Vol. 4, No 2, 2018

Annals of Marketing Management & Economics

International Journal

Warsaw University of Life Sciences – SGGW

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Annals of Marketing Management and Economics (AMME) is an academic and peer-reviewed journal that provides a medium for exchanging information on economic sciences. The journal publishes reports on current work and proposals for future work. The journal's objective is to bring together economic and marketing interests from different disciplines with a worldwide perspective. The journal places particular emphasis on: consumer behaviour and consumption trends, competitiveness, socio-economic development on a regional and local scale, social capital, public and enterprise finance, tourist economy, innovativeness, marketing and management.

Annals of Marketing Management and Economics is published twice a year. The printed version is the initial version of the journal. The electronic version of published issues, our revision policy and detailed information for authors are available on the journal website:
http://amme.wne.sggw.pl

ISSN 2449-7479 eISSN 2543-8840

Warsaw University of Life Sciences Press
Nowoursynowska 166, 02-787 Warsaw
phone 22 593 55 20 (-22, -25 – sale), fax 22 593 55 21
e-mail: wydawnictwo@sggw.pl, www.wydawnictwosggw.pl

Print: ZAPOL sp.j., al. Piastów 42, 71-062 Szczecin

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 5–18
DOI 10.22630/AMME.2018.4.2.13

THE ROLE OF HÉVÍZ SLUDGE COSMETICS IN BEAUTY CARE AT THE DANUBIUS HEALTH SPA RESORT IN HÉVÍZ WITH SPECIAL REGARD TO THE KAVICZKY PRODUCTS

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INTRODUCTION

As a result of the trend of health and beauty care, there are more natural possibilities in Hungary for the production of cosmetic products with the most natural components and environmentally friendly wrappers, which is becoming increasingly popular in Hévíz sludge for cosmetics production. Agnes Kaviczky was among the first to take advantage of this opportunity and created Pannon Formula PF^{TM}, which includes Hévíz sludge, Hévíz water, natural grain extracts and biologically pure essential oils. The Danubius Health Spa Resort Heviz is one of the Danubius Hotels chain members, which deals with cosmetic treatments developed and created a cosmetics line by Agnes Kaviczky.

AIM AND METHOD

The purpose of the study is to find out how Danubius Health Spa Resort in Hévíz is to the extent to which the guests benefit from the treatment of high-quality Kavizcky cosmetics made from Hévíz sludge. I have completed a primary research study by studying the available professional materials (referred to herein). On 16.07.2018 from 8 a.m. I made a personal interview with medical director of Danubius Health Spa Resort Hévíz, Marta Vajda at the medical center. Marta Vajda has made available to me their traffic data for 2013–2016. I made my own base and chain ratio calculations for the given data. On 23.07.2018 I made an interview with Agnes Kaviczky, creator of the Kaviczky cosmetics on two occasions.

THE SIGNIFICANCE OF THE SLUDGE OF LAKE HÉVÍZ

The largest biologically active, natural thermal lake in the world is the thermal lake of Hévíz, the thermal water of which is one of the most valuable in Hungary among many different forms of medicinal and medicinal resources. The red and blue floral roses in the pond provide a beautiful look. There is a great deal of science for this new cellulose and protein decompression micromonospore (Mikromospora Heviensis), which helps to shape the sludge. There are also species around the world around Hévíz. The surface of the lake, which was 47,500 m^2 in the upper Triassic period (about 200 million years ago), was created from the pure seawater of the Pannonian Sea. The lake is fed by a rich mineral source of thermal springs, which originates from a cave 38 m deep, where tens of thousands of warm and cold karst waters are mixed together. The source gives 20,000 liters of water per minute, so the water of the lake is renewed within 72 hours (replaces every 3 days), with an average water flow rate of 310m^3/secundum. The temperature of the thermal water in the summer months is 33–35°C, which does not fall below 26°C in winter. The extraordinary therapeutic effect of thermal water is due to sulfur and radon. Water has valuable mineral and trace elements such as sodium, potassium, lithium, ammonium, calcium, magnesium, iron, manganese, nitrate, nitrite, chloride, bromine, iodine, fluoride, sulphate, hydrocarbonate, phosphate and sulphide. The nature of thermal water is calcium magnesium hydrogen carbonate, fluoride, sulfur water. The specialty of Lake Hévíz is a medicinal sludge covering the bottom of the lake at 1–3 meters thickness, which is mainly a peat of vegetal origin, organic material produced by microbiological maturation synthesizing from plant sediments, with minerals and humic acids unique in the world. The basin consists of non-volcanic soils, but also of mead-bog peat, which is also unique for the unique nature of the lake. Sludge is not sticky and extremely hydrophilic, its touch is delicious and pleasant. It has a high heat storage capacity, which makes it effective for sludge splitting. Where two different water temperatures meet, there is a wide sludge in which humic acid is formed [WWW 4, Lake Hévíz…, The chemical composition…].

Humic acid is produced from plant sediments during microbiological maturation. Numerous precious properties of beauty care can be utilized in this long carbon chain of high molecular weight organic matter. The Hévíz cure is well suited for movement disorders and for the use of a weight bath. Treatments are being performed at the hotel's medical section where the latest methods of balneo, electro and mechanotherapy are used in patients receiving treatment based on diagnosis by specialist doctors. The lake of Hévíz rightly deserved to be nominated on the Waiting list of the World Heritage List with its unique properties, therapeutic effects, unique flora and fauna [WWW 4, Danubius Hotels Group Spa..., Danubius Hotels Group; Spa Treatment...].

BEAUTY CARE TREATMENTS AT DANUBIUS HOTEL AND SPA PLC, WITH SPECIAL REGARD TO KAVICZKY TREATMENTS

In the world, a new approach is becoming increasingly popular, whereby people are beginning to be interested in a natural and organic way of life. The Kaviczky product line represents the naturalness and uniqueness of synthetic preservatives, dyes and fragrances.

The composition of Kaviczky cosmetics is unique in Hévíz sludge and medicinal water, natural GMO-free grain extracts from Hungary and bio-purity essential oils, which provide a stimulating, skin-tightening effect. A special combination of active ingredients is Pannon Formula PF^{TM}, which is found in every Kaviczky product [WWW 4].

Hévízi sludge can be used not only for medical purposes, but also in the cosmetic salons of Emporium in Danubius Hotels in Hévíz, Bük and Sopron from the autumn of 2013, with the help of Kaviczky treatments and luxury cosmetics. Humic acid is able to increase the cell membrane's potential, which is thus vital, and is well suited for detoxification by binding heavy metals, regenerating the skin, fine wrinkles, and anti-inflammatory and antiseptic properties [WWW 4].

In Danubius Hotel's private label beauty salon, The Emporium Wellness and Beauty Salon, the basic concepts of indulgence and luxury enjoyment. The Emporium Wellness and Beauty Salons are demanding and well-equipped salons offering a wide range of high quality cosmetic, relaxing and relaxation treatments as well as hand and foot care treatments. The manual and Swiss Bodylizer system with French products by Sothys and body exfoliation, body regeneration, facial, botox, greetings and men's facials are on the Emporium palette. Treatments are performed with a high quality manual handling method. Electro-cosmetic treatments are also used in the salon. Treatments are supplemented with professional expertise and professional skin care advice [WWW 4].

Kaviczky treatments are available eg. in the Danubius Health Spa Resort Bük, in the Danubius Health Spa Resort Aqua, in the Hotel Lővér hotels outside the Danubius Health Spa Resort Hévíz. Agnes Kaviczky is the creator and designer of the special brand of cosmetics for the brand:

"My goal was to create a premium-grade cosmetics line that, in its appearance and content, meets the expectations of the world and it carries the values that are typical of Hungary. Therefore, I selected the water and sludge of the unique Hévízi lake in the world as a base material for the base material of the developed product line. I find it extremely important that anything that serves the good, the health or the beauty of mankind comes from the natural treasures of our land, and there is no imitation or iniquity in it." [WWW 4].

Kaviczky facial treatments at Danubius Health Spa Resort in Hevíz:

– Kaviczky Greeting Facial Treatment: a taste of Kaviczky cosmetics by cleaning, scrubbing and massage.
– Kaviczky Vine Flower Energizing Facial Treatment: revitalizing, detoxifying treatment, which moisturizes, nourishes and nourishes the skin with velvety combination of vine and flower extracts. Treatment cleansing includes prep up massage, plus mask, facial neck and décolletage massage.
– Kaviczky Express Regeneration: quick skin regeneration treatment, after cleansing, scrubbing and active ingredient placement, Peloid mask is placed on the face during which hand massage is performed and closed with daytime skin care.
– Kaviczky Exclusive Diamond Ritual: Instant hand firming and anti-wrinkle treatment with diamond power. Very effective treatment with gemstone. Finely polished the surface of the skin reveals its youthful glow, which makes the skin firmer and fuller, and the face recovers its contours. Treatment includes cleansing with prep up massage, nursing with Digito Pressure point massage, facial neck and décolletage massage, eye care and masks.

– Kaviczky Deep Cleansing Facial Treatment: classic cosmetic treatments that are complemented by steam and deep cleansing. Treatment includes cleansing, scrubbing, steaming, deep cleansing, active ingredient delivery, face-neck-decolletage cleansing massage, nourishing wraps, daytime skin care according to skin type and skin condition.
– Kaviczky Pampering Facial Treatments: Classic cosmetic treatment that includes cleansing, scrubbing, active ingredient, facial neck decolletage massage, nourishing wrap, daytime skin care, in every case according to skin type and skin condition.
– Kaviczky Luxury Treatment with Plant "Botox": the products used in this treatment are an unique botox botox with an unique active ingredient, an unique biotechnology, from which the skin regains its natural beauty and elasticity, which is reflected in its original light. It is unique to Kaviczky treatments not only in its active ingredient but also in its method. Includes: cleansing, eraser, special massage, active ingredient intake, grain mask, hand massage, eye care, daytime skin care.
– Facial Treatment for Men – Kaviczky Deep Cleansing Facial Treatment for Men: focusing on men's skin care needs, but with the same method of treatment as the Kaviczky deep cleansing treatments. Treatment includes cleansing, scrubbing, steaming, deep cleansing, active ingredient, face-neck and decolletage massage, nourishing wrap, daytime skin care according to skin type and skin condition [WWW 4, Kaviczky treatments…, The Emporium…].

Table 1 presents the Kaviczky products available at Danubius Health Spa Resort in Hévíz. Kaviczky cosmetics include a wide range of cosmetic products in a demanding design.

TABLE 1. Kaviczky cosmetics

Type	Product name, size
Cleansers	• Gentle Cleansing Milk PF^{TM} LAVENDER (200 ml) • Gentle Soothing Cleanser PF^{TM} LINDEN FLOWER (200 ml)
Tonics	• Gentle Toning Lotion PF^{TM} LAVENDER (200 ml) • Gentle Soothing Lotion PF^{TM} LINDEN FLOWER (200 ml)
Eye contour care	• Eye Contour Balm PF^{TM} HORSE CHESTNUT (30 ml) • Serum Exe Contour PF^{TM} JASMIN (15 ml)
Serums	• Serum Lifting PF^{TM} OAT MILK (30 ml) • Serum Moisturizer PF^{TM} BARLEY MILK (30 ml) • Serum Vitalizer PF^{TM} SWEET ALMOND MILK (30 ml)
Day Creams	• Nourishing Day Cream PF^{TM} GINGKO (50 ml) • Moisturizing Day Cream PF^{TM} CALENDULA (50 ml) • Lifting Day Cream PF^{TM} SHEA BUTTER (50 ml) • Defense Day Cream PF^{TM} TARA TREE (50 ml) • Normalizing Day Cream PF^{TM} WILLOW BARK (50 ml)

TABLE 1. cont.

Type	Product name, size
Night Creams	• Rejuvenating Night Cream PF^{TM} WILDYAM (50 ml) • Energizing Night Cream PF^{TM} CORN GERM OIL (50 ml) • Firming Night Cream PF^{TM} WHEAT PROTEIN (50 ml) • Soothing Night Cream PF^{TM} GRAPE SEED OIL (50 ml) • Balancing Night Cream PF^{TM} GENTIAN (50 ml)
Cosmeceuticals (plant botox)	• Cosmeceutical Innovative Care FORMULA HIBISCUS, PLANT BOTOX (50 ml) • Cosmeceutical Intensive Care FORMULA ORCHID (50 ml) • Cosmeceutical Acitve Care FORMULA PRIMEROSE (50 ml) • Cosmeceutical Defensive Care FORMULA LILY (50 ml)
Masks	• Nourishing Corn Mask PF^{TM} BARLEY MILK (50 ml) • Deep Cleansing Mask PF^{TM} HÉVÍZ MOOR MUD (50 ml) • Rejuvenating Mask PF^{TM} HÉVÍZ MUD – HUMIN ACID (50 ml) • Black Rose Mask / Flora'xcellence rose (50 ml)
Peelings	• Gentle Exfoliating Cream PF^{TM} PINEAPPLE (50 ml) • Mild Mechanical Peeling PF^{TM} OLIVE SEED (50 ml)
FLORA'BALM	Intensely protects and moisturizes the skin rejuvenating, structure transforming, stimulating vegetal cocktail (50 ml).
FLORA'NERGY	Revitalize treatment lotion with liquid flower energy (50 ml).
FLORA'DEW	Ultra thin, super effective soothing cocktail (50 ml)
FLORA'LIXIR	Flower ombined with biopolymer complex and bioactive peptides result in a strong and effective transformation (15 ml)
FLORA'OIL	Nourishing, refilling, moisturizin and smoothing oil (15 ml)
Diamonds cream	Unique gel cream with wonderful glittering (50 ml)
Diamonds drops	Enriched concentration serum drops (15 ml)

Source: [Kaviczky Budapest…, Kaviczky treatments…, WWW 3].

PERSONAL INTERVIEW WITH MARTA VAJDA MEDICAL DIRECTOR

With Marta Vajda medical director was interviewed on 16.07.2018. According to his statement, the hotel's medical and cosmetic services are required by the 50+ guests. Numerous guests from Russian origin will be available for those who are interested in treatment with the Hungarian Kaviczky and French Sothys cosmetics. (With Sothys cosmetics they are being treated at the hotel from 1.09.2017, before working with the other French cosmetics Clarins). Based on the Sothys Vajda Marta's statement, she was a qualitative change, since before her application a serious market research was carried out on the quality of the various cosmetics during which Sothys proved to be the best. The guest is increasingly interested in site-specific cosmetics, which uses the therapeutic and beauty

care benefits of Hévíz sludge, the Kaviczky cosmetics line. With cosmetic treatments, the cosmetic specialist offers treatments that meet the skin type, as he is able to determine with a professional view that the expected result is the most suitable for the guest. The Sothys **** (four stars) high quality product, the Hungarian alternative, the hungarian hungaricum, the Kaviczky cosmetics range made of Hévíz sludge, which is also of high quality, has the advantage of using humic acid, antiallergic, natural, natural ingredients, there are many new features in the product line such as the diamond treatment, the plant botox (cosmeceuticals). The Kaviczky diamond treatments were introduced in the hotel in the spring of 2018.

PHONE INTERVIEW WITH AGNES KAVICZKY, OWNER AND DEVELOPER OF KAVICZKY COSMETICS

Agnes Kaviczky on 23.08.2018 we talked twice on the phone about Kaviczky cosmetics, the medicinal and beauty care of Lake Hévíz and the sustainability of the lake. Agnes Kaviczky said that their cosmetics are packaged in recyclable packaging material, an additive (plastic) manufactured by an Italian company. The primary packaging of cosmetics includes the product itself, which has to meet different health criteria. The secondary packaging is the outer packaging, the box containing the primary packaging, the cosmetics itself. With this outer packaging, the consumer encounters the stores' shelves. Natural ingredients can attack the packaging material, which can release harmful substances from the plastic that can damage the body, so it is important that the packaging material is made of hard plastics, which can reduce the comfort of the product, but it does not need to dissolve the packaging. It is essential that the phthalic acid used will be soft, plastic, phenol, toxic organic compound, which is also harmful to health.

Hévíz water is the peat water from the top of the sludge, which has the same properties as if it were from the lake, while the water treated in the low pressure plasma reactor is declustered water, which holds the 1 nm (nanometer) and stable cluster structure for 60 days then degraded. Water treated in a static magnetic field is only used in the Kaviczky Panflora'Soul cosmetics, which should not be confused with thermal water. In an earlier interview – among the other interviewees, I think of the ideas of Agnes Kaviczky regarding the sustainability and protection of Lake Hévíz and responsible organizational behavior and risk management:

In view of the protection of Lake Hévíz and its surroundings, the extraction of peat from the lake is half-manufactured, as the machines with which the peat extraction takes place are not large-scale but rather smaller grabbers. Transport is carried out by trucks to deposit the peat as the peat should stand and be consolidated in order for its microbiology to stabilize. In a procurement process, developing a partnership with a new supplier requires great care. For the most important aspects of procurement:

– the origin of the raw material, that is reliable cultivation;
– degree of purity, suitability for cosmetic use;
– the technology of harvesting and harvesting, that is, it is always more valuable to collect and process quickly and than to pack;
– fair market behavior;

– maintaining continuous supply, that is to Agnes Kaviczky, it is important that if you find a good quality active substance, you can calculate and calculate the supplier in the long run;
– do not undergo or conduct animal testing during impact assessments;
– produce only until it is able to sustain the ecological balance and it is important that you retreat as much as you would for the sale;
– if it is a threatened/protected plant, what activity it is doing to protect the protected species.

Risks may arise as a result of business and nature:

– The primary risk is that the process chain between supplier companies and users is rather long. The product goes through multiple intermediaries and commercial channels to reach the end user.
– The long process chain distorts the origin and credibility of information. Agnes Kaviczky responds to this by securing stable, long-lasting and trustworthy companies, although risk always exists.
– Responsible thinking is morally and ethically important to Kaviczky, which means long-term benefits in money. However, the return on investment is longer but more durable, while the internal and external assessment of the organization becomes positive.

The Kaviczky company's up-and-coming, unbroken track is also proven by its balance sheet data. Kaviczky Trading Ltd. was established in 2003 for the production of Kaviczky personal care products, whose net sales for the year 31.12.2017 were 554,000 HUF, 1,784 EUR. Kaviczky Ltd. On the basis of the decision of its owner, is engaged in R&D activities, funds for research and development, while in Kaviczky Premium Ltd. Was established in 2011, sales and distribution, which is a production department that has been producing personal care products and whose net sales were 19,564,000 at 31.12.20131. HUF, 62,996 EUR [WWW 1, WWW 2].

SITUATION AND VISION OF BEAUTY INDUSTRY BASED ON THE NEW SZÉCHENYI PLAN AND HÉVÍZ SPA HEALTH AND BALNEOLOGICAL DEVELOPMENT CONCEPT

Extending the New Széchenyi Plan (2011) to the health industry includes, among others, beauty, balneology, herbal cultivation and processing, and thermal therapeutic use of thermal water. The green economy as a very large area includes sectors that use their natural environment as resources more efficiently and more economically than in earlier periods. For example, bio-horticulture, nature and water protection. The knowledge economy also embraces a wide area, emerging or strengthening industries, the most important of which is the creation and application of new knowledge, research and development, innovation and the healthcare industry. The New Széchenyi Plan includes market-making developments such as the first Széchenyi Plan spa and thermal tourism subprogram. The New Széchenyi Plan has created a market opportunity for example in the healthcare industry for the therapeutic use of thermal water, and the beauty industry can give impetus to herb growing. The green economy and the knowledge

economy also have a very strong market potential, since the possibilities and directions of market creation are "drawing" out of the way because they are relatively new economic directions. Value creation in the healthcare industry is a key factor in R&D, eg. in the pharmaceutical industry, but the role of innovation is significant, for example in the beauty industry [Government of Hungary…].

In today's globally integrated economy, not the industries, not the big giants, but industries or giants, are the production and value chains and networks that compete with each other. For Hungary and for domestic companies, it is important to know where and where to get involved in global value-creating and competitive value chains. The green economy and the knowledge economy rely on high added value, as there is some extra knowledge behind every economic advantage. It is about knowledge that competitors do not have. In these industries, the idea is the greatest value [Government of Hungary…].

The two main priorities of the Health Program are health tourism and the thermal and health industry. In the thermal-health sector, priority is the essential areas of the use of thermal, medicinal and mineral waters, sectoral interfaces, the innovation program elements based on the health industry and the "backgrounds" serving the development of the healthcare industry. The subprograms of the thermal health priority include the complex utilization of thermal, medicinal and mineral waters in the field of beauty and cosmetics. Based on international trends, it can be seen that cosmetic services, procedures, and cosmetic articles have come to the fore, which, besides health, are also aimed at the preservation or restoration of beauty. The middle classes are also interested in beauty products and services today, not just the wealthiest ones. Innovation is the main driving force behind the modern cosmetics market, the ever-changing color range, the specific treatments and the unique product mix that prefer different needs. Most cosmetic products have a lifespan of less than 5 years, and manufacturers each year produce 25% of their products in a new composition. They are constantly required to renew their products in order to retain their position in a highly competitive marketplace where consumers are getting a wider choice and better performance [Government of Hungary…].

In the field of (potential) cosmetic raw materials (chemical, herbal, water), Hungary has favorable natural resources, which requires a good knowledge. In the field of natural cosmetics, the origin of the plant or propagation material is essential. Favorable if the content of Hungarian origin and cultivated crops is multiplied by the number of crops grown elsewhere in the world. The language proficiency of service providers, international (manufacturing and service) infrastructure, and the availability and reputation of international services and products are of major importance. Without these changes, the home beauty industry will remain uncompetitive with European or overseas products. The domestic cosmetics industry is medium and small (SMEs). The number of cosmetic companies in Hungary is low, approx. 30–80 (of which 10 are the number of medicinal water-based products), so the changes affecting SMEs affect the entire sector [Government of Hungary…]. The production of domestic and spa products is very low in Hungary and in the international market, although the spectacular development (eg. Vichy, Babor, Bad Wörishofen, Dead Sea products) is evident [Local Government…]. The baths

could build their services on a specific therapy based on a particular home-based preparation [Government of Hungary…].

The health industry and the cosmetics industry are mainly the so-called "Borderline" products, as these border products can contribute to the complexity of the domestic healthcare industry. Based on the Health and Balneological Development Concept of Hévíz Spa, the proposed collaborations (clusters) between organizations carrying out research and product development related to healing sludge should be developed, in which it is recommended to develop an action program for the health and beauty treatment of Hévíz medicinal sludge. The main objective of the health-balneological concept is to exploit the potential of the healthcare industry, complex medical tourism and the development of healthcare [Local Government…].

There is a major role to play in sustainable development as environmental protection is also a priority for the protection of nature and the environment, the use of thermal lake and thermal water extraction. In the health and green economy-centered local economic development, the beauty industry is one of the priority areas. Besides the medical use of the Hévízi sludge, the market potential of beauty products is a serious market potential. Good examples of the use of sludge for cosmetic purposes are the Dermosan Cosmetic Cream and the Kaviczky product line belonging to Agnes Kaviczky. Kaviczky uses sludge in non-aqueous form, but in powdered, dried and crude form. Such a sludge serves as a basis for Kaviczky cosmetics. A special drug combination is Pannon Formula. The Kaviczky company saw the need for a new Hévíz brand to be developed, which would make the brand line products available in every hotel in the same form. The product line would be marketed in different price categories for the needs and material needs of consumers. The active ingredients of Hévíz fairy rose are also suitable for cosmetic use in addition to sludge-based products requiring further research [Local Government…].

DISCUSSION

According to data from Table 2, the number of users of Kaviczky treatments at Danubius Health Spa Resort in Hévíz in 2013 is 227, which accounts for more than 15% of all cosmetic treatments. In 2014, 363 people used Kaviczky treatments, 451 in 2015, and 478 in 2016. Kaviczky treatments are becoming more and more interested every year. In 2014, this is 30% of total cosmetic treatments, 39% in 2015, and 40% in 2016.

From 2013 to 2014, the number of users of all cosmetic treatments decreased by 250, the number of people using Kaviczky treatments increased by 136, from 2014 to 2015, the total number of people requiring treatment dropped by 63, 88 for Kaviczky users increased from 2015 to 2016 by 252 compared to 2015 and 27 in Kaviczky treatments. The results show that the number of users of Kaviczky treatments increases year by year, even though the number of users of all cosmetic treatments fell somewhat in 2014 and 2015.

