Summary results of Model 2011 and Model 2015.

Inputs- oriented model (OK=66)	Model 2011			Model 2015		
	TE	PTE	SE	TE	PTE	SE
Average (e)	0.9622	0.9771	0.9845	0.8559	0.9015	0.9472
Worst (<1)	0.6273	0.6404	0.9064	0.5142	0.6430	0.7382
Number of efficient (e=1)	30	45	30	24	32	24
Standard deviation (SD)	0.0667	0.0600	0.0242	0.1458	0.1231	0.0753

Source: Own calculations.

The aggregate results of each component of technical efficiency can also be expressed as a percentage when the unit reaches 100% efficiency. From Table 4, it is evident that the average TE of municipal libraries in 2011 was 96% and in 8615 it was 86%; the average PTE of municipal libraries in 2011 was 98% and 90% in 2015; the average SE of municipal libraries in 2011 was 98% and in 9515 it was 95%.

The least efficient in 2011 was the OK33, OK45 and OK48 entry-level model entry libraries, and the OK39, OK58 and OK60 libraries in 2015. The specific names of the municipalities of the evaluated libraries include the results achieved in the annexes (see Table A).

Table 5 - Summary results of Model 2011 and Model 2015.

Output-oriented model (OK=66)	Model 2011			Model 2015		
	TE	PTE	SE	TE	PTE	SE
Average (e)	1.0458	1.0315	1.0141	1.2087	1.1456	1.0557
Worst (>1)	1.5940	1.5877	1.1033	1.9448	1.9306	1.3225
Number of efficient (e=1)	30	45	30	24	32	24
Směrodatná odchylka	0.0960	0.0946	0.0241	0.2403	0.2200	0.0832

Source: Own calculations.

The table 5 shows, that is the average TE of municipal libraries in 2011 was 95% and in 79% 79%; the average PTE of municipal libraries was 97% in 2011 and 85% in 2015; the average SE of municipal libraries was 99% in 2011 and 94% in 2015. The least efficient in 2011 was the OK33, OK45 and OK48 Output Oriented Model, and OK39, OK58 and OK60 libraries in 2015, the same libraries as in the entry-level model of the same year.

The public libraries achieved comparable results in both entry and exit models in both years. This means that efficiency improvements need to be sought both on the input side and the output side. Inappropriate libraries should reduce their inputs (production resources) and at the same time strive to increase their outputs by increasing the number of visitors, registered readers and the number of borrowings made.

In the case of inputs, it is a reduction of out-of-date library collections, magazines and periodicals, but also the number of educational and cultural events and expenses for the operation of the library. Additions, or new library units included in the library pool, need not be reduced to the contrary. In support of the above, it is necessary to mention that the center of gravity of public library services lies in ensuring the general availability of information resources that are concentrated in the library collection. The library is the main and at the same time a key source and instrument of providing library services. The scope, content, variety, timeliness and accessibility of the book fund determines the range of services and, at the same time, limits the demand for library services (Hibner, Kelly, 2013). The National Library of the Czech Republic (2016) has drafted a draft of the Library Supplementation and Updating Standards. This standard builds on the Standard for a Good Library and is based on the assumption that a smaller and high quality fund is used more than a large fund but with a large share of old, damaged and outdated books where the newer titles are losing average quality.

4 Conclusion

The paper evaluated the technical efficiency of 66 municipal libraries from the Czech Republic, which were selected according to the size category determined by the served population of 1 - 9.9 thousand. resident. The technical efficiency is calculated according to the DEA model and the limited set of selected inputs and outputs. Through the DEA model, the effective production boundary of homogeneous units (municipal libraries) is estimated, the units are identified as effective and inefficient. The decomposition of technical efficiency makes it possible to express pure technical efficiency and range efficiency.

The results achieved show that the municipal libraries achieve the same efficiency in input and output models in the given years. In 2011, 45% of municipal libraries were fully efficient, and in 366% of municipal libraries were fully effective in 2015. The average value and the standard deviation of the Efficiency Index indicate that the evaluated file is in most performance consistent. The effectiveness of municipal libraries is regretted by the

limited technological possibilities of community libraries that are relevant to the library collection. Although we can state that in 2015 municipal libraries achieved worse efficiency results than in 2011, the trends in the DEA models can not be evaluated by the Malmquist index.

Acknowledgements

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Appendix

Table A – Results of technicall efficiency, public libraries municipalities 1,000 - 9,900 inhabitants, years 2011 a 2015

Public libraries municipalities 1,000-9,900 - 9,9 inhabitants		2011						2015					
		Input-oriented			Output-oriented			Input-oriented			Output-oriented		
		TE	PTE	SE	TE	PTE	SE	TE	PTE	SE	TE	PTE	SE
Nové Město nad M.	OK1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9062	1.0000	0.9062	1.1035	1.0000	1.1035
Chotěboř	OK2	0.9661	1.0000	0.9661	1.0351	1.0000	1.0351	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Nová Paka	OK3	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7321	0.7898	0.9269	1.3659	1.3567	1.0068
Přelouč	OK4	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9029	0.9034	0.9994	1.1076	1.0989	1.0079
Tišnov	OK5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Dobříš	OK6	0.9140	1.0000	0,9140	1.0941	1.0000	1.0941	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Choceň	OK7	0.9627	1.0000	0.9627	1.0387	1.0000	1.0387	0.8903	0.8930	0.9970	1.1232	1.1211	1.0018
Štětí	OK8	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9346	0.9476	0.9862	1.0700	1.0633	1.0063
Semily	OK9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Milevsko	OK10	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7534	0.9843	0.7655	1.3272	1.0084	1.3162
Příbor	OK11	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Praha - Radotín	OK12	0.8835	0.8951	0.9870	1.1319	1.1230	1.0080	0.7724	0.7758	0.9956	1.2946	1.1903	1.0876
Duchcov	OK13	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9327	0.9377	0,9947	1.0722	1.0522	1.0190
Týn nad Vltavou	OK14	0.9138	1.0000	0.9138	1.0944	1.0000	1,0944	0.8379	0.8955	0,9356	1.1935	1.1648	1.0246
Dačice	OK15	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8171	0.8223	0.9938	1.2238	1.1730	1.0433
Sedlčany	OK16	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8774	1.0000	0.8774	1.1398	1.0000	1.1398
Vratimov	OK17	0.9514	0.9655	0.9854	1.0511	1.0392	1.0114	0.6757	0.9031	0.7482	1.4799	1.2988	1.1394
Napajedla	OK18	0.9909	0.9910	0.9999	1,0091	1,0091	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Lipník nad Bečvou	OK19	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Soběslav	OK20	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Kostelec nad Orlicí	OK21	0.9585	1.0000	0.9585	1.0433	1.0000	1.0433	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Žamberk	OK22	0.9064	1.0000	0.9064	1.1033	1.0000	1.1033	0.6547	0.6817	0.9605	1.5273	1.2343	1.2374
Fulnek	OK23	0.9444	0.9715	0.9721	1.0589	1.0357	1.0224	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Odolena Voda	OK24	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Úpice	OK25	0.9963	0.9969	0.9994	1.0037	1.0030	1.0006	0.7736	0.8330	0.9287	1.2927	1.1181	1.1561
Brumov-Bylnice	OK26	0.9917	1.0000	0.9917	1,0084	1.0000	1.0084	0.9427	0,9634	0,9785	1,0608	1,0274	1.0325
Kunovice	OK27	0.9681	1.0000	0.9681	1.0329	1.0000	1.0329	0.8687	1.0000	0.8687	1.1512	1.0000	1.1512
Vrbno pod Pradědem	OK28	0.9423	0.9495	0.9923	1.0613	1.0553	1.0056	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Chlumec nad Cidlinou	OK29	0.9556	1.0000	0.9556	1.0465	1.0000	1.0465	0.7169	0.7249	0.9891	1.3948	1.3827	1.0087
Doksy	OK30	0.9409	0.9566	0.9835	1.0629	1.0479	1.0143	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Valašské Klobouky	OK31	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8839	0.8851	0.9987	1.1313	1.0605	1.0667
Horažďovice	OK32	0.9837	1.0000	0,9837	1.0166	1.0000	1.0166	0.6654	0.6905	0.9637	1.5028	1.2068	1.2452
Modřice	OK33	0.7150	0.7872	0.9084	1.3986	1.3881	1.0075	0.7848	0.8091	0.9699	1.2743	1.2536	1.0165
Police nad Metují	OK34	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6917	0.6933	0.9977	1.4457	1.1756	1.2297
Pečky	OK35	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7493	0.8242	0.9092	1.3345	1.3055	1.0223
Hostinné	OK36	0.9495	0.9687	0.9802	1.0532	1.0348	1,0178	0.9102	0.9108	0.9993	1.0987	1.0925	1.0057

Králíky	OK37	0.9143	0.9158	0.9984	1.0937	1.0871	1.0061	0,6542	0.6621	0.9881	1.5286	1.3410	1.1399
Rožmitál pod T.	OK38	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8707	1.0000	0.8707	1.1485	1.0000	1.1485
Paskov	OK39	0.9505	0.9579	0.9922	1.0521	1,0463	1,0056	0.5505	0.6575	0.8373	1,8167	1.7666	1.0283
Zdice	OK40	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9640	1.0000	0.9640	1,0374	1.0000	1.0374
Planá nad Lužnicí	OK41	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.6166	0.7310	0.8435	1,6219	1.5779	1.0279
Mosty u Jablunkova	OK42	0.9758	0.9910	0.9846	1.0248	1.0111	1.0135	0.6879	0.8767	0.7846	1.4537	1.3428	1.0826
Kamenice nad Lipou	OK43	0.9463	1.0000	0.9463	1.0567	1.0000	1.0567	0.7789	0.8858	0.8793	1.2838	1.0501	1.2226
Smržovka	OK44	0.9388	0.9829	0.9551	1.0652	1.0278	1.0364	0.7953	0.9724	0.8179	1.2574	1.0564	1.1902
Nepomuk	OK45	0.6273	0.6404	0.9796	1.5940	1.5877	1.0040	0.5746	0.6517	0.8816	1.7405	1.7404	1.0001
Jablonné nad Orlicí	OK46	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.7412	0.7454	0.9944	1.3491	1.3073	1.0320
Třemošnice	OK47	0.9729	0.9908	0.9819	1.0279	1.0101	1.0176	0.6574	0.7004	0.9387	1.5211	1.5017	1.0129
Dobrá	OK48	0.7474	0.7607	0.9826	1.3379	1.3344	1.0026	0.8971	1.0000	0.8971	1.1147	1.0000	1.1147
Opočno	OK49	0.9952	1.0000	0.9952	1.0048	1.0000	1.0048	0.6467	0.6572	0.9840	1.5463	1.4107	1.0961
Velvary	OK50	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Rtyně v Podkrkonoší	OK51	0.9316	0.9659	0.9645	1.0735	1.0290	1.0432	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Jevíčko	OK52	0.9938	1.0000	0.9938	1.0063	1.0000	1.0063	0.7561	1.0000	0.7561	1.3225	1.0000	1.3225
Čerčany	OK53	0.9946	1.0000	0.9946	1.0054	1.0000	1.0054	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Rychnov u Jab.nad N.	OK54	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Bohuňovice	OK55	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Nová Včelnice	OK56	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.8995	1.0000	0.8995	1.1117	1.0000	1.1117
Janovice nad Úhlavou	OK57	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9345	0.9477	0.9860	1.0701	1.0698	1.0003
Němčice nad Hanou	OK58	0.9622	0.9731	0.9887	1.0393	1.0290	1.0101	0,5585	0.7567	0.7382	1.7904	1.7377	1,0303
Zásmuky	OK59	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Řepiště	OK60	0.9326	0.9464	0.9854	1.0722	1.0606	1.0110	0.5142	0.6430	0.7997	1.9448	1.9306	1.0074
Libáň	OK61	0.9454	0.9620	0.9827	1.0578	1.0419	1.0152	0.7142	0.7427	0.9617	1.4001	1.3935	1.0048
Častolovice	OK62	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Hnojník	OK63	0.9302	1.0000	0.9302	1.0751	1.0000	1.0751	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Holasovice	OK64	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Brandýs nad Orlicí	OK65	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Jarošov nad Nežárkou	OK66	0.9134	0.9185	0.9944	1.0948	1.0795	1.0141	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Source: Own calculations.

