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TABLE OF CONTENTS

Original scientific paper

SOCIAL RESPONSIBILITY AS A SOLUTION TO SUSTAINABLE EMPLOYEE RETENTION IN THE HOSPITALITY INDUSTRY: EMPIRICAL EVIDENCE FROM PRAGUE, CZECH REPUBLIC

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Abstract

The hospitality industry plays a significant role in regional development as its services are a prerequisite for tourism growth, which on the premises of sustainability has become a major contributor to socio-economic growth. Unfortunately, the hospitality industry has been continuously struggling with high employee turnover and a significant "within" and "out of" labour mobility, regardless of the phase of the business cycle, time, or geographical region. This could be reasoned by employees historically viewing offered jobs in the hospitality industry as low-paid, with little or no promotion possibilities, giving the employees little or no room for self-development and realization of their full potential as human beings, and thus "labelled" as low social status jobs; yet seasonal, stressful, time demanding, and monotonous. Therefore, drawing upon Carroll's (2015, 2016) four-dimensional concept of corporate social responsibility, this study, using a set of multiple regression analyses, empirically examines the effect of each dimension (economic, legal, ethical, and philanthropic) on hospitality industry employees' attitudes and behaviour such as job satisfaction and organizational commitment, which eventually lead to lowering employees' turnover intentions. The sample under analysis (n = 411) was collected from employees of 24 small- or medium-size lodging enterprises located in Prague, as the small- to medium-size businesses are the "backbone" of local economies. Results indicate a significant influence of corporate social responsibility on the above-mentioned employees' attitudes or behaviour. However, not all four dimensions play the same role in stimulating the desired employees' behaviour outcome. This study also contributes to the literature on corporate social responsibility as scholarly literature gives it little room in relation to employees, especially in the Central European context.

Keywords: Corporate Social Responsibility, Employee Motivation, Hospitality Industry, Job Satisfaction, Organizational Commitment, Turnover Intentions.

INTRODUCTION

The hospitality industry and sustainable regional development in the Central European context

The hospitality industry plays a significant role in regional development as its services are a prerequisite for tourism growth, which on the premises of sustainability has become a major

contributor to socio-economic growth not only in such regions (destinations) which are traditionally recognized for having tourism potential - e.g., Berlin or Munich in Germany (DE), Vienna in Austria (AT), Budapest in Hungary (HU), Krakow in Poland (PL) or Prague in the Czech Republic (CZ) (ICCA, 2018; Kafkadesk, 2019; Statista, 2019; Trip Advisor, 2020; Eurostat, 2020) but also in such regions, which are economically underdeveloped - e.g., Lubelskie and Podkarpackie (PL), Eszak (HU) or East Slovakia (SK) (Eurostat, 2020). Thus, as a result, their "tourism development" key functions go beyond purely economy-driven ambitions. For instance, Prague, the capital of one of the Central European landlocked countries, CZ, in the post-Great Recession of economic recovery period (dated to the end of the first decade of the 21st century) and in the period of the subsequent economic growth ranked in the Top 10 of the best European destinations to visit (Trip Advisor, 2020) and in the Top 20 of the best world destinations to visit (Trip Advisor, 2020). The ongoing favourable trend together with the new phenomenon of the "shared economy" resulted in over-tourism, which might be the case of all Central European tourism predestined destinations - e.g., Berlin (DE), Budapest (HU) or Vienna (AT) (Kafkadesk, 2019; Statista, 2019; Trip Advisor, 2020). One of the solutions to minimize the negative impact of overcrowding the touristic destinations might be adopting "stricter conditions" for inbound tourism and legalizing the business conditions for accommodation providers operating under the "shared economy" concept. Such measures would undoubtedly stimulate the desired outcomes, but simultaneously make the tourism more expensive, calling for employees' high-quality performance, skills, and overall excellence (Celma, Martinez-Garcia & Raya, 2018; Loke, Kovács & Bacsi, 2018; Macke & Genari, 2019; Loke, 2020).

Likewise, domestic tourism becomes a priority choice for tourists in the case of economic slowdown as they are reluctant to spend more money on transport, which accounts for one of the most expensive travel expenditures (Kafakdesk, 2019; ČSÚ, 2020). And thus, those regions, which are "underestimated" by tourists, might be on the one hand "challenged" by improving their tourism-related infrastructure (domestic transport, catering, and lodging services), but on the other hand, in due course, supporting their local economy and contributing to their overall development (Kafkadesk, 2019). Such a regional development approach assuredly depends on reliable, skilled, and motivated employees (Celma, Martinez-Garcia & Raya, 2018; Macke & Genari, 2019; Loke, 2020).

The hospitality industry and its employees' sustainable retention

Unfortunately, the hospitality industry has been continuously struggling with high employee turnover and a significant "within" and "out of industry" labour mobility, regardless of the phase of the business cycle, time, or geographical region (Kim, Song & Lee, 2016; Yao, Qiu & Wei, 2019; ČSÚ, 2020). This could be reasoned by employees historically viewing the offered jobs in the hospitality industry as low paid, with little or no promotion possibilities, giving the employees little or no room for self-development and realization of their full potential as human beings, and thus "labelled" as low social status jobs, yet seasonal, stressful, time demanding, and monotonous (Yang, Wan & Fu, 2012; Robinson et al., 2014; Kim, Song & Lee, 2016).