TABLE 2. Cosmetic treatments at Danubius Health Spa Resort in Hévíz 01.01.2013–31.12.2016

Cosmetic treatment	2013 (person)	2014 (person)	2015 (person)	2016 (person)	Price in HUF in 2018 /cosmetic treatment*	Change in 2014 compared to 2013 (base in %)	Change in 2015 compared to 2013 (base in %)	Change in 2016 compared to 2013 (base in %)	Change 2014–2015 (chain in %)	Change 2015–2016 (chain in %)
Anti Aging Bodylizer	116	114	38	61	23 900	98	33	53	33	161
Hip Tightening	20		1	4	10 900		5	20		400
Express Anti Wrinkle	19	11	1	3	15 900	58	5	16	9	300
Express Lifting	27	19	6	3	10 900	70	22	11	32	50
Express Hydration	15	12	3	2	9 900	80	20	13	25	67
Express Regeneration	35	25	21	15	11 900	71	60	43	84	71
Abdomen lifting	30	13	31	13	15 900	43	103	43	238	42
Breast lifting	2	2		2	15 900	100		100		
Press and flow	15	2	6	7	10 900	13	40	47	300	117
Star Lifting	16	7	8	16	20 900	44	50	100	114	200
Facial wax			6		5 000					
Bikini wax	5	7	5	8	3 000	140	100	160	71	160
Armpits wax	3	5	6	7	2 500	167	200	233	120	117
Intim zone wax			3	3	6 000					100
Full leg wax	4	4	8	4	6 500	100	200	100	200	50
Facial wax / partial	27	16	26	29	2 200	59	96	107	163	112
Leg wax till knee or arms	6	8	10	12	4 600	133	167	200	125	120
Fading skin magic treatment	3	19	18	26	20 000	633	600	867	95	144
Anti-Aging mask	137	32	7	4	12 000	23	5	3	22	57

TABLE 2. cont.

Kaviczky Facial Treatment for Men	4	16	15	17	19 900	400	375	425	94	113
Facial massage		59	117	16	4 000				198	14
Aphrodite pack		22	41	43	11 100				186	105
Skin Rejuvenation Skin Eye Treatment				8	8 700					
Gold mask	1	2	1		20 000	200	100		50	
Caviar mask	11	1			18 000	9				
Cleopatra/Adonis Bodypack	43	17	1	1	11 100	40	2	2	6	100
Danubius Magic facial massage	107	49	34	194	8 500	46	32	181	69	571
Express facial and eye treatment	44	37	30	28	15 000	84	68	64	81	93
Kaviczky express regeneration	5	24	25	18	14 900	480	500	360	104	72
60’ Facial treatment for men	22	23	13	17	18 900	105	59	77	57	131
Hévíz pampering			6	11	19 900					183
Conditioner head and back massage	3				8 900					
Eyelash tinting	67	66	67	109	2 500	99	100	163	102	163
Facial treatment with sludge	35	7		4	7 900	20		11		
Kavizcky pampering facial treatment	24	68	137	136	17 900	283	571	567	201	99

TABLE 2. cont.

Cosmetic treatment	2013 (person)	2014 (person)	2015 (person)	2016 (person)	Price in HUF in 2018 /cosmetic treatment*	Change in 2014 compared to 2013 (base in %)	Change in 2015 compared to 2013 (base in %)	Change in 2016 compared to 2013 (base in %)	Change 2014–2015 (chain in %)	Change 2015–2016 (chain in %)
Kavizcky luxury treatment with plant "botox"	7	25	14	20	22 900	357	200	286	56	143
Relaxing back massage		6	1		8 900				17	
Kaviczky deep cleansing facial treatment	9	65	95	113	21 900	722	1056	1256	146	119
Deep cleansing	96	60	49	33	22 900	63	51	34	82	67
Eyebrow tinting	82	76	67	102	1 900	93	82	124	88	152
Eyebrow correction	90	47	57	91	1 500	52	63	101	121	160
60' Facial treatment	185	163	88	88	19 900	88	48	48	54	100
Hand care with paraffin	69	9	5	18	3 300	13	7	26	56	360
60' Body peeling	6	8	10	7	19 900	133	167	117	125	70
60' Body treatment	45	39	7	17	20 000	87	16	38	18	243
80' Tri-Active facial treatment				6	25 000					
Body wrapping	23	13	17	21	16 500	57	74	91	131	124
Kaviczky welcome treatment	10	20	54	70	8 500	200	540	700	270	130
Total number of people using Kaviczky treatments:	227	363	451	478						
Total number of people using cosmetic treatment:	1 468	1 218	1 155	1 407		83	79	96	95	122

* 2018th on the basis of actual and estimated (market average) prices available for the year. Kaviczky treatments have been highlighted in light gray color.

Source: Author's calculation based on data from Summary of subdivision…

CONCLUSIONS

Kaviczky treatments are popular with the users, they prefer the potentially beneficial properties of Hungarian hungaricum, its natural ingredients and the Pannon Formula. Looking ahead, an increasing trend is expected, the circle of interest will be expanding. Based on the sales data of Danubius Health Spa Resort in Heviz, Table 2, the demand for services by Kavicky products will increase in the coming years. The reasons for this are due to environmentally and health conscious consumer behavior and the high quality of Kaviczky products. As far as the utilization of the Hévíz Lake sludge is concerned, newer innovative solutions will be implemented in accordance with the New Széchenyi Plan 2011 and the Hévíz Gyógyfürdő Spa 2011 concept. It is a positive trend that the medicinal capacities of domestic natural resources are continually explored and exploited. Ágnes Kaviczky is pursuing ongoing research and looking for ever more innovative solutions to make the products he deals with are more natural, environmentally friendly and more advanced. In the future, the emergence of new product lines on the market will be expected to further expand the range of services in the Danubius hotel chain. The Lake of Hévíz still offers many opportunities to expand the range of healing cosmetics and therapies. The exploration and exploitation processes, the ever-growing sludge extraction technologies, do not harm the lake, so they are environmentally aware. This is very important to reduce the ecological footprint, from the perspective of future generations, that is, sustainability.

ACKNOWLEDGEMENTS

The validity and the exactness of the data published in this article was verified and supplemented by Agnes Kaviczky and by Marta Vajda, medical director and competent staff in the Danubius Health Spa Resort in Hévíz.

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Summary. The paper presents the effect of the Hévíz Lake sludge on health and beauty, with particular emphasis on the beneficial properties of the Hévíz sludge ingredient in cosmetics, which is mainly presented with the Kaviczky treatments applied in Danubius Health Spa Resort in Hévíz and the ecological unevenness of Lake Hévíz. Agnes Kaviczky developed the Pannon Formula, which is composed of Hévíz sludge, Hévíz water, natural grain extracts and biologically pure essential oils. The unique features of the Lake Hévíz, its therapeutic effect, its unique flora and fauna are of great importance for those seeking healing, beauty, relaxation and excursions. From an environmental point of view, the sustainability, protection, conservation of its living and healing sludge for future generations must be sought.

Key words: environmental protection, Hévíz sludge, Kaviczky cosmetics, naturalness, Pannon Formula PF^{TM}

JEL: M30, M31, M37

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 19–30
DOI 10.22630/AMME.2018.4.2.14

CONTROL AND THE ILLUSION OF CONTROL IN THE FINANCIAL DECISIONS OF ENTREPRENEURS

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INTRODUCTION

The financial market, despite the global crisis, is one of the most dynamically developing markets in Poland. The current activity of organizations and their chance for further development is connected with continuous decision-making processes that are supposed to further the set objectives. Present-day entrepreneurs are becoming more confident and it seems that less can surprise them. The sense of power, knowledge and control gives them certain kind of freedom of action. At the same time this freedom manifests itself in majority of cases in the erosion of rational thinking. The result of achieving such a state may be a tendency to limited rationality in the decision situation. Although in everyday life there exists the possibility of changing decisions or correcting mistakes, there are areas in which an impulsive, irrational decision can be irreversible and can lead to serious consequences. As far as the situation of enterprises is concerned, such consequences may result in considerable financial losses. Due to the constantly changing environment, the decision-making ability of enterprises is gaining importance [Czerwonka and Gorlewski 2012]. In recent years, in the era of the global crisis, on many occasions the decision could be binding and therefore influence the company's well-being.

CONTROL AND THE ILLUSION OF CONTROL

Control is one of the last stages in the manager's work, covering as well the monitoring of the process of achieving planned goals and verification of individual elements of the decision process so that the effects of these activities are maximized. Control is thus

defined as a comparison of the present state with the required and expected state for a given activity or thing [Szczepankowski 2002]. One can state that control is a set of actions defined as the feedback on company's management. On the basis of information and data collected during the work, the entrepreneur takes intervention actions. After the control process, the conclusion stage takes place which may be of particular importance in the case of irregularities [Vollmuth 1996]. The controlling process can be divided into four main stages [Griffin 2004]: setting standards, measuring results, comparing results with standards and evaluating the outcomes. During this process two main control functions are implemented, categorized by their purpose [Szczepankowski 2002], i.e. a protective (preventive) function designed to protect the enterprise against negative consequences of decisions made and a creative (inspiring) which is responsible for stimulating activities aimed at improving the company's operations. These functions determine the tasks and expectations facing the decision-makers in enterprises.

Control in the theory of decision, in contrast to its standard role as a stage closing a given activity, takes on significance at the very beginning of the problem. However, the existence of control determines whether the decision maker feels dominant over the situation at a given moment. Then the risk of the illusion of control arises [Czerwonka and Gorlewski 2012]. The illusion of control is the conviction of having sense of control over the outcome but actually not having it [Matuszczak 2005]. This phenomenon is one of the basic behavioral determinants of decision making process and is closely related to the phenomenon of overconfidence [Tyszka 2004, Zielińska and Ostrowska 2013]. One of the most important studies carried out in this field was made by Ellen Langer who defined the illusion of control as a "subjective belief of the individual that the chance of personal success is disproportionately higher than the objective probability would warrant" [Tyszka 2004]. In order to verify this tendency Langer carried out an experiment in which she noticed, among other things, that dice players behave as if they are controlling the outcome of the toss. They try to throw the dice softly if they want low numbers or throw hard for high numbers. In addition, the participants of study preferred to bet on the results of future throws, rather than guessing the result of the previous throw. It is plain to see that people are bolder when they feel they have control over the future course of events.

The illusion of control as a phenomenon related to the limited rationality of entrepreneurs is influenced by several factors [Tyszka 2004]:

1. Choice – many entrepreneurs while making their own choice in a given field feel a greater impact on the course of events than if it were to happen at random. Amos Twersky and Chip Heath [1991] confirmed this in their research. They gave two tasks to the participants of the study: one of them related to the stock randomly selected from the "Wall Street Journal" quotation table and it had to be guessed whether the price of this stock would go up or down the following day. The second task was based on the same rules, but it was to guess whether the price of this stock was higher or lower on the previous day, without looking into the history of quotations from the stock exchange. 70% of the subjects chose the first task, i.e. preferred the situation in which it may seem they can influence the result.

2. Sequence of results – if a financial decision is confirmed by positive effects several times in a row, the entrepreneur may be under the illusion that he has control over these

events, regardless of whether these results were random or not. The decision maker is sure that he knows the solution to a given problem and controls the given situation what he can notice in the observed results.

3. Knowledge of the problem – the more a problem seems to be known (repetitive), the more it strengthen the sense of illusion of control among entrepreneurs. The media is full of information about investing. Radio stations, TV channels are constantly broadcasting current stock quotes and one group of stock exchange indices is very often repeated. There are hundreds of articles on investing on the internet. It gives an impression, not only to entrepreneurs, that availability and knowledge of the problem is broad and traceable. At the same time, psychologists [Zielonka 2011] have observed that people are usually overconfident about their knowledge and skills. They underestimate the risk and overestimate their abilities.

4. Information – the more information the investor is burdened with, the more the illusion of control grows. The willingness to deepen knowledge grows with the acquisition of further information but simultaneously with the possession of a certain amount of information each additional piece of it no longer exerts the same impression on the decision-maker as at the first time and it is treated as of lesser importance. According to Matuszczak any further information in a given field does not deepen the knowledge of the entrepreneur but increases his sense of control [Matuszczak 2005].

5. Commitment – the more involvement the investor shows, the greater is the illusion of control. This is a very important factor, especially in connection with the individual characteristics such as passion, devotion, sentiment or knowledge of the subject. The greater entrepreneur's commitment to the task, the greater sense of control and impression that nothing should surprise him anymore.

In summary, the illusion of control is an illusion that appears in the entrepreneur's mind. In addition, there are a number of factors that heighten the sense of control, that is why a special attention should be paid when making financial decisions. In the further part of the article the empirical assessment of control was conducted and the existence of the phenomenon of the illusion of control and its determinants on the group of financial directors of Polish enterprises was verified.

RESEARCH METHOD

The aim of the paper is to assess the level of control and the degree of illusion of control. For this purpose a CAWI (*Computer Assisted Web Interview*) survey was conducted on a group of persons employed in enterprises and responsible for financial decisions. The criteria used in the selection of the surveyed companies were: the scope of the company's activity, the size of the enterprise and the type of industry. Due to the expert nature of the study, 84 opinions were obtained. This result should be treated as a success due to the limited availability of the interviewees occupying high positions.

The selection of the surveyed enterprises was done in such a way to maintain the structure consistent with the European Union regulations from the Commission Recommendation of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises. On their basis, a micro-enterprise is defined as an enterprise that employs

fewer than 10 persons and whose annual turnover does not exceed EUR 2 million. A small enterprise is defined as an enterprise that employs fewer than 50 persons and whose annual turnover does not exceed EUR 10 million. A medium-sized enterprise is defined as an enterprise that employs fewer than 250 persons and whose annual turnover does not exceed EUR 50 million. Enterprises that annual turnover exceeds EUR 50 million and employ more than 250 persons are considered as large.

Based on a study conducted by the Central Statistical Office, it was observed that in the first half of 2016 the number of registered entities in the REGON system amounted to 3.78 million. Among the active enterprises, the vast majority were micro – enterprises (96%). In the study described in this paper, the structure of enterprises was set according to the Central Statistical Office and more than 50% of the surveyed companies were micro – enterprises.

The questions in the survey were in order to characterize the behavior of the CFOs and people in management positions who make significant financial decisions. In the case of some of the questions, projection techniques were used to provide an in-depth analysis of the phenomenon under investigation and consisted in people's inclination to transfer their own features, thoughts or attitudes to assessed people, things and phenomena.

In order to better understand the issue discussed, a survey was conducted electronically using a questionnaire published on the Internet. Respondents were people who were decision-makers in the financial matters of the company. The questionnaire asked questions about the key financial decisions for the company. Then, the data was subjected to a preliminary analysis in order to reject the questionnaires with contradictory or incomplete answers. The final data obtained was analyzed using statistical methods.

In the study a group of 84 people took part, with a balanced gender structure (55% women and 45% men). A higher percentage of women reflected the constantly growing activity of women in managerial positions, especially in small and medium-sized enterprises. According to the "Woman in Business 2017" research carried out by Millward Brown for Grant Thornton International, 40% of women in Poland were in a managerial position and 24% occupied the position of Financial Director. For comparison, in Germany only 5% of women have the same position. Such model of results can also be observed in the Forbes Magazine competition for the Polish Financial Director of the Year. Among the 15 winners of the competition, three of them are women [Forbes 2014]. Noteworthy is the fact that according to the report's data based on CBOS research [Starczewska-Krzysztoszek 2011], business owners usually choose people of the same gender to manage a company because they put more trust in them.

Taking into account the age structure, almost 80% of respondents are young people up to 40 years of age. The European CFO Survey Autumn 2018 report also shows that Polish CFOs are among the youngest and the most ambitious entrepreneurs in the world. In the sample, over 14% of people are people between 41 and 60 years of age. Only 6% of respondents are people over 60 years of age.

In the sample under review, after the classification based on the company's annual turnover (Fig. 1), 51.2% of micro enterprises and 27.4% of small enterprises were distinguished. Medium-sized enterprises accounted for 9.5% and large enterprises had a share of 11.9%. Based on 2018 analysis of the Polish Agency for Enterprise Development (PARP), micro enterprises accounted for 96.2% of the structure of all enterprises in Po-

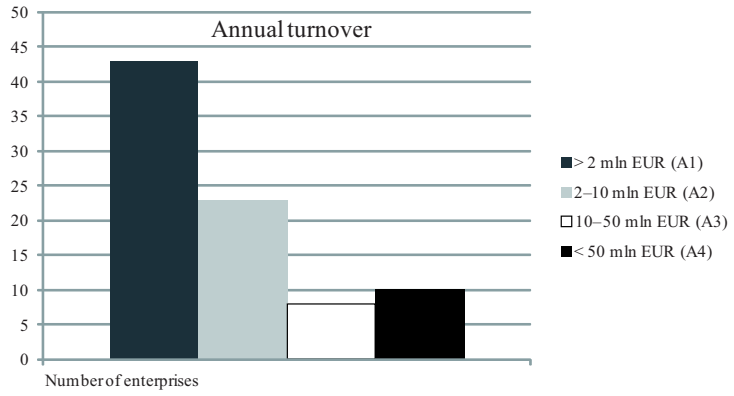

FIG. 1. Division of enterprises by their size

Source: Own research.

land [Chaber et al. 2018]. Small enterprises represented the share of 2.8%, medium-sized enterprises 0.8% and large enterprises only 0.2%.

The study was constructed in such a way to present sectors reflecting the employment structure in Poland (Fig. 2). As it can be observed, the largest share belongs to construction companies followed by the service industry – 19.05% and finance – 17.86%. The trade sector is 10.71%. Other enterprises are administration – 8.33%, industry – 5.95%, science – 7.14%, and others – 11.91%. According to the CSO, the largest group among

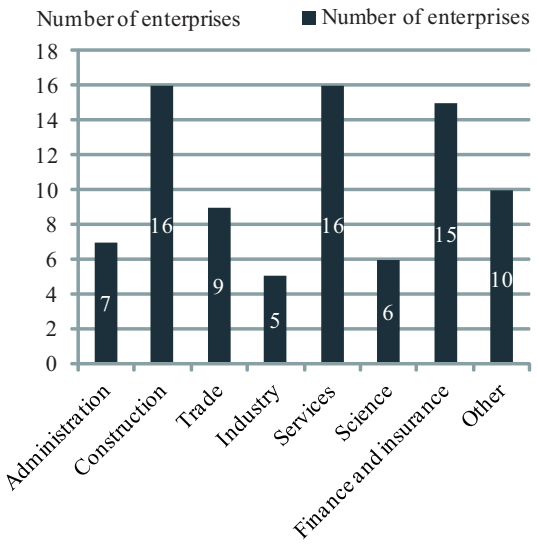

FIG. 2. Division of the respondents by the sector of the enterprise

Source: Own research.

SME enterprises in Poland is represented by the trade sector (30%), followed by construction companies (13.5%), industrial enterprises (11.1%), services, then companies dealing with medical care and social assistance. Other industries do not exceed a 5% share in the total number of enterprises. Worth noting is also the fact that this structure is very similar to the entire population of companies in the European Union. Thanks to this, the research allows a broad look at the decision-making problems of entrepreneurs regardless of the type of activity.

In order to assess the financial situation of the company, the respondents (decision makers in financial matters of enterprises) were asked to make a subjective assessment of the financial condition of the company (Fig. 3). Most of them (62%) assessed the financial situation of the company as good. As many as 18% of respondents rated it even very good what means that over 80% of respondents have a sense of self-confidence confirmed by the good results of their work.

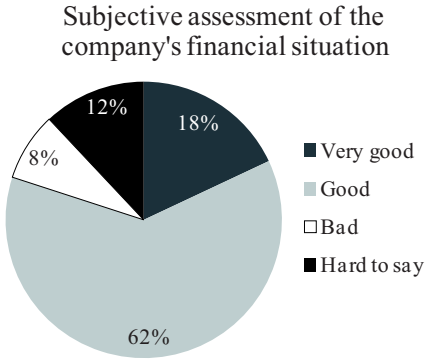

FIG. 3. Assessment of the company's financial situation

Source: Own research.

This question was asked because, as other studies have confirmed [Fesnak 2011], very often the positive results of financial decisions intensify the sense of self-confidence and, at the same time, weaken the rational action. A decision made many times and always bringing a positive result is with time regarded as easier and can be made without due attention. Therefore the individual's overconfidence may lead to the risk of the illusion of control.

CONTROL IN DECISION-MAKING SITUATIONS

In order to assess the importance of control in decision-making situations of entrepreneurs a number of questions were asked about the overall assessment of the decision situation and about the degree of control over such a situation (Fig. 4). Half of the respondents, when making financial decisions in addition to their own opinion, refer also to the opinions of experienced colleagues from the industry. However, 32% of respondents

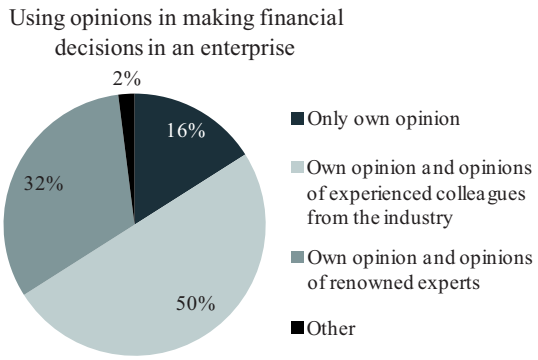

FIG. 4. Advisors in making financial decisions

Source: Own research.

also pay attention to the opinions of recognized experts, stressing that obtaining such an opinion is complicated and requires intermediaries and also involves additional costs of expertises or analyzes. However, the most common reason that excludes the use of this source of information is quite a long time of waiting for the answer. For this reason, high results in obtaining opinions from business partners who already have extensive experience in this field are not surprising. It is also worth noting that 16% of respondents believe that they are able to make their own decisions based solely on their own opinions

In the next step, the group of respondents was asked to determine if they believe that there are situations in the course of coordination of financial activities in the company that are beyond their control. The vast majority of respondents, as many as 66%, confirmed or definitely confirmed that in business there are many situations out of control (Fig. 5). Only 19% of the respondents declared that they did not have situations that would be beyond their control. This may be due to dynamic changes taking place in the company's environment and the existence of many factors on which the company has a limited influence, and mindful, well-educated financial directors are aware of this. This would mean

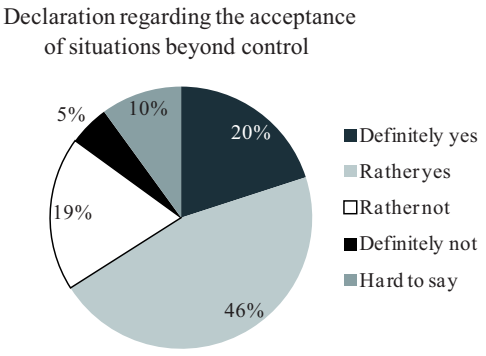

FIG. 5. Declaration of respondents regarding the acceptance of the decision situation

Source: Own research.

that the respondents have knowledge of their limited control over the coordination of the financial situation of the company.

On the other hand, however, the authors asked the respondents to assess whether they had moments when they were able to change the course of events in situations that they had the influence on (Fig. 6). The vast majority, as many as 72% of decision-makers confirmed that they had such a sense of agency. Only 5% of respondents had the opinion of not having impact on the situation. This result is opposite to the one presented in the previous question, in which a significant majority of entrepreneurs recognized that the business situation usually cannot be controlled.

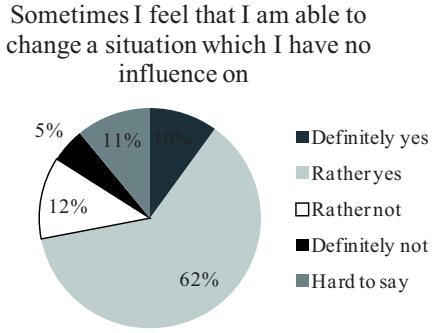

FIG. 6. Illusion of control

Source: Own research.

The control over the situation is also of great importance when making decisions. As many as 92% of respondents think that better preparation for the task results in better control of the situation (Fig. 7). The result of this study well illustrates the phenomenon of the illusion of control. Respondents theoretically realize that many situations cannot be influenced, what proves their rationality. However, when they prepare themselves for

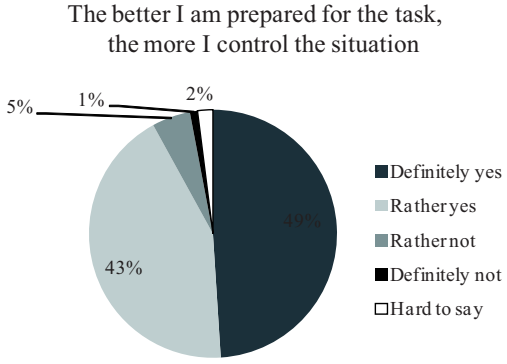

FIG. 7. The scope of preparation and control over the decision situation

Source: Own research.

such situations and devote their time to it, they have a false sense of control. Commitment is one of the five main qualities that strengthen the illusion of control. The more the decision-maker puts his own work into the task, the more he gets the feeling that he has anticipated all the scenarios. The mind then creates the illusion of mastery over the situation.