Spatial Diversity of Environmental Governance in the Aspect of Sustainable Development of the Polish-Czech Border Area

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Abstract

The current action plan for implementing sustainable development is the "Agenda for Sustainable Development 2030" includes the goals which determine the three dimensions of sustainable development, i.e. economic, social and environmental.

Dynamically developing Geographic Information Systems (GIS) and widespread availability of spatial information resources are analytical tools supporting the monitoring and implementation of these objectives and are widely applicable in this research area.

The aim of the study was to determine the spatial diversity of the environmental governance level and its components in the following areas: climate change, energy, air protection, land use, biodiversity and waste management. With regard to the spatial issue of the study, the districts of Dolnośląskie, Opolskie and Śląskie Provinces were analysed, which are located on the Polish-Czech border.

Indicators and metadata characterising the environmental governance were obtained from the platform reporting sustainable development indicators, which were implemented in the ArcGIS programme.

In order to obtain the typology of the studied area, due to the spatial variability of environmental governance indicators, research methods in the field of multidimensional data mining techniques and geospatial analyses were used.

The analyses carried out indicate spatial diversity of the environmental governance in terms of sustainable development of the analysed areas.

1 Introduction

Sustainable development is a complex process of changes that seeks to meet the needs of the present generation through integrated actions in the field of economic and social development, while at the same time maintaining the balance of the natural environment, without compromising development opportunities for future generations [1]. The 2030 Agenda for Sustainable Development is the current action plan with seventeen Sustainable Development Goals. In Poland, the sustainable development policy is based on the "Strategy for Responsible Development," which is the overriding strategic document containing the development model for Poland consistent with the concept of the world set out by the UN in the Agenda [2].

One of the main challenges of the contemporary world in terms of sustainable development and its skilful and practical implementation is still insufficient knowledge on how much all activities undertaken for the purpose of

social and economic development of the world around us affect the environment. In order to monitor the level of sustainable development in the context of its governance and make strategic decisions in the implementation of the concept of sustainable development, it is necessary to consider many complex and interrelated factors, and their configurations in space.

Modern practice and contemporary science have many tools to identify the factors which determine the level of sustainable development at the local level. The problem, however, is that there are insufficient modern mechanisms to perform a comprehensive analysis of these factors. Moreover, it is necessary to implement the results of this analysis so that commune and district self-governments are able to carry out integrated actions towards rational shaping of sustainable development.

The answer to these needs is geo-information technology, which models complex geographical reality and its attributes using the Geographic Information Systems (GIS) [3],[4],[5]. These systems capture and integrate spatial data from different sources and allow for the use of different data analyses and operations to describe selected characteristics of the geographical world in digital form [6], [7], [8], [9], [10]. Thanks to the increasing functionality of GIS and availability of infrastructure for spatial information resulting from the INSPIRE Directive [11], GIS databases and geospatial analyses became also the basis for the implementation of this technology in the broadly understood research focused on modelling environmental components crucial for sustainable development. Numerous applications of GIS databases in the field of ecology, environmental protection, landscape geography, hydrology, sustainable urban and rural development illustrate the use of spatial information [12], [13], [14], [15], [16], [17], [18]. Complex spatial phenomena are analysed to understand the factors determining specific temporal and spatial relationships, and specify their influence. For the purpose of such analysis, it is necessary to transform the primary data to obtain new, useful spatial information. Such information is invisible or difficult to identify when large primary data sets are analysed [19]. One of the techniques used for extracting new information from data sets is exploratory analysis of spatial data which combines functions of the GIS package and capabilities of advanced statistical software to perform complex analyses of the surrounding space [20], [21], [19].

The extraction of information from spatial data and their attributes organised in the geodatabase allows for the determination of certain regularities occurring in time and space, serving at the same time as an important source of knowledge for bodies and entities responsible for the implementation of sustainable development tasks, both at the local and global level [22], [23]. Rapid urban development and over-exploitation of natural resources entail the necessity to search for the balance between meeting people's needs and achieving environmental objectives, which is a difficult and complex task. It is therefore necessary to monitor the factors determining sustainable development and identify potential threats [24].
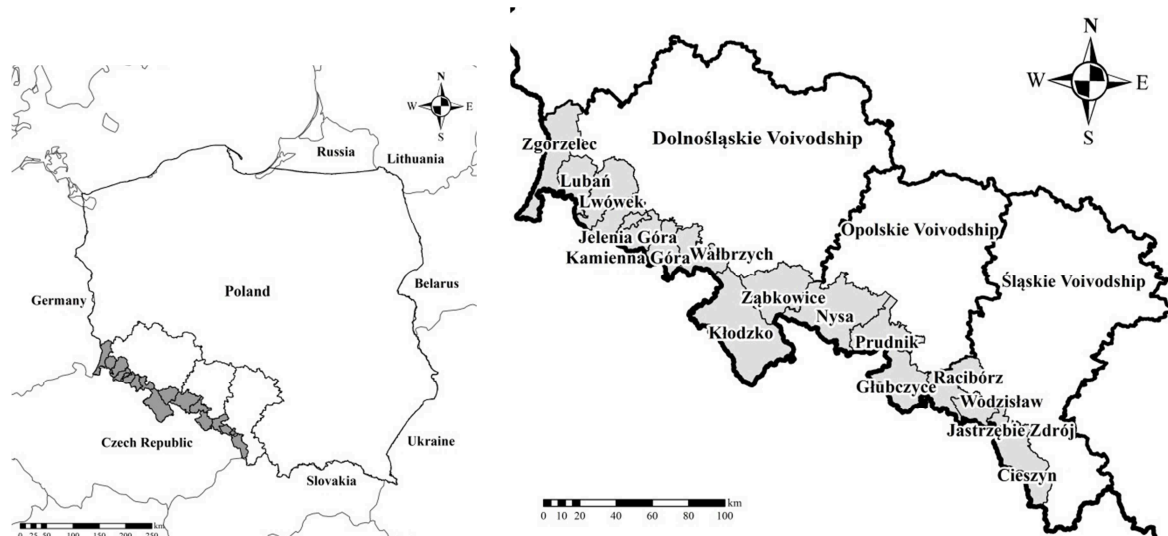
The aim of this study was to analyse spatial diversity of environmental governance and its components in the following thematic areas: climate change, energy, air protection, land use, biodiversity and waste management. In the study, the districts of Lower Silesia, Opole Province and Silesia located in the Polish-Czech border area were analysed.

2 Materials and Methods

2.1 Study Area

The spatial scope of the study includes the following districts located in the south-western part of Poland in the Polish-Czech border area: districts of Lower Silesia (Zgorzelec, Lubań, Lwówek Śląski, Jelenia Góra, the city of Jelenia Góra, Kamienna Góra, Wałbrzych, Kłodzko, Ząbkowice), districts of Opole Province (Nysa, Prudnik, Głubczyce) and districts of Silesia (Racibórz, Wodzisław Śląski, the city of Jastrzębie Zdrój, Cieszyn) (Fig.1).

Figure 1 – Location of the study area. Source: own work based on data: [25], [26].

2.2 Data Sources

2.2.1 Statistical data

In the study, the components of environmental governance were used to assess the diversity of the Polish-Czech border area in terms of sustainable development. Partial indicators and metadata characterising the environmental governance (Tab. 1) were obtained from the Polish platform reporting sustainable development indicators, developed by the Central Statistical Office (GUS) [27]. The environmental governance of sustainable development is defined by fourteen indicators related to the following areas: climate change, energy, air protection, land use, biodiversity and waste management (Tab.1).

Table 1 – Set of partial indicators of environmental order classified by thematic areas.

Thematic areas	Indicator	Type
Climate change	• Emission of carbon dioxide from particularly onerous plants per km^2 of the total area of a district (t/y/km^2)	D
	• Commune expenditures on the protection of atmospheric air and climate per capita (PLN)	S
Energy	• Electricity consumption per capita (kWh)	D
Air protection	• Emission of gaseous pollutants from particularly onerous plants per km^2 of the total area of a district (t/y/km^2)	D
	• Dust emission from particularly onerous plants per km^2 of the total area of a district (t/y/km^2)	D
	• Share of gaseous pollutants (without CO_2) retained or neutralised in pollution abatement equipment in particularly onerous plants in the overall amount of generated pollutants (%)	S
	• Share of dust retained or neutralised in pollution abatement equipment in particularly onerous plants in the overall amount of generated pollutants (%)	S
Land use	• Share of forest areas in the total area of a district (%)	S
Biodiversity	• Share of legally protected areas in the total area of a district (%)	S
	• Share of green areas in the total area of a district (%)	S
Waste management	• Amount of mixed municipal waste from households collected within a year per capita (kg)	D
	• Share of urban and industrial wastewater treated in the overall amount of wastewater requiring treatment (%)	S
	• Number of domestic sewage treatment plants per 100 km^2 of the total area of a district (pcs/100 km^2)	S
	• Area of illegal landfill sites per 100 km^2 of the total area of a district (m^2)	D

Source: own work based on data: [27].

2.2.2 Spatial data

In order to identify spatial variability of environmental factors determining sustainable development of the analysed areas and to present the obtained results in the form of cartographic models, the following geospatial data were obtained in descriptive and vector form:
- borders and areas of administrative units obtained from the Database of the State Border Register and areas of territorial divisions of the country made available by the Head Office of Land Surveying and Cartography [26],
- national boundaries obtained from the GeoServer OpenStreetMap [25],
- forms of land cover obtained from the Corine Land Cover Database (CLC) made available by the European Environment Agency (EEA) in the Copernicus GeoService [28],
- forms of nature protection obtained from the geoservice of the General Directorate for Environmental Protection [29].

2.3 Data Analysis

The paper uses methods which are designed to identify and analyse spatial structure of factors determining the level of environmental governance in the analysed area. For the purpose of analysis of this complex phenomenon, described with the use of more than one partial indicator, multidimensional data mining methods were applied. The methods were used to order objects (linear ordering methods) with respect to a given level of phenomenon and analyse similarity of objects (taxonomic methods) [30] with the use of Statistica 13.1.