In addition, like any other service industry, the hospitality industry depends heavily on employees' performance (e.g., employees directly or indirectly dealing with customers, managerial employees) (Kim et al., 2017; Youn, Lee & Lee, 2018). E.g., the performance of the employees directly dealing with customers is often the only way to differentiate among almost identical hospitality industry services. Likewise, the managerial employees, by virtue of their job description need to meet or align with the pre-set organizational goals and employer's expectations. Therefore, both managerial and non-managerial employees' work attitudes, forasmuch as the level and the quality of their work performance are essential for customers' satisfaction, building customers' confidence, and eventually, long-term loyalty (Švec et al., 2012).

Conclusively, it might be said that the consequences of high employee turnover represent not only the direct and indirect staff turnover cost (e.g., the recruiting and training of new employees, weakening of the relationship between the organization and the current employees or the loss of organizational knowledge) but also the inevitable dawn-fall of overall economic organizational performance (Yang, Wan & Fu, 2012). Increasing employees' attitudes such as job satisfaction and organizational commitment seem like a potential solution for both the improvement of the work performance and the maintenance of the desired level of employees' retention. E.g., according to John et al. (2019), a higher rate of organizational commitment and retention are key indicators of overall organizational performance.

In line with the reasoning mentioned above and empirical research findings (e.g., Kim et al., 2015; Kim, Song & Lee, 2016; Kim et al., 2017; Yao, Qiu & Wei, 2019), we can deduce that corporate social responsibility can play a vital role in stipulating desired hospitality industry employees' attitudes or behaviour, such as work performance, job satisfaction or organizational commitment, and thus lead to sustainable voluntary employees' retention, taking into

consideration all the specific features of the hospitality industry and reducing their negative impact on both, employees and employers alike. Moreover, it is fully compatible with current trends and employees' employment demands, and therefore, it makes the hospitality industry more competitive in the labour market (Donia & Tetrault Sirsly, 2016; Novacká et al., 2019; Navrátil et al., 2019).

Unfortunately, the academic literature gives little attention to employees as one of the organization's stakeholders in regard to corporate social responsibility or offers very fragmented or partial answers when addressing this issue (e.g., Youn, Lee & Lee 2018; Yao, Qiu & Wei, 2019). Moreover, most carried out empirical research has been geographically situated in Asia (e.g., Kim et al., 2015; Voegtlin & Greenwood, 2016). Thus, the obtained results might be challenging to interpret and adopt in the Central European context. This might be why the hospitality managers seem not to understand the concept of corporate social responsibility entirely. Hence, they do not use it to its full potential, especially when it comes to employer-employee relations (e-Vsudybyl, 2020).

Therefore, this paper deals with increasing hospitality industry employees' organizational commitment and voluntary retention by stipulating employees' job satisfaction using corporate social responsibility as a motivation driver. To do so, the paper is structured as follows: after a brief description of the relationship between corporate social responsibility as a motivation factor and employee's work attitudes such as job satisfaction, organizational commitment, and voluntary retention, the used research methods are specified. The following section summarizes the research findings, which are further interpreted and discussed.

THEORETICAL BACKGROUND

Corporate social responsibility and employees

Corporate social responsibility can be understood as all decisions of an organization that go beyond its economic and technical interests (Carroll, 2015). According to the definition elaborated by the World Business Council for Sustainable Development (WBCSD, 2000) or the European Commission (2001), organizations are obliged to maximize their profits within the limits of the law with at least minimum ethical responsibility (Zhang, Oo & Lim, 2019). Using a content analysis of scientific papers published between 1980 and 2003, Dahlsrud (2008) collected 37 definitions of corporate social responsibility and defined 5 general dimensions: economic, environmental, social, philanthropic and stakeholder dimension.

The most commonly used and cited concept of corporate social responsibility (e.g., Bauman & Skitka, 2012; Farooq, Farooq & Jasimuddin, 2014; Kim, Song & Lee, 2016; Kim et al., 2017; Zhang, Oo & Lim, 2019) is the model defined for the first time in 1979 by Carroll (1991, 2015, 2016). Carroll (1991, 2015, 2016) proposed a four-level (dimension) model that includes the economic, legal, ethical, and discretionary (later referred to as philanthropic) level (dimension) of social responsibility. The fundamental level of corporate social responsibility is economic responsibility, which is based on the very nature of the organization's existence. In its absence, all the other dimensions of social responsibility become irrelevant. The legal level reflects the societies' "legalized" ethical rules. By the ethical responsibility, society continually increases demands on the organization's behaviour beyond the limits set by the law and at the same time "pushes" their expansion. The distinguishing feature between ethical and philanthropic responsibility is that society does not expect ethical or moral significance from philanthropic activities. Society wants organizations to contribute their monetary or other resources to humanitarian purposes or projects. However, organizations are not considered unethical if they do not provide the expected amount of their means or finances (Carroll, 1991, 2015, 2016).