Another factor that intensifies the illusion of control is passion for the issue within which the decision problem arose (Fig. 8). The vast majority of respondents, as many as 83%, confirm or definitely confirm that the more he likes the given issue, the better decisions he makes in this area. This result indicates limited rationality in making financial decisions because no matter how much the given issue is liked, this can not affect the quality of the decision. It is a factor that additionally increases the illusion of control.

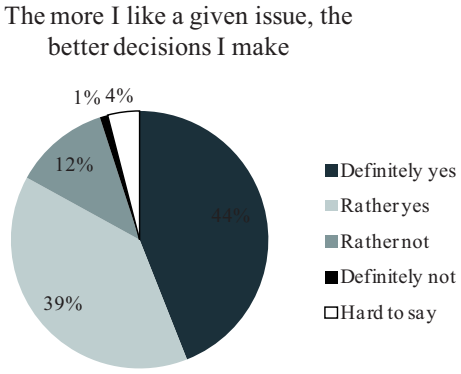

FIG. 8. A familiar issue and control over the decision situation

Source: Own research.

Taking into account the high sensitivity of enterprises, the questions in which there was a suspicion that the respondents may not want to admit their imperfections were formulated as projection questions (Figs. 9 and 10). Almost half of the respondents (49%) believed that there were real difficulties in controlling the financial situation in companies in the Polish business reality (Fig. 9). Due to the fact that the question was projectional in nature, the entrepreneurs were actually asked about their personal opinions and not opinions about others. Thus, the question reflects the real difficulty of entrepreneurs to control the financial situation in the enterprise, although it seems to them that if they prepare themselves better for the task, they control the situation.

The vast majority, as many as 63% of respondents are aware of the fact that usually the sense of control over the situation is illusory and has no real impact on decision situations (Fig. 10). The projection question was again used here to get a real assessment of the situation by the respondents.

The respondents of this study are therefore mostly aware that in the case of financial decisions, the situation cannot be completely controlled. In fact, most of them have

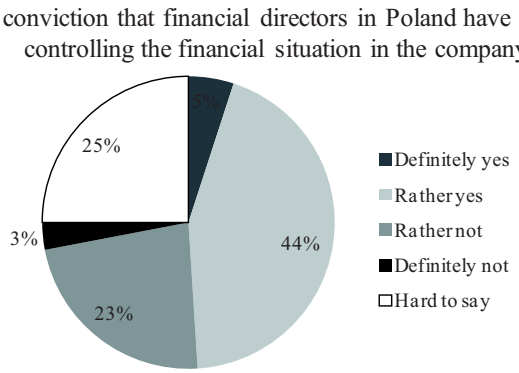

FIG. 9. Assessment of real control over the decision-making situation in Poland.

Source: Own research.

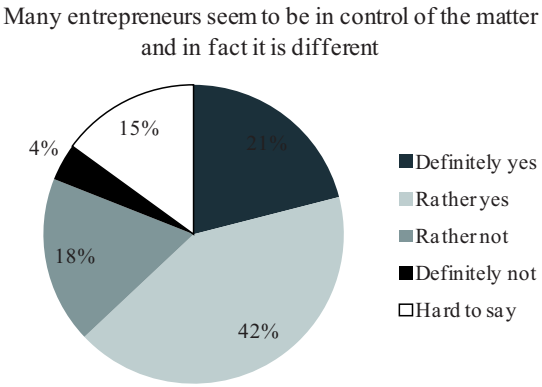

FIG. 10. Assessment of real control over business cases in Poland

Source: Own research.

a limited ability to control the financial situation of the enterprise in which they work. Nevertheless, around three-quarters of respondents say they can significantly affect a given event, e.g. by getting more information on a topic or through in-depth preparation.

CONCLUSIONS

Financial decisions are one of the most complex and difficult decisions in enterprises. In the analysis of these phenomena, both economists and financial psychologists stress the importance of a rational decision-making process. However, the research shows that limited rationality and the presence of such phenomena in the decision-making process as the illusion of control cannot be excluded.

In addition, the illusion of control is strongly influenced by the characteristics of financial decisions such as the priority of decisions, time pressure and constantly changing environment which affects the decision-making process by having impact, for example, on the level of risk. In addition, the environment is the source of many barriers that appear in decision-making situations such as: lack of enough information. The internal environment obstacles are also of particular importance, for instance, the atmosphere in the team or individual characteristics of the financial director.

The conclusions from the conducted research enable even better understanding of the types of behavior of entrepreneurs in decision-making situations. This is especially important because running a business constantly requires making decisions that determine the future of the company. Thanks to the acquisition of more information in this field, Polish entrepreneurs may take into account these factors in everyday life which may prevent them from making bad financial decisions.

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Summary. The article concerns the phenomenon of control and illusion of control in financial decisions of Polish enterprises. The article identifies the main determinants of the illusion of control. The aim of the paper is to assess the level of control and the degree of illusion of control. For this purpose a CAWI survey was conducted on a group of persons employed in enterprises and responsible for financial decisions. The empirical part of the article presents an primary study conducted among financial directors which showed high results of surveyed entrepreneurs in the area of control and the observed phenomenon of the illusion of control in decision-making situations in the field of finance. At the same time, the main factors influencing the level of the illusion of control were verified.

Key words: control, illusion of control, rationality, decision-making process, financial decisions

JEL: D81, G11

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 31–45
DOI 10.22630/AMME.2018.4.2.15

THE KEY TO INCREASING COMPETITIVENESS IS INVESTING INTO HUMAN RESOURCES

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INTRODUCTION

This paper focuses attention on the fact that the V4 (Visegrad) countries in general are poorly prepared to capitalize on the opportunities offered by the fourth industrial revolution, and less protected against the risks created by it. First of all economic structural indicators prove that the economies of the V4 countries are still not knowledge based, and can be characterized by low value added activities. In some cases Poland stands out with slightly better results, but all in all V4 countries lag behind the economically more advanced countries for all the analyzed indicators. Secondly these countries do not invest enough into their human resources. The article suggests that unless the V4 countries start putting stronger emphasis on developing human skills and local knowledge they will lose a historic opportunity for becoming successful nations which are able to benefit from the ongoing processes of the fourth industrial revolution by moving up on the value chain.

AIM AND METHOD

The aim of the article is to focus attention on the development problems of the V4 countries in comparison with the more advanced countries of the EU. The article uses a wide range of information basis and background research papers to prove that the V4 countries are not doing enough in terms of developing their knowledge base for being ready to capitalize on the opportunities of the fourth industrial revolution. It these countries remain the cheap production basis of the multinational companies of the advanced EU

countries then the EU itself will lose because the knowledge capabilities of the V4 countries remain underutilized and underdeveloped. This will undermine the innovativeness of the EU on the longer run in comparison with the rapidly developing Asian countries.

THE V4 COUNTRIES AS PRODUCTION CENTERS

A recent OECD report [Nedelkoska and Quintini 2018] has warned that in a sample of 32 countries 14% of the present jobs will perfectly disappear, and another 33% will be dramatically changed. The OECD report has found that the highest risk of job automation will happen in the Eastern European and Southern European countries due to the large proportion of low-skilled manufacturing jobs in their economies. Within the V4 countries Slovak, Hungarian and Czech jobs are at high risk of automation, as the share of manufacturing in value added is high, and out of this a significant proportion represents the typical screwdriver operations of foreign manufacturing affiliates. Figure 1 and Figure 2 underline this OECD forecast. Scandinavian and UK jobs are at the lowest risk, due to the low percentage of easily automatable manufacturing jobs, which are mostly created by the affiliates of foreign companies in the V4 countries.

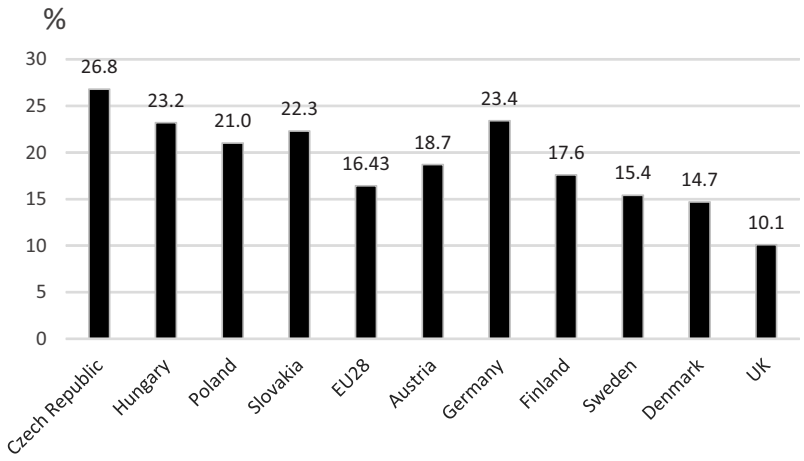


FIG. 1. Share of manufacturing in value added (2017)

Source: The Author based on OECD data.

Figure 3 shows the problem of short value chains and assembly operations. Domestic value added is low and import content is high in the manufacturing activity in the case of the V4 countries. In accordance to the OECD report [Nedelkoska and Quintini 2018] the lowest value added characterizes the Czech, Slovak and Hungarian manufacturing sector.

Figure 4 proves that percentage of value-added of typical knowledge-based sectors like info-communication and professional, science and support services are lower than the percentage of manufacturing value added in the V4 countries due to the large proportion of manufacturing in their economies. It is worth considering how different this proportion is in the advanced countries. For example in the UK the proportion of value

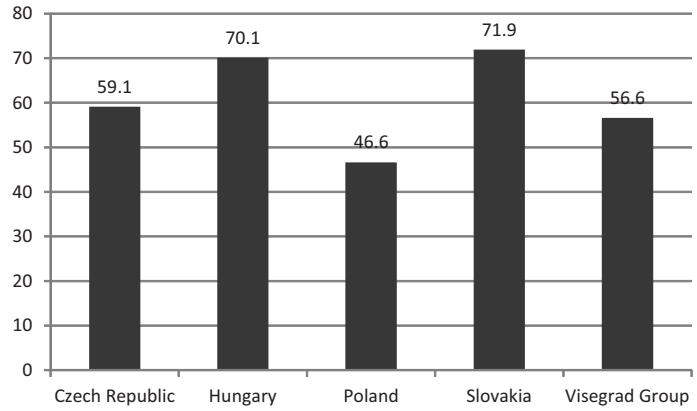


FIG. 2. Share of foreign manufacturing affiliates in value added (at factor cost, 2015)

Source: The Author based on Eurostat data.

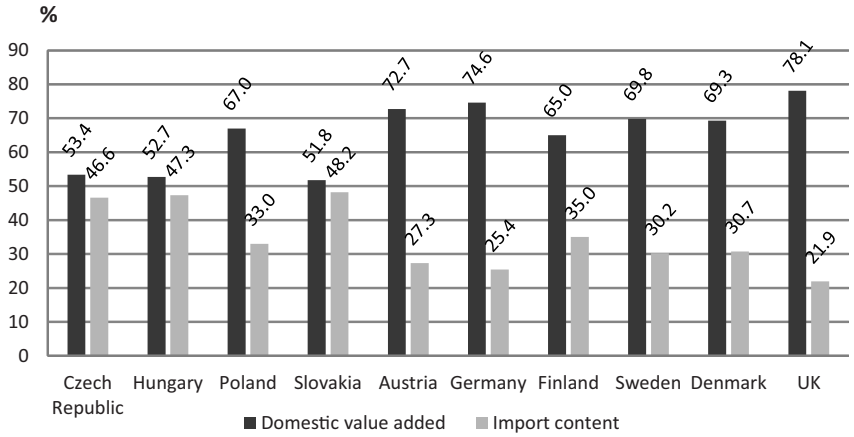


FIG. 3. Domestic value added in and import content of export (in %, 2014)

Source: The Author based on OECD data.

added created by professional, science and support services is 23.5% higher than that of manufacturing. (In absolute terms in the UK the contribution of manufacturing value added to the total is 10.12%, and that of the professional services is 12.5% in 2017). We can also see the GDP per capita (PPS) as the percentage of the EU total on Figure 4 (in brackets). This number is higher in the more knowledge-based economies of the EU, and lower in the V4 countries.

To become more knowledge-based countries need skilled human resources and they also have to spend more on knowledge creation, like R&D and innovation. Therefore governments and businesses are responsible for creating new and complex education and training systems to prepare not only the future workforce, but the present working

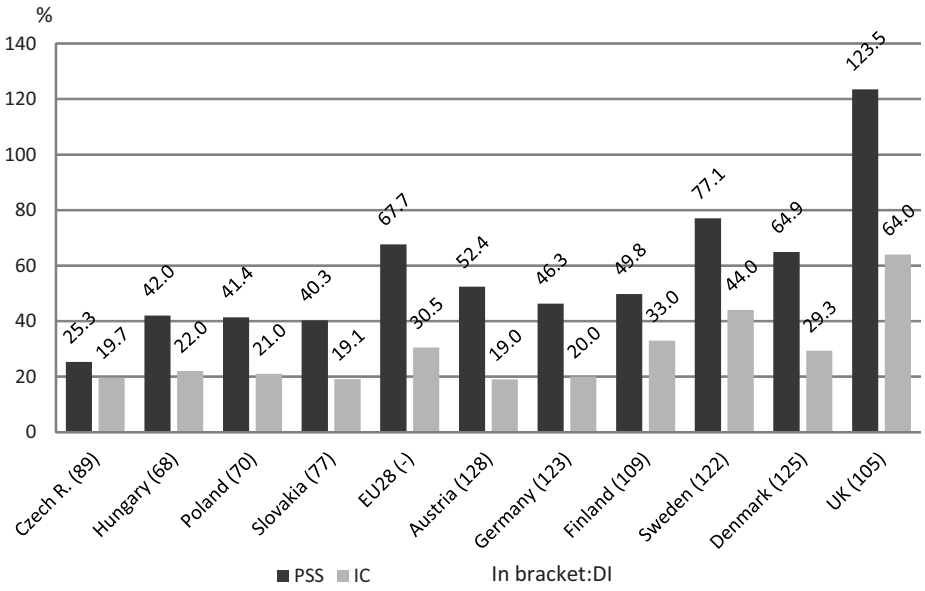


FIG. 4. The share of value added of info-communication (IC) and professional, scientific and support services (PPS) as percentage of the share of manufacturing value added (in %, 2017) measured against the development indicator (DI) (GDP per capita / PPS/, EU = 100)

Source: The Author based on Eurostat data.

population, as well, to meet the knowledge and skills requirements of not only the present but also the future. Those countries which will fail to adjust human resources in time will find themselves to be left out, and left behind: they will be in the position to wonder what has happened around them. This paper also presents a comparative analysis of the V4 countries in term of how prepared their human and knowledge resources are for the fourth industrial revolution. The human resource characteristics of these countries will also be measured against a few more advanced countries in the EU.

The economic indicators of Austria and Germany are especially important because of their strong economic relationships with the V4 countries. The paper concludes by proving that unless the V4 countries will invest a lot more into education, lifelong learning and reskilling their population they will lose economic vitality, the ability of becoming a successful economic player in the European economy and also in the world economy. Consequently their living standards will also deteriorate.

WHAT DO WE MEAN BY THE FOURTH INDUSTRIAL REVOLUTION?

Industrial revolutions bring landslide changes in how not only production, but also society will be organized and performed. The first industrial revolution (end of the 18th century) introduced water and steam power to speed up production operations. During

the second one (start of the 20th century) electric energy was utilized for mass production processes improving productivity tremendously. Then the third (the beginning of the 1970s) started automating production with the help of electronic and information technology. And now we are in the process of the fourth industrial revolution, which will bring digitalization, automation, artificial intelligence, machine learning and many more sophisticated technologies into our business and everyday life. The great question is: how to adjust to, how to take advantage of these disruptive technologies? The key challenge will probably be how to offer efficient and timely education, training, retraining and reskilling to the largest possible segment of society. Without such a mass investment into the new knowledge and skills the population will lose employability, which will create tremendous economic and social troubles. Especially if all the warning forecasts will turn out to be correct. One of the most pessimistic forecast comes from Guthrie-Jensen Consultants [WWW 1] who believe that by 2020 about 5 million jobs will be replaced by automated machines. Also disruptive changes will create new markets, and also new jobs that didn't exist before. The authors emphasize the best solution the following way: to be prepared for the new opportunities requires proper skills, capabilities and attitudes, which can be achieved by investing in intangibles: human, psychological and organizational capabilities.

THE EFFECTS OF THE FOURTH INDUSTRIAL REVOLUTION ON DEMAND FOR NEW KNOWLEDGE AND SKILLS

Different studies suggest that the highest probability of easy automation can be found in those sectors of industry which mainly employ low-or medium skilled employees performing manual and routine tasks. Therefore OECD (2018) predicts that the highest probability of job losses can be expected in manufacturing, agriculture, mining and quarrying. It is less likely that jobs requiring creativity, human and social skills, like healthcare, education, legal, accounting, computer and information services or management consultancy will be automated soon. However these types of jobs will also be undergone changes that will require a new set of skills and capabilities soon, and more pronouncedly from the workforce of tomorrow.

Different studies try to describe those typical soft skills which will be in high demand. One of the institutions heavily involved in research related to the effects of the fourth industrial revolution is the World Economic Forum (WEF) [Gray 2016.] has listed the 10 most important skills which will be needed to thrive in the fourth industrial revolution. These are the following:

– complex problem solving
– critical thinking
– creativity
– people management
– coordinating with others
– emotional intelligence
– judgement and decision-making

– service orientation
– negotiation
– cognitive flexibility

But of course the question is: are the present educational systems prepared to offer these soft skills? Are educators themselves properly trained and empowered to create innovative learning experiences for students and adults? Are they able and willing to follow Alfred Einstein's (1879–1955) philosophy who once said: I never teach my pupils, I only provide the conditions in which they can learn. Of course, as it was said before, continuous adult education (lifelong learning) will also be in high demand. An interesting study by the Economist Intelligence Unit (EIU) [WWW 2] stresses the different problems in the various educational fields. It argues: in an age when technological changes have strong, sometime even fundamental impact on how individuals work, lifelong learning for everyone may be a crucial element of the solution.

EIU also calls attention to the importance of proper basic education, including early education programs, 21st century skills programs and modern technology and data literacy education programs.

Improving the quality of vocational and on-the-job training is also of great importance. It can enable employees, especially workers, younger and older ones as well, to participate in reskilling programs. Becker [1964], a representative of human capital theory points out that on-the-job training is an important future oriented investment into human resources. However companies may be hesitant to spend money on workers who are employed in jobs that will be automated in the near future. Therefore governments should also be responsible for offering training to these people, and also to those who need upgrading of skills in any segment of society. Needs for learning and unlearning will also be present at the same time.

Alvin Toffler [1970] writer and futurist summarized the essence of learning requirements quite early in the following way: the illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.

Therefore the most important task of business along with government should be to invest in human resources. The different studies all direct attention to the same issues: success or failure of economies and societies will be determined in the age of the fourth industrial revolution based on how much they will invest in human knowledge, skills and innovation. Earlier competitiveness studies mostly concentrated on measurable economic and financial indicators. Nowadays countries have to change their understanding of how they should measure competitiveness. Soft factors, investments into intangibles will determine their success or failure in the future. Haskel and Westlake [2018, pp. 3, 35] explain this the following way: "Economy does not run on tangible investment alone. Intangible investment has become increasingly important. It is related to the changing balance of services and manufacturing in the economy, developments in IT, and management technologies". The typical investment into intangibles are related to investing into education, training, lifelong learning, R&D and innovation. In the following points we measure the achievements of the V4 countries in terms of how much they invest into the most important intangibles compared to some advanced countries and the EU28 average.

THE ACHIEVEMENTS OF THE V4 COUNTRIES IN INVESTING INTO INTANGIBLES

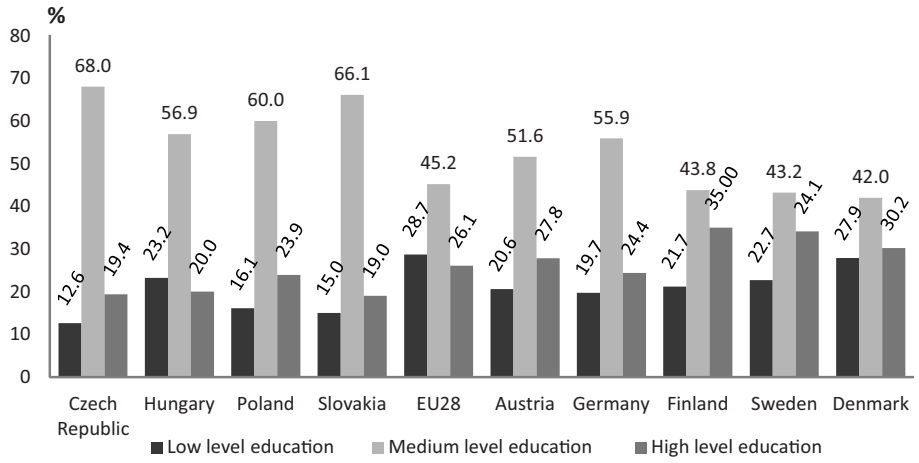
Figures 1 and 2 illustrate a very important weakness of the V4 economies, which is the large proportion of manufacturing, and within it a strong share of value added created by affiliates of foreign manufacturing enterprises. If we compare these characteristics with those of the Scandinavian countries and the UK, we will experience considerable differences. UK has the lowest proportion of manufacturing, followed by Denmark, Sweden and Finland. These countries are – in this order – 8th, 10th, 9th, and 11th position on the WEF 2018 competitiveness ranking list (out of 140 countries) [Schwab 2018]. The most important reason can be that these countries are already knowledge-based economies competing with high value-added innovative economic activities. They also have a strong knowledge sector, like info-communication and professional services. And how are the V4 countries performing? Poland is in the best position with 21% proportion of manufacturing, and the Czech Republic has the worst one with 26.8%. However we cannot make an educated conclusion about the V4 numbers without analysing the share of foreign manufacturing affiliates in the value added. Figure 2 offers the results of this. The highest share can be found in Slovakia, Hungary and the Czech Republic. These foreign affiliate operations are basically easily automatable assembly lines. Again Poland is in the best position in this respect. However the average value of the second indicator (Fig. 2) is not too good for the V4 countries in general: the share of foreign manufacturing affiliates is rather high, 56.6% in value added. This establishes vulnerability for the group, unless they are ready to invest in those people who will lose their jobs, and also into the young generations and basically into the entire population in order to make them fit for the new jobs, new opportunities. This would facilitate moving up on the value chain for them. Now let us examine a few characteristics of knowledge achievements in different countries.

Figure 5 shows the proportion of population by educational attainment level in the V4 countries and 5 advanced EU countries in 2016 in the age range of 15–74 years.

Within the V4 countries the Czech Republic has the lowest proportion of the population with low level education, which is at the same time the lowest level for all the countries analysed, and Poland has the highest proportion for tertiary education. But there are much higher values for the population with tertiary education in the Scandinavian countries. This may indicate again the knowledge-based nature of the Scandinavian economy. As far as the V4 countries' profile is concerned the low proportion of the population with tertiary education can be a serious disadvantage. For moving towards knowledge-based economies they should do more to increase this number. It is also interesting that the German and Austrian values are also quite low. However these countries take advantage of brain drain from the V4 and Southern European countries.

As we argued before the fourth industrial revolution requires highly trained workforce. Among them graduates in science, mathematics, engineering and computing (SMEC) are in especially high demand. Figure 6 shows the proportion of SMEC graduates aged 20–29 in year 2015.

Among the V4 countries Hungary and Slovakia are in the worst position, and Poland has the best position. However for this indicator the V4 countries do not lag too far be-



Low level education – less than primary, primary and lower secondary education; Medium level education – upper secondary education; High level education – tertiary education

FIG. 5. Population by educational attainment level (2016, 15–74 years, in %)

Source: The Author based on Eurostat data.