Multidimensional analysis of spatial diversity of the environmental governance in terms of sustainable development of the Polish-Czech border area comprised of several study phases. The first phase involved the selection of partial diagnostic indicators and verification of their statistical variability. Measures of location, spread and peakedness were determined [30]. The next step was to reject partial indicators that did not describe the study area objectively or were highly correlated with other indicators. The elimination of insignificant variables for which the coefficient of variation (V) was lower than 10% or the correlation coefficient (r) between the variables was higher than 0.7 resulted in a final set of partial diagnostic indicators. In the next step, a synthetic indicator of environmental governance was constructed by dividing partial indicators into stimulants (S) and destimulants (D) which were normalised to obtain mutually comparable values of indicators. For this purpose, zero unitarisation method was used, for stimulants and for destimulants respectively*, see formula (1) [31]:

$$Z_{ij} = \frac{x_{ij} - \min\limits_{i} x_{ij}}{\max\limits_{i} x_{ij} - \min\limits_{i} x_{ij}} \qquad\qquad Z_{ij}* = \frac{\max\limits_{i} x_{ij} - x_{ij}}{\max\limits_{i} x_{ij} - \min\limits_{i} x_{ij}}$$

(1)

where:
Z_{ij} – normalised value of indicator j (j= 1, 2,…, n=13) for district i (i= 1, 2,…, m=16),
$\min \{x_{ij}\}$ – minimum value of the j-th indicator of environmental governance,
$\max \{x_{ij}\}$ – maximum value of the j-th indicator of environmental governance.

As a result of the transformation of original partial indicators, their values were reduced to the range [0,1]. Value "1" was assigned to the district with the highest value of partial indicator, and value "0" – to the district with the lowest value of the partial indicator. The normalised space of a set of partial indicators was the basis for the construction of the synthetic indicator of environmental governance (Q_i) for each district. This was achieved by using the non-model method of construction of the synthetic measure (development measure), see formula (2):

$$Q_i = \sum_{j=1}^{n} Z_{ij}$$

(2)

where:
Z_{ij} – normalised value of the partial indicator j (j= 1, 2,…, n=13) in the i-th district.

The obtained synthetic indicators of environmental governance (Q_i) were re-normalised to the range [0,1], which allowed for the determination of the level of sustainable development of each district. The obtained results were interpreted as an average value of optimal values achieved by each district. Furthermore, the Polish-Czech border area was classified on the basis of the growing value of the synthetic indicator for districts with a high, medium, medium lower and low level of environmental governance. Based on statistical criterion encompassing arithmetic mean ($\bar{Q}$) and standard deviation (S_Q) from the value of the synthetic indicator of environmental

governance, four classes were defined: Class I ($Q_i \geq \overline{Q} + s_Q$), Class II ($\overline{Q} + s_Q > Q_i \geq \overline{Q}$), Class III ($\overline{Q} > Q_i \geq \overline{Q} - s_Q$) and Class IV ($Q_i < \overline{Q} - s_Q$).

On the basis of partial indicators of environmental governance, the studied area was also delimited with regard to spatial variability of these indicators. This was achieved by using the cluster analysis, which is a tool of exploratory data analysis [32]. The k-means clustering, which is an example of non-hierarchical method, was used. It was necessary to form k clusters that differ from each other to the greatest extent possible and do not constitute sub-clusters for other clusters. One of the distance metrics, i.e. the Euclidean distance, was chosen as similarity measure [33]. The number of clusters was determined on the basis of the graph depicting the course of agglomeration (linear graph of the distance between clusters). The distance between new clusters was based on the Ward's method. On the basis of k-means clustering, a linear graph of average synthetic partial indicators for each cluster was drawn up. The graph showed whether the clusters differ from each other.

In order to identify spatial variability of environmental factors and configurations in the analysed area, and to present the results in the form of cartographic models, the "GIS Environmental Governance Database" was developed. A relational data model was adopted. The model determines the entities representing the study objects and their attributes. The relationships between entities are recorded in the database, creating a relational structure of information [3]. The model was implemented in ArcGIS 10.6. The database was fed with spatially-referenced data which were organised in the form of the following information layers: administrative division, indicators of environmental governance, forms of land cover and land use, forms of nature protection, pollution and degradation, demography. The "GIS Environmental Governance Database" covers both geometry (graphics), describing the location and shape of analysed objects, and their attributes. Vector data feeding the database were stored using the PL-1992 coordinate system, which is a part of the national spatial reference system and constitutes a standard for the development of GIS databases.

3 Results and Discussion

3.1 Diversity of the Level of Environmental Governance in Terms of Sustainable Development of the Polish-Czech Border Area

Statistical analysis of partial indicators describing environmental governance in terms of their discriminating capacity and reliability showed that the analysed districts are the most diverse with regard to the following indicators: X3, X4, X5, X13, X1, X9 and X12 (Tab. 2). Indicators with higher diversity displayed higher standard deviation and measure of dispersion of values around the arithmetic mean.

**Table 2** – Basic descriptive characteristics of partial indicators of environmental governance.

Indicators	Min	Max	Range	Average	Median	Standard deviation	Coefficient of variation
X1 Expenditures on air and climate protection	0,12	40,77	40,65	6,85	1,13	10,50	153,25
X2 Electricity consumption	646,70	876,10	229,40	740,34	722,20	67,13	11,07
X3 Emission of gaseous pollutants	0,03	9388,83	9388,80	1077,06	61,15	2529,97	234,90
X4 Dust emission	0,00	1,80	1,80	0,27	0,04	0,48	180,52
X5 Reduction of gaseous pollutants	0,00	62,10	62,10	9,31	0,00	19,59	210,37
X6 Reduction of dust	0,00	100,00	100,00	85,25	96,60	26,25	30,79
X7 Forest cover	6,40	48,20	41,80	27,31	28,35	14,89	54,53
X8 Legally protected areas	0,00	37,52	37,52	17,43	15,94	13,10	75,17
X9 Green areas	0,10	1,90	1,80	0,42	0,20	0,55	131,15
X10 Municipal waste	108,50	265,50	157,00	191,99	198,05	43,43	22,62
X11 Treated wastewater	52,82	100,00	47,18	96,48	100,00	11,71	12,13
X12 Domestic sewage treatment plants	8,04	340,00	331,96	95,68	52,47	102,84	107,49
X13 Illegal landfill sites	0,00	5883,00	5883,00	766,69	18,50	1664,16	217,06

Source: own work based on data: [27].

The analysed districts are the least diverse with regard to the following indicators: X2, X10 and X11. For these indicators, the standard deviation and the coefficient of variation were much lower than the coefficients of variation of other indicators, and the values were more concentrated around the average value. The indicator of carbon dioxide emission was highly correlated (0.98) with the indicator of gaseous pollutants and highly correlated (0.75) with the indicator of dust emission. The indicator of carbon dioxide emission was not taken into account in further analysis.

Thanks to the adoption and development of partial indicators, it was possible to develop the synthetic indicator of environmental governance which reflects, in environmental terms, the level of sustainable development of the districts covered by the spatial scope of the study (Fig. 2).

Figure 2 – Spatial diversity of the synthetic indicator of environmental governance. Source: Own work on the basis of the "GIS Environmental Governance Database".
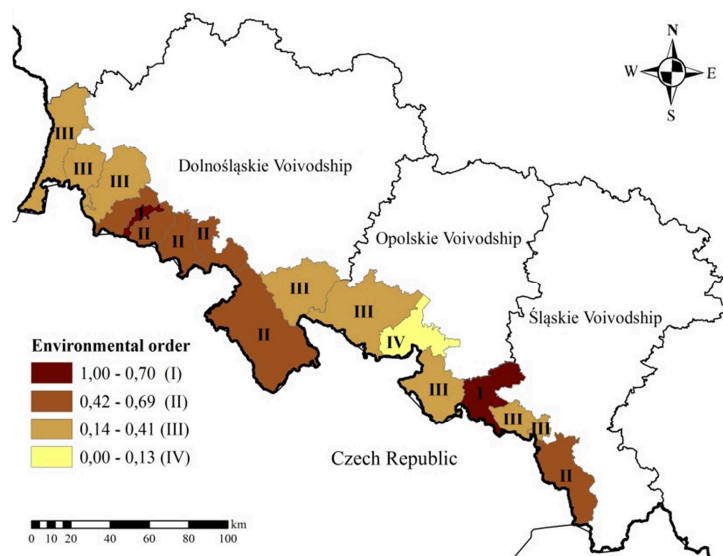

The study area is spatially diverse with regard to the synthetic indicator of environmental governance and displays a coefficient of variation of approx. 38%. The high synthetic indicator of environmental governance (Class I and Class II) is observed for districts which constitute about 39% (2836 km^2) of the analysed area. These are: the city of Jelenia Góra, Kłodzko, Wałbrzych, Kamienna Góra, Jelenia Góra (Lower Silesia) and Racibórz, Cieszyn (Silesia). The value of the synthetic indicator of environmental governance in these areas was influenced by the low emission of dust and gaseous pollutants as well as the high share of retained or neutralised pollutants, high share of forest and legally protected areas, high share of treated municipal wastewater and small area of illegal landfill sites. By contrast, the most unfavourable conditions for sustainable development in terms of environmental governance occur in Prudnik (Opole Province), which was qualified to Class IV – with the lowest synthetic indicator of environmental governance. It constitutes about 8% (572 km^2) of the analysed area.

3.2 Spatial Variability of Environmental Governance Components in Terms of Sustainable Development of Polish-Czech Border Area

The adopted and developed partial environmental governance indicators constituted the basis for delimitation of the districts of the Polish-Czech border area. As a result, they were assigned to three taxonomy categories by means of the cluster analysis. Clustering was based on the analysis of average values of individual synthetic partial indicators for each cluster (Fig. 3).

Figure 3 – Diagram of average synthetic partial indicators of environmental governance. Source: Own work on the basis of the "GIS Environmental Governance Database".
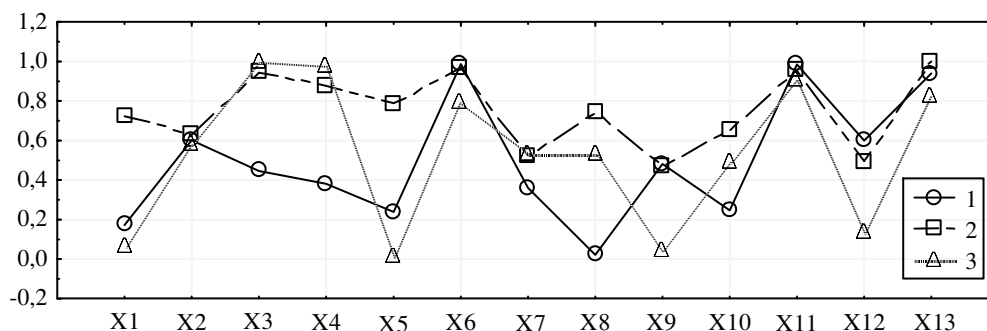
Thanks to the "GIS Environmental Governance Database", prepared for the purpose of this paper, it was also possible to analyse the types of areas included in taxonomic classification and to draw up specifications of each cluster with respect to ranges of partial indicators in real units (Tab. 3).

Table 3 – Ranges of partial indicators in area types.

Indicators	1		2		3	
	min.	max.	min.	max.	min.	max.
Climate change						
X1	0,12	11,00	18,27	40,77	0,52	9,45
Energy						
X2	651,50	798,00	718,20	745,50	646,70	876,10
Air protection						
X3	1382,38	9388,83	183,52	870,95	0,03	156,56
X4	0,68	1,80	0,22	0,23	0,00	0,15
X5	0,00	44,20	36,00	62,10	0,00	6,20
X6	96,70	100,00	95,60	98,10	0,00	100,00
Land use						
X7	6,80	48,20	24,50	32,20	6,40	48,00
Biodiversity						
X8	0,00	2,24	19,92	36,08	2,27	37,52
X9	0,20	1,90	0,30	1,60	0,10	0,30
Waste management						
X10	198,70	249,80	155,00	169,50	108,50	265,50
X11	97,98	100,00	95,63	100,00	52,82	100,00
X12	61,62	340,00	34,86	310,48	8,04	117,46
X13	0,00	924,00	0,00	0,00	0,00	5883,00

Source: Own work on the basis of the "GIS Environmental Governance Database".