According to the corporate social responsibility theory, an organization must satisfy the needs and desires of different groups of people (stakeholders) who would otherwise stop supporting or could not support the organization. Organizational stakeholders typically include customers, employees, investors, suppliers, and the community. The list of stakeholders may vary for each organization, but it is widely accepted that employees belong to the organization's key stakeholders. Their interest may be a legal claim, such as the fulfilment of contractual terms (legal dimension) or at other times, a moral claim, such as the employee's ability to express his or her own opinions (ethical dimension) (Carroll, 1991, 2015, 2016). Ultimately, well-managed corporate social responsibility towards employees supports inclusive economic growth, community coherence, and environmental sustainability (UNWTO 2020). HRM needs to operate under the premise of supporting both the organization's sustainable development and the long-term sustainability of HRM practices (Macke & Genari, 2019). Hence, this paper complements the existing findings on sustainable HRM practices, which prioritize e.g., respect for humanity at work, social equity, advocacy for employees and their communities or employees' health and wellness support as imbedded essentials of HR practices (e.g., Cleveland, Byrne & Cavanagh, 2015; Voegtlin & Greenwood, 2016; Celma, Martinez-Garcia & Raya, 2018; Amrutha & Geetha, 2020).

Such understanding of corporate social responsibility is undoubtedly in line with motivational theories (e.g., Maslow, 1943; Deci & Ryan, 1985, 2000, 2008); many scholars

confirm the important role of individual corporate social responsibility components or activities as motivation factors in meeting employees' needs and improving the quality of their working lives, which eventually leads to higher employee work performance (e.g., Cycyota, Ferrante & Schroeder, 2016; Kim et al., 2017; Graves, Sarkis & Gold, 2019; John et al., 2019). Motivation affects what employees do, how they do it, and with what effort (Diller, 1999; Mayer, Becker & Vanderberghe, 2004; Kim et al., 2017; Graves, Sarkis & Gold, 2019). Thus, defining employee's job satisfaction as "meeting employee's different needs and desires through resources, activities and outcomes from participation in the work process," the socially responsible activities provide "tangible" care to employees (e.g., fair pay, diversity, family support, fair compensation and employment security), create desirable working conditions, "fulfil" employees' desire for their social and aesthetic needs together with the need for respect and self-realization and hence increase the number of employees with a high job satisfaction rate, which in turn leads to increasing employees' loyalty and organizational commitment (Bohdanowicz & Zientara, 2009; Jakubczak & Gotowska, 2015; Kim, Song & Lee, 2016; Kim et al., 2017). Even if the activities are not directly focused on employees, they influence employee satisfaction. In particular, ethical and philanthropic activities have the potential to meet higher-level employee needs. In this respect, corporate social responsibility activities that allow employees to make a meaningful contribution to addressing social issues appear to be the most influential (Cycyota, Ferrante & Schroeder, 2016; Kim et al., 2017).

Seemingly, according to the Self Categorization Theory (SCT), employees seek to integrate and become workers of such organizations that share compatible values enabling them to satisfy their psychological desires and meaningfully fulfil their existence (John & al, 2019). Likewise, Social Identity Theory (SIT) argues that if people have positive feelings for a group, they tend to identify themselves with the social status of this particular group, and membership in that group affects their self-esteem and pride (Dutton et al., 1994; Maignan & Ferrell, 2001; Fu, Li & Duan, 2014; Kim et al., 2017). According to SIT, employees associate their own identity with the social identity of the organization they work for (Dutton, Dukerich & Harquail, 1994; Maignan & Ferrell, 2001; Kim et al., 2017). Employees working in socially responsible organizations are more likely to be happy and proud to be "reputable" organization members. They identify with and feel committed to the organization's goals (Fu, Li & Duan, 2014). At the organizational level, it has also been found that organizations have shown better economic performance over the long term if more employees show a higher organization commitment rate (Graves, Sarkis & Gold, 2019; John et al., 2019). This argument can be supported by Social Exchange Theory (SET); if one treats the other amicably, with kindness and appreciation, the

other will repay him or her equally. This behaviour is known as "limited" reciprocity (Peterson, 2004).

DATA AND METHODS

Paper objectives and hypotheses development

Based on the synergy of the above-described knowledge from the SCT, SIT, SET, and motivational theories (e.g., Maslow, 1943; Deci & Ryan, 1985, 2000, 2008), we can conclude that organization's involvement in socially responsible activities can therefore significantly strengthen an employer-employee relationship and lead to employees' job satisfaction and organizational commitment, which in turn leads to voluntary employee retention (e.g., Bohdanowicz & Zientara, 2009; Bauman & Skitka, 2012; Jakubczak & Gotowska, 2015; Kim, Song & Lee, 2016; Kim et al., 2017; Youn, Lee & Lee, 2018; Graves, Sarkis & Gold, 2019).

Thus, drawing upon Carroll's four-dimensional corporate social responsibility concept (Carroll, 1991, 2015, 2016), using a set of multiple regression analyses, the purpose of this paper is to identify those dimensions (economic, legal, ethical, and philanthropic) which play a significant role in hospitality industry staff job satisfaction and organizational commitment, as using the right corporate social responsibility components or activities might be one of the ways how to retain enthusiastic, skilled, and committed employees who strive for excellence and represent a competitive advantage.

Hence this paper proposes the following hypotheses:

- Hypothesis 1 (H1): Perceived corporate social responsibility (CSR) (economic, legal, ethical, and philanthropic dimension) by hospitality industry employees has a direct positive influence on their job satisfaction (JS).