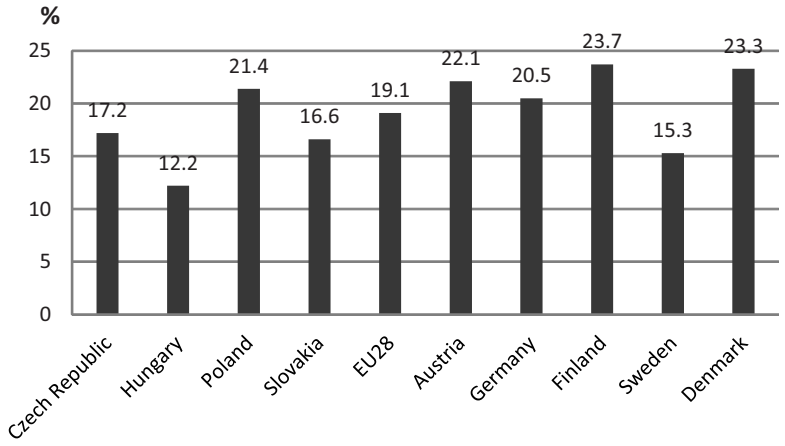


FIG. 6. Graduates in tertiary education in science, mathematics, engineering, computing (SMEC) (per 1000 of population aged 20–29, 2015)

Source: The Author based on Eurostat data.

hind the analysed advanced countries. If we consider another indicator, people who have a tertiary education and work in a science and technology occupation as a percentage of the total labour force, than we experience big differences again. (Fig.7.) The Slovak data is the worst, followed by the Czech and Hungarian.

But the Polish number is higher than the EU average and the German value. And Scandinavian countries are again much ahead of the other countries. These data reinforce what

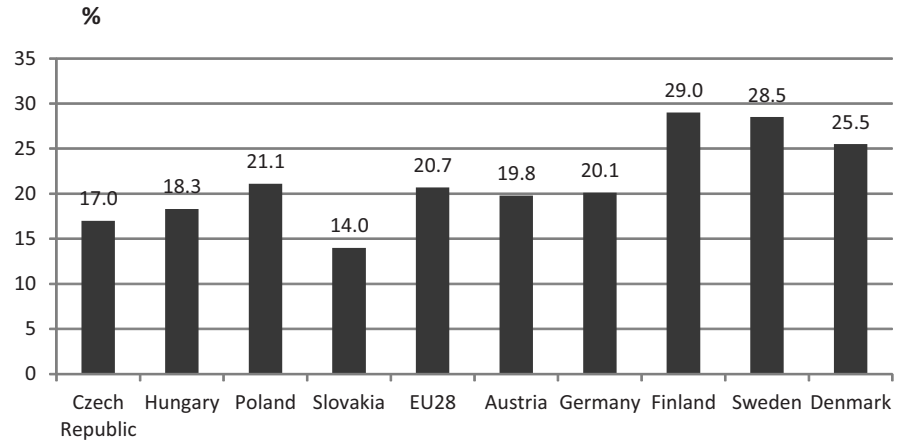


FIG. 7. People with tertiary education and working in science and technology occupation as a percentage of total labour force (15–74, 2016, in %)

Source: The Author based on Eurostat data.

was said before: the economic structure of the V4 countries is dominated by manufacturing, mostly assembly line jobs, which are at the highest risk of automation. At the other end we see the knowledge-based, service-oriented Scandinavian countries, where due to the nature of jobs wages are also much higher than in the V4 countries, so people may be able to spend more on their own education. But how much people really care about their continuous education? This can be measured by checking lifelong learning numbers.

On Figure 8 adult participation (Lifelong learning) as a percentage of population aged 25 to 64 (2017) is demonstrated.

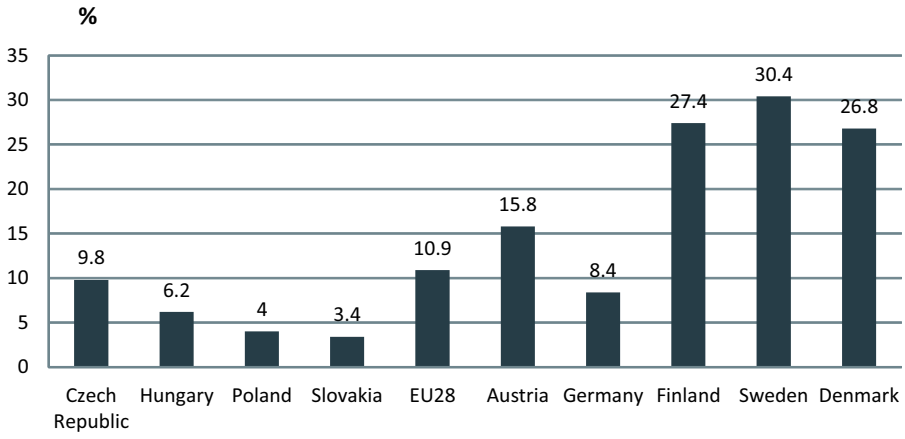


FIG. 8. Adult participation in lifelong learning as a percentage of population aged 25 to 64 (2017)

Source: Thehe Author based on Eurostat data.

It looks like the V4 countries, where automation will probably displace a great proportion of the workers are not yet aware of the potential danger. Slovakia, the country highlighted by OECD as the most threatened one has the lowest proportion of adults participating in lifelong learning. But the other V4 countries are also in bad position. Again Scandinavian countries show outstanding achievements. This is a serious warning sign we have to direct attention to. German and Austrian positions are also weaker than the Scandinavian ones. The German number is for example lower than the EU average. One reason can be the well-developed apprenticeship system these countries have, although it has been recently heavily criticized for not being any longer appropriate for developing flexible labour force needed in the future.

And how involved governments are in preparing human capital and the economy for the future? Let us see a few crucial numbers.

INVESTMENT INTO INTANGIBLES: BASIC RESEARCH, EDUCATION, TERTIARY EDUCATION AND R&D IN THE V4 COUNTRIES IN INTERNATIONAL COMPARISON

Investing into intangibles can help upgrading the knowledge and skills of human resources. In the age of the fourth industrial revolution multidimensional skills are needed, which should be offered within the entire educational system. Pre-primary and primary education is exceptionally important in order to give a good start to children. Developing human and social skills start already at that level. Spending enough money on early age education is therefore crucial. The Scandinavian educational system is famous of offering a balanced combination of human and social skills and also analytical, as well as cognitive ones. Again, based on Eurostat data Scandinavian countries spend the most on early age education as a percentage of GDP (Sweden 4.2, Denmark 3.1%), while V4 countries spend less. (Czech Republic 1.0, Hungary 1.3, Poland 1.8, Slovakia 1.4%).

Figure 9 illustrates the total government expenditure on basic research, education, tertiary education and R&D as percentage of GDP.

The V4 countries spend less on basic research and R&D, and roughly the same on education as the EU average. The advanced countries on the other hand spend more. And again Scandinavians lead. Interestingly enough concerning education Germany and Austria are behind the Scandinavians. Looking at the educational attainments examined in the previous point (Fig. 5) this amount will probably not be enough to lower the proportion of people with low level of educational attainment, and in general to build a competitive human capital in the V4 countries. Also if we consider those people who will be freed up from the automated sectors and therefore need further education and retraining obviously a lot more spending on education will be needed. Tertiary education spending in percentage of GDP is again the highest in the Scandinavian countries. But here we can observe the special position of Poland with the 1.2% value for tertiary education, which puts Poland into the Scandinavian group for this data. This correlates with the data we can see on Figure 5 indicating that within the V4 countries Poland has the highest proportion of people with high level education.

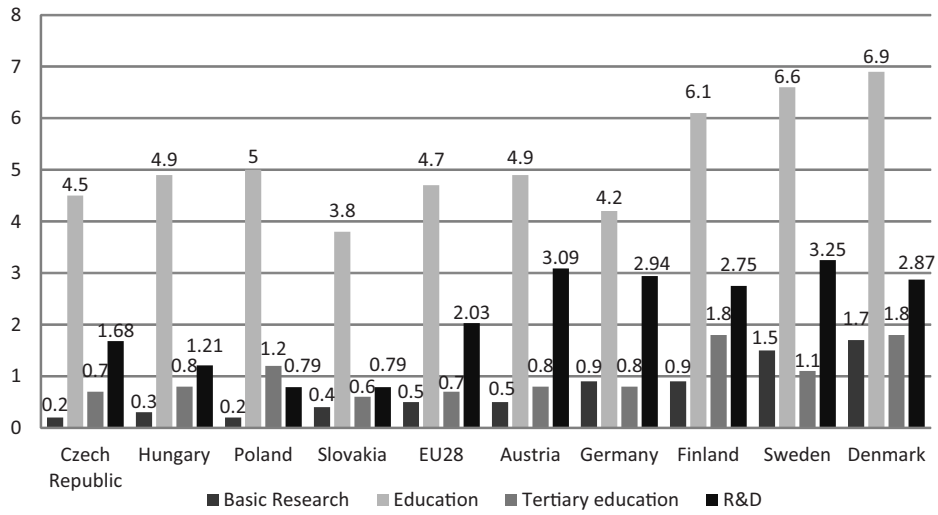


FIG. 9. Total government expenditure on basic research, tertiary education and R&D as percentage of GDP (in %, 2016)

Source: The Author based on Eurostat data.

Also, in order to change and modernize economic structures, to be able to increase the share of knowledge and innovation based activities countries have to invest in basic research, and R&D in general. For both data V4 countries lag behind the advanced countries, and also the EU average. In terms of R&D spending all V4 countries demonstrate very poor results. This suggest a real danger for them in terms of how to be able to move up on the value chain. Figure 10 shows the R&D expenditure as a percentage of GDP (business and government combined), and separately the R&D spending by the government and higher education sector.

The business sector is not highlighted, as we focus on how well prepared governments are to handle the necessary changes triggered by the rapid technological changes.

Then Figure 11 demonstrates another important indicator: how much is spent, in euro, per inhabitant in the selected countries on R&D in total, and especially in the government and the higher education sector.

Both figures demonstrate the same phenomenon explained earlier: the V4 countries spend less on R&D both as a percentage of GDP and per inhabitant in all highlighted sectors. These facts may be really worrying if we are considering the question whether investments today will guarantee future development based on knowledge and innovation in the V4 countries.

Taking the knowledge investments all together we have to conclude that the V4 countries lag behind quite considerably in investing into knowledge-related intangibles in spite of the fact that they are less well equipped with the necessary human resources needed in the future, and also their economic structure needs to be transformed into a more agile, innovation- and knowledge-based one. It is especially worrying if we consider how de-

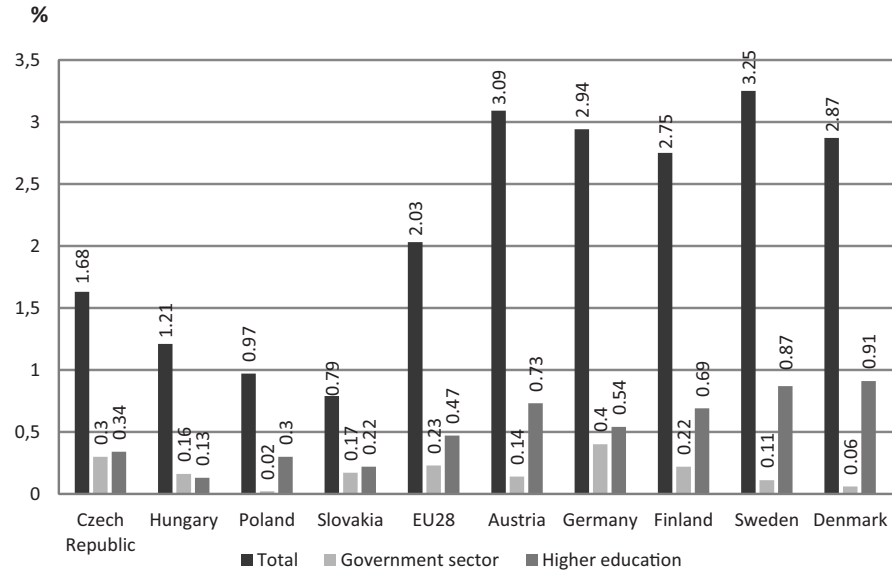


FIG. 10. R&D expenditure as percentage of GDP by sectors (in %, 2016)

Source: The Author based on Eurostat data.

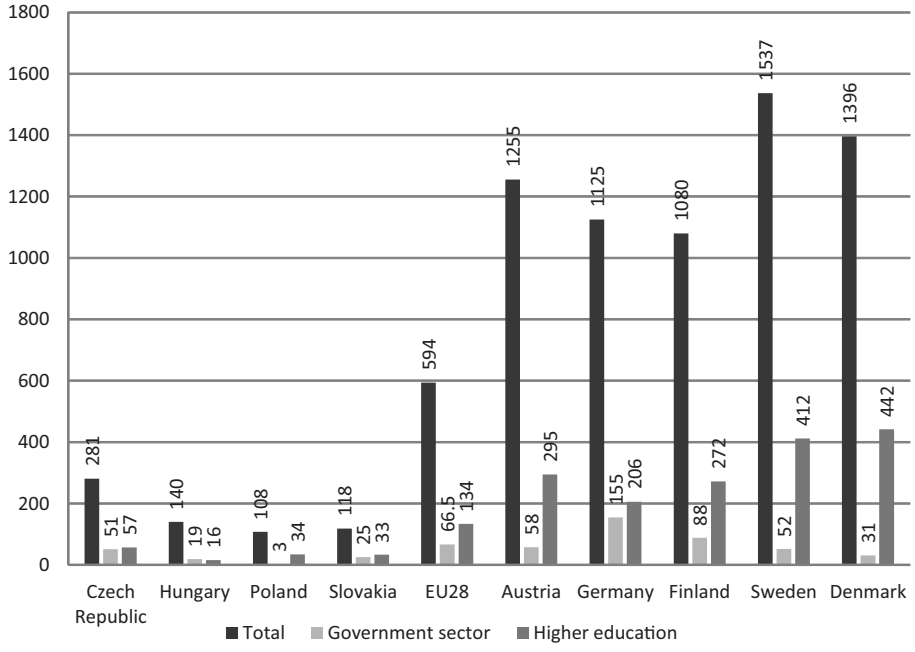


FIG. 11. R&D expenditure (GERD) per inhabitant by sectors (in EUR, 2016)

Source: The Author based on Eurostat data.

veloped these countries are at present compared to the EU average. One indicator which measures this is the GDP per capita as a percentage of EU 28 average. We can observe these data on Figure 12.

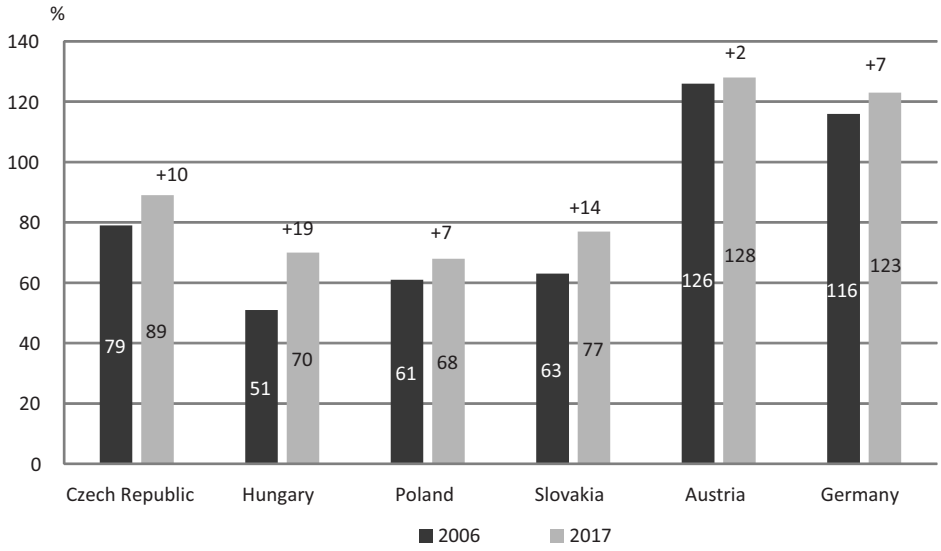


FIG. 12. GDP per capita (PPS) EU28 = 100 (%)

Source: The Author based on Eurostat data.

These data show that although the V4 countries are slowly closing the gap in terms of development with the advanced countries, they need to do much more, especially because of the rapid technological changes, which can put them at serious disadvantage if they are not rapid enough in investing into knowledge and skills. It is also interesting to observe that the rapidity of closing the development gap is very different for the V4 countries. Poland has made the largest progress and Hungary the lowest.

CONCLUSIONS

Disruptive changes requires timely, game changing, sometimes revolutionary solutions. The V4 countries have been famous of their highly trained and disciplined human resources for a long time. However recently they seem to have been slow with developing their human resources, which could put them at a serious disadvantage compared to those countries the V4 countries had planned to catch up with when joining the EU in 2004. Poland's achievements in some areas are better than that of the rest in the V4 group, however compared to those of the advanced countries it is also too little. Human resources, R&D and innovation are and will be the key to competitiveness and social well-being. ThereforeV4 countries should reconsider their human resources and innovation strategies

in order to guarantee that they will not be left behind in the ongoing revolutionary technological development processes. Of course the indicators covered in this article are not sufficient to draw an absolute convincing picture. We could include further indicators and search for correlation among them. Cause and effect analysis could also further clarify the situation.

But the selected indicators are important enough to trigger further debates and investigations into the methods and policies of how the V4 countries could better utilize their human and creative talents in order to speed up their economic and social development in comparison to the presently more advanced countries.

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Summary. This paper focuses attention on the fact that the V4 (Visegrad) countries in general are poorly prepared to capitalize on the opportunities offered by the fourth industrial revolution, and less protected against the risks created by it. First of all economic structural indicators prove that the economies of the V4 countries are still not knowledge based, and can be characterized by low value added activities. In some cases Poland stands out with slightly better results, but all in all V4 countries lag behind the economically more advanced countries for all the analysed indicators. Secondly these countries do not invest enough into their human resources. The article suggests that unless the V4 countries start putting stronger emphasis on developing human skills and local knowledge they will lose a historic opportunity for becoming successful nations which are able to benefit from the ongoing processes of the fourth industrial revolution by moving up on the value chain.

Key words: fourth industrial revolution, industrial structure, value chain, human resources, education, life-long learning, multidimensional skills

JEL: O11, E22

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 47–56
DOI 10.22630/AMME.2018.4.2.16

BITCOIN AS AN EXAMPLE OF CRYPTOCURRENCY – CURRENT STATE AND PERSPECTIVES

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INTRODUCTION

With the development of informatization, more and more aspects of social and economic life are moving to the web. One of the effects of this process is the popularization of the idea of electronic money. The dynamically developing Internet and computerization has created suitable conditions for the creation and operation of cryptocurrencies. The first one, Bitcoin was launched on 3 January 2009. After more than nine years of dissemination of block chain technology, based on which Bitcoin operates, there are over 2,000 cryptocurrencies in the world. This means that there are several times more than traditional currencies.

Bitcoin for about two years from its inception was treated rather as a curiosity and did not have a significant monetary value. It functioned mainly in the environment of Cypherpunks and in a small group of people associated with them. The sudden increase in demand for this currency recorded in the second quarter of 2017 caused that at the end of December that year, the total value of the Bitcoin market exceeded USD 220 billion. The dynamic growth of Bitcoin's importance in the financial system means that the emerging subsequent cryptocurrencies require in-depth attention of financial institutions and supervisory authorities. In the long term, cryptocurrencies might have an impact on the structure of the financial system, as well as on the shape of monetary policy of central banks.

For this reason, the purpose of the article is to present the genesis and motivation for creation, as well as the principles of Bitcoin and other cryptocurrencies. According to the author's knowledge, the literature on the topic of cryptocurrencies is limited and this article fills in the informational gap in this area. The principles of operation of cryptocur-

rencies have been described on the example of Bitcoin, whose basic technological solutions are similar to most of other cryptocurrencies.

The remaining part of the article has the following structure. The next section presents the principles of functioning of Bitcoin and other cryptocurrencies, and further the analysis of the current situation of the Bitcoin market and the perspective of its development. The entire analysis is summarized in conclusions.

BITCOIN – PRECURSORS AND CREATION

The idea of cryptocurrencies emerged at the turn of the 1970s and 1980s. Bitcoin has become the result of a combination of many ideas and solutions proposed by theorists or creators of other forms of electronic money over the last 40 years. Its essential feature was the ability to function independently. The creation of secure electronic money that can be used in trade and operation, regardless of traditional currencies, became the goal of financial and IT programmers' efforts already at an era when the Internet was not so widely use [DeMartino 2016].

Dawid Chaum, who made a major contribution to the field of cryptography and laid the foundations for the emergence of cryptocurrencies, was the promoter of anonymous electronic payments. In 1982, he proposed a cryptographic solution that would make it possible to hide the identity of a person making a digital money payment [Chaum 1982]. His application of the protocol known as "blind signature" allowed for asymmetrical anonymity. As part of the transaction, the payer was unrecognizable, while the person accepting the payment could be identified. However, he believed that the progressive automation of payment systems could have a significant impact on the personal privacy of transaction participants, and could also contribute to the criminal use of such payment channels. He believed that information about the time, value and subject of the transaction reveal unnecessarily many personal information about consumers, for example about their locations, lifestyle and connections. In addition, the collection of such data by financial intermediaries is not necessary to complete the payment. On the other hand, the anonymity of the payment system would limit security by giving the possibility of its criminal usage.

To eliminate both of these important problems, Chaum proposed to implement such a solution that would prevent the financial intermediary from identifying the payer and the time of execution and the amount of the transaction. At the same time, the new system would provide the payer with proof of payment and would enable the recipient of the payment to be disclosed if there are appropriate premises. In addition, transactions with funds reported as stolen could be withheld [Chaum 1982].

To address these postulates and solutions Chaum created, in the turn of the 1980s and 1990s, the software company DigiCash. The purpose of its operation was to conduct a centralized electronic payment system ecash. DigiCash together with the electronic currency became a base for creation of the electronic payment system [DeMartino 2016]. Cryptographic solutions that were applied in the currency developed by DigiCash had a fundamental impact on the creation of Bitcoin. In the system used, the identity of users

was protected, payments took place without financial intermediaries and the costs associated with their operation were excluded [Vigna and Casey 2016]. These cryptocurrency functions have been implemented in Bitcoin. Without existence of blind signatures Bitcoin would probably not be invented [Wiśniewska 2015].

Another important technological solution that found application in the operation of cryptocurrencies was Hashcash – presented in 1997 by Adam Back. Hashcash is not a payment system or a currency, but a proof-of-work algorithm that was originally used as a tool to limit the reception of undesired mass mailings. It was a mechanism for denying access from all types of Internet services. The hash stamp of the system was an evidence of the execution of a certain amount of computational work by the sender's device [Back 2002]. This algorithm identifies the cost that the sender is burdened with when wants to send information or make the service available to a given recipient. It is the most frequently used algorithm in the process of extracting new bitcoins or other cryptocurrencies.

In the creation of Bitcoin, the environment of Cypherpunks played an important role. The group began operations in the early 1990s and made up of cryptologists expressing their concern about the progressive limitation of privacy and personal rights and freedoms in modern society [Vigna and Casey 2016]. The activities of the group helped to improve the level of the privacy and security using cryptography. Communication between group members was conducted by mailing-list, to which belong also Satoshi Nakamoto – an anonymous person or a group of people that created Bitcoin. One of the first ideas of this activity was to create anonymous digital money. In the mechanism of its functioning, it was assumed that revealing the identity of the payer is unnecessary and ensuring anonymity would provide cryptographic solutions [Hughes 1993]. This concept was developed by Wei Dai and led to the creation in 1998 of a virtual anonymous currency called b-money [Dai 1998]. This system functioned without the need for a central settlement unit. The transactions were carried out anonymously on a peer to peer (P2P) basis. The main technological solution, implemented latter in Bitcoin system, was that every user had a full copy of transaction ledger. B-money, however, had drawbacks, the most important of which related to the method of verifying and rejecting transactions that did not take place [Piotrowska 2018]. The security solution for this currency used a penalty system. Its users had to deposit a certain amount of cash at a special account which could be used to collect fees for improper use of the system. Such a model was inefficient because it approved unethical cooperation between users.

Bitcoin, developed by Satoshi Nakamoto, unlike the system of penalties implemented in b-money, proposed a remuneration system that motivates fair use of the network [Vigna and Casey 2016]. It also implemented two economic principles: decentralization and resilience to inflation, which were two main propositions made by Nick Szabo in creation of bit gold [Szabo 2005], that is considered as direct precursor of bitcoin, even that it was only theoretical creation. Hal Finney was another contributor to Bitcoin development. He invented reusable proof-of-work, which was Adam Back's modified algorithm, adapted to be used in cryptocurrency system. He was known, not only as the second, after Nakamoto, user of bitcoin, but also as a person who helped to develop bitcoin code [Grzybkowski and Bentyn 2018].