The results of the cluster analysis are also presented in the form of typological model which presents spatial variability and configurations formed by the factors determining sustainable development of study areas (Fig. 4).

Figure 4 – Spatial distribution of districts by area type. Source: Own work on the basis of the "GIS Environmental Governance Database".
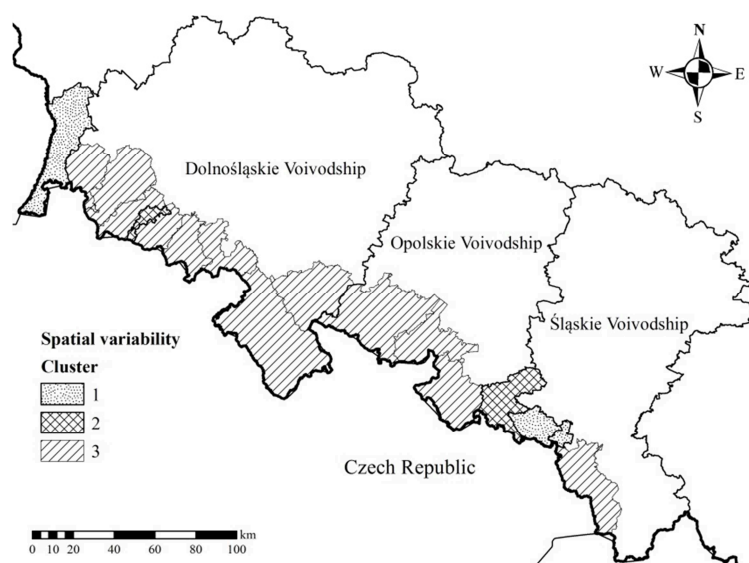
The most favourable conditions for environmental governance in terms of sustainable development are found in the area type 2 (Tab. 3, Fig. 4) which covers the city of Jelenia Góra and Racibórz District only. These districts have the highest average for the most of partial synthetic indicators (Tab. 3) and the highest synthetic indicator of environmental governance (Class I) (Fig. 2), which creates very favourable conditions for environmental governance in this area type. The area type 1 consists of three districts: Zgorzelec in the Lower Silesia as well as Wodzisław Śląski and the city of Jastrzębie Zdrój, the latter forming a coherent sub-area in Silesia. The districts display high levels of emission of dust and gaseous pollutants from particularly onerous plants, low share of legally protected areas and large amount of mixed municipal waste from households.

Eleven districts, which form three coherent sub-areas located mainly in the Opole Province and Lower Silesia, were assigned to the largest area type 3 (Fig. 4). They display low amounts of commune expenditure on atmospheric air and climate protection, low share of gaseous pollutants retained or neutralised in pollution abatement equipment and low share of green areas and domestic sewage treatment plants in the area of a district.

4 Conclusions

Thanks to the analysis of environmental governance and spatial analysis of variability of its components in terms of sustainable development of the Polish-Czech border area, based on partial indicators, it was possible to develop a synthetic development measure and comprehensively assess the studied phenomenon.

The use of multidimensional exploratory methods and GIS databases allowed for the inventory and analysis of spatial diversity of environmental governance components, and the development of typological models which reflect the state of the studied phenomenon as well as the relations and connections between its components in the geographical space.

Due to a large diversity of districts in the Polish-Czech border area, three area types were distinguished in the study. These area types differ in terms of potential and sustainable development barriers in the context of environmental governance. The typology used reflects local diversity of environmental governance and allows for the determination of local structures to draw conclusions on the overall trends in the sustainable development of these areas. The areas which display the same indicators and differ in conditions require a different scope and different course of action in terms of local policy and financial support.

The presented methodological solutions and GIS systems, used to assess the implementation of the concept of sustainable development, serve as a powerful tool which can be applied not only in the analysis of environmental governance, but also in other areas of sustainable development, such as social and economic governance. The study based on temporal and spatial analysis allows for the assessment of dynamics and level of sustainable development. The obtained results are useful in practice when used for the purpose of monitoring and implementation of appropriate local and regional policy with regard to specific conditions and resources of the particular area.

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How to Support the Development of Social Business?

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Abstract

Social enterprises are becoming a powerful and effective tool for the employment of disadvantaged people in the labour market and are an effective tool of the state and local governments in the fight against social exclusion, rising unemployment and segregation of excluded localities. The Czech Republic is among the countries that discover the benefits of social entrepreneurship, especially at the regional level.

The aim of this paper is to identify the support provided to the social enterprises by the regions in the Czech Republic. This paper also aims to contribute to the discussion on recommendations for possible tools promoting social entrepreneurship at the regional or municipal levels. The survey was carried out by analysing websites of the individual regions in the Czech Republic and by conducting interviews with public administration officers and representatives of social enterprises. A search was made on the websites of all thirteen regions in the Czech Republic (except Prague) and controlled interviews were conducted in ten enterprises that were randomly selected in the South Moravian Region. The research showed that all thirteen regions promote social entrepreneurship, e.g. a workshop or seminar. Some regions to issue financial supports for social entrepreneurs and grant awards for social business and social responsibility. The contribution also identifies some of the tools that can be put in place: e.g. social marketing knowledge support, organization of internships and common practice in social enterprises, purchase of goods and services for the needs of public institutions, social enterprise incubators, online advice centre, subsidies for social enterprises.

1 Introduction

The Czech Republic is one of the countries that discover the potential benefits of social enterprises. The non-profit sector has not been transformed yet into other legal entities and the Social Business Act is subject to the comment procedure. Experience from abroad with a well-developed social economy sector (Italy, Sweden, France, Finland, etc.) clearly shows positive impacts of social businesses on the national economy, public economy and the society as a whole. [2, 20].

On the one hand, social enterprises are required to achieve commercial success, but on the other hand, they are asked to fulfil established social objectives with democratic participation, with a need to maintain their stability over time and respect the boundaries within which the business is a social enterprise which is able to survive in the market [4].

To define social entrepreneurship, we will use a broad definition by Mair and Marti [10] that social entrepreneurship is a "*set of innovative activities aimed at social welfare*". Mair and Marti argue that compared to other areas of research, social entrepreneurship is still a concept poorly defined in the literature. Hoogendoorn

et al. [6] provide a very broad view of social entrepreneurship. This is based on the definition of traditional business: "discovering, evaluating and exploiting opportunities that are primarily and deliberately aimed at creating social value in response to society's needs." Hutter [7], builds upon the definition of traditional business claiming that public impact should be the core of operations and thus eliminates corporate social responsibility from the definition of business. The basic principle of social entrepreneurship consists in promoting socially beneficial activities through economic instruments [12].

Yunus [13], a well-known founder of the concept of social entrepreneurship identifies partner management and ongoing experimentation as some of the similarities with traditional business. The differences include the clear formulation of social benefit objectives and prioritisation of the groups of interest of these social objectives. The authors also emphasise that such a business should be able to compete with business maximising profits. We can identify three characteristics common to every social entrepreneurship [16, 17]:

- it addresses a social problem (e.g. poverty, educational disadvantages, health disability),
- it is financially sustainable thanks to revenues from paying customers, governments, charities and individuals,
- It intends to increase the scope of what works.

Stability of social enterprises is required in two dimensions, namely whether this enterprise is able to survive in the long run and whether the enterprise can maintain the intended balance of social benefits and market success over time. Survival and growth are key motivators for each organisation. The focus and nature of a social enterprise is continuously influenced by financial possibilities and environmental pressures. Social businesses are organisations that are driven by social tasks and which apply market strategies to achieve social or environmental goals [20].

Literature clearly shows that social entrepreneurship is not easy to define or theoretically grasp, and there is no universal definitions available (some EU countries have adopted laws on social economy and social entrepreneurship). A crucial role in understanding and defining a social business is played by specific historical, political, regional or social aspects. The nature of a social business may be affected in every country by the local character of entrepreneurship, democratic management or the limits in terms of profit distribution or the target group of employees.

The paper aims to answer the question of what tools we can use to support further development of social entrepreneurship. As stated, the Social Business Act has been subject to the comment procedure but it has not been enacted yet. Social businesses have no legislative support now. One of the criteria of social entrepreneurship is the regional level - both in terms of employment and the use of regional products. This is an impulse for both the regions and the municipalities to pay increased attention to this issue and to ensure conditions for the development of social entrepreneurship through appropriate instruments.

1.1 Opportunities to Support the Development of Social Entrepreneurship

Forms and tools for promoting social entrepreneurship are primarily based on inter-sectoral cooperation involving various stakeholders. The support for social entrepreneurship is not only built "top down", i.e. from the governments and public sector institutions but, above, "bottom up", through the activities of third sector organisations (together with the commercial sector). Approaches to the development social entrepreneurship support can be divided into three interrelated categories:

- Political, organizational and legislative support

- Funding and consultancy support

- Support for research, education and awareness raising.

In terms of political support in Europe, the Social Business Initiative is a key organisation. It was established in order to support the development of social entrepreneurship in Europe, it maps out social enterprises, reflect on possible forms of support, deals with promotion and awareness raising, measures the impacts of social enterprises and possible instruments for their financing, such as micro credit loans. A clear expression of political support for social enterprises are the schemes and investment instruments initiated mainly by the European Commission and the UN. Another expression of political support is the funding of international research projects focusing on social entrepreneurship. The terms social economy and social enterprises have long been embedded in the legislation of some of the European countries (see Table 1).

Table 1 - Overview of countries with social economy and social entrepreneurship legislation.

Country	Legislation adopted in	Name of law
Finland	2003	Act on social entrepreneurship
Lithuania	2004	Act on social entrepreneurship
Slovakia	2018	Act on Social Economy and Social Enterprises (No. 112/2018)
Italy	2005	Act on Social Entrepreneurship
Poland	2006	Act on Social Cooperatives
Belgium	2008	Regional decree on social economy
Spain	2011	Act on Social Economy
Greece	2011	Act on Social Economy and Social Enterprises
Slovenia	2011	Act on Social Entrepreneurship
Portugal	2013	Act on Social Economy
Francie	2014	Act on Social and Solidary Economy

Source: [11]

An example of legislative support may be the UK Social Value Act of 2012. Although this law does not directly address social entrepreneurship, it can be regarded as one of the forms of support for its development. The Social Value Act requires all UK public sector entities to take into account the social value of the relevant bids when deciding on public contract awards. This law thus favours social enterprises that offer their services to the public sector. The organisation lobbying for responsible public procurement in the Czech Republic is Nová ekonomika o.p.s.

The forms of financial and knowledge support are crucial for further development of social businesses. One of the most common tools for the development of entrepreneurship are the grant schemes provided by both the public, private and third sectors. Over the last few years, the EU finds have been the major source of financial support for the development of European social enterprises. Another stakeholder in the field of social business funding are the banking institutions.

Social entrepreneurship cannot develop well without experts who make research in order to capture social entrepreneurship at a deeper level and social entrepreneurs with respect to which we need to highlight their high-quality knowledge and developed competence. We cannot omit the public, who mainly appreciate the social importance of this activity. At the same time, initiatives are being developed, whether in the third sector, private sector or public sector working together to disseminate information on social entrepreneurship.