  CSR → JS
- Hypothesis 2 (H2): Perceived corporate social responsibility (CSR) (economic, legal, ethical, and philanthropic dimension) by hospitality industry employees has a direct positive influence on their organization commitment (OC).

  CSR → OC
- Hypothesis 3 (H3): Perceived corporate social responsibility (CSR) (economic, legal, ethical, and philanthropic dimension) by hospitality industry employees has a direct negative influence on their turnover intentions (TI).

  CSR → TI

Hypothesis 4 (H4): Hospitality industry employees' job satisfaction (JS) has a direct positive influence on their organization commitment (OC).

JS → OC

- Hypothesis 5 (H5): Hospitality industry employees' job satisfaction (JS) has a direct negative influence on their turnover intentions (TI).

  JS → TI

- Hypothesis 6 (H6): Hospitality industry employees' organizational commitment (OC) has a direct negative influence on their turnover intentions (TI).

  OC → TI

Construct development

To analyse the relationship between perceived CSR by hospitality industry employees and their work attitudes such as JS, OC, and TI, the four-dimension/factor (altogether 31 items) concept of CSR by Carroll (2015, 2016), JS concept (altogether 11 items) based on Bauman and Skitka (2012), OC concept (altogether 5 items), and TI concept (6 items) were used. All concepts/constructs were adjusted for this research and included altogether 53 items converted into affirmative statements.

CSR construct development

The items/affirmative statements for the individual dimensions of the CSR construct were consulted with the works of the following CSR scholars: Schwepker, C. H., 2001; Lee, Y. K. et al., 2012; Kim, J. et al., 2016; Kim, H. L. et al., 2017. Hence, the CSR construct included items /affirmative statements like e.g. "The organization, which I work for, has a remuneration system based on performance", "The organisation, which I work for, strives to ease and/or improve employees' work performance (e.g. by adopting new technologies, work processes, systems, or training and education programs)", "The organisation, which I work for, strives to improve the quality of its products and services (e.g. by engaging new technologies, systems, or work processes)", or "The organisation, which I work for, strives to reduce overconsumption and waste (e.g. food, water, energy)" (CSR, economic dimension), "Employer-employee contractual obligations are always honoured by the organization which I work for", "The organisation, which I work for, complies with all employment-related laws (e.g. recruitment, health and social insurance contribution, safety procedures) ", or " The organisation, which I work for, applies fair and lawful behaviour towards all stakeholders (e.g. guests, business

partners, local community)" (CSR, legal dimension), "The organisation, which I work for, has a transparent performance evaluation", "The organization, which I work for, responds to every employee complaint", or "The organisation, which I work for, provides complete and accurate information about its products and services to its guests" (CSR, ethical dimension), and "The organization, which I work for, contributes to the well-being of the local community (society) by cooperating with governmental and/or non-governmental organizations", "The organisation, which I work for, contributes to environmental protection by cooperation with governmental and/or non-governmental organizations", or "The organisation, which I work for, enables its employees to contribute and/or participate in various volunteering activities financially" (CSR, philanthropic dimension).

JS construct development

The JS construct development was consulted with the following scholars' works: Schwepker, (2001); Kara, et al. (2013); Belias, et al. (2015); Kim et al. (2017). For the JS construct, to respect the hierarchy of employee's needs and work-life balance, items (affirmative statements) on economic and security needs, health and safety needs, development needs, social needs and sense of belonging, and the need for meaningful existence were employed, e.g., "I am satisfied with my earnings from my current job," "I enjoy working with my colleagues," "I am satisfied with my immediate supervisor," "I am satisfied with my promotion opportunities," or "I feel my job allows me to realize my full potential as a person."

OC construct development

The OC items/affirmative statements were inspired by the scholarly works of Lee et al. (2012); Robinson et al. (2014), and the work of Kim, Song, & Lee (2016). The construct on OC contained items/affirmative statements such as "I accept the organization's future fate as mine," "I am proud to be a part of the organization which I work for," or "I consider the organization, which I work for, as a workplace for my whole working life."

TI construct development

The TI construct development was inspired and consulted with the following scholars' works: Lee et al. (2012); Robinson et al. (2014) and Kim (2016). Thus, the last construct (on TI) involved items/affirmative statements such as, e.g., "I am actively looking for a new job opportunity," "If I were given a job opportunity in another organization, I would consider the

change," or "I would like to leave this organization and work for another organization in the same industry."

Respondents were requested to "respond" to these affirmative statements by choosing an adequate level of their agreement on the 7-point Likert scale, ranging from strong disagreement (1 point) to strong agreement (point 7). Apart from questions on CSR, JS, OC, and TI, respondents were asked to answer 8 questions on demographics, using the best fitting option from given alternatives.

Sample and data collection description

As the paper aims to analyse the causal relationship between CSR perceived by hospitality industry employees and their work attitudes (JS, OC, and TI), small- and medium-size hotels (ranked by 4*) situated in Prague, Czech Republic, were considered as the most suitable since these accommodation providers need to meet high-quality service standard requirements and challenge the financial disadvantages deriving from their size. Thus, the final list of 24 enterprises was retrieved from the official web pages of Trivago.cz (Trivago, 2019) accommodation search engine.