PRINCIPLES OF OPERATION

Inventing the Bitcoin system, Nakamoto stated that currently online trading requires the use of a financial system in which the third parties guaranteeing the security of transactions are financial institutions. Although, the system works to a large extent correctly, its weakness is based on the need for a transaction model based on trust to a third party. Irreversible transactions are virtually impossible to implement, because financial institutions, being involved in intermediation between the parties, are not able to avoid mediation disputes. The cost of mediation therefore has an impact on the increase of transaction costs. These costs reduce the cost-effectiveness of low-value daily payments and limit the scale of their implementation. There is also an additional cost resulting from the inability to make irreversible transactions when paying for irreversible services. The possibility of withdrawal of the transaction creates the need for building trust in the system. There is therefore a need to seek information on the identity of participants in market transactions that would otherwise not be needed [Nakamoto 2018].

It must be assumed that a certain amount of fraudulent behavior in any system is inevitable. Additional costs and uncertainties that accompany online transactions could only be avoided by making payments in person. There is no mechanism that would enable payment via communication channels without the intermediation of a trusted institution. An electronic payment system is therefore needed in which trust would be based on a cryptographic proof. This will allow two participants to negotiate a direct transfer of funds without using financial intermediation. These transactions are impossible to withdraw, which protects the sellers, and the routine deposit mechanism is simple to implement and protects buyers. To avoid the problem of double spending, the Bitcoin system applies a timestamp that gives proof of the chronological order of transactions [Nakamoto 2018].

Such a settlement system functions outside the structure of traditional banking and would enable individuals to send digital money directly. Regardless of which entity would act as an intermediary, it is unnecessary from the point of view of the correctness of settlements [Piotrowska 2018].

Bitcoin is a type of P2P money. Each participant of the Bitcoin system uses the protocol at the same level. There are no privileged entities. Such system makes Bitcoin the first financial network, like the Internet, which identifies the principle of neutrality. It is neutral for each participant sending and receiving funds as well as for the amount of the transaction. Neutrality makes every user of this currency able to create innovations in this system in categories such as financial instruments, payment systems and banking, regardless of whether he is a private person, an organization, a bank or a government institution [Antonopoulos 2016].

CREATING NEW BITCOINS AND SECURITY SYSTEM

The Bitcoin supply is increased due to operation of the so-called miners. Their computers are equipped with software that searches for mathematical functions that the Bitcoin protocol algorithm is based on. After finding the solution, a block is generated that contains the transaction record [Franków and Kopyściański 2016]. One new block is

added to the chronological block sequence every 10 minutes. Adding it to the register allows Bitcoins to be available to the new owner. Miners receive payment in the form of newly generated Bitcoins for confirming the transaction. So digging is a process that allows confirming transactions by means of a consensus achieved in the network between its participants, without the need for a central settlement unit. In addition, digging allows getting new coins, from a total finite pool of 21 million, which are rewarded for sharing Bitcoin network computing power. However, this is not an objective in itself, but the effect of the mechanism by which the security of the Bitcoin system can be decentralized [Antonopoulos 2018]. The more devices participate in process of digging the currency, the more secure the network is. Such protection of the chronology of cash flows ensures the stability and security of the system.

In case of an attempt of a dishonest entity to change the record in the transaction history, it would have to go back to the block in which the record would like to interfere. After making the change, the entity would have to complete the entire calculation process from the moment of digging up the given block to the present moment faster than the group of devices working on the correct block sequence [Homa 2015].

THE CURRENT STATE OF THE BITCOIN GLOBAL MARKET

The Bitcoin supply depends on the digging process. According to the algorithm encoded in this currency, the maximum number of units is 21 million. Active participants of this market, so-called miners, can add a smaller and smaller number of new currency units over time. Initially, i.e. since the Bitcoin system was launched in January 2009, 50 Bitcoins were disposed to miners every 10 minutes. In 2012, this number decreased to 25 Bitcoins, and in July 2016 to 12.5 Bitcoins. This process will proceed exponentially as part of the 32 operations to reduce the miners' salary by half (so-called halfings), until the prize of digging new units will be 1 satoshi, i.e. 0.00000001 Bitcoin. According to this rule, it will happen around 2140, after which the issue of the new Bitcoins will end completely [Antonopoulos 2018].

Currently, Bitcoin is the only cryptocurrency that counts in the global financial system (see Table 1). Since 2017, the market capitalization of this currency significantly exceeds USD 100 billion and is more than five times higher than the capitalization of the next two cryptocurrencies, i.e. Etherum and Ripple. The value of daily turnover is close to USD 5 billion. Due to the limited ability to extract new coins, in the years 2016–2018 the number of Bitcoins remaining in circulation stabilized at around 17 million coins.

Since its inception, the capitalization of the Bitcoin market has been growing (see Figure). However, it is characterized by considerable variability. With a relatively constant Bitcoin number in circulation, its value depends mainly on the price of the Bitcoin unit. The sudden increase in demand for Bitcoin recorded in 2017 pushed the price of the currency to around USD 19,000 at the end of the year. Consequently the market capitalization rose to USD 314 billion.

The growing interest in Bitcoin caused that the number of market participants, or more precisely addresses, holding this cryptocurrency exceeds 20 million. The majority, around 11 million persons, possess less than one thousandth of Bitcoin. The total value

TABLE 1. Market capitalization and daily turnover in the cryptocurrency market, as of 28 October 2018

Crypto-currency	Market capitalization (USD mn)	Unit price (USD)	Daily turnover (USD mn)	Unit numer in circulation (mn)
Bitcoin	110 264.61	6 352.58	3 915.24	17.36
Ethereum	20 578.68	199.85	1 398.70	102.97
Ripple	18 334.08	0.46	297.04	40 205.51
Bitcoin Cash	8 290.05	475.41	592.99	17.44
EOS	4 851.08	5.35	651.24	906.25
Stellar	4 461.01	0.24	57.52	18 913.56
Litecoin	3 016.52	51.13	370.34	59.00
Cardano	1 857.55	0.07	19.56	25 927.07
Tether	1 778.21	1.00	2 313.70	1 776.42
Monero	1 740.11	105.20	8.38	16.54

Source: [WWW 2].

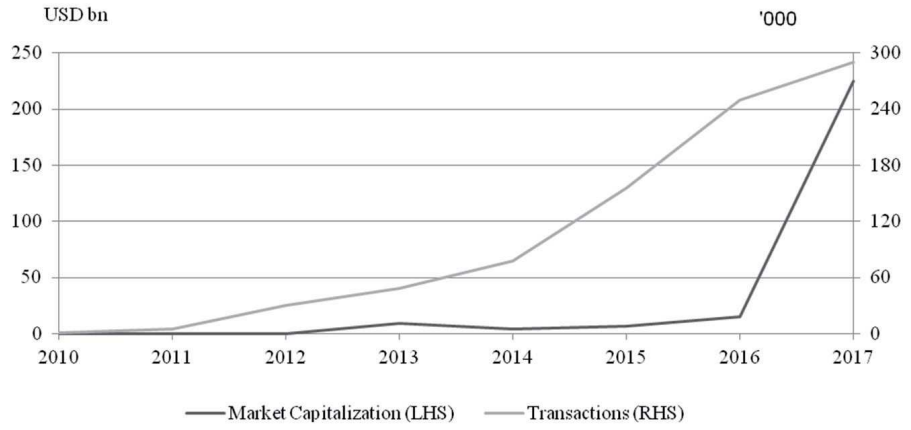

FIG. Capitalization and number of daily transaction in the Bitcoin market as of 28 October 2018

Source: CoinMarketCap.com

of currency collected by these addresses equals to approximately USD 14.6 billion, i.e. around 0.01% of the total market capitalization (see Table 2).

The highest value is accumulated by addresses with between 10 and 100 Bitcoins per address. The total capitalization of addresses with such and higher Bitcoin balance represents 87% of the total market capitalization.

Market capitalization of bitcoin is still several times smaller than for instance capitalization of the gold market or capitalization of any global corporations like Microsoft, Apple or Facebook. Market capitalization of this currency is therefore relatively small,

TABLE 2. Distribution of the Bitcoin capitalization according to the value of individual account

Balance of individual address (BTC)	Number of addresses	Total value (USD mn)
0–0.001	11 329 894	14.6
0.001–0.01	5 134 631	134.3
0.01–0.1	3 851 709	790.2
0.1–1	1 776 717	3 656.3
1–10	564 632	9 465.3
10–100	132 774	27 845.7
100–1 000	14 844	23 664.3
1 000–10 000	1 638	22 581.8
10 000–100 000	120	19 856.9
100 000–1 000 000	3	2 386.1

Source: [WWW 1].

but it is characterized by high volatility of quotations. An interesting issue from the point of view of price stability of this currency is the structure of the value of user portfolios, which is characterized by a large disparity. Over 87% of all circulating Bitcoins are assigned to only 0.66% of private addresses, while 49.6% of addresses are in possession of only 0.01% of the whole unit of this currency (see Table 2). In the history of Bitcoin quotations, it happened that the order to sell Bitcoins constituting hundredths of all units in circulation was able to lower the Bitcoin rate by several dozen percent [WWW 3]. The instability of the currency's price may deter investors with a weak speculative attitude. From this point of view, Bitcoin may appear as a risky investment and at the same time arouse aversion in a large part of society, companies and organizations. The high volatility of the exchange rate against traditional currencies makes it difficult at this stage to perform the function of expressing the price in Bitcoin and making daily transactions in it. However, this does not change the fact that the number of institutions from different countries accepting the settlement of payments in Bitcoin is systematically growing, including such large international companies as: Microsoft, Paypal, Ebay or NewEgg [Bala et al. 2016]. The continuous operation of the Bitcoin system, as well as the ever growing market capitalization and Bitcoin price seem to deny all fears and inconveniences. The average daily number of transactions made in the Bitcoin network also shows a strong upward trend – from an average of several hundred transactions in December 2010, by around 50,000 at the end of 2015 to over 290,000 in 2018. These facts make possible that this currency might become an alternative global currency. Currently, there are no new cryptocurrency projects, that could fulfil this role. Among ten cryptocurrencies of the highest market capitalization (Table 1) there are both relatively old currencies, like Litecoin or Monero, with rather stable positions in the market and fairly new projects, like EOS, Stellar or Cardano. The newer ones like Cardano or EOS are still in the development phase and do not offer all of the planned features yet. High popularity and significant market capitalization of those new currencies show speculative, but also rapidly evolving character of the cryptocurrency market.

CONCLUSIONS

Currently, cryptocurrencies seem to be an inseparable part of economic reality. History shows that the need to create securely functioning digital money dates back to at least the beginning of the 1980s, it means times when the Internet operated in the early stages. Cryptocurrencies are the next stage in the development of this idea.

The need to conduct transactions independently from the financial intermediary was one of the main motives for creation of cryptocurrencies. Cryptocurrencies were designed to be able to transfer funds directly between two persons. The payment system they create can exist outside of the current traditional banking system. Low transaction costs are important effects of such payment system. The creators were also guided by the issue of anonymity and respect for personal privacy. The disclosure of personal information was not necessary to effectively make payments in the case of cryptocurrencies. Although, many of them, including Bitcoins, are only pseudo-anonymous, which means that on the basis of a publicly available register of transactions and turnovers with the involvement of traditional currencies, it possible to identity of the owner of a given public address of a given currency. However, there are alternative currencies in the market that better protect information about the identity of the parties to the transaction and its details.

On the one hand, huge disproportion in distribution of the Bitcoin capitalization, according to the value of individual account and rise of numerous Bitcoin alternatives, makes investing in Bitcoin risky. On the other hand, growing average of a daily number of transactions made in BTC and growing market capitalization show rather large interest in Bitcoin and in cryptocurrencies in general. There are more reasons for that. The cryptocurrency market responds to many needs related to e-commerce. Thanks to smart contracts, it is possible to omit a notary in effective contract enforcement. Regardless of the path that the future development of cryptocurrencies will take, according to the author's knowledge, cryptocurrencies already at the current stage make possible to make payments better than the current banking system could offer. From the perspective of the implementation of daily payments, funds transfers using cryptocurrencies are much faster, cheaper and more anonymous than those that support the traditional banking system. Further dissemination of cryptocurrencies seems unavoidable.

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Summary. The idea of anonymous digital money existing outside of traditional banking system lasts at least 40 years. It appeared as soon as technological solutions, which such a system requires, became available. The article analyses the genesis of the crypto-currencies and technological solutions implemented into the Bitcoin digital currency. The article shows current state of the Bitcoin market and changes in its price, market capitalisation and number of transactions during last decade of operations of the crypto-currency market. Although there are difficulties in using Bitcoins, which include technical background and resulting from the high volatility of prices of this currency, the continuing upward trend of the Bitcoin price and the average daily number of transactions shows that interest in this currency is growing. Bitcoin features that attract new users are a large dose of anonymity, security of funds guaranteed by the extremely high computing power of the Bitcoin network, the speed of transactions and their low cost associated with the exclusion of a financial intermediary. The features of this money and data from the market allow to expect that Bitcoin will gain more individual and institutional users.

Key words: cryptocurrency, bitcoin, cryptography, digital currency

JEL: G10, G19

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 57–63
DOI 10.22630/AMME.2018.4.2.17

THE CONCEPT OF LAND USE MODEL IN LITHUANIA – THE TOOL FOR SUSTAINABLE DEVELOPMENT

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INTRODUCTION

Increase population in the world and discrepancy of interests between different groups are the most important reasons for unreasonable use of land. Namely for this reason and because of the fact that usage of land is not strictly controlled, many countries confront with various local and global problems. For example, in South America, scientists solve this continent relevant problem how to control destruction of forests in order to develop agriculture [Brando et al. 2013, Ceddia et al. 2014].

The most noticeable thing in the global context is the lack of food. Conditions of farming are different. Agricultural productivity is determined by place, soil characteristics and climate. International scientific literature emphasises that nature does not provide sufficient harvest; besides, agricultural development destroys forests, marine systems, etc. and thus has negative influence on biological variety. A suggestion to create a system, where more measurable social, economic and environmental parameters would be involved, was made and thus transformations of territorial usage would be controlled. It is necessary to seek for sufficient amount of food products, reduce poverty, seek for a healthy way of life and retain natural resources. Low or not adjusted irrigation is also considered the largest enemy of agriculture [Sayer 2013].

Considering global tendencies because of climate change and increase of population, various international strategies and agreements are made. Some Western countries emphasise the importance of an individual for development (USA), but in Europe the balance between an individual and public interests is more preferable. General plans of the largest Lithuanian cities and towns as well as surrounding territories have been studied by many researchers [Bardauskienė 2007, Dringelis et al. 2011, Kavaliauskas and Šabanovas 2011].

Scientists of various fields try to present models on how to achieve sustainable development. Many of them refer to the model "from bottom to top", i.e. in decision making, the greatest attention is paid to population needs and requests. Other theorists are categorical as chaos and disputes occur. Currently, it is possible to state that territorial planning is carried out on request of investors. Scientific research has proved that a number of designed territories intended for residential houses in suburban territories is larger than needed [Gaudėšius 2014; Gaudėšius 2013]. Unreasonable usage of land and unconsidered conversion of agricultural land into other landed property (build-up) will not only change landscape but generate economic damage, e.g. fertile soil and melioration systems are destroyed [Aleknavičius and Gaudėšius 2011].

Of course in Lithuania are lot of problems related with land usage and some of them are the same like in other countries, so it is very important to create accurate model of land usage in Lithuania, which solve problems in national level.

The main aim of the article is to offer a solution how to resolve irrational land usage. The proposed mathematical model, which acts as a tool for the goals and objectives of the sustainable development strategy. The goals of sustainable development are known, but there is no methodology in Lithuania for achieving them in ;and usage planning process.

AIMS AND METHODS

The purpose of the research (concept) is to create (offer) sustainable land use model. The subject of this scientific work – territory of Klaipėda city and area around it.

Used methods: statistical data analysis, decision support systems methods, alternatives, synthesis and modelling (AutoCAD, GIS program). The data from National Land Service under the Ministry of Agriculture, Department of Lithuanian Statistics and State Enterprise Centre of Registers. It is important to note that this article is more overview, not an investigation.

DISCUSSION

General, special and detailed plans are documents, intended for planning of territorial development – building-up (Fig. 1). In Lithuania territorial planning is regulated by the Law on Territorial Planning. The purpose of this law is to ensure sustainable territorial development and rational urbanization, by determining requirements for system of decisions of territorial planning process as well as requirements for compatibility and internecine effect of different level documents, and to allow consistency in natural and anthropogenic environment and urbanistic quality, by preserving valuable landscape, biological variety and values of natural and cultural heritage.

General plans of the city is very important for economic growth. For example, decisions of general plans improve land plot activity in real estate market. Depending on the purpose for which it will be used further, attractiveness of a land plot for financial investments can depend on its location, natural properties, territorial planning documents, price, etc.

The most efficient use of land plots can be determined with the help of a general plan which stipulates the measures for long-term territorial management as well as following analytical calculations. One of the calculation methods recommended for the optimization of prospective use of land plots is the multi-criteria assessment method applicable to real estate analysis.

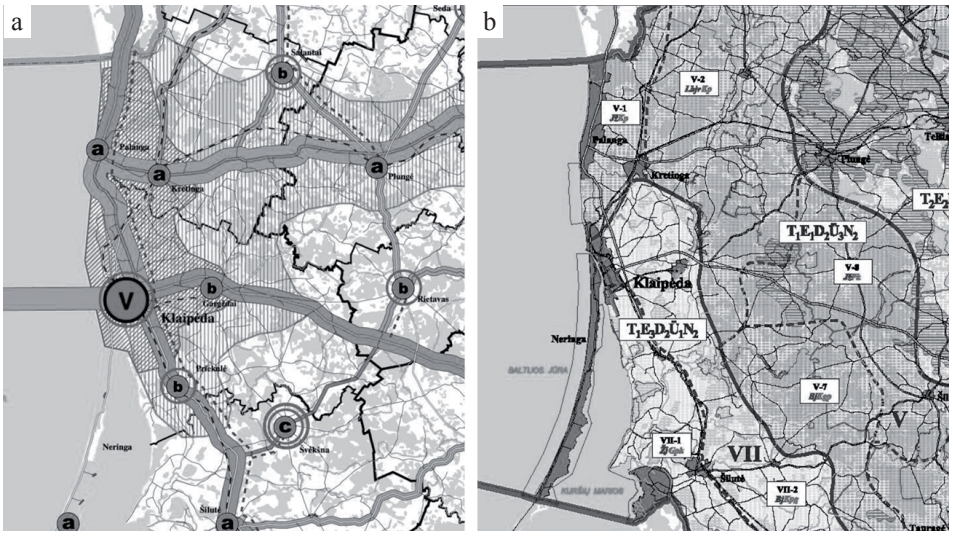

FIG. 1. The extract from the general plan of the Republic of Lithuania: a) planned agglomeration b) real urbanization

Source: [Gaudėšius 2015, 19–27].

Mistakes in documents of territorial planning and land management creating a lot of social, economic and environmental problems. So, to create a model of land usage, first of all must be identified common issues of the land usage in Lithuania:

– Fragmentation of land plots (Fig. 2),
– Unused land plots (abandoned) (Fig. 3),
– Large distances between houses and work locations,
– Chaotic urbanization (Fig. 4),
– Unformed territories which are using illegal (Fig. 4),
– Objects (shop, school, hospital etc.) in the city are located in inconvenient place.

In the scientific literature are three directions in definitions of sustainable development: social, economic and environmental. All these land usage problems create another, which are closely with sustainable development concept. If in future we use the proposed multi-criteria method, one important task of this model is indicators (Tab. 1), which are created (identified) by author, and which are related between directions of sustainable development and land usage [Sands and Podmore 2000, Alvarez-Rivero 2001, Danilishin and Veklich 2010, Tan and Fatih 2010, Wei et al. 2016, Dong and Hauschild 2017].

In land management and territory planning are using many different methods of decision support system: SAW, TOPSIS, AHP, etc [Memariani et al. 2009, Afshari et al. 2010,

FIG. 2. Newly planned residential area distribution: a) big and empty area b) empty space around the new houses.

Source: [Gaudėšius 2013, 72–80].

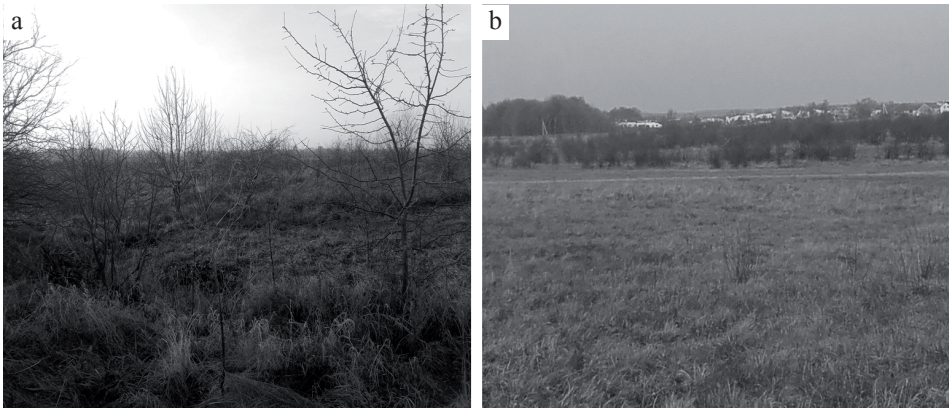

FIG. 3. Unused land plots (abandoned) in the city: a) closer, b) from distance

Source: The Author.

Anjomani et al. 2011]. Another task of model – to select the best method of decision support system, by using calculations of sensitivity analysis.

This is a very difficult task, because in calculations specialists using different criterias and their importance.

The last task of the concept (model) – how to apply it in practice. First of all, it could be a tool of state control. Specialists could using this model when cheking special or complex territorial planning document. How prepared document meets the challenges of sustainable development. The same situation could be when is preparing general plan of the city. These planning documents are very important in local, municipality and national levels (Tab. 2), because they increase economic growth. Secondly, this process should be provided by the laws of land ant territory planning.

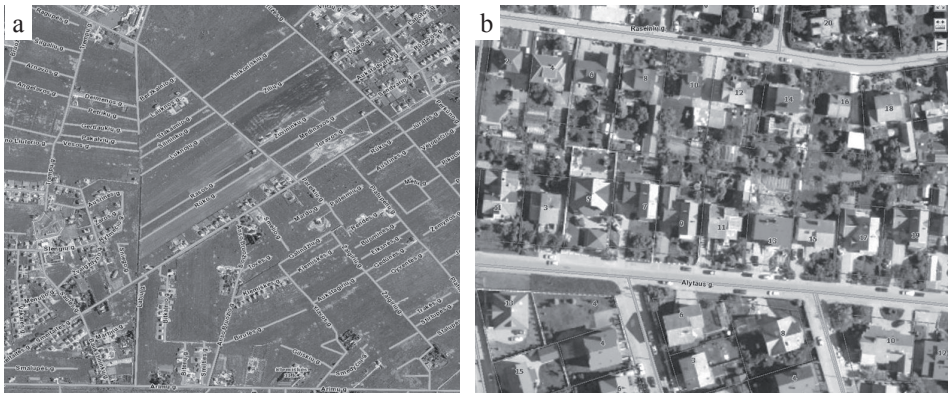

FIG. 4. Chaotic urbanization (a) and left free, unformed, but using illegal territories between land plots (b)

Source: The Author.

TABLE 1. Aims of future development in model creating.

Methods of decision support system	Indicators of sustainable develpment	Real use at land management and territory planning
SAW	social: location of builindings, population...	National Land Service under the Ministry
TOPSIS	economic: distance of roads, engineering networks...	local governance
AHP, etc.	environmental: soil, green areas...	land law, etc.

Source: The Author.

TABLE 2. Hierarchy of territorial planning documents in Lithuania (since 2013)

Level of document	Types of documents	
	complex territorial planning documents	special territorial planning documents
National	• a general plan of the national territory and the general plans of the parts of the national territory (developed at the state level); • municipalities (held at the municipal level) or their parts (in terms of locality level) general plans; • detailed plans (in terms of locality level).	• land use planning schemes; • forest management schemes; • rural development land use planning projects; • plans of protected territories; • engineering infrastructure development plans; • the depths of soil used plans; • plans of the immovable cultural heritage protecttion, etc.
Municipal		
Local		

Source: The Author.

In any case it is necessary to take measures in order to strengthen the state control because of build-up of agrarian territories, considering real needs, but not plans of investors. Land management specialists must be involved (in villages) when making final decisions (by supplementing functions assigned by the National Land Service) because of build-up in appropriate localities.