2 Materials and Methods

At present, there is no official database of social enterprises in place and therefore we cannot precisely determine which businesses are social enterprises that adopt this status. On the contrary, in the system if these businesses we can also have organisations that develop their activities and would meet the criteria of a social enterprise, but do not adopt this type of business. We can only subjectively ponder about the reasons behind this - for example, it is a non-profit organization that does not wish to change its accounting system, wants to keep its non-profitable nature or is not aware of the social business concept. The only database we can use in our survey is the list of institutions on the Czech Social Business server, which was established on the basis of a project and which is managed by TESSEA (Thematic Network for Social Economy). In the framework of this survey, initial assumptions were confirmed meaning that some entities listed in the Czech Social Business Server database do not adopt this type of activities. After contacting social enterprises on this list, inaccuracies in the information were detected. About 50% of the businesses interviewed claim that they are not social enterprises at all and in

many cases they also do not know that they are on the list of the Czech Social Businesses. As at 30th July 2018, a total of 219 social enterprises were registered there [1].

The aim of this paper is to identify the support provided to the social enterprises by the regions in the Czech Republic. This paper also aims to contribute to the discussion on recommendations for possible tools promoting social entrepreneurship at the regional or municipal levels. The survey was carried out by analysing websites of the individual regions in the Czech Republic and by conducting interviews with public administration officers and representatives of social enterprises. A search was made on the websites of all thirteen regions in the Czech Republic (except Prague) and controlled interviews were conducted in ten enterprises that were randomly selected in the South Moravian Region. Most of these businesses are members of the Chamber of Social Enterprises. The Chamber of Social Enterprises is an interest-based association of social enterprises, representing a collaborative platform capable of providing added value and impetus to the development of an environment focused on social innovation, especially social entrepreneurship. The Chamber of Social Enterprises actively participates in social entrepreneurship and helps promote its principles in real life, comments on the drafted law on social entrepreneurship and performs educational and publishing activities.

3 Results and Discussion

Many regions, in cooperation with a selected support organization, have often developed a collaborative document supporting social entrepreneurship. This concerns, for example, the Memorandum of Cooperation in the South Moravian Region. There is no link between this document or a supported organization and the number of social enterprises. These cooperation documents have also been signed in other regions (the Moravian-Silesian Region, Zlín Region, and also in regions where the number of social enterprises is not so high (Karlovy Vary Region, Liberec Region, Plzeň Region). The question is whether this is due to short cooperation or inadequate or insufficient form of support.

Table 2 - Selected activities of the regions of the Czech Republic in the field of social entrepreneurship.

Region	Number of social enterprises	Cooperation document	Awareness raising	Awards	Subsidies from the Regional Authority
South Bohemian Region	9		yes		yes
South Moravia Region	18	yes	yes	yes	
Karlovy Vary Region	5	yes	yes		
Vysočina Region	11		yes	yes	yes
Hradec Králové Region	11	yes	yes		
Liberec Region	2	yes	yes		
Moravian-Silesian Region	18	yes	yes	yes	yes
Olomouc Region	17		yes		
Pardubice Region	7		yes		yes
Plzeň Region	7	yes	yes	yes	
Central Bohemia Region	16		yes		yes
Usti Region	15		yes	yes	yes
Zlín Region	15	yes	yes		

Source: author

The area of social business support that all 13 regions agreed upon concerns education in social entrepreneurship. There is no region in the Czech Republic that does not organise workshops or seminars on social entrepreneurship. The organization of seminars is the first step towards awareness raising concerning the upcoming law, as well as the information flow towards the public, municipalities, profit and not-for-profit sector.

In total, five regions present awards for social entrepreneurship and social responsibility (CSR National Information Portal). The regions that present the award include the South Moravian Region, Vysočina Region,

Moravian-Silesian Region, Plzeń Region and Ústí nad Labem Region. This award can be a motivation and it can influence other social entrepreneurs to achieve better business results and support their activity in this area.

Six regions have launched a grant scheme that social enterprises can apply for. These are mainly regions with a large or medium number of social enterprises (regions of Jižní Čechy, Moravian-Silesian, Pardubice, Central Bohemian, Ústí and Vysočina). Examples from abroad clearly show that financial support for social enterprises in their early stages is extremely significant. From this point of view, the support of the regions is insufficient, as one of the key sources for the development of social entrepreneurship is financial support needed to start up the social entrepreneurship.

Based on an analysis of individual indicators in the regions and interviews with social entrepreneurs (especially with businesses in the South Moravian Region), we can propose some tools that are successfully implemented by social enterprises and which can be taken as examples of good practices enabling transferability:

- **Social marketing knowledge support**

Most commercial businesses operate on an anonymous market and this market decides whether they will be successful or not. The so-called "social marketing" is defined as "bringing manufacturers closer to consumers and creating direct links that address issues related to the products and services offer in response to wider market demands" [21]. The review of available sources and interviews with social business stakeholders in the South Moravian Region do not mention any seminars and workshops on social marketing. One of the suggested options is to initiate organisation of these seminars and trainings where representatives of the existing social enterprises will provide training in the field of social marketing and thus improve their chance of success in the market.

- **Organization of internship and common practice in social enterprises**

Another way of supporting the establishment and development of social enterprises can be to organise internship directly in the social enterprises. The internship could concern future potential social entrepreneurs (in this case, it would be an internship for a senior employer /social business owner) and, on the other hand, this internship should also be offered to students and graduates from the target groups of social entrepreneurship.

- **Purchase of goods and services for the needs of public institutions**

One method of supporting social enterprises is to purchase goods or to use services offered by the social businesses. The public sector institutions purchase large quantities of products and services every year and if we purchase these products and services in a socially responsible manner, the social businesses will have secured demand and operation.

- **Social enterprise incubators**

In order to meet the public policy objectives, it would be desirable to establish social entrepreneurship incubators that would provide initial technical support to the social enterprises in order to avoid the expected high rate of failure of newly established social enterprises. These socio-business incubators exist, for example, in Sweden and France [14]. In Sweden, these are the so-called "Coompanion", which provide advice, coaching, and operation of start-up co-operative projects involving entrepreneurial youth, women, people excluded from the working process, etc. In France there is a model of social-entrepreneurial incubators, Associations of Business and Employment, which join unemployed people who have a potential business plan and help them develop the plans. The new entrepreneur then has the opportunity to break free from the incubator or do his/her business within the incubator.

- **Online advice centre**

The interviews with representatives of social enterprises showed that many of them would need professional assistance and advice on business, marketing, fund raising, etc. at the very start of their business and in the course of their business etc. For example, regional authorities could set up a website where social business managers or potential founders could ask questions they need help and advice with. This step requires promotion amongst professionals, the public, and successful social entrepreneurs who could share their experience/good practice.

- **Subsidies for social enterprises (transnational, national, local)**

One of the most important forms of social entrepreneurship support are grant schemes that can help social enterprises start up and win their market position. Due to its nature, the social enterprise is mainly dependent on financial support at the beginning of its business activities. In order for a social enterprise to draw up a good business plan and to pay attention to areas such as controlling, there must be some educational potential, good management, and HR management experts in place. Examples from abroad show that subsidies are indeed the

basis. Both France and Great Britain pay considerable attention to this area. On the other hand, the Slovak Republic, which has social entrepreneurship laid down in its law, does not experience any significant boom in the field of social entrepreneurship.

- **Loans, investment support, competitions**

Based on a decision made by the European Commission and the European Investment Fund, social entrepreneurs can obtain micro-loans. Furthermore, the United Nations Social Enterprise Facility (UNSEF) was established to serve as a mediator between social entrepreneurs and their potential investors [19]. Its aim is to strengthen investment activities with a positive social impact. None of the social enterprises we contacted makes use of these micro-credits or funds from the endowment fund. Another stakeholder in the field of social enterprise financing are banking institutions (in the Czech Republic, for example, Česká spořitelna). Social entrepreneurs often fail to obtain standard bank loans, or they have no collateral to guarantee the loans with or the loan risk is too high. This problem is partly addressed by the so-called "ethical banks" specialising in the development of social enterprises, such as the Belgian Triodos and the German GLS [5,18]. As regards competitions, we can name the South Moravian Region Governor's Award for social responsibility. Organisations that rank in the first three places can use this award for promotional purposes. In France, wining the national competition for the Social and Solidary Economy Award is not only a matter of prestige and good reputation for social entrepreneurs, but it also comes with financial assistance of EUR 10,000. Of course, this is a national competition, in the Czech environment there are regional competitions, but the financial acknowledgeable evaluation could be much more motivating.

- **Human resources management in a social enterprise**

Human resources management in a social enterprise is specific and slightly different from human resources management in a standard company but at the same time it is of the same importance for business success. There is little emphasis placed on this area in social entrepreneurship and one of the proposals for promoting social entrepreneurship is the organisation of seminars and training on human resources management in a social enterprise.

- **Public contracts and social enterprises**

On the basis of the European Union Directive 2014/24 / EU and Act No. 134/2016 Sb., which enable the contracting authority to award public contracts or at least part of them to social enterprises, the individual regions should work on promoting social entrepreneurship and think about public procurement for social enterprises. Interviews with social entrepreneurs clearly shows that this is one of the most important forms of support for their business.

- **Implementing social entrepreneurship into education process**

Inclusion of social entrepreneurship into school and university educational programme accreditation would raise public awareness and interest of young graduates in social entrepreneurship. In the results of surveys, Royce [15] points out that support and advice provided by public administrations and universities is often insufficient and the emphasis on professional and expert training in human resources management can make a significant contribution to the success of a social enterprise. Here we could recommend fields of study focusing on social entrepreneurship and train future managers for this kind of activity. Innovation centres for social enterprises can also be set up.

- **Implementing social entrepreneurship into strategic documents**

Social entrepreneurship should be a priority in all national strategy papers addressing the issue of social exclusion. For example, the Development Strategy of the South Moravian Region 2020 defines areas that are directly or indirectly associated with social entrepreneurship such as great regional differences in the business environment, quality of business regulation, conditions for business development in the South Moravian Region, above-average unemployment rate in the region and social exclusion. However, the Strategy does not mention social entrepreneurship and its support. If social economy is to hold an important position within local sustainable development, it is necessary to include it in the regional strategic documents. In France, there are Regional Councils of privileged partners in the social and solidarity economy that prepare strategies for local development.

- **Supporting the introduction of social innovation**

What is the goal of social enterprises in introducing social innovation? The questionnaire survey shows that social enterprises, as business entities, are seeking to gain financial independence, which is based on the introduction of innovations into their business operations. The main reason for introducing innovation by the social enterprises is to keep their competitive advantages. The enterprises seek to keep up with their competitors

while maintaining their customers' interest. And this cannot be achieved without innovation. Competitiveness is based on the entrepreneurial use of unique local specifics, on meeting customer needs, offering products and services that are tailor-made to the customer requirements, and creating product or service value and on engaging disadvantaged people in the process [9]. As Klimova, Winklerova [8] state the lack of information about technology, lack of market information, and ignorance of customer needs may reinforce uncertainty about innovative activities. A successful innovation firm must be able to link information about technology with market information (customer needs). Businesses with postponed innovation projects are more exposed to obstacles related to economic risks, lack of skilled labour, innovation costs, lack of information on customers (needs), lack of information on technology and organizational rigidity.

What types of innovation do social enterprises focus on most? The survey carried out by the Faculty of Economics and Administration in 2017 [21] shows that most social enterprises focus on product innovation and innovation in the organizational structure of the enterprise. Other innovation activities include innovation in the field of management, innovation in manufacturing processes, technology and innovation in the provided services. The introduction of innovative practices promises social enterprises better results compared to their current functioning. Did the introduction of social innovations really improve the social enterprise market position?