The data collection process was carried out between the month of August 2019 and December 2019 by the authors of this paper. The paper-based questionnaire was selected as the best option for collecting data and was administered in-person to volunteering employees during their shift change after gaining the consensus from the management or owners of the particular enterprise. The approximate time for questionnaire completion was 20 minutes. Hence, the final sample consists of 411 respondents (N = 411), which was considered satisfactory (Robinson et al., 2014, Hanaysha & Tahir, 2016; Kim et al., 2017).

For the analysis, the IBM SPSS Statistics program was used. First, descriptive statistics were employed to investigate the demographic characteristic of the respondents. Second, factor analysis (Principal Component Analysis) was applied for factor/dimension reductions. Third, Cronbach's alpha was used to investigate factors' internal consistency reliability. Fourth, multiple regression analyses were used to identify relations between independent and dependent variables and test the hypotheses. All the carried-out tests were assessed on the level of statistical significance $p< 0.05$. Data suitability assumptions (KMO, Bartlett's test of sphericity, correlation analysis) and linear regression analysis model fit (ANOVA, residuals statistics, correlation analysis, Shapiro-Wilk test of normality) were assessed on the level of significance $p < 0.05$. Before conducting the research, the questionnaire and analysis fit was tested on 20 respondents.

RESULTS

Demographic characteristics of respondents

Table 1 Demographic characteristics of hospitality industry employees

Demographic	Characteristics of Employees	Number out of N = 411	% out of 100 %
Gender	Male	*197*	*47.9*
	Female	*214*	*52.1*
Age	Less than and 25	*143*	*34.8*
	25 – 35	*112*	*27.3*
	35 – 45	*80*	*19.5*
	45 – 55	*43*	*10.5*
	55 and above	*33*	*8.0*
Marital status	Single/without a partner	*175*	*42.6*
	Married/with partner	*236*	*57.4*
Children	One or more children	*175*	*42.6*
	No children	*236*	*57.4*
Highest achieved education	Primary	*30*	*7.3*
	Secondary	*147*	*35.8*
	DIS degree	*82*	*20.0*
	Bachelor	*99*	*24.1*
	Master	*53*	*12.9*
Working status	Full-time	*303*	*73.7*
	Part-time	*108*	*26.3*
Working position	Managerial position	*37*	*9.0*
	Shift managers	*61*	*14.8*
	Staff	*313*	*76.2*
Working field	Human Resources	*21*	*5.1*
	Economic Unit	*14*	*3.4*
	Marketing	*22*	*5.4*
	Food and Beveridge	*64*	*15.6*
	Restaurant and Bar	*67*	*16.3*
	Store	*15*	*3.6*
	Customer Service and Reservations	*118*	*28.7*
	Housekeeping	*15*	*3.6*
	Laundry	*16*	*3.9*
	IT	*25*	*6.1*
	Maintenance	*15*	*3.6*
	Security	*10*	*2.4*
	Entertainment and Wellness	*9*	*2.2*
Total		**411**	**100.0**

Source: Authors' work.

As depicted in table 1 (Tab. 1), demographic analysis reveals an almost proportional number of male and female respondents. 62% of respondents represent "young employees" (the first two age categories). 57% of respondents is married or has a partner, but at the same time, the same percentage of respondents has no children. A significant majority of respondents has a higher form of achieved education (DIS degree, bachelor, or master university degree) and works full-

time in non-managerial or non-supervising positions. The most frequented working field is the "Customer Service and Reservations," followed by "Restaurant and Bar" or "Food and Beveridge Preparation."

Variability and reliability test

The factor analysis (Principal Components Analysis), using the oblimin rotation method, identified 7 latent factors (with Eigenvalues set greater than one), and as such, investigated the variability of 7 factors (composite variables), i.e., the economic dimension of CSR (independent composite variable), the legal dimension of CSR (independent composite variable), the ethical dimension of CSR (independent composite variable), the philanthropic dimension of CSR (independent composite variable), JS (dependent or independent composite variable - based on the hypothesis), OC (dependent or independent composite variable - based on the hypothesis) and TI (dependent composite variable). Tabachnick and Fidell (2007) follow Comrey and Lee (1992) in suggesting using more stringent cut-offs for factor loadings going from 0.32 (**poor**), 0.45 (**fair**), 0.55 (**good**), 0.63 (**very good**) to 0.71 (**excellent**). Thus, the threshold for all factor loadings was set at 0.63. Individual items not reaching the minimum factor loading of 0.63 were excluded from further research. The inter-item correlation strength of each factor lies in the value interval between 0.4 and 0.8, and therefore according to Tabachnick and Fidell (2007), is considered satisfactory.

Cronbach's alpha was used to investigate the internal consistency among the items of each factor. Cronbach's alpha for the economic dimension of CSR after excluding five items equalled 0.875 (7 items). Cronbach's alpha for the legal dimension of CSR equalled 0.850 (4 items). Cronbach's alpha for the ethical dimension of CSR after excluding three items equalled 0.902 (7 items). Cronbach's alpha for the philanthropic dimension of CSR after excluding two items equalled 0.891(2 items). Cronbach's alpha for JS after excluding three items equalled 0.886 (8 items), while Cronbach's alpha for OC after two items' reduction equalled 0.936 (3 items). Lastly, Cronbach's alpha for the 6-item factor TI was 0.903 (with no need for item reduction). In social scientific research, Cronbach's alpha coefficient of 0.600 and higher is admitted as satisfactory (Kim et al., 2015); therefore, all the Cronbach's alpha coefficients are well above the minimum requirement and are thus satisfactory. The finalized set of items for all constructs, that is to say for the Economic, Legal, Ethical, and Philanthropic dimensions of CSR, JS, OC, and TI (after running the variability and reliability tests), is presented in the Appendix.