CONCLUSIONS

Depopulation proccess in Lithuania makes to rethink land use policy, because today territorial planning is developing not by sustainabilyti principles and not by needs of society. There are a lot of problems (social, economic and environmental) related with land usage, so it is very important to create the sustainable model of land usage in Lithuania. The continued usage of the land and land plot activity in real estate market could be determined by distances to existing objects, so planners must carefully determine the build up areas. Decisions of general plans influences not only land plot activity in real estate market, but and economic growth of city or country. Land use model should be based on Decision support sistem methods. These multicriteria methods are useful tool, because there could be used criterias of sustainable development. So, this model will be useful not only for land use planners (preparing general plans) but and for investors (identify the best land plot for investment). Also this model could be a tool of state control specialists, whom checking documents of territory planning.

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Summary. Urbanization process in the Republic of Lithuania has formed a strong visual, cultural and economic gap between rural and urban areas. Lithuanian villages face major social, cultural changes and economic difficulties, which result in increasing migration of people to cities and foreign countries. Everyone could self-realize only in a safe and comfortable environment. The right environment, in which persons feel safe and are able to realize their potential in activities, can be created by spatial planning. Lithuanian scientists talk much about problems in territorial planning, but no particular proposals are offered and state institutions do not take any measures in order to stop this chaotic urbanization. There are a lot of problems related with land usage, so it is very important to create the sustainable model of land usage in Lithuania

Key words: Sustainable development, land management, environmental engineering

JEL: C02, K25, O21, R14

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 65–74
DOI 10.22630/AMME.2018.4.2.18

DETERMINANTS OF THE DEVELOPMENT OF THE MAZOWIECKIE PROVINCE IN 2007–2016

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INTRODUCTION

A region is a term used to determine the spatial area, such as a commune or a county. The term is also used for much larger areas, including the Baltic Sea region or the Western European region. Additional terms are used to graduate the scale of the region's surface area, i.e. sub-region, basic region, micro-region, meso-region, macro-region or region of first or second degree [Kosiedowski 2005].

Initially, the main criterion for the regional division was the types of landscape. In subsequent stages of development of the theory of the region, economic, administrative and population criteria were added to it in connection with the settlement structure.

Regional development is a process of positive changes of both qualitative and quantitative nature. This process depends on various factors recognized in the literature as elements contributing to the growth of the region's economic potential, improvement of competitiveness and increase in the quality of life of its inhabitants [Mańkowski 2009].

The aim of the article is to present the current economic situation of the Masovia Province and factors affecting its development. The research is of a comparative nature examining changes in the economic situation, the size and level of factors that shape development. The assessment is based on data of the Central Statistical Office.

Taking into account the opinions of Tomasz Grosse [2012], Kazimierz Pająk et al. [2016], as well as the Development Strategy of the Mazowieckie Voivodship by 2030, investments in R&D, education, infrastructure and telecommunications were adopted as parameters of regional development.

The rest of the article has the following structure: the next section presents conclusions from the literature review, followed by the economic situation of Masovia and lastly the main factors affecting the province's development. The entire analysis is summarized in the conclusions.

REGION AND REGIONAL DEVELOPMENT – LITERATURE REVIEW

The region in the economic literature is most often defined as "an area conventionally separated, relatively homogeneous, distinguishable from neighboring areas by natural features or acquired throughout history" [Matuszczak 2013].

The region can be segmented using three methods [Berezowski 1998], i.e.:

1. one criterion (e.g. population density);
2. many criteria (e.g., population and industrial value of production);
3. specific content of the structure through interdependent areas of activity in a given area.

Korenik [1999] presented another procedure for separating different regions using:

- criteria – including economic and administrative;
- characteristics that distinguish the regions – including biological, geological, infrastructure, distribution systems, the administrative system of the state;
- spatially separated objects based on the characteristics of a given criterion – e.g. lands, provinces, basins, districts, provinces.

In economic sciences, the region is separated on the basis of economic criteria [Chądzyński et al. 2012]. An economic region is defined as an area that has created a specific economic specialization as a result of exogenous and endogenous development factors [Strzelecki 2009]. In turn, Antoni Fajferek considers the economic region as a territorial complex of services and production, which is distinguished from the surrounding areas by forms of utilization [Fajferek 1966]. He emphasizes that the economic region should fulfill the following conditions:

- has a specific service and production specialty;
- is a part of a larger territory;
- is a spatially compact area;
- has a minimum of one city center.

The economic sense of the concept of regional development refers mostly to macroeconomic growth. Regional development is based on regular improvement of the citizens' living standards and the competitiveness of economic entities, as well as on its development of economic potential, resulting in the socio-economic progress of the country [Szlachta 1996]. According to another theory, regional development is a permanent increase in economic potential and the standard of living of residents in the area of a given territorial unit [Kudłacz 1999].

In turn, Klasik defines regional development as a permanent improvement of its three basic elements, i.e.:

- the economic potential of the region;
- the level of its competitiveness;
- quality and standard of living of its residents.

As a consequence, the development of the region is a contribution to the improvement of the economic and social situation of the entire national community [Brol 2006].

DETERMINANTS OF REGIONAL DEVELOPMENT

The characteristic features and components of regions and their surroundings are important factors for regional development. These include all events occurring in a given space that lead to the transformation of regions from simpler and less developed to more complex and more effective states or forms [Kosiedowski 2008].

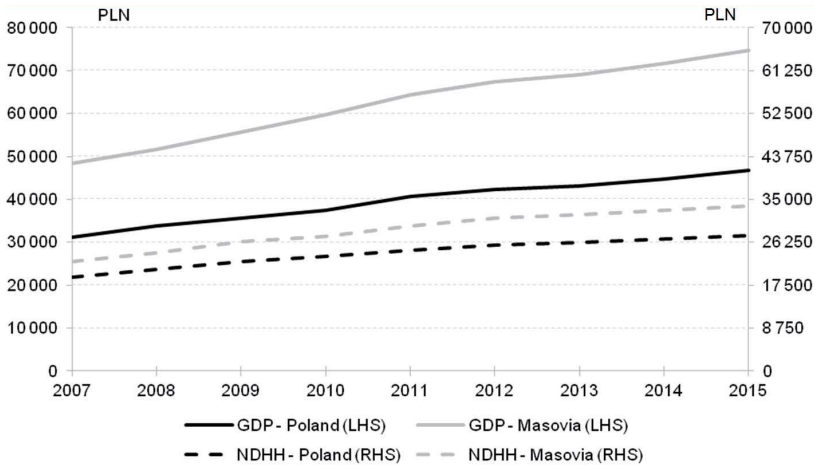
Factors influencing the shape of regional development can be divided by many criteria, among others: economic, technological and technical, social and ecological. Among all economic benchmarks the following are considered as the most influential [Markowska 2002] and [Czemiel-Grzybowska 2010]:

- regional increase of capital;
- qualitative and quantitative changes in the labor market in the region;
- pro-developmental changes in the region's structure and growing demand within the region;
- support and stimulation of innovation;
- the use of aid funds, including from the European Union;
- good economic situation of foreign markets;
- increased investment expenditures in the region;
- modernization of management;
- favorable domestic economic situation (e.g. stable currency exchange rate, development of financial support institutions, etc.);
- favorable tendencies in profits or incomes of regional entities (local government bodies, institutions, economic units, households).

MACROECONOMIC SITUATION OF THE MAZOWIECKIE PROVINCE

Masovia (called also as Mazowieckie Province or Mazowieckie Voivodeship) belongs to the group of the most economically developed provinces in Poland. In the period of 2007–2015, Masovia's GDP increased by 59% while Poland's by 51%. Of all provinces, Masovia contributes the most to the domestic GDP. In 2007–2015, on average, about 22% of Poland's GDP was generated in Masovia. The province was the leader in terms of eliminating the distance to the most developed regions in the European Union and had the highest GDP per capita ratio in Poland. In 2015, Masovia's GDP per capital amounted to PLN 74,682, while in the entire country PLN 46,792 (see Fig. 1).

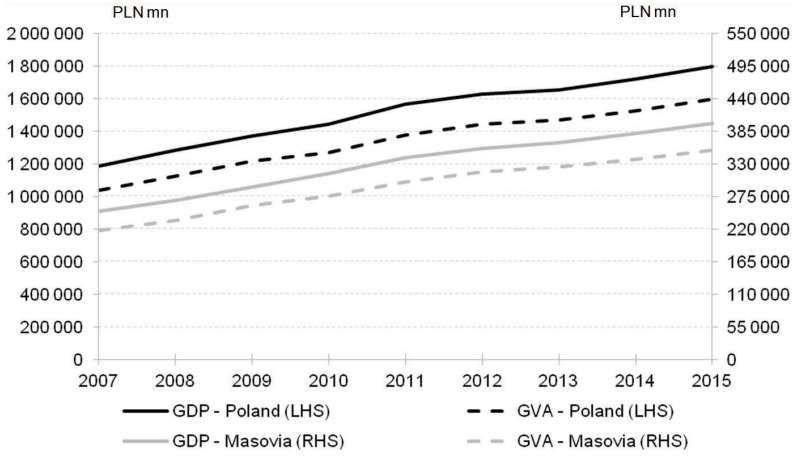
The capital city of Warsaw is the main economic center of Masovia. The GDP generated within Warsaw accounts for approximately 59% of the GDP of the entire province. However, the GDP generated in Warsaw did not come solely from the activities of its residents, but also from the neighboring administrative units. Thus, economic ties were maintained between many sub-regions of Masovia.



GDP – gross domestic product, NDHH – nominal disposable income of households.

FIG. 1. GDP per capita ratio in the Mazowieckie Province and in Poland in 2007–2015

Source: Own estimations based on CSO data.



GVA – gross value added.

FIG. 2. Gross value added and GDP of Masovia and Poland in 2007–2015

Source: Own estimations based on CSO data.

Between 2007 and 2015 Masovia recorded the highest growth of the gross value added[1], i.e. 62% (see Fig. 2). The average for the country was 54% and for other provinces, among others: Wielkopolskie – 61%, Lubuskie – 44%, Opolskie – 41%, Świętokrzyskie – 37%.

[1] The gross value added expresses the newly generated value of the production activity of domestic institutional units.

Similarly as in the entire country, in Masovia the largest contribution to the gross value added was generated by units operating in sectors of: auto repair, trade, transport and storage, information and communication, accommodation and catering, smaller than the average share in industrial processing, and the smallest fisheries, forestry, agriculture and hunting [Strategia rozwoju…, 2014].

Masovia is the province with the largest demographic potential in the country. Every year, the number of its inhabitants is growing. In the last decade, the highest annual population growth rate was recorded in 2011 and amounted to around 1%. In 2016, the total number of citizens of the province equaled to 5.3 million, which corresponds to 14% of Poland's population. The majority, i.e. 3.4 million, of residents live in urban areas and the remainder, i.e. 1.9 million, in rural areas. These human resources are considered a major potential for the future development of production and service industries in Masovia.

DETERMINANTS OF DEVELOPMENT OF THE MAZOWIECKIE PROVINCE EDUCATION

The level of education is one of the most important factors of social and economic development. Students of Masovian schools in junior high school examinations and competency tests receive better results than their peers in other provinces. The level of education in primary and lower secondary schools in the Masovia is, however, characterized by considerable spatial differentiation. Warsaw and cities of a regional and sub-regional character are branded by the highest level of education. However, as the schools move away from these centers, the learning results decrease [Strategia rozwoju…, 2014].

In the area of higher education, Warsaw plays a dominant role in the province. About 70% of colleges and universities operating in the province are located in the capital city, and their students constitute over 80% of the province's students. The number of students in the years 2007–2016 had a downward trend, which primarily resulted from a general decline in the number of citizens aged under 18 in Poland, as well as recruitment for people from the demographic low generation, i.e. from 360.9 thousands in 2007 to 236.5 thousands in 2016. A similar tendency is observed among university graduates (see Table 1). The declines in numbers of both groups in 2007–2016 in Masovia amounted to 34 and 20%, respectively.

TABLE 1. Number of students and graduates of colleges and universities in Masovia in 2007–2016 (in thousands)

Specification	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Students	360.9	354.2	342.7	328	310.6	294.2	272.3	268.1	244.2	236.5
Alumni	75.8	75.3	77.9	83.0	84.7	82.4	76.0	72.7	65.5	60.8

Source: Own estimations based on CSO data.

EXPENDITURE ON RESEARCH AND DEVELOPMENT

Masovia dominates in the values of expenditures incurred on research and development (R&D). The expenditures made in the province account for approximately 38% of the total country's expenditures (see Fig. 3). In 2016, annual spending on R&D in Masovia amounted to approximately PLN 6.9 billion, which makes an average per capita PLN 780. The Masovia's R&D expenditures accounted for 38.3% expenditures incurred in Poland (PLN 18 billion). In the years 2007–2016 the growth rate of these expenditures in Masovia remained at 151% and was slightly below Poland's average of 169%.

Expenditures on research and development were carried out, among others in such fields as [GUS 2017]:

- engineering and technological sciences – PLN 3,392 million;
- natural sciences – PLN 1,561 million;
- social sciences – PLN 769 million;
- medical and health sciences – PLN 757 million;
- agricultural and veterinary sciences – PLN 201 million;
- humanities and art – PLN 199 million.

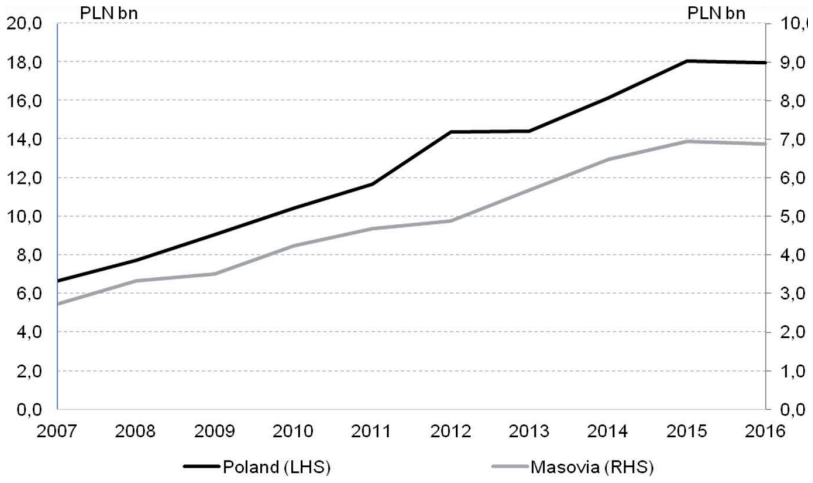


FIG. 3. R&D expenditures in Masovia and Poland in 2007–2016

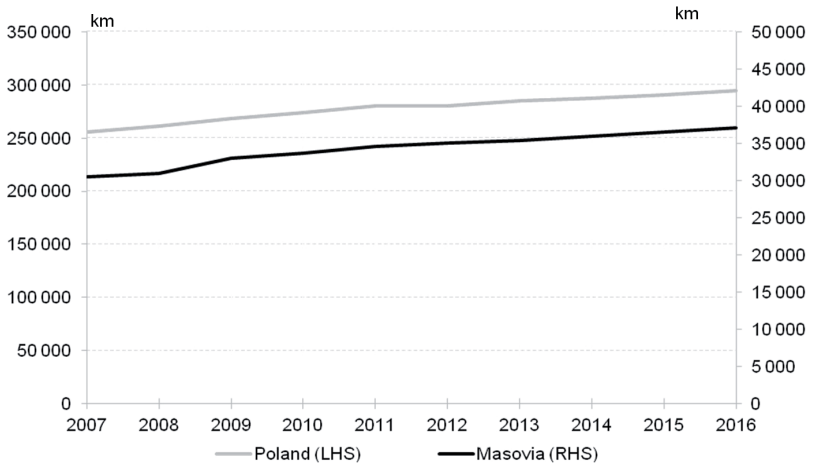
Source: Own estimations based on CSO data.

INFRASTRUCTURE AND TELECOMMUNICATION

Poland's accession into the European Union created an opportunity to implement many transportation investments in Masovia. In line with the development strategy of the Mazowieckie Province, the road infrastructure was prioritized [Strategia rozwoju..., 2014]. As a result of this strategy, in 2007–2016 6,525 km of new roads were created (see Fig. 4), which is an increase of 21%, while in the entire country about 15%.

In addition, in the years 2007–2016, the offices of transportation in Masovia registered:

- passenger cars – 3,329,784;
- buses – 17,588;
- trucks and tractors – 638,283;
- ballast and agricultural tractors – 248,411;
- motorcycles – 174,309.



PRHS – public roads with a hard surface.

FIG. 4. The length of roads in Masovia and in Poland in 2007–2016

Source: Own estimations based on CSO data.

The telecommunications infrastructure, and in particular the access to the broadband Internet, are significant factors of the Masovia's development. In 2016, 78.4% of households in the Mazowieckie Province had personal computers, of which 77.5% had the Internet access (see Table 2). Comparing to the data of 2007, these figures significantly increased. For the analyzed period, the number of personal computers rose by 47% and in case of the access to the Internet by 91%.

Table 2. The shares of citizens with computers, access to the Internet and broadband Internet in Masovia in 2007–2016 (%)

Specification	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Personal computers	53.2	59.7	63.8	68.7	71.4	73.1	75.8	77.4	78.5	78.4
Internet*	40.5	49.4	56.5	63.8	67.5	69.2	73.0	75.5	77.3	77.5
Broadband Internet**	×	×	×	×	54.1	57.3	54.4	58.3	64.5	55.3

*Internet – access to Internet, **Broadband Internet – access to broadband Internet.

Source: Own estimations based on CSO data.

CONCLUSIONS

The Mazowieckie Province is the most economically developed region in Poland. Among all provinces, in the fastest pace eliminates the distance between it and the most developed regions of the European Union. It is caused mainly by the capital city of Warsaw, which is the seat for many companies, universities, and also provides a place of work not only for its residents.

As few provinces in Poland, it has a positive annual birthrate, as well as a high rate of citizens with higher education.

In 2015 the gross domestic product amounted to 398 billion PLN, and the gross value added PLN 353.9 billion. The growth of both these indicators for the years 2007–2015 amounted to 59 and 62 % respectively, which is higher than for the whole country. The dynamics of Polish GDP in the same period is 52% and Gross Value Added 54%. The GDP per capita is the highest in the country and equals to 74.7 PLN thousand and is more than one and a half times higher than the national average.

Masovia allocates to R&D the most among all provinces, i.e. around PLN 6.9 billion annually, which accounts for about 38.3% of such expenditures in the country. Masovia allocates the most funds among all provinces to research and development (R&D), about PLN 6.9 billion annually, which accounts for about 38.3% of such expenditures in the country.

The growth in the length of roads and the number of personal computers with access to the Internet is considered as important determinants of the province's development. Values of each of these indicators had an increasing trend in 2007–2016.

In addition to the above-mentioned determinants of Masovia's development, the province has other sources of growth, such as:

– tourist resources, especially the capital city;
– geothermal and medicinal waters;
– a highly developed service sector, among others: IT and financial centers;
– a strong metropolitan position – good transport links, a place to do business.

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Summary. The article presents the results of the analysis of factors influencing the development of the Mazowieckie Province (Masovia) in the years 2007–2016. Data for the study were collected from the Central Statistical Office and Statistical Yearbooks of the Mazowieckie Province. The results indicate that the level of development of Masovia is considerably higher than of other provinces in the country. At the end of the analyzed period, in Masovia the GDP per capita was almost twice as high as the national average. Masovia held the highest share in Poland's GDP (22%). Important factors positively affecting the development of Masovia are: positive population growth and improving demographic situation, and broad access to telecommunications. Additional factors of the dynamic Masovia's development are: extensive transportation infrastructure (104.3 km per 100 km2) and high number of students (236.5 thousand) and college graduates (60.8 thousand) who constitute the future substantive resources of the province's economy.

Key words: region, regional economy, determinants of regional development

JEL: R11

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 75–87
DOI 10.22630/AMME.2018.4.2.19

MODERN CHALLENGES OF CREATING TOURISM BRAND OF KAZAKHSTAN

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INTRODUCTION

In a broad sense, the modern world tourist space is a clash of competitive brands of countries for the trust and attention of tourists, investment and income. Under such conditions, the problem of determining the positions of the national tourist market of a particular country in the system of international tourism, the strengthening of which is connected to the processes of formation and effective positioning of country's international tourist brand, acquires particular relevance.

Of particular importance is the problem of forming a positive perception of an international tourist brand for Kazakhstan, which is in the process of transformation and integration. Creating an effective international tourist brand for Kazakhstan is a tool for enhancing the country's international competitiveness and is an important factor in ensuring the growth of the income of the tourism business, replenishing the country's budget, and improving the well-being of its people.

Today, the prospects for the development of national tourism are associated primarily with the effective promotion at the international level of a single tourist brand of Kazakhstan, which determines an objective need to understand the modern challenges of creating tourism brand in Kazakhstan.

AIM AND METHODS

The main objective of the research is to develop theoretical and practical recommendations on forming a model of the Kazakhstan's tourism brand on the basis of studies of the current state of its subjects' development and the use of marketing methodologies.

Studies have been conducted among foreign tourists to determine the attractiveness of Kazakhstan as a whole, as well as their capacity and preferences.

While conducting the research the following sources of information were employed:

– Secondary data from official sources – such as statistical digests, results of monitoring of the tourism industry development in Kazakhstan;
– Primary data obtained through the field research, including: tourists survey and the survey of tourism sphere experts in Kazakhstan.

To survey tourists a structured questionnaire was designed; 96 people were surveyed, including 55 women and 41 men as a random sampling. The aforementioned type of sampling is considered to be the most appropriate for studying behavioral phenomena since it excludes the possibility of bias [Gravetter and Forzano 2011]. The survey took place in June–July 2018 and covered tourist coming to the airport and railway station of Astana.

The experts' survey was conducted in free form, and eight experts were surveyed. This type of study was held in Astana during August 2018, involving the representatives of travel organizations, lodging establishments and local DMO.

The research pursued the following objectives:

- to reveal the real situation on the tourism market on its attractiveness;
- to define preferences for cultural and historic monuments;
- to identify the attractiveness of branded directions;
- to study the importance of significant events hold in Kazakhstan;
- to identify of the most significant historical and political figures;
- to study attractive dishes of the Kazakh cuisine;
- to determine the priority characters, traditions, and values.

MARKETING RESEARCH ON FORMATION OF KAZAKHSTAN'S TOURISM BRAND

Scientific substantiation and review of scientific researches devoted to the development of a tourism brand show that significant contributions were made by scholars such as Aaker [1991, 1995, 2000], Keller [1993, 1998, 2003], Buhalis [2000], Anholt [2003], Kotler [2003], Caldwell and Freire [2004], Pike [2005], Tasci and Kozak [2006] and others.

Studies have shown that when creating a brand it is important to use an integrated approach and marketing tools, as well as emphasize tangible and intangible assets. At the present stage, issues of forming electronic branding which can affect not only the international tourist route, but also create the image of a region, are of current interest [Kavoura 2014]. In branding it is also recommended to use a strategic approach aimed at creating a positive image of a tourism country [Avraham and Ketter 2008]. Cultural heritage is an important part of branding and must be taken into account while developing tourism products [Mitsche et al. 2013].

As a result of the research conducted by the authors in the field of marketing and branding, a brand consists of three main components: identifiers, attributes, and associations [Sexton 2005]. Identifiers are signs by which a brand is recognized. In order to identify the signs of the tourism brand researches aimed at determining the image of the country by local and foreign tourists were conducted. The studies have shown that views of the country that have locals of Kazakhstan do not coincide with the views of foreign tourists. As

a result, a gap in the identification of the country by different target markets is appearing, i.e. the difference between what the local residents and authorities think about Kazakhstan and the foreign visitors' views (Table 1).

TABLE 1. The attitude of authorities and residents of Kazakhstan versus foreign visitors to Kazakhstan

The official version	Foreign customers
"The new State"; the modern capital; has won the EXPO-2017; the Eurasian Center; a country with a great potential for tourism	The view of the Western media: resource-based economy; state between Russia and China; autocracy; the new capital in the steppe; the rich are buying villas around the world; human rights violations; environmental issues; corruption; exotics

Source: The Author.

Studies conducted among foreign tourists visiting Kazakhstan revealed that their views on Kazakhstan were peculiar and contradictory. In general, Kazakhstan is a country with [Schreiber 2008]:

- attractive open spaces, beautiful landscapes;
- friendly people;
- bad legacy (the GULAG, polygons, drying of the Aral Sea);
- oil and other raw materials with their pros and cons;
- prestigious projects (Astana);
- a multi-faceted country, contradictions (wealth and poverty, town and village);
- security, no fundamentalism;
- contaminated regions;
- corruption, autocracy.

Potential customers either do not know the country or are aware of it as a Soviet country that has oil, steppe, emptiness, Astana, Baikonur, and environmental problems.

In general, on the basis of the study, it was found that about 90% of (Western) foreigners have either scarce perceptions of the country or they do not have any. Kazakhstan for them is an unexplored country.