Based on the survey we can conclude that social innovation has a positive impact on the functioning of a social enterprise. Most enterprises consider this as an inevitable condition for the development of their business. Social enterprises consider the growth of competitiveness, cost reduction, development of new products and increased turnover to be the main benefits of social innovation. Social enterprises consider market sources, cooperating firms and competitors as the innovation initiators.

In his article, Wronka (2013) identifies critical factors for the success of social enterprises in the social environment. The related study demonstrates ten variables that contribute to the success of a social enterprise:

- Strong leadership

- Motivation and commitment of employed people

- Enabling legal/regulatory environment

- Attractiveness and clarity of innovative concept

- Management expertise

- Key personal qualities for front line service delivery

- Effective collaboration with public sector

- Social capital

- Local community involvement

- Keeping and distributing accurate financial records [23].

If we compare the critical success factors of social enterprises according to Wronka (2013) with our survey it is obvious that the indicators are the same.

International practice includes, for example, the Polish organisation - Foundation for Social and Economic Initiatives (FISE), a modern non-governmental organization. The mission of FISE is to work in a systematic manner on employment growth [3]. FISE seeks to make changes in the socio-economic system, to contribute to its greater flexibility, openness and efficiency. The Foundation is a member of the Permanent Conference of the Social Economy, the oldest Polish institution joining organisations dealing with social economy. The Foundation works with public administrations (national, local), entrepreneurs and other non-governmental organisations with a similar mission. The Foundation seeks to make changes in Polish law and the attitudes of public officials to social economy [3]. Other FISE activities include:

- Management and updates of social enterprise products and services databases

- Discussions, fairs and trainings concerning social economy in Poland

- Operation of the web portal bezrobocie.org.pl

- Publication of books on labour market problems.

Another organization in Poland supporting social enterprises is the specialised organization WOES, which offers the following services:

- Support for surveys
- Support for the establishment of new social enterprises
- Support for the development of social enterprises
- Financial support for social economy entities with respect to job creation
- Advisory services, etc. [22].

An important source of up-to-date information on social entrepreneurship is the web portal "ekonomiaspoleczna.pl", where legal advice and electronic library services can be found.

4 Conclusion

There is no legislative and systemic setting in place for social entrepreneurship in the Czech Republic. A certain legislative definition of social enterprises has been laid down in several countries, for example in Poland. A good example for the Czech Republic and its individual regions can be, for example, Italy, Great Britain, USA, Belgium and Finland, where there are also political initiatives existing to support this type of business.

According to the analysis, individual regions and municipalities approach and promote social entrepreneurship in a unique and uncoordinated manner. As one of the possible challenges for the future we can point out the emergence of a network of social entrepreneurship stakeholders: public administrations, business sector and local stakeholders. Public administration - in our region - would be a driving force and coordinator of these activities leading to the establishment and development of social entrepreneurship.

On the basis of foreign experience, we recommend implementing the following from the level of regions:

- creation and support of social incubators: Social incubators would provide methodological advice to help start up the business, develop the business plan, identify risks and target groups of employees with the possibility of funding and using the tools.
- Support for surveys
- Support the establishing and development of social enterprises
- Discussions, fairs and trainings concerning social economy
- Effective collaboration with public sector
- Local community involvement
- create a certified web portal

Some of these recommendations are already contained in the forthcoming Act on Social Entrepreneurship in the Czech Republic.

Acknowledgements

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European Grouping of Territorial Cooperation as a New Form of Cross-Border Cooperation between Poland and the Czech Republic

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Abstract

The topic of this paper is analysis of European Grouping of Territorial Cooperation (EGTC) as the new form of territorial cooperation between the EU members on example of Poland and the Czech Republic. Cross-border cooperation between Poland and the Czech Republic has been developing since the early 1990s at national, regional and local level and in different forms. The new form of cooperation is the EGTC TRITIA ltd. and the EGTC NOVUM ltd. Main aims are focused on: 1) to present historical, legal and institutional aspects of cross-border cooperation in Europe, in particular between Poland and the Czech Republic; 2) to present the concept and essence of the EGTC; 3) the analysis of activity of EGTCs at Polish-Czech borderline. In the article have been used desk research analysis, analysis domestic and foreign studies, legal acts, reports and realized projects at the Czech-Polish borderland. The results of the study show, that despite over 10 years of application of regulation No 1082/2006, Poland and the Czech Republic do not fully use the potential of new possibilities for cooperation. There are only two EGTCs operating at the border: TRITIA ltd. (2013) and NOVUM ltd. (2015). The EGTCs were involved in several projects co-funded from Interreg Central Europe, Interreg VA PL-CZ, Interreg VA PL-SK, International Visegrad Fund. For the implementation of projects related to transport, tourism, energy, environment, education, cooperation with public institutions EGTCs received support of more than 5 mln EUR.

1 Introduction

Cross-border cooperation is one of the most characteristic phenomenon in the social and economic life of Europe. For many years, it has been in the centre of interest of the European Union, because it fosters breaking down barriers between communities residing border territories and reducing differences in the level of socio-economic development of Member States. Cross-border cooperation between Poland and the Czech Republic has been developing since the early 1990s in different forms at national, regional and local level. The aim of the article is to analyse European Grouping of Territorial Cooperation (EGTC) as the new form of territorial cooperation between the EU members on exemple of Poland and the Czech Republic. The first part of the article presents the evolution of cross-border cooperation since the end of the 1950s, the historical institutionalization process of the concept cross-border cooperation and the concept and essence of the EGTC. The second part describes experience of cross-border cooperation between Poland and the Czech Republic, in particular legal basics of this cooperation and aims, tasks and activity of the EGTC TRITIA ltd. and the EGTC NOVUM ltd.

2 Data and Methods

In the article have been used the following research methods and data sources:

1. desk research analysis, inter alia European and domestic normative acts: regulation No 1082/2006 of the European Parliament and the Council on a European grouping of territorial cooperation (EGTC) of 5 July 2006 (OJ L 210, 31.07.2006); regulation No 1302/2013 of the European Parliament and of the Council of 17 December 2013 amending regulation No 1082/2006 on a European grouping of territorial cooperation (EGTC) as regards the clarification, simplification and improvement of the establishment and functioning of such groupings (OJ L 347/303, 20.12.2013); the act of 7 November 2008 on European grouping of territorial cooperation (Journal of Laws No 218, Item 1390); the act No 248/2000 Sb. of 29 June 2000 on regional development support as amended by the act No 298/2015 of 22 September 2015; research and scientific studies on EGTC;

2. analysis of: reports from the European Commission to the European Parliament and the Council of the European Union, resolutions of the European Parliament, opinions of the European Committee of the Regions and opinions of the European Economic and Social Committee;

3. analysis of the activity and projects of the EGTC TRITIA ltd. and the EGTC NOVUM ltd.

3 The Development of Cross-Border Cooperation in Europe

Cross-border cooperation constitutes one of the forms of international cooperation conducted by local and regional communities. The European Commission (2011) pointed out that a territorial cooperation aims to help territories and regions to work together in tackling their common challenges, to reduce the physical, cultural, administrative and regulatory barriers to such cooperation and to lessen the 'border effect'. Article 2 of the European Outline Convention on Transfrontier Cooperation between Territorial Communities or Authorities (1980) defines transfrontier cooperation as any concerted action designed to reinforce and foster neighbourly relations between territorial communities or authorities within the jurisdiction of two or more parties and the conclusion of any agreement and arrangement necessary for this purpose. The above-cited definition clearly indicates two basic features of this cooperation: proximity of contacts, which means that it concerns immediate adjacent border areas, and regional or local level of cooperation.

The idea of cross-border cooperation has a long and well established tradition. The first experiments in cross-border regional cooperation took place in the late 1940s (Korczak, Nowacki, 2006, p. 197). The Benelux Agreement, signed in 1948, was an early attempt to cut across the dividing lines formed by state borders (European Economic and Social Committee, 2007).

The first Euroregional structure was Euregio, established in 1958 by the Netherlands and Germany (Sanetra-Półgrabi, 2010, p.138). In the years that followed, a dozen new cross-border organisations were created, including, inter alia euroregions: Rhein-Waal (1963, Germany, the Netherlands), Maas-Rhein (1976, Germany, Belgium, the Netherlands), Comregio (Germany, Belgium, Luxembourg, France), Cotrao (1982, Switzerland, France, Italy), Moza (Belgium, the Netherlands, Germany), Arge-Alp (1972, Germany, Italy, Switzerland), Alpe-Adria (1978, Italy, Austria, Hungary, Yugoslavia, Germany), Pamina (1988, Germany, France) and working communities: the Pyrenees (1983, Andorra, France, Spain) and the Jura (1985, Switzerland, France).

The efforts of border regions to institutionalise cross-border cooperation have been facilitated by the Council of Europe. In 1980 a set of European countries concluded an international treaty – the European Outline Convention on Transfrontier Cooperation between Territorial Communities or Authorities (so-called the Madrid Convention), which promotes cross-border cooperation by providing model agreements. It is the main European legal act setting out the regulatory framework and forms of participation of local communities in international contacts. The Council of Europe has also adopted a number of other documents which are designed to develop and facilitate cross-border cooperation, inter alia the European Charter of Local Self-Government (1985) and the European Charter of Regional Self-Government (1997).

Over a long period, there was a lack of clear legal bases and effective instruments of regional policy implementation in the European Union (EU). The Treaty establishing the European Economic Community of 1957 generally indicated the necessity of reducing the levels of socio-economic development between regions (Klima, 2005, p.24). Only in 1975 the European Regional Development Fund was established, the aim of which was to conduct common regional policy (Lechwar, 2008, p. 24). One of the main objectives of the Union is the promotion of its overall harmonious development. Article 174 of the Treaty on the Functioning of the European Union (OJ C 326, 26.10.2012, p.47–390) states that the Union shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions.

In contrast to the Council of Europe, the EU supported territorial cooperation primarily financially (Perkmann, 2003, p. 153-171). Instead of the foundation of structures, EU has implemented assistance programmes (e.g. Interreg, Phare CBC, Linkage Assistance and Cooperation for the European Border Regions, Ecos-Ouverture). On the operational level, this cross-border cooperation has been encouraged by the European regional policy,

notably through the European Regional Development Fund (Sanguin, 2013, p. 158; Eckardt, Okruch, 2018, p.19).

The lack of a homogeneous European legal base for cross-border cooperation was a barrier of its development. Member States and, in particular, regional and local authorities encountered significant difficulties when trying to implement programmes for territorial cooperation because of differing national laws and procedures and the increase in the number of land and maritime borders. Existing instruments on cooperation within the European Union, such as the European economic interest grouping (EEIG), are primarily aimed at cooperation between economic operators rather than public authorities. In addition, the structures proposed by the Council of Europe for regional and local authorities to cooperate across borders were not endorsed throughout the whole European Union (European Commission, 2011). In this context, in 2004, the European Commission has proposed the creation of a European grouping of cross-border cooperation. Regulation No 1082/2006 of the European Parliament and the Council on a European grouping of territorial cooperation (OJ L 210, 31.07.2006) adopted on 5 July 2006 acknowledges that „In order to overcome the obstacles hindering territorial cooperation, it is necessary to institute a cooperation instrument at Community level for the creation of cooperative groupings in Community territory, invested with legal personality, called 'European groupings of territorial cooperation' (EGTC)". Regulation has entered into force on 1 August 2006. It was amended by regulation No 1302/2013 of 17 December 2013 (OJ L 347/303, 20.12.2013), which has entered into force on 22 June 2014. The European legislator clarified some provisions, simplifed procedures and enlarged the scope of entities eligible for the EGTC, providing the elements to make the functioning of EGTCs easier.