Hypotheses test

The effect of perceived CSR by hospitality industry employees on their job satisfaction:

The effect of the independent variables (economic, legal, ethical, and philanthropic dimension of the CSR) upon the dependent variable (JS) has R^2 of .760 with F of 321.99 ($p < .001$) to be significant (Tab. 2). The perceived economic dimension of CSR by hospitality industry employees has a significantly positive influence on their job satisfaction with $\beta =. 193$ ($p < .001$). Hospitality industry employees' perceived legal dimension of CSR has a significantly positive influence on their JS with $\beta = .148$ ($p < .001$). Hospitality industry employees' perceived ethical dimension of CSR has a significantly positive influence on their JS with $\beta = .625$ ($p < .001$). Hospitality industry employees' perceived philanthropic dimension of CSR has an insignificantly positive influence on their JS with $\beta = .037$ ($p < .211$) (Tab. 2).

Thus, H1 "Perceived CSR (economic, legal, ethical, and philanthropic dimension) by hospitality industry employees has a direct positive influence on their JS" has been partially confirmed ($p < .001$).

Table 2 Regression analysis for CSR and JS

	Regression analysis for dependent variable: JS R = .87196563 R^2 = .76032406 Adjusted R^2 = .75796272 F (4.406) = 321.99 p< .00000 Standard error of estimate: 4.0888						
N=411	ß	Standard error of ß	b	Standard error of b	t (406)	Tolerance	p-value
Constant			*-3.87302*	*1.475832*	*-2.62430*		*0.009010*
Economic	*0.193279*	*0.039602*	*0.28740*	*0.058886*	*4.88060*	*0.376420*	*0.000002*
Legal	*0.148850*	*0.035637*	*0.38609*	*0.092436*	*4.17682*	*0.464826*	*0.000036*
Ethical	*0.625687*	*0.030662*	*0.67224*	*0.032943*	*20.40593*	*0.627908*	*0.000000*
Philanthropic	*0.037378*	*0.029898*	*0.15460*	*0.123665*	*1.25016*	*0.660392*	*0.211961*

Source: Authors' work.

The effect of perceived CSR by hospitality industry employees on their OC:

The effect of the independent variables (economic, legal, ethical, and philanthropic dimension of the CSR) upon the dependent variable (OC) has R^2 of .392 with F of 65.476 ($p < .001$) to be significant (Tab. 3). The perceived economic dimension of CSR by hospitality industry employees has an insignificantly negative influence on their OC with $\beta = -0. 025$ ($p < .691$). Hospitality industry employees' perceived legal dimension of CSR has a significantly positive influence on their OC with $\beta = .220$ ($p < .001$). Hospitality industry employees' perceived ethical dimension of CSR has a significantly positive influence on their OC with $\beta = .356$ ($p < .001$). Hospitality industry employees' perceived philanthropic dimension of CSR has a significantly positive influence on their OC with $\beta = .238$ ($p < .001$) (Tab. 3).

Thus, H2 "Perceived CSR (economic, legal, ethical, and philanthropic dimension) by hospitality industry employees has a direct positive influence on their OC" has been partially confirmed ($p < .001$).

Table 3 Regression analysis for CSR and OC

N=411	ß	Standard error of ß	b	Standard error of b	t (406)	Tolerance	p-value
	Regression analysis for dependent variable: OC R = .62620271 R² = .39212983 Adjusted R² = .38614097 F (4.406) = 65.476 p< .00000 Standard error of estimate: 2.9852						
Constant			*-1.78694*	*1.077498*	*-1.65842*		*0.098005*
Economic -	*0.025107*	*0.063068*	*-0.01711*	*0.042992*	*-0.39810*	*0.376420*	*0.690768*
Legal	*0.220332*	*0.056754*	*0.26200*	*0.067487*	*3.88222*	*0.464826*	*0.000121*
Ethical	*0.356546*	*0.048831*	*0.17562*	*0.024052*	*7.30166*	*0.627908*	*0.000000*
Philanthropic	*0.238528*	*0.047615*	*0.45230*	*0.090287*	*5.00955*	*0.660392*	*0.000001*

Source: Authors' work.

The effect of perceived CSR by hospitality industry employees on their TI:

The effect of the independent variables (economic, legal, ethical, and philanthropic dimension of the CSR) upon the dependent variable (TI) has R^2 of .258 with F of 35.392 ($p < .001$) to be significant (Tab. 4). The perceived economic dimension of CSR by hospitality industry employees has an insignificantly positive influence on their TI with $\beta = 0.064$ ($p < .353$). The perceived legal dimension of CSR by hospitality industry employees has a significantly negative influence on their TI with $\beta = -0.287$ ($p < .001$). The perceived ethical dimension of CSR by hospitality industry employees has a significantly negative influence on their TI with $\beta = -0.224$ ($p < .001$). The perceived philanthropic dimension of CSR by hospitality industry employees has a significantly negative influence on their TI with $\beta = -0.186$ ($p < .001$) (Tab. 4).