Those people who have some understanding of Kazakhstan (as they've read from books or visited Kazakhstan) have the image of the country which is very controversial.

That opinion is formed due to several reasons, namely:

- there are many contradictions within Kazakhstan such as the difference between conditions and opportunities in its big cities and villages;
- contradictions between how the country positions itself and what it really is.

The second component of the brand is attributes which are the characteristics of tourism products and their benefits and values. One of the most significant tourist-recreational attributes of Kazakhstan is the steppe. The visions of different tourists against the steppe resources are miscellaneous and foreign tourists' understanding can be formulated as follows:

- a space with a lot of potential for urban technocrats;
- void where there is nothing for urban tourists;
- the source of life for rural residents;
- the freedom and open spaces.

In designing the brand program Kazakhstan can position itself in different ways but it can lead to a situation that consumers would not understand why they have to visit Kazakhstan and what the key benefit is for them during their visit. It is therefore advisable to focus on the values that a potential customer expects while visiting the country. Particularly important, when building the brand, are emotional benefits as they are harder to copy by competitors [Kotler 2003].

The conducted analysis of tourist-recreational attributes of the country has identified the main specific images for the Kazakhstan tourism brand:

- steppe, horses, yurts (brand of Mongolia);
- shanyrak (brand of Kyrgyzstan);
- Silk Road (brand of Uzbekistan);
- Baikonur;
- Astana;
- clear blue sky, golden eagles.

The main advantage of the proposed specific images is that they are well rendered and cause positive emotions, but the main disadvantage is that they are too limited.

The third component of the brand is associations which are the link between identifiers and attributes. At creating a tourism brand the capitalization of attractive images and associations with Kazakhstan is very much significant.

The main visual images of Kazakhstan include: borderless, boundless Kazakhstan; hospitable Kazakhstan; unknown Kazakhstan; amazing Kazakhstan of the revelations.

The main plus of the abstract images is that there is no limit by a single aspect; the main minus is they are poorly visualized.

For Interactive images that are associated with Kazakhstan: Kazakhstan is not what you think; Kazakhstan – where the soul rests; be a nomad; perfect location to downshifting.

The main benefit of the interactive images is that perception of the country depends on the target person who makes "own Kazakhstan"; the main disadvantage: they are poorly visualized.

A brand can and should vary, depending on the degree of the country's development, the popularity of the country and of an offered tourism product [Tybout and Calder 2010].

On the basis of the obtained data on the results of the studies it is concluded that for 77% of respondents domestic tourists in Kazakhstan the most appealing were natural resources and natural reserves parks; the second, by importance were the Tien-Shan mountains and 45% of respondents noted this, and for the third (38.5% of respondents) was the Charyn Canyon (Fig. 1). All other natural resources also attract tourists, but those are of less importance for them.

Tourism as an activity can successfully exist in the presence of two elements: natural attractions and cultural and historical monuments. Thus, the prerequisites for growth in demand for tourism and its maintenance on the highest level, are resources such as monuments of history, culture and archaeology. Figure 2 presents the results of the survey on the importance of historical and cultural attractions for tourists in Kazakhstan.

The most attractive monument for tourists in the country is the mausoleum of Khoja Ahmed Yassaui (69.2%); for more than half of the respondents, 61.5%, the segment of the Great Silk Road seemed attractive, and 53.8% chose Baikonur Cosmodrome; 38.5% of tourists were interested in Tamgaly and 22% noted the mausoleum Aisha Bibi.

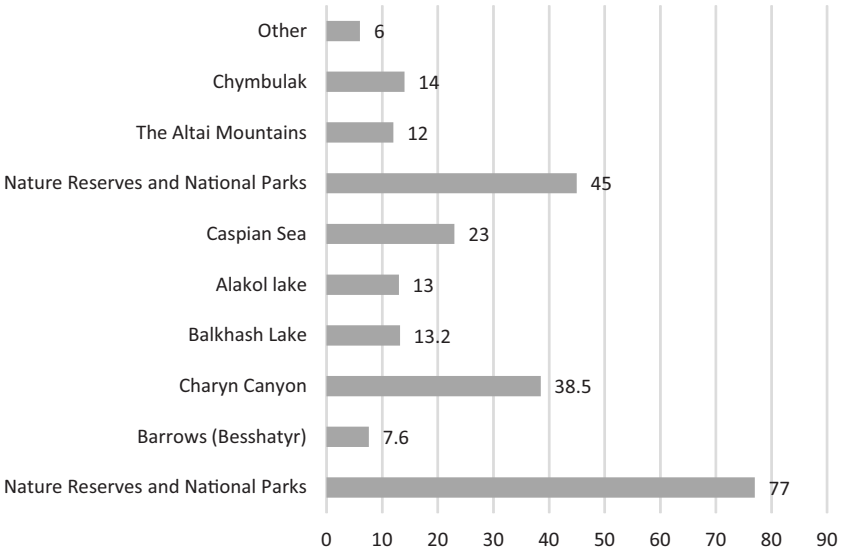

FIG. 1. Attractiveness rating of the natural attractions of Kazakhstan
Source: The Author.

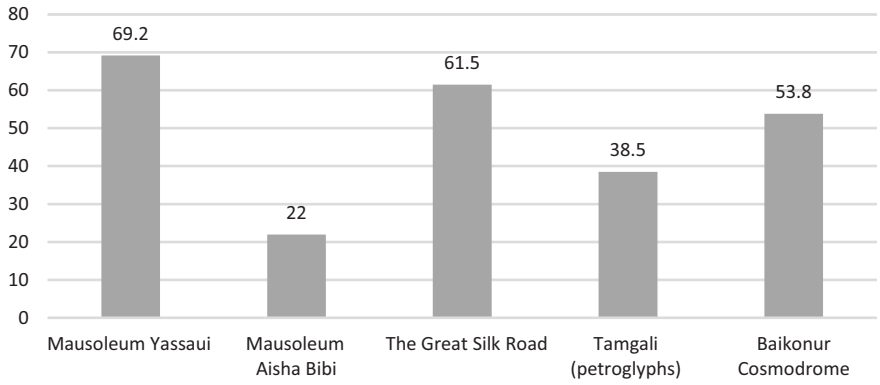

Fig. 2. Preference rating of historical and cultural attractions by consumers
Source: The Author.

One of the tasks in developing the tourism brand for Kazakhstan was to form attractive tourist products and create branded directions.

An important aspect when choosing a travel is a geographic focus. Motive for choosing the geographical areas can be uncertain and it greatly depends on the distance and the availability of touristic destination. Geographic direction may attract by the following: location (natural or artificial factors, cultural items, etc.), event (festivals, sports games), opportunities for certain activities (such as sports), and as well as the condition of the

material basis, transport infrastructure, etc. [Keller 1998]. The results of the branded directions' evaluation are presented in Figure 3.

Consumers of Kazakhstan highlight two major branded destinations: the Tien Shan and Borovoye; the Eastern Kazakhstan with the Altai Mountains and lakes still remains attractive to tourists and only 23% of respondents are attracted by Sary-agash.

During the formation of the country's and the state brand issues like which events and international activities are carried out in the country remain relevant. The survey results on this issue are presented in Figure 4.

As it can be concluded from Figure 4, the main significant event is the organization of the "Expo 2017" exhibition, as it was noted by 84.7% of the respondents; 48% of respondents highlighted Asian Games; 37% noted Universiade, and only 7% chose the OSCE Summit.

A specific factor influencing the formation of the tourism brand is the national cuisine. The influence of this factor is evident in a sence that national cuisine is specifically important for food experts and extroverts.

As a result of the survey, it was found that the highest preference is given to such dishes as beshbarmak, kumys and kazi. However, one can select those dishes that are less important for consumers, but were still noted: they were shubat, kurt, kuyrdak, shelpek (Fig. 5).

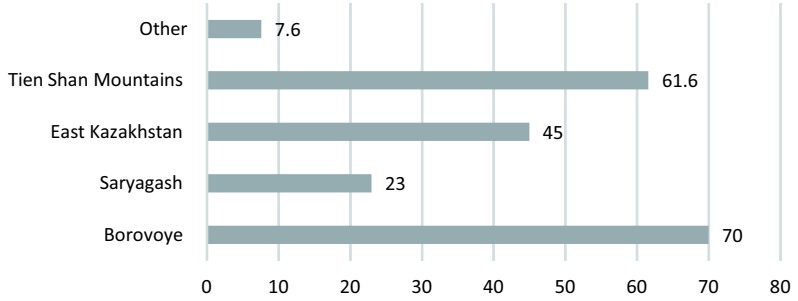

FIG. 3. Attractiveness rating of branded tourist destinations in Kazakhstan
Source: The Author.

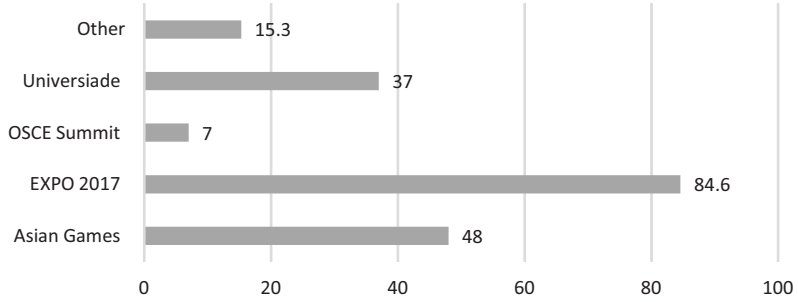

FIG. 4. Importance of significant events in Kazakhstan
Source: The Author.

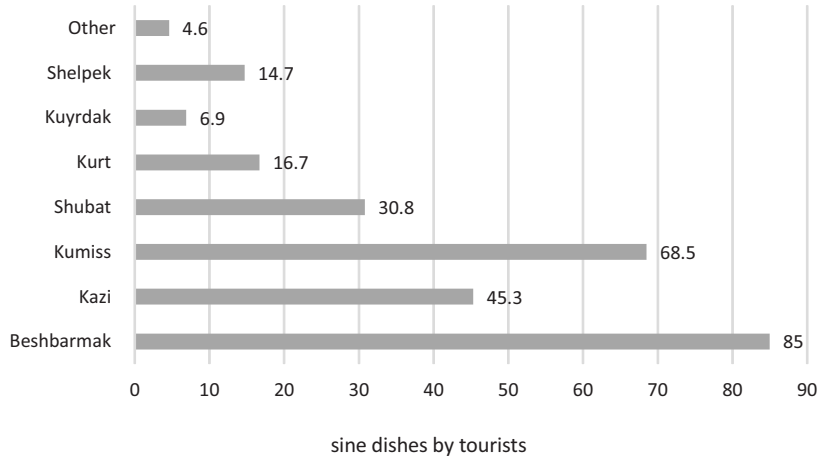

FIG. 5. Preference rating of Kazakh national cuisine dishes by tourists

Source: The Author.

There is still a number of factors that influence the development of the tourism brand. One of which is the formation of the slogan and the logo. The survey revealed that consumers assumed the slogan to be associated with the following aspects:

- snow leopard or animals;
- steppes;
- mountains;
- nomadic civilization;
- shanyrak;
- sky and stars;
- national characteristics;
- horses;
- Baikonur.

As it can be seen Kazakhstan is associated with a diverse variety of directions and subjects by the depicted attributes; so it is quite difficult to choose something definite and for this it is necessary to conduct deep and comprehensive studies of both foreign and domestic tourists.

The cities symbolizing Kazakhstan, as stated by the majority of the survey respondents, were Astana (77%) and Almaty (69%).

None of tourism brands will perform its functions without an interesting and attractive slogan. Based on the conducted research among foreign tourists a recommended expression for the slogan which is "Kazakhstan is not what you think about it" was noted. This slogan is currently suitable and "perfect" because it excites the curiosity, the desire to discover the country, but makes no promises. It can even serve as "apology" or "excuse" when people are arriving here with too high positive expectations. However, the main disadvantage of the slogan is that it does not reflect the positioning of Kazakhstan.

Respondents from Kazakhstan were asked an open-ended question on developing a slogan and a number of responses in the form of slogans were received. They were: "Have a rest with soul in Kazakhstan" and "Kazakhstan is open soul, high skies", "Kazakhstan is the country of steppes and warm hospitality", "There, where your roots are".

As it is evidenced from the slogans' proposals, one can conclude that the emphasis is on Kazakh hospitality and the beauty of the country.

Foreign tourists are attracted by the alternative and new culture. Therefore, a survey was conducted, which determined what traditions and values are important in the formation of the brand (Fig. 6).

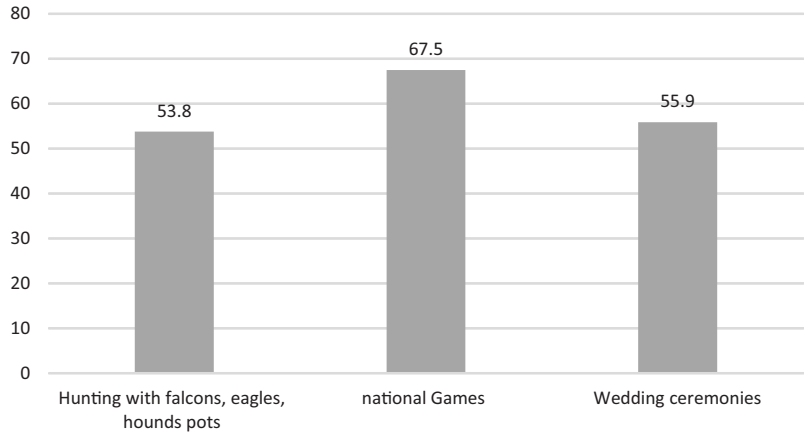

FIG. 6. Attractiveness rating of traditions and values in Kazakhstan
Source: The Author.

As can be seen, the most interesting for respondents were national games, with a small margin marked the wedding traditions and hunting with Falcons.

Based on the results of the study it was found out that to the symbols of country the snow leopard, Baiterek, and the "Golden man" can be referred. Among the listed above symbols the most significant one for Kazakhstan is the "Golden man". The survey results are presented in Figure 7.

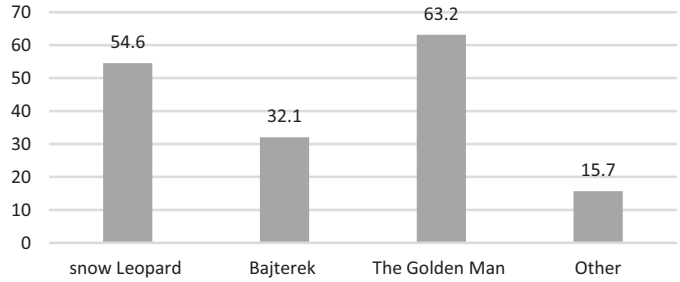

FIG. 7. Consumer preferences by choosing the symbol of Kazakhstan
Source: The Author.

Thus, the research found out that consumers of tourism services prefer natural resources such as mountains and the beauty of the nature, in particular Borovoye. Among the historical monuments the greatest attention deserve the Silk Road and the mausoleum of Yassavi; and the most significant event for Kazakhstan is "Expo-2017". Within the national cuisine tourists highlight such dishes as beshbarmak, kumys and kazi. In general, symbols of our country should be considered while its slogan is formed.

However, as the analysis shows, the main features of Kazakhstan are performed by hospitality, culture, natural wealth, beauty, and originality; and all these are traditional values which are supposed to be used in the development of the brand.

On the basis of the analysis, it was revealed that the basic motivations for travelling to Kazakhstan were culture, nature, and business trips.

To the primary target market of Kazakhstan's tourism the following categories of tourists can be referred:

- couples of both family and not family ;
- groups of friends or students;
- businessmen from Russia, China, and Korea.

The process of the tourism brand formation is associated with the positioning of Kazakhstan as a tourism region. In the milieu of the current situation Kazakhstan can be presented on the tourism market as a comprehensive product with several destinations. The distinctive features of tourist destinations and target customer profile was identified with the aim of defining particular directions of tourism development in Kazakhstan (Fig. 8).

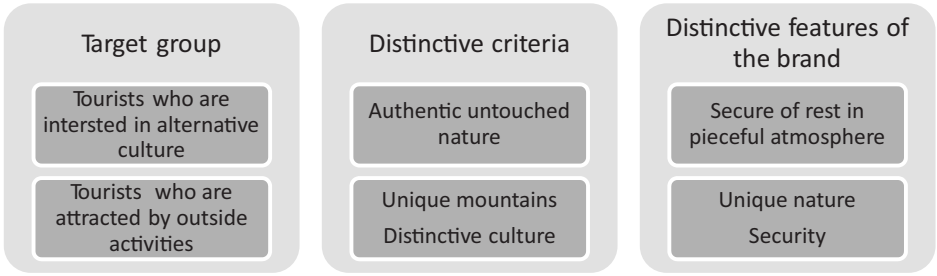

FIG. 8. The basis for the formation of the Kazakhstan's tourism brand
Source: The Author.

The study has identified factors that constrain the further development of tourism in Kazakhstan and its promotion in the international market [Overview… 2012]:

- lack of investment needed for the development of tourist regions;
- high cost of services, inflexible price policy in the tourism sphere;
- legal and administrative barriers (particularly visa procedures);
- low level of tourist products and infrastructure development;
- non awareness of the country abroad;
- high level of competition in the international segment.

For Kazakhstan, taking into account the suggested positioning the following tours can be relevant:

- cultural and educational tours;
- activities connected with the traditions and customs of the Kazakh people.
- ski tourism;
- ecological tourism.

An effective method of building brands to attract tourists is also a technology of "events" organizing, when a tourist arrives in a new country to visit and participate in any significant event after which he comes back here as an ordinary tourist, trying to learn more about the country. EXPO 2017 and Universiade 2017 could serve as such events for Kazakhstan; these also provide an opportunity to get additional information and draw attention to Kazakhstan.

Gradual development of tourism can be successful only if the development itself will happen on the basis of a systemic, comprehensive, in-depth-thought strategy, which is laid on the consistent working out of new attractive tours.

In general the concept of the tourism brand of Kazakhstan should be positioned on the competitive advantages of the country, benefits that a tourist might receive, and attributes that exist in Kazakhstan. The Table 2 shows the positioning option of the tourism brand in Kazakhstan developed on the base of the conducted analysis.

The cumulative effect of the country's combined attributes helps to strengthen the competitive position of the brand as a whole. Promotion of the tourism brand is an important, multifaceted, and long-term event. It requires, in addition to the brand itself that influences on the visual aspect of perception, to use sound dimension to the picture, which

TABLE 2. Positioning of Kazakhstan's tourism brand

Indicators	Description
Slogan	Kazakhstan is a country of steppes and warm hospitality
Symbol of the country	Snow Leopard
Mission	We encourage tourists to the contemplation of the exceptional virgin beauty of the Kazakh landscapes, the unity with the spirit of the national integrity, and introduction with the rich culture and history of the ancestors.
The objective of the development of the brand (product/company, organization)	The main goal: to maintain and protect the integrity of the unique nature An additional purpose: to share the traditions, culture and way of life of the Kazakh people
Objectives of the brand development (product/company, organization)	– Development of unique nature tours – Full immersion into the Kazakh life – Dive into the wild nature and its beauty – Provide direct human contact with flora and fauna
Positioning	– Located within a clean, untouched nature – Contact with the national and cultural traditions with national games and rituals
Uniqueness	The tourism brand that offers an integrated approach in the wild outdoors with the opportunity to come into contact with the attributes of national culture of the Kazakh people
The attributes of the country	– National hunting with Falcons – National Games – The Steppe – Untouched landscapes

Source: The Author.

is in the imagination of potential tourists, be the most complete. So, to support the tourism brand of Kazakhstan it is important to support it with advertising and promotion tools.

Over time, when the Kazakhstan tourism brand will have been well promoted, there can be less attention paid to the advertising and only the brand itself is to be displayed, which by itself will cause the association and be less in need of advertising. Highly publicized slogan or the brand image becomes a part of the public domain, that is making a huge contribution to the formation of positive public opinion about the country or a resort or a tourist object in it. Tourism brands of a country change an attitude of international consumers, bringing to the forefront of it their tourist potential and make possible the identification of tours in the market.

Promotion of the tourist brand is the next step after the development of the logo, slogan and corporate style. Promotion is a complex process. Selection of promotion tools should be based on their effectiveness.

Undoubtedly, a differentiated approach to promotion tools is important, but the question remains how to introduce the tourist positioning of Kazakhstan to the international market, how to attract tourists and provide just such conditions that they expect.

CONCLUSIONS

The development of tourism in Kazakhstan is only possible if the tourism brand will have been formed. The developed brand will increase the recognition of Kazakhstan in the market and define the values that consumers expect from their visit to the country. Based on the research, it was found that for Kazakhstan the tourism brand can be built on such benefits as the unspoiled nature and cultural traditions and customs. As a result of the proposed positioning of Kazakhstan two main target markets have been revealed: tourists who are interested in alternative culture and tourists who prefer a vacation in the bosom of nature.

The results of the conducted survey have shown that consumers are interested in such tourist-and-recreational resources such as natural reserves and national parks and monuments, the Yassavi mausoleum, the branded direction - Borovoye and the mountains, as well as the symbol of the country could become the Golden man or the snow leopard.

In general, it should be noted that Kazakhstan needs a systemic integrated approach when forming the tourism brand. Initially it is important to determine the positioning that should be reflected in the elements that would disclose that positioning and subsequently work out an effective promotional campaign.

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Summary. The article is dedicated to studying contemporary situation and problems of torusim brand development in Kazakhstan. The results of the conducted survey have shown that consumers are interested in such tourist-and-recreational resources as natural reserves and national parks and monuments, the Yassavi mausoleum, the branded direction – Borovoye and the mountains, as well as the symbol of the country could become the Golden man or the snow leopard. The research is based on authors own empirical research on the issues regarding tourists awareness and preferencess, as well as experts' survey. The empirical research was provided based on literature review, primary data (in form of tourists surveys), secondary data collection, analysis and synthesis. To survey tourists a structured questionnaire was designed; 96 people were surveyed, including 55 women and 41 men as a random sampling.

The experts' survey was conducted in free form, and eight experts were surveyed. As was evidenced by the study results, international tourists are particularly interested in authentic cuisine as well as activities. Moreover, the research revealed that a gap between the way Kazakhstan officially defines its identity and the actual brand image the country has for now as a tourist destination.

Key words: tourism, brand, Kazakhstan, challenges

JEL: M31, L83, Z33

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ISSN 2449-7479
eISSN 2543-8840
amme.wne.sggw.pl

Annals of Marketing Management & Economics
Vol. 4, No 2, 2018, 89–101
DOI 10.22630/AMME.2018.4.2.20

DEMOGRAPHIC CHANGES IN RURAL AND SEMI-URBAN AREAS IN POLAND (2003-2016)

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INTRODUCTION

Population ageing is an inevitable process in Europe [Pavelek and Eidenmueller 2014]. According to that, demographic change has become a major policy concern in all the EU Member States [Sojka 2012, Obrębalski 2017, Pastuszka 2017, Serrano-Martínez, García-Marín 2018]. According to Eurostat's demographic projections, the EU's working age population is expected to decline by an average of 0.3% per year by the year 2060. At the same time, the number of elderly people will be increasing by no less than 1% every year [European Commission 2015]. As stated by the Statistics Poland (formerly called: the Central Statistical Office), for almost 30 years trends in demographic processes have indicated the complicated population situation in Poland. What is more, in the nearest future significant changes that would guarantee stable demographic development cannot be expected. A low fertility rate in current years will have a negative impact on the future number of births, due to the much smaller number of women of childbearing age in the future. In addition, this is compounded by the high scale of Polish emigration abroad (especially the temporary emigration of young people). On the one hand, low fertility and births rates, and on the other hand – extending life expectancy, will lead to reduction in labour supply and growing percentage of the oldest age categories [GUS 2018, p. 11].

Rural areas have been ageing rapidly [Rakowska 2016b] as a result of internal and international out-migration of young people [Vullnetari 2012]. There are disproportions in both demographic potential and socio-economic development between rural areas and cities [Poot 2008, Pomianek and Chrzanowska 2016, Kołodziejczyk 2017]. What is more, there are demographic gaps observed even among rural areas (particularly rural municipalities) [Szymańska et. al 2009, Rosner 2012, Biegańska 2013]. The main demographic

and social problem affecting distant regions and peripheral areas is the outflow of people towards large cities (usually major cities in a regional scale) and the capital city – Warsaw. As a consequence, it affects the peripheral areas negatively, causing population ageing, growth of one-person households and disturbances of the gender structure (masculinization in young age categories) [Śleszyński 2012, p. 27]. If not balanced by the immigration of exogenous population, ageing can lead to a significant decrease in the number of inhabitants, and in extreme situations even to depopulation of such areas in a relatively short time [Rakowska 2016c].