Regulation No 1082/2006 has opened a new perspective in the domain of cooperation and enabled the creation of a new instrument providing a legal structure for better cooperation between national, regional and local authorities and other public law bodies in different countries of the European Union (Kentnowska, 2012, p.238). The EU legislator considered that the main objective of an EGTC will be to facilitate and promote, in particular, territorial cooperation, including one or more of the cross-border, transnational and interregional strands of cooperation, between its members, with the aim of strengthening Union economic, social and territorial cohesion.

Although regulation No 1082/2006 is directly and uniformly applicable in all 28 Member States, Article 16 provides for the obligation of Member States to lay down national and regional provisions until 1 August 2007, that will ensure the effective enforcement of regulation. At present, all Member States have adopted regulation No 1082/2006, but only a few have incorporated regulation 1302/2013 amending regulation No 1082/2006.

4 Establishment and Tasks of EGTC

An EGTC may be made up of members located on the territory of at least two Member States and of one or more third countries neighbouring at least one of those Member States, including its outermost regions, where those Member States and third countries jointly carry out territorial cooperation actions or implement programmes supported by the European Union. According to Article 3 of regulation No 1082/2006, an EGTC shall be made up of members, within the limits of their competences under national law, belonging to one or more of the following categories: a) Member States or authorities at national level; b) regional authorities; c) local authorities; d) public undertakings within the meaning of point (b) of Article 2(1) of Directive 2004/17/EC of the European Parliament and the Council (OJ L 134, 30.04.2004) or bodies governed by public law within the meaning of the second subparagraph of Article 1(9) of Directive 2004/18/EC of the European Parliament and the Council (OJ L 134, 30.04.2004); e) undertakings entrusted with operations of services of general economic interest in compliance with applicable Union and national law; f) national, regional or local authorities, or bodies or undertakings, equivalent to those referred to under points (d) and (e), from third countries. Associations consisting of bodies belonging to one or more of these categories may also be members.

The decision to establish an EGTC shall be taken at the initiative of its prospective members. Article 4(2) of regulation No 1082/2006 provides that each prospective member shall notify the Member State under whose law it has been formed of its intention to participate in an EGTC and send that Member State a copy of the proposed convention and Statutes. The Member State shall reach its decision, with regard to approval, within a period of six months from the date of receipt of a notification.

Basic documents which constitute an EGTC are the convention and the statutes. According to European legislation, "the statutes are adopted on the basis of the convention". The statutes of an EGTC shall be adopted on the basis of the convention by its members acting unanimously. Articles 8 and 9 of regulation No 1082/2006 specify in detail the basic elements, common for all EGTC established in Member States, which shall be included in each of these documents. The convention and the statutes and any subsequent amendments thereto shall be registered or published, or both, in the Member State where the EGTC concerned has its registered office, in accordance with the applicable national law of that Member State.

An EGTC, according to Article 10 of regulation No 1082/2006, shall have at least the following managerial, administrative and controlling organs: an assembly, which is made up of representatives of its members and a director, who represents the EGTC and acts on its behalf. The statutes may provide for additional organs with clearly defined powers.

One of the most important features of an EGTC, which differentiates it from other forms of cross-border cooperation, including Euroregions, is their legal personality. Article 5(1) of regulation No 1082/2006 provides that the EGTC shall acquire legal personality on the date of registration or publication of the convention and the statutes, whichever occurs first. An EGTC shall have in each Member State the most extensive legal capacity accorded to legal persons under that Member State's national law. It may, in particular, acquire or dispose of movable and immovable property and employ staff and may be a party to legal proceedings. Regulation does not regulate whether an EGTC has legal personality of public or private law. This issue is left to be decided at the level of national law competent for a given EGTC.

Common budget of an EGTC is another crucial feature of the new legal instrument of cross-border cooperation. According to Article 11(1) of regulation No 1082/2006, an EGTC shall establish an annual budget which shall be adopted by the assembly, containing, in particular, a component on running costs and, if necessary, an operational component.

Article 7 states that an EGTC shall act within the confines of the tasks given to it, namely the facilitation and promotion of territorial cooperation to strengthen Union economic, social and territorial cohesion, and the overcoming of internal market barriers. Primarily, the tasks of an EGTC may concern the implementation of cooperation programmes, or parts thereof, or the implementation of operations supported by the Union through the European Regional Development Fund, the European Social Fund or the Cohesion Fund. The European legislator stipulated that the tasks given to an EGTC by its members may not concern the exercise of powers conferred by public law or of duties whose object is to safeguard the general interests of the State or of other public authorities, such as police and regulatory powers, justice and foreign policy.

The first EGTC established in Europe was the Lille-Kortrijk-Tournai Eurometropolis located between France and Belgium. Created on 28 January 2008, the EGTC includes 152 communes as well as regional and national authorities. At the end of 2017, a total of 68 EGTCs were registered in Europe. The most active in creation of EGTCs are: France, Hungary, Slovakia, Spain and Italy. They include Member States, national, regional and local authorities, bodies governed by public law, public enterprises and associations and third countries (outside the European Union). In 2017 just one EGTC (Karst-Bodva) was dissolved (Zillmer, Hans, Lüer, Montán, 2017, p. 13, 132).

5 Legal Framework of Cross-Border Cooperation between Poland and the Czech Republic

The legal bases for conducting cross-border cooperation and functioning of euroregions and EGTCs at the Polish-Czech border are formed not only by legislative acts adopted by the EU and the Council of Europe, but also by national provisions and bilateral agreements. The latter include basic objectives and principles concerning the conduct of different forms of cross-border cooperation, foreseen in multilateral international agreements. The current Polish-Czech relations are based on the Agreement between the Republic of Poland and the Czech and Slovak Federal Republic on Good Neighbourhood, Solidarity and Friendly Cooperation of 6 October 1991. The cross-border cooperation is an important element of the bilateral relations. The most important legals acts in this field, which were concluded between the Government of the Republic of Poland and the Government of the Czech Republic are:

- Agreement on cross-border cooperation, done at Warsaw on 8 September 1994;
- Agreement on local border traffic, done at Prague on 17 January 1995;
- Statute of the Polish-Czech Intergovernmental Commission for Cross-border Cooperation, done at Karpacz on 1 June 1995;
- Agreement on border crossings, crossings on tourist footpaths cutting across state borders and the principles of crossing state borders outside border crossings, done at Warsaw on 22 November 1996;
- Agreement on cooperation during performing border checks, done at Prague on 25 May 1999;
- Agreement on cooperation in border checks, done at Prague on 25 May 1999.

The rules concerning the organization of European grouping of territorial cooperation in order to implement the provisions of regulation No 1082/2006 are specified: in Poland – in the act of 7 November 2008 on European grouping of territorial cooperation (Dz. U. Nr 218, poz. 1390), in the Czech Republic – in the act No 248/2000 Sb. of 29 June 2000 on regional development support as amended by the act No 298/2015 of 22 September 2015. It should be emphasised that both Poland and the Czech Republic adopted regulation No 1302/2013 of the European Parliament and of the Council of 17 December 2013 amending regulation No 1082/2006. Provisions

facilitating the process of the establishment and functioning of EGTC were adopted by the Czech Republic in 2015, and in the following year by Poland.

6 EGTCs at the Czech-Polish Borderland

6.1 Basic Information

The Czech-Polish border is 790 km long and has about 3,3 mln inhabitants. These areas are characterised by cultural and linguistic proximity, similar level of socio-economic development, common history, numerous urban centres (including also those of industrial nature) and the presence of mountain areas. It is crucial because local conditions have a major impact on shaping cross-border relations (Dołzbłasz, 2016, p. 66). Cross-border cooperation at the Czech-Polish borderland has been developing since the 1990s, which is undoubtedly related to the change of political and economic system. Regaining of political sovereignty, economic transition toward market economy and creation of local government were the main factors which contributed to the development of Polish-Czech cooperation. At present, cooperation takes place at several levels:

- national – within the Polish-Czech Intergovernmental Commission for Cross-border Cooperation;
- regional – within the frame of euroregions: Neisse-Nisa-Nysa (21.12.1991), Glacensis (5.12.1996), Praděd-Pradziad (2.07.1997), Těšínské Slezsko-Śląsk Cieszyński (22.04.1998), Silesia (20.09.1998), Beskydy-Beskidy (9.06.2000) and the Groupe de Visegrad;
- and local (cooperation between Cieszyn and Těšín „Cieszyn-Český Těšín").

Euroregions and other formalised cooperation forms have been important predecessors for EGTCs.

At present, there are two EGTCs operating on the Czech-Polish border: TRITIA ltd. And NOVYM ltd. It is worth noting that cross-border cooperation within the frame of EGTC TRITIA has a tripartite nature. Table 1 provides basic information on the EGTCs.

Table 1 – Basic information on EGTCs on the Czech-Polish border.

Information	EGTC TRITIA Ltd.	EGTC NOVUM Ltd.
Date of constitution	25/2/2013	16/12/2015
Member States	Poland, Czech Republic, Slovakia 1. Moravian – Silesian Region 2. Opole Voivodeship 3. Silesian Voivodeship 4. Žilina Self	1. Lower Silesian Voivodship; 2. Association of Polish Communalities of the Neisse Euroregion; 3. Association of Polish Communalities of the Glacensis Euroregion; 4. Liberec Region; 5. Kralovy Hradec Region; 6. Pardubice Region; 7. Olomouc Region; 8. Neisse Euroregion – Regional Association; 9. Euroregion of the Czech, Moravia and Kłodzko Borderline – Glacensis Euroregion
Head office	Cieszyn, PL	Jelenia Góra, PL
Purpose	Support for implementation of Cohesion Policy.	Intensify, facilitate and promote Polish-Czech cross-border cooperation aimed at strengthening economic and social cohesion of the area covered by the Grouping functioning.
Area	24 566 km^2	37 652 km²
Population	6.5 mln	5 mln
Budget	€ 88,000 from annual contributions from the members	€ 120,000 from annual contributions from the members

Source: own study

The head office of both the EGTC TRITIA and the EGTC NOVUM is set in Poland. For this reason, organizations are governed by the Polish law and any disputes between the parties will be resolved by settlement or by the Polish courts. The EGTC's organs are: the Assembly, the Director and the Supervisory Board. Director is a statutory executive body of the Grouping responsible for running its business and representing. The Supervisory Board has a control function over the entire EGTC's activity.

Both the EGTC TRITIA and the EGTC NOVUM were incorporated for an unlimited period. The EGTC's budget is funded by mandatowy financial contributions from its member states. In the case of TRITIA, the annual contribution was set up to € 22,000 for each of the four founding regions. Financing the activity of NOVUM is carried out from the members' contributions in equal parts by the Polish and Czech party. The sum of the contributions may not be less than the amount being the equivalent of € 120,000.

6.2 Fields of Activity

Generally speaking, EGTCs activities may be related to policy areas of the six Commissions of the European Committee of the Regions: CIVEX (Commission for Citizenship, Governance, Institutional and External Affairs), COTER (Commission for Territorial Cohesion Policy and EU Budget), ECON (Commission for Economic Policy), NAT (Commission for Natural Resources), SEDEC (Commission for Social Policy, Education, Employment, Research and Culture) and ENVE (Commission for the Environment, Climate Change and Energy). Table 2 displays the activities for each EGTC in more detail.