Thus, H3 "Perceived CSR (economic, legal, ethical, and philanthropic dimension) by hospitality industry employees has a direct negative influence on their TI" has been partially confirmed ($p < .001$).

Table 4 Regression analysis for CSR and TI

N=411	ß	Standard error of ß	b	Standard error of b	t (406)	Tolerance	p-value
	Regression analysis for dependent variable: TI R = .50847015 R² = .25854189 Adjusted R² = .25123689 F (4.406) = 35.392 p< .00000 Standard error of estimate: 6.8627						
Constant			*44.25068*	*2.477060*	*17.86419*		*0.000000*
Economic -	*0.064708*	*0.069654*	*0.09182*	*0.098834*	*0.92900*	*0.376420*	*0.353442*
Legal -	*0.287464*	*0.062681*	*-0.71152*	*0.155145*	*-4.58615*	*0.464826*	*0.000006*
Ethical -	*0.224935*	*0.053930*	*-0.23062*	*0.055293*	*-4.17085*	*0.627908*	*0.000037*
Philanth. -	*0.186846*	*0.052587*	*-0.73748*	*0.207561*	*-3.55309*	*0.660392*	*0.000425*

Source: Authors' work.

The effect of hospitality industry employees' job satisfaction on their OC:

The effect of the independent variables (JS) upon the dependent variable (OC) has R^2 of .527 with F of 457.588 ($p < .001$) to be significant (Tab. 5). The employees' JS has a significantly positive influence on their OC with $\beta = 0.726$ ($p < .001$) (Tab. 5).

Thus, H4 "Hospitality industry employees' JS has a direct positive influence on their OC" has been confirmed ($p < .001$).

Table 5 Regression analysis for JS and O

	Regression analysis for dependent variable: OC R = .72665950 R^2 = .52803403 Adjusted R^2 = .526880008 F (1.409) = 457.59 p< .00000 Standard error of estimate: 2.6208					
N=411	ß	Standard error of ß	b	Standard error of b	t (406)	p-value
Constant			*0.497699*	*0.560111*	*0.88857*	*0.374756*
JS	*0.726659*	*0.033970*	*0.333133*	*0.015573*	*21.39130*	*0.000000*

Source: Authors' work.

The effect of hospitality industry employees' JS on their TI:

The effect of the independent variables (JS) upon the dependent variable (TI) has R^2 of .343 with F of 214.33 ($p < .001$) to be significant (Tab. 6). The employees' JS has a significantly negative influence on their TI with $\beta = -0.586$ ($p < .001$) (Tab. 6).

Thus, the H5 "Hospitality industry employees' JS has a direct negative influence on their TI" has been confirmed ($p < .001$).

Table 6 Regression analysis for JS and TI

	Regression analysis for dependent variable: TI R = .58638849 R^2 = .34385146 Adjusted R^2 = .34224718 F (1.409) = 214.33 p< .00000 Standard error of estimate: 6.4321					
N=411	ß	Standard error of ß	b	Standard error of b	t (406)	p-value
Constant			*39.08099*	*1.374681*	*28.4291*	*0.000000*
JS	*-0.586388*	*0.040053*	*-0.55957*	*0.038222*	*-14.6402*	*0.000000*

Source: Authors' work.

The effect of hospitality industry employees' OC on their TI:

The effect of the independent variables (OC) upon the dependent variable (TI) has R^2 of .719 with F of 1049.7 ($p < .001$) to be significant (Tab. 7). The employees' OC has a significantly negative influence on their TI with $\beta = -0.848$ ($p < .001$) (Tab. 7).

Thus, H6 "Hospitality industry employees' OC has a direct negative influence on their TI" has been confirmed ($p < .001$).

Table 7 Regression analysis for OC and TI

N=411	Regression analysis for dependent variable: TI R = .84830427 R² = .71962014 Adjusted R² = .71893461 F (1.409) = 1049.7 p< .00000 Standard error of estimate: 4.2046					
	ß	Standard error of ß	b	Standard error of b	t (406)	p-value
Constant			*40.96298*	*0.694189*	*59.0084*	*0.000000*
OC	*-0.848304*	*0.026183*	*-1.76577*	*0.054500*	*-32.3996*	*0.000000*

Source: Authors' work.

DISCUSSION

The above-outlined results indicate a significant influence of CSR on employees' attitudes or behaviour, such as JS, OC, and TI. However, not all four dimensions of CSR (economic, legal, ethical, and philanthropic) play the same role in stipulating the desired employees' behaviour outcome.

76 % of hospitality industry employees' JS is explained by CSR (Tab. 2). The majority of the influence could be explained by the ethical dimension of CSR ($\beta = .625$, $p < .001$, Tab. 2). This result is in line with current research findings on CSR and employees (e.g., Kim et al., 2017; John et al., 2019). In general, employees like to be treated with fairness and dignity (e.g., transparent performance evaluation or application of anti-discrimination policies), having the opportunity to express themselves freely and participate in open discussions (e.g., presenting employees with adequate information or two-way symmetrical communication). Likewise, the economic CSR dimension has a significant positive influence ($\beta = .193$, $p < .001$, Tab. 2). Most scholars confirm similar results (e.g., Kim, Song & Lee, 2016; Kim et al., 2017). Therefore, such practices as a remuneration system based on performance, competitive wages, employees' security, or promotion opportunities need to be considered when adopting human resources management policies.