AIMS AND METHODS

Demographic potential characterizes the ability of the region's population to reproduce, constant renewal of generations as a result of births, deaths and migration [Niemets et al. 2015, Egorov 2016]. The aim of the paper is to show spatial concentrations of municipalities (communes, gminas, LAU 2 level) with a similar level of demographic potential. The research was based on four variables, describing demographic potential well and being available for the LAU 2 level:

- population density (people per sq. km of a municipality area),
- change in the number of population per 1000 inhabitants (combining natural increase and migrations),
- feminization coefficient (number of females per 100 males),
- dependency rate (number of post-working age people per 100 working age people).

The study was carried out for 2169 municipalities (LAU 2 level), including rural and semi-urban (urban-rural, including small towns) ones. It was based on the data from the Statistics Poland.

The multidimensionality of rural development justifies the use of multivariate analysis methods, including taxonomic ones. Hellwig's synthetic measure of development (SM_i) groups information from a set of diagnostic features and assigns a single (aggregate) measure to an analysed objects using values from 0 to 1 under the assumption that in doing so, a lower value SM_i determines a higher level of the occurrence under analysis [Hellwig 1968]. The formula for determining this measure is as follows:

1. Normalisation of diagnostic variables (x_{ij}),
2. Making all variables homogenous by turning them into stimulants.
3. Constructing the object with the best (highest) values of the diagnostic variables (pattern)

$$z_{0j} = \max\left\{z_{ij}\right\} \tag{1}$$

where: z_{ij} is the normalised values which have been observed in the (whole) data set;

4. Calculating the Euclidean distance (d_i) of each object from the constructed pattern.

$$d_i = \sqrt{\frac{1}{m}\sum_{j=1}^{m}\left(z_{ij} = z_{0j}\right)^2} \tag{r}$$

where i = 1, ..., n is the number of objects j = 1, m is the number of variables, z_{ij} is the normalised value of the variable j for the object i, and z_{0j} is the normalized value of the pattern's variable j.

5. The Hellwig measure is normalised by the following formula:

$$z_i = 1 - \frac{d_i}{d_0} \tag{s-u}$$

where: d_0 – is the value determined by the formula

$$d_0 = \max_i \{d_i\} \tag{4}$$

Two parameters: arithmetic mean and standard deviation, were used in the classification of municipalities by their level of development. Following classes were defined:

- Class 1 (very high level of demographic potential) $d_i > \overline{d_i} + S_{d_i}$ (municipalities at a distance from the pattern exceeding $\overline{d_i} + S_{d_i}$),
- Class 2 (high level of demographic potential) – $\overline{d_i} + \frac{1}{2}S_{d_i} < d_i \leq \overline{d_i} + S_{d_i}$ (municipalities at a distance from the pattern ranging $\left(\overline{d_i} + \frac{1}{2}S_{d_i}, \overline{d_i} + S_{d_i}\right]$),
- Class 3 (medium level of demographic potential) – $\overline{d_i} - \frac{1}{2}S_{d_i} < d_i \leq \overline{d_i} + \frac{1}{2}S_{d_i}$ (municipalities at a distance from the pattern ranging $\left(\overline{d_i} - \frac{1}{2}S_{d_i}, \overline{d_i} + \frac{1}{2}S_{d_i}\right]$),
- Class 4 (low level of demographic potential) – $\overline{d_i} - S_{d_i} < d_i \leq \overline{d_i} - \frac{1}{2}S_{d_i}$ (municipalities at a distance from the pattern ranging $\left(\overline{d_i} - S_{d_i}, \overline{d_i} - \frac{1}{2}S_{d_i}\right]$),
- Class 5 (very low level of demographic potential) – $\overline{d_i} \leq \overline{d_i} - S_{d_i}$ (municipalities at a distance from the pattern not exceeding $\overline{d_i} - S_{d_i}$),

where:
d_i – is the value of synthetic measure calculated by Hellwig's method,
$\overline{d_i}$ – is the arithmetic mean of d_i,
S_{d_i} – is the standard deviation of d_i.
Three rankings were constructed based on the abovementioned method.

RESULTS AND DISCUSSION

According to the adopted method of study, four variables, selected for the research: population density, change in number of population per 1000 inhabitants, feminization coefficient and dependency rate are most important indicators of demographic potential. The results of the grouping of municipalities by their level of demographic potential using Hellwig's method are shown in Tables 1–6 and in Figures 1–3.

TABLE 1. Top 15 municipalities by demographic potential level in 2003

Rank	Municipality	Voivodship	Value of Hellwig's measure
1	Wołomin (s-u)	Mazowieckie	0.9103
2	Czechowice-Dziedzice (s-u)	Śląskie	0.7867
3	Chrzanów (s-u)	Małopolskie	0.7692
4	Łomianki (s-u)	Mazowieckie	0.6802
5	Buczkowice (r)	Śląskie	0.6745
6	Ksawerów (r)	Łódzkie	0.6449
7	Andrespol (r)	Łódzkie	0.6034
8	Jejkowice (r)	Śląskie	0.5931
9	Chełmek (s-u)	Małopolskie	0.5931
10	Wieliczka (s-u)	Małopolskie	0.5926
11	Brzeszcze (s-u)	Małopolskie	0.5908
12	Świerklany (r)	Śląskie	0.5869
13	Piaseczno (s-u)	Mazowieckie	0.5787
14	Raszyn (r)	Mazowieckie	0.5667
15	Kęty (s-u)	Małopolskie	0.5626

r – rural municipalities, s-u – semi-urban municipalities

Source: Authors' research.

TABLE 2. Bottom 15 municipalities by demographic potential level in 2003

Rank	Municipality	Voivodship	Value of Hellwig's measure
2155	Gródek (r)	Podlaskie	0.0810
2156	Jedwabno (r)	Warmińsko-Mazurskie	0.0809
2157	Białowieża (r)	Podlaskie	0.0803
2158	Bytnica (r)	Lubuskie	0.0797
2159	Komańcza (r)	Podkarpackie	0.0796
2160	Szudziałowo (r)	Podlaskie	0.0794
2161	Boleszkowice (r)	Zachodniopomorskie	0.0783
2162	Narewka (r)	Podlaskie	0.0783
2163	Giby (r)	Podlaskie	0.0774
2164	Krempna (r)	Podkarpackie	0.0772
2165	Płaska (r)	Podlaskie	0.0756
2166	Dubicze Cerkiewne (r)	Podlaskie	0.0747
2167	Cisna (r)	Podkarpackie	0.0745
2168	Nowe Warpno (s-u)	Zachodniopomorskie	0.0744
2169	Lutowiska (r)	Podkarpackie	0.0733

r – rural municipalities, s-u – semi-urban municipalities

Source: Authors' research.

TABLE 3. Top 15 municipalities by demographic potential level in 2016

Rank	Municipality	Voivodship	Value of Hellwig's measure
1	Wołomin (s-u)	Mazowieckie	0.9332
2	Czechowice-Dziedzice (s-u)	Śląskie	0.8087
3	Łomianki (s-u)	Mazowieckie	0.8044
4	Piaseczno (s-u)	Mazowieckie	0.7692
5	Chrzanów (s-u)	Małopolskie	0.7250
6	Andrespol (r)	Łódzkie	0.7100
7	Wieliczka (s-u)	Małopolskie	0.7074
8	Buczkowice (r)	Śląskie	0.7014
9	Ksawerów (r)	Łódzkie	0.6924
10	Jejkowice (r)	Śląskie	0.6653
11	Michałowice (r)	Mazowieckie	0.6322
12	Świerklany (r)	Śląskie	0.6313
13	Raszyn (r)	Mazowieckie	0.6129
14	Świątniki Górne (s-u)	Małopolskie	0.6057
15	Gaszowice (r)	Śląskie	0.6056

r – rural municipalities, s-u – semi-urban municipalities

Source: Authors' research.

TABLE 4. Bottom 15 municipalities by demographic potential level in 2016

Rank	Municipality	Voivodship	Value of Hellwig's measure
2155	Czyże (r)	Podlaskie	0.0908
2156	Gródek (r)	Podlaskie	0.0908
2157	Mielnik (r)	Podlaskie	0.0907
2158	Komańcza (r)	Podkarpackie	0.0897
2159	Milejczyce (r)	Podlaskie	0.0894
2160	Narewka (r)	Podlaskie	0.0889
2161	Nowe Warpno (s-u)	Zachodniopomorskie	0.0886
2162	Szudziałowo (r)	Podlaskie	0.0881
2163	Krempna (r)	Podkarpackie	0.0877
2164	Białowieża (r)	Podlaskie	0.0877
2165	Giby (r)	Podlaskie	0.0869
2166	Cisna (r)	Podkarpackie	0.0860
2167	Płaska (r)	Podlaskie	0.0855
2168	Dubicze Cerkiewne (r)	Podlaskie	0.0852
2169	Lutowiska (r)	Podkarpackie	0.0835

r – rural municipalities, s-u – semi-urban municipalities

Source: Authors' research.

TABLE 5. Top 15 municipalities by demographic potential level in 2003–2016

Rank	Municipality	Voivodship	Value of Hellwig's measure
1	Wołomin (s-u)	Mazowieckie	0.9371
2	Czechowice-Dziedzice (s-u)	Śląskie	0.8069
3	Chrzanów (s-u)	Małopolskie	0.7561
4	Łomianki (s-u)	Mazowieckie	0.7531
5	Buczkowice (r)	Śląskie	0.6949
6	Piaseczno (s-u)	Mazowieckie	0.6868
7	Ksawerów (r)	Łódzkie	0.6762
8	Andrespol (r)	Łódzkie	0.6679
9	Wieliczka (s-u)	Małopolskie	0.6555
10	Jejkowice (r)	Śląskie	0.6404
11	Świerklany (r)	Śląskie	0.6111
12	Chełmek (s-u)	Małopolskie	0.6018
13	Michałowice (r)	Mazowieckie	0.6018
14	Brzeszcze (s-u)	Małopolskie	0.5988
15	Raszyn (r)	Mazowieckie	0.5960

r – rural municipalities, s-u – semi-urban municipalities

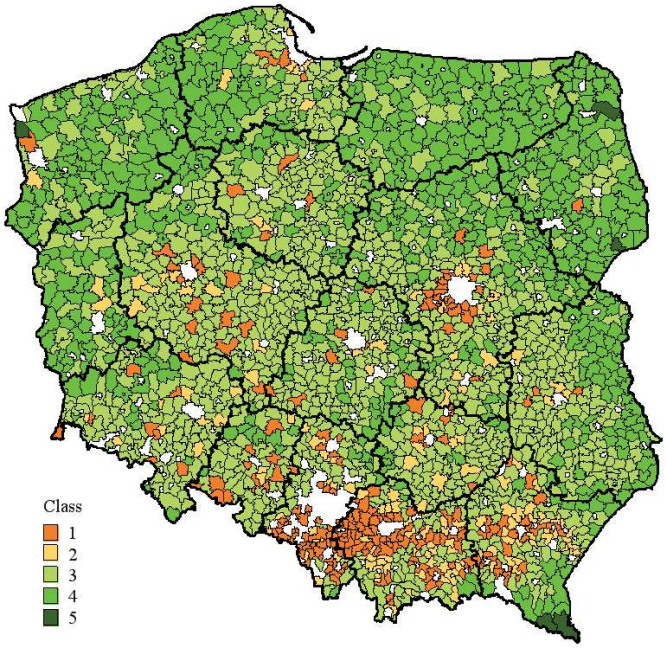
Source: Authors' research.

TABLE 6. Bottom 15 municipalities by demographic potential level in 2003–2016

Rank	Municipality	Voivodship	Value of Hellwig's measure
2155	Wyryki (r)	Lubelskie	0.0867
2156	Jedwabno (r)	Warmińsko-Mazurskie	0.0866
2157	Mielnik (r)	Podlaskie	0.0865
2158	Milejczyce (r)	Podlaskie	0.0856
2159	Komańcza (r)	Podkarpackie	0.0854
2160	Białowieża (r)	Podlaskie	0.0848
2161	Narewka (r)	Podlaskie	0.0848
2162	Szudziałowo (r)	Podlaskie	0.0836
2163	Krempna (r)	Podkarpackie	0.0835
2164	Nowe Warpno (s-u)	Zachodniopomorskie	0.0830
2165	Giby (r)	Podlaskie	0.0826
2166	Płaska (r)	Podlaskie	0.0807
2167	Dubicze Cerkiewne (r)	Podlaskie	0.0806
2168	Cisna (r)	Podkarpackie	0.0802
2169	Lutowiska (r)	Podkarpackie	0.0779

r – rural municipalities, s-u – semi-urban municipalities

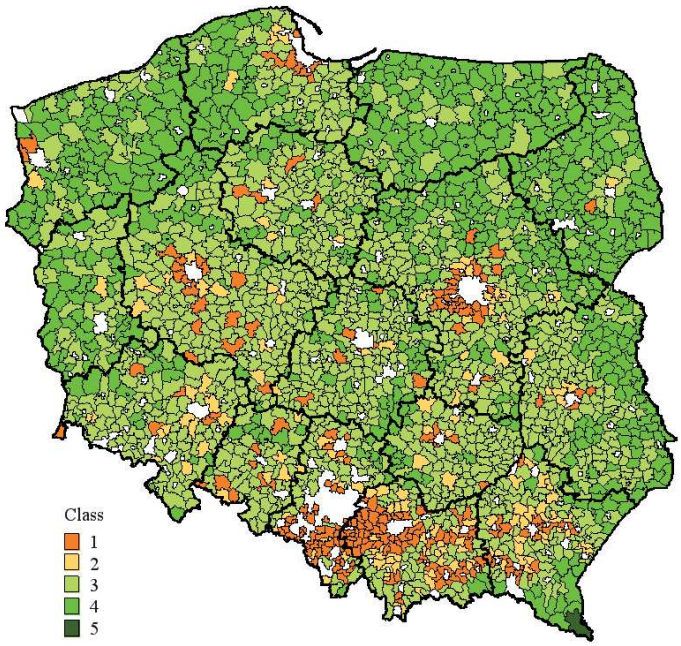
Source: Authors' research.



white areas – urban municipalities, not included in the research

FIG. 1. Municipalities of similar level of demographic potential in 2003

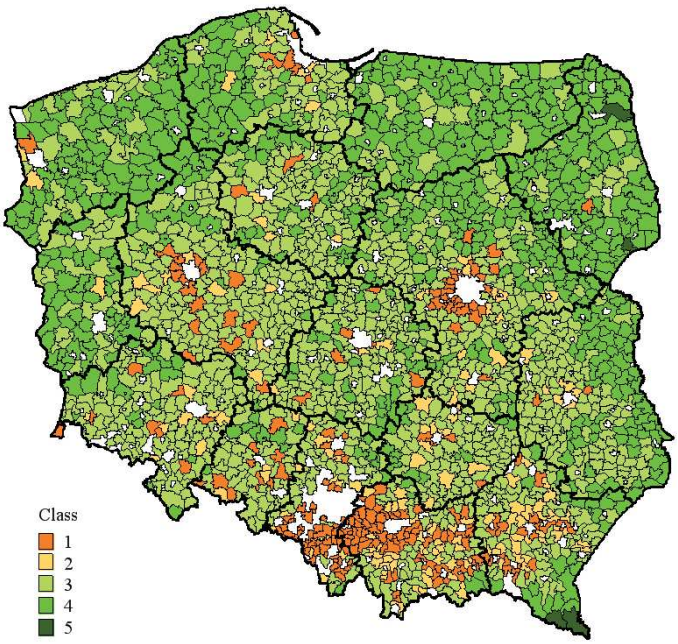
Source: Authors' research.



white areas – urban municipalities, not included in the research

FIG. 2. Municipalities of similar level of demographic potential in 2016

Source: Authors' research.



white areas – urban municipalities, not included in the research

FIG. 3. Municipalities of similar level of demographic potential in 2003–2016

Source: Authors' research.

In top 15 of the rankings occurred municipalities representing only 4 out of 16 voivodships: Mazowieckie, Śląskie, Małopolskie and Łódzkie (Tables 1, 3 and 5). The maps show that the municipalities of the best demographic potential were concentrated around cities (Mazowieckie, Łódzkie, Śląskie). Małopolskie Voivodship dominated with the percentage of municipalities with high and very high level of demographic potential.

In bottom 15 of the rankings occurred municipalities representing three voivodships of the Eastern Poland (known as under-developed region): Podlaskie, Podkarpackie and Warmińsko-Mazurskie as well as two western voivodships: Lubuskie and Zachodniopomorskie.

In the ranking combining years 2003–2016 one municipality from Lubelskie Voivodship (the 4th voivodship of the Eastern Poland) was included in the bottom group by demographic potential level.

The maps show that the municipalities of the best demographic potential were concentrated around cities: Warsaw in Mazowieckie, Rzeszów in Podkarpackie or Gdańsk in Pomorskie. Moreover, in Śląskie Voivodship high and very high demographic potential characterised municipalities surrounding numerous cities, whereas in Małopolskie Voivodships these municipalities formed a wide ring around Kraków.

Małopolskie Voivodship has a significant percentage of municipalities with high and very high level of demographic potential. The worst demographic situation is observed in

northern and eastern municipalities (most of the Eastern Poland area) as well as in some mountain areas.

Migration and low number of births cause depopulation and have negative impact on demographic structure, in particular that these migrations refer to a large extent to young people [Szafraniec 2012], people of mobile working age and women of childbearing age. Therefore the problem is deepening, creating a spiral of negative development.

Research of the Institute of Geography and Spatial Organization of Polish Academy of Sciences shows that depopulation is a long-term process, conditioned historically and still intensifying. In the 1950s and 1960s, 15 to 30% of the country was becoming depopulated. At present, about 70% of Poland is depopulating while forecasts indicate that by 2050 the population will decline at around 85–90% of the territory [Śleszyński et. al. 2017, p. 93]. At present, mostly eastern and north-eastern voivodships as well as some mountain and foothill areas are depopulating.

The main reason of depopulation is migration, both internal (interregional and intra-regional) and international. The most problem municipalities were situated in borderlines of Warmińsko-Mazurskie Voivodship as well as Podlaskie Voivodship in which almost half of the inhabitants emigrated (regarding the registered internal movement) in the last two decades [Wilczyński 2016, p 209; Śleszyński et. al. 2017, p. 93]. Moreover, rural areas and small towns of the Eastern Poland (especially concerning voivodships: Warmińsko-Mazurskie, Podlaskie, Lubelskie, Podkarpackie) and the northern part of Mazowieckie Voivodship experienced foreign emigration. The main direction of migration in 2004–2017 was the European Union (especially Germany, Great Britain, Ireland and the Netherlands) [GUS 2017]. As Figure 4 shows, Germany was the main destination of Polish migration in 1966–2014 [GUS 2015]. During this period, the level of migration to the USA was also maintained. There was a visible increase of migration to Great Britain after the accession of Poland to the EU.

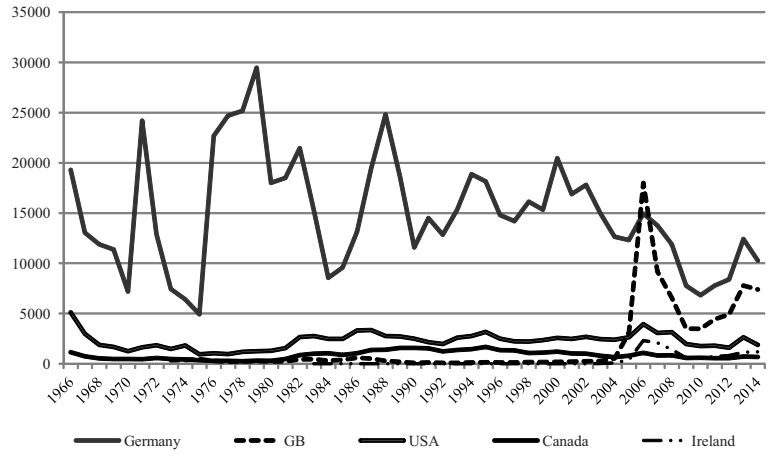


FIG. 4. Main directions of emigration for permanent residence from Poland in 1966–2014 by country

Source: [GUS 2015]

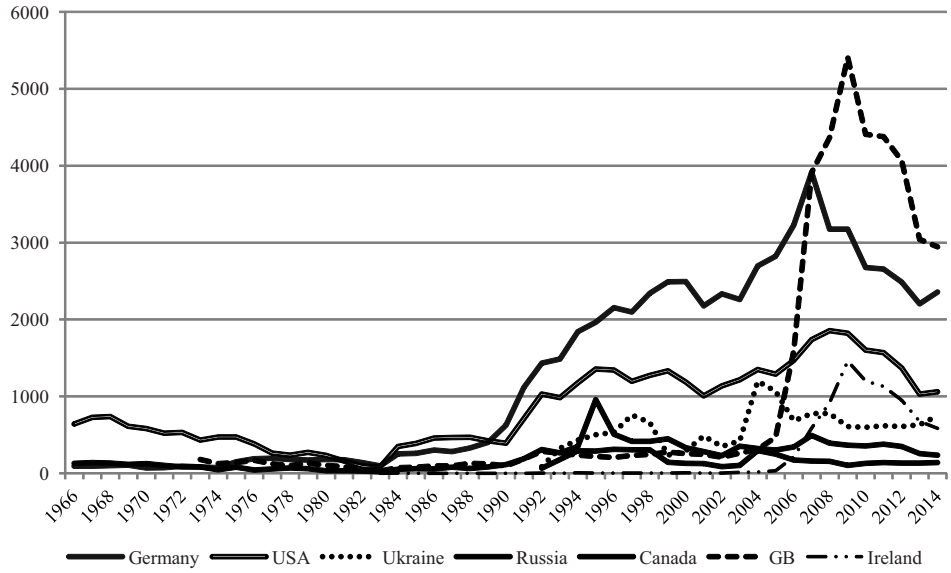


FIG. 5. Main directions of immigration for permanent residence to Poland in 1966–2014 by country

Source: [GUS 2015]

Germany and the USA were also the main directions of immigration for permanent residence to Poland in 1966–2014 (Fig. 5).

At the same time, in Poland there is a number of unregistered citizens of other countries (including Ukraine), but they do not compensate for unregistered foreign emigration [Śleszyński et. al. 2017, p. 96]. And it is not sure whether Ukrainian immigrants will stay here for long or rather treat Poland as transit on their way to more attractive in terms of job, salaries, social care, living conditions etc. western countries.

CONCLUSIONS

The demographic potential, especially in the peripheral and remote areas, has been deteriorating. Negative natural increase, low or negative migration balances, unfavourable values of the feminisation index and growing relation of the number of people at post--working age to the number of people at working age have been threatening rural development. The abovementioned results confirm analyses of Statistics Poland and research carried by Biegańska [2013], Rakowska [2016a,b], Wilczyński [2016] and Śleszyński et al. [2017]. The most favourable and promising situation according to demographic potential is observed in central and southern Poland, especially in semi-urban and suburban areas of large cities. The worst demographic potential level and at the same time the least favourable demographic forecasts concern mostly the Eastern Poland, already known as problem area. The spiral of negative conditions accelerates, causing more disadvantages,

making young people looking for new places to work and live, deepening current demographic problems and leading to socio-economic development pathologies. Perhaps it would be not so much a solution but a way to mitigate the disadvantageous situation to form some government actions encouraging young people to stay in depopulating areas and showing prospects of finding jobs and/ or, starting their own economic activities.

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Summary. The demographic potential, especially in the peripheral and remote areas, has been deteriorating. Negative natural increase, low or negative migration balances, unfavourable values of the feminisation index and growing relation of the number of people at post-working age to the number of people at working age have been threatening rural development. The aim of the research was to show spatial concentrations of municipalities (LAU 2 level) with a similar level of demographic potential. The study was carried out for 2169 municipalities (LAU 2 level), including rural and semi-urban (urban-rural, including small towns) ones. It was based on the data from the Statistics Poland. The municipalities were are ranked by the level of demographic potential (by 4 variables) and put into 5 groups by the potential level using the taxonomic development measure of Hellwig. The results were presented in maps using cartogram method. The most favourable and promising situation according to demographic potential is observed in central and southern Poland, especially in semi-urban and suburban areas of large cities. The worst demographic potential level and at the same time the least favourable demographic forecasts concern mostly the Eastern Poland, already known as problem area. The spiral of negative conditions accelerates, causing more disadvantages, making young people looking for new places to work and live, deepening current demographic problems and leading to socio-economic development pathologies.

Key words: demographic potential, sustainable development, problem areas

JEL: J11

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ISSN 2449-7479