Table 2 – The scope of objectives and tasks of EGTCs.

Commission	Fields of activity	EGTC TRITIA	EGTC NOVUM
CIVEX	Enlargement & neighbourhood		
	Active citizenship	X	
	Human rights		
	Security, justice, border controls & external relations		
	Governance, subsidiarity & public capacities		
COTER	Spatial & regional development	X	X
	Transport, infrastructure	X	X
	Macro regions & territorial		
ECON	Entrepreneurship		X
	Economic & competition policy		
	Economic governance		
NAT	Tourism	X	
	Civil protection		
	Rural development		
	Forestry, fisheries, food production		
	Health & consumer protection	X	X
SEDEC	Research & innovation	X	X
	Culture, sports	X	
	Employment and social policy, equal opportunities		
	Education & training	X	X
	Mobility	X	
	Digital technologies & networks	X	
ENVE	Climate change		X
	Energy		X
	Environment	X	X

X – Effective fields of activity
Source: own study based on: S. Zillmer, S. Hans, Ch. Lüer, A. Montán (2017). *EGTC monitoring report 2017*. [online]. [cit.2018-07-18]. Available from https://portal.cor.europa.eu/egtc/about/Documents/EGTC-MR-2017.pdf.

The scope of statutory objectives and the actions undertaken is substiantially the same. The analysis of statutes examined EGTCs indicates that the most frequent references are those to such tasks as: spatial and regional development, transport and infrastructure, health and consumer protection, research and innovation, education and training, environment. Slightly less popular are the tasks related to active citizenship, entrepreneurship, tourism, mobility, digital technologies and networks.

The EGTC TRITIA has been established to facilitate and spread the cross-border, transnational and interregional cooperation of its members with an objective to strengthen economic and social cohesion, particularly through implementation of territorial cooperation projects or programmes with the following objectives: 1) making the grouping's inhabitants everyday life easier, 2) creating cross-border cohesion in the framework of the whole grouping, 3) implementation of projects with the purpose of common strategic development (EGTC TRITIA, 2018b).

Paragraph § 8 of the Statute states that the EGTC NOVUM was established to facilitate and support cooperation between its members (EGTC NOVUM, 2015b). EGTC NOVUM aims to intensify, facilitation and promotion of Polish-Czech border cooperation to strengthen economic and social cohesion of areas where it functioning. In

order to achieve this objective, the EGTC NOVUM Ltd. carries out the following tasks (§ 9): 1) developing cooperation, extending the capacity and joint use of human resources and infrastructure, primarily in tourism, culture, education and health care; 2) supporting the joint protection of natural and cultural resources and their joint management; 3) reducing isolation through improved access to transport, information and communication services and networks; 4) supporting entrepreneurship; 5) supporting research, technological development and innovation; 6) supporting effective and coherent cross-border cooperation; 7) promoting the integration of cross-border job markets; 8) promoting local employment initiatives, gender equality and equal opportunities, training and social integration; 9) supporting relations between urban and rural areas; 10) ensuring cooperation, dialogue and enhanced political and social debate; 11) facilitating the creation, application and implementation of project within the framework of a development strategy prepared jointly.

6.3 Projects Implemented by the EGTC TRITIA and the EGTC NOVUM

The scope of activities undertaken by the EGTC TRITIA ltd. and the EGTC NOVUM ltd. is very broad, ranging from the protection and development of the natural and cultural heritage, to improved communication and quality of cooperation between NGO institutions and organizations, management of services of general interest (such as support for institutions providing care for the elderly people and education – creating a network of teachers from primary, lower secondary and upper secondary schools), improve the governance of energy efficiency, and improved awareness, planning and coordination between regional authorities, transport managers and freight transport operators. The following table shows projects implemented by the EGTC TRITIA ltd.

Table 3 – Project implemented by the EGTC TRITIA.

Project	Program	The main objective	Duration of the project	Budget in EUR
Common 3D digitization of historical objects of cross-border area SK-PL	Interreg VA PL-SK 2014-2020	Protection and development of the natural and cultural heritage of the border area.	01.02.2017-30.06.2018	Total budget: 717,767.30 Co-funded by the EU: 610,102.21
AIR TRITIA	Interreg Central Europe 2020	Create effective international air quality management through development of joint information database, management and prediction tools and air quality strategies.	01.06.2017-31.05.2020	Total budget: 2,576,623 Co-funded by the EU: 2,190,130
TRANS TRITIA	Interreg Central Europe 2020	Improve awareness, planning and coordination between regional authorities, transport managers and freight transport operators.	01.09.2017-31.08.2020	Total budget: 1,348,090 Co-funded by the EU: 1,145,876.50
Seniors without borders. Visegrad cooperation for the integration of seniors	International Visegrad Fund	External support for institutions providing care for the elderly people – Nurses Home/Homes of Old Age from the border areas of Poland, Czech Republic and Slovakia.	20.05.2018-31.12.2018	Grant: 15,000
Mówimy po słowacku! Hovoríme poľsky	Interreg V-A PL-SK 2014-2020	Improve communication and quality of cooperation between NGO institutions and organizations by increasing the language skills of their employees and increasing their knowledge of culture and traditions and the history.	01.09.2017-30.06.2018	Total budget: 47,465 Co-funded by the EU: 40,345
Cross-border ski	International Visegrad Fund	Create a map of cross-country skiing routs, ski centres and ski services.	01.01.2018-30.04.2018	Grant: 12,721
Tourism for All	International Visegrad Fund	Raise awareness among citizens on tourism open to the needs of all		Grant: 10,000

		members of society, including people with disabilities, the elderly, from different cultures, mothers with children.		
Sustainable business	European Fund of Regional Development / Operational Programme of Cross-border Cooperation CZ–PL 2007-2013	Creation of a cross-border network of entities supporting start – ups on both sides of the Czech – Polish border in the area of Moravian – Silesian Region and Silesian Voivodeship, as well as to obtain detailed information on the tools of support for start – ups used in the U.S.A.		Total budget: 80,119
Discover your industrial past	International Visegrad Fund	Promotion of the technical monuments in the TRITIA area and their tourist potential.	01.08.2014-30.06.2015	Grant: 10,000
You are what you eat	International Visegrad Fund	The local products sale promotion in the project partners' regions and provision of the necessary information and knowledge for the producers to increase their sale are main project objectives.	2014	Grant: 12,000

Source: own study

In the five years it has been active, the EGTC TRITIA has implemented 10 projects within the framework of programmes: Interreg Central Europe (2), Interreg V-A PL-SK 2014-2020 (2), International Visegrad Fund (5) and European Fund of Regional Development (1). In the framework of these projects EGTC was granted funding in the amount of almost 4.5 mln EUR.

The EGTC was involved as partner or lead partner in these projects. Moreover, the EGTC TRITIA conducts projects to implement Cohesion Policy. It has a voting right in the Monitoring Committee of the Interreg VA PL–SK 2014-2020 programme.

The EGTC TRITIA realizes or connects on partner platform to project affecting to topics as transport, economic, tourism, energy or cultural, environment, manpower, education, cooperation of high schools and universities, cooperation with public institutions also implementation of knowledge sharing and international fellowship. The grouping connects to project which main topics is on cross border and international cooperation with objective to intensify economic and social connection between four partner regions: Moravian – Silesian Region from Czech Republic, Silesian Voivodeship and Opole Voivodeship from Poland and Žilina Self – governing Region from Slovak Republic (EGTC TRITIA, 2018a).

The EGTC NOVUM has carried out few projects, including related to sustainable development, the governance of energy efficiency, education and cooperation between units of emergency medical services. Table 4 displays projects of the EGTC NOVUM in more detail.

Table 4 – Project implemented by the EGTC NOVUM.

Project	Program	The main objective	Duration of the project	Budget in EUR
Jak ratujecie u Was? (How do you rescue?)	Interreg V-A CZ-PL	Strenghtening and intensifying cooperation between units of emergency medical service from Poland and the Czech Republic.	01.01.2018-31.12.2020	Co-funded by the EU: 335,273.38
BOOSTEE-CE - Boosting energy efficiency in Central European cities through smart energy management	Interreg Central Europe	Improve the governance of energy efficiency in existing public buildings and ultimately reduce energy consumption.	01.06.2017-31.05.2020	Total budget: 126,103 Co-funded by the EU: 107,187

Droga S3/D11 nasz wspólny priorytet (Road S3/D11 – our common priority)	Interreg V-A CZ-PL		Intesifying cooperation between key institutions in the field of Polish-Czech cross-border cooperation.	01.01.2018-31.12.2020	Total budget: 8,692.16 Co-funded by the EU: 7,388.35
Akcent@net	Interreg V-A CZ-PL		Creation of a cooperation Network of teachers of primary schools, lower secondary schools and upper secondary schools.	01.02.2018-31.01.2021	Co-funded by the EU: 205,262.36
Wspólnie rozwiązujemy problemy (Together we solve problems)	Interreg V-A CZ-PL		A higher level of education thanks to implementation of conferences and trainings.	01.01.2018-31.12.2020	Total budget: 333,235.93 Co-funded by the EU: 280,700.54

Source: own study.

As shown in the table above, EGTCs have been involved in diverse activities. The grouping is also a beneficiary of different EGTC programmes. During nearly three years of activity the EGTC NOVUM has implemented 5 projects within the framework of programmes: Interreg V-A CZ-PL 2014-2020 (4) and Interreg Central Europe (1). The total value of projects realised by EGTC is about 1 mln EUR. The EGTC is now involved in several EU-funded projects, such as "Droga S3/D11 nasz wspólny priorytet" ("Road S3/D11 – our common priority") under the Interreg Czech Republic-Poland Programme. The different projects are related to cooperation between emergency services in Poland and the Czech Republic, to creation of a platform of cooperation between teachers from schools and the preparation of training for environment protection and spatial planning.

7 Conclusion

Since 1990, Polish-Czech cooperation has developed strongly. The above was due to the accession of both countries to the European Union, and then to the Schengen Area, EU aid programmes, the interest of self-governments in cooperation with entities from the other side of the border. In the recent years, on both the Polish and the Czech sides of the border a raising interest in mutual contacts has been observed. This cooperation has taken place at several levels: national (in the framework of the Polish-Czech Intergovernmental Commission for Transfrontier Cooperation), regional (e.g. Eurorégion Neisse-Nisa-Nysa) and local (cooperation between Cieszyn and Těšín „Cieszyn-Český Těšín"). Institutionalisation of cross-border cooperation between the Czech Republic and Poland under the EGTC umbrella improved their mutual cooperation.

The results of the study show, that despite over 10 years of application of regulation No 1082/2006, Poland and the Czech Republic do not fully use the potential of new possibilities for cooperation. In terms of using EGTCs as a mechanism for cross-border cooperation, the main problems concern insufficient awareness and information, a lack of confidence and the absence of the necessary political will to strengthen cross-border cooperation (European Committee of the Regions, 2015). There are only two EGTCs operating at the Czech-Polish border: TRITIA ltd. (2013) and NOVUM ltd. (2015). The basic goals and tasks of the Groupings focus on the following areas: spatial and regional development, transport and infrastructure, health and consumer protection, research and innovation, education and training, environment. The EGTCs were involved in several projects co-funded from Interreg Central Europe, Interreg VA PL-CZ, Interreg VA PL-SK, International Visegrad Fund. For the implementation of projects related to areas of general interest to border communities, in particular transport and communication infrastructure, health, education and training, tourism, energy, environment, education, cooperation with public institutions, EGTCs received support of more than 5 mln EUR.

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