Surprisingly, the philanthropic dimension has an insignificant positive influence on JS ($\beta = .037$, $p < .212$, Tab. 2), which is a finding contradicting the results of other service sector management scholars (e.g., Cycyota, Ferrante & Schroeder, 2016; Graves, Sarkis & Gold, 2019). This could be probably explained by the majority of respondents (N = 255/411) representing the first two age categories and thus having the urge to satisfy their economy and security needs before "contributing" to improving the environment or helping the community. 177 employees (N = 177/411) represent respondents with primary and secondary education, thus might be driven by "extrinsic" rather than "intrinsic" motivation factors. Hence, although

contrary to other research findings, the presented results on the philanthropic CSR dimension are in line with motivational theories (e.g., Maslow, 1943; Deci & Ryan, 1985, 2000, 2008). Seemingly, it could be reasoned by employees' little or no awareness of philanthropic activities as the philanthropic dimension's mean score (4.65) and median score (4.50) represent an "I neither agree, nor disagree" answer on the 7- point scale. Accordingly, these findings are supported by the results for item/affirmative statement on two-way symmetrical communication between the employees and organization (ethical dimension), as the employees scored low on this item (mean = 4.23, median = 5.00, the cumulative percentage for score 1 to 4 = 45.70 %). Thus, to enhance the employees' JS, selection, design, and communication of CSR discretionary initiatives should be considered.

The findings of this paper also claim that the legal dimension of CSR (practices such as, e.g., organization's compliance with employment-related laws and regulations - safety procedures, health, and social insurance contribution) has a significant positive influence on JS ($\beta = .148$, $p < .001$, Tab. 2), which is in line with the results presented by other researchers (e.g., Kim et al., 2017; John et al., 2019).

39% of employees' OC could be explained by ethical ($\beta = .356$, $p < .001$, Tab. 3), philanthropic ($\beta = .238$, $p < .001$, Tab. 3) and legal ($\beta = .220$, $p < .001$, Tab. 3) dimensions of CSR. Thus, as in the case of CSR and JS relation, ethical and legal CSR dimensions play a vital role in stimulating employees' loyalty or commitment. Employees like to relate to those organizations, which are trustworthy, reputable, and compatible with their values. According to SIT or SCT, employees like to associate their own identity with the organization's social status and reputation (Graves, Sarkis & Gold, 2019; John et al., 2019). Similarly, if the organization treats its employees with dignity and appreciation, they like to reciprocate likewise (Peterson, 2004). Consequently, an organization's engagement in meaningful and substantive CSR activities, such as, e.g., addressing significant social and environmental issues (philanthropic CSR dimension), could determine the level of employees' organizational engagement and OC, fulfil their psychological desires and meaningful existence (Maslow, 1943; Deci & Ryan 1985, 2000). In contrast, employees' viewing the CSR activities as symbolic, superficial, or insincere (e.g., greenwashing, social washing) leads to no positive or negative individual behaviour outcomes (e.g., low level of OC, shirking behaviour, or employee cynicism) (Donia & Tetrault Sirsly, 2016).

The employees' TI amount to CSR by 25 %, where the legal ($\beta = -0.287$, $p < .001$, Tab. 4), ethical ($\beta = -0.224$, $p < .001$, Tab. 4) and philanthropic ($\beta = -0.186$, $p < .001$, Tab. 4) dimensions are of a statistical significance, while the economic dimension ($\beta = 0.064$, $p < .353$, Tab. 4) is

of no statistical significance and hence does not influence the employees' intentions to leave. This paper proposes that an organization's fair and honourable behaviour, law compliance, and pursuing meaningful philanthropic activities have the potential to diminish employees' intentions to leave and thus increase their voluntary retention. Additionally, the results also indicate that the economic dimension of CSR (e.g., tangible benefits, competitive wages, or organization's long-term strategy) plays no major motivation in employees' intentions to resign. These findings follow the qualitative examination of employee TI carried out by Yang, Wan, and Fu (2012).

Employees TI are the most affected by employees' bond or OC (71 %, Tab. 7) while, based on the results, employees' satisfaction with their job tangible and intangible opportunities provides a lesser level of influence on employees' TI (34 %, Tab. 6). Thus, satisfied employees might not necessarily voluntarily retain in the organization they are working for. However, the direct causal relationship between JS and OC also indicates (52 %, Tab. 5) that satisfied employees are a premise for maintaining loyal and adherent employees.

Conclusively, based on the synthesis of the individual results, it is possible to deduce a direct causal relationship between:

CSR → JS (H1, $R^2 = 0.76$, Adjusted $R^2 = 0.75$, $p < 0.001$)
CSR → OC (H2, $R^2 = 0.39$, Adjusted $R^2 = 0.38$, $p < 0.001$)
CSR → TI (H3, $R^2 = 0.25$, Adjusted $R^2 = 0.25$, $p < 0.001$)

and an indirect relationship between CSR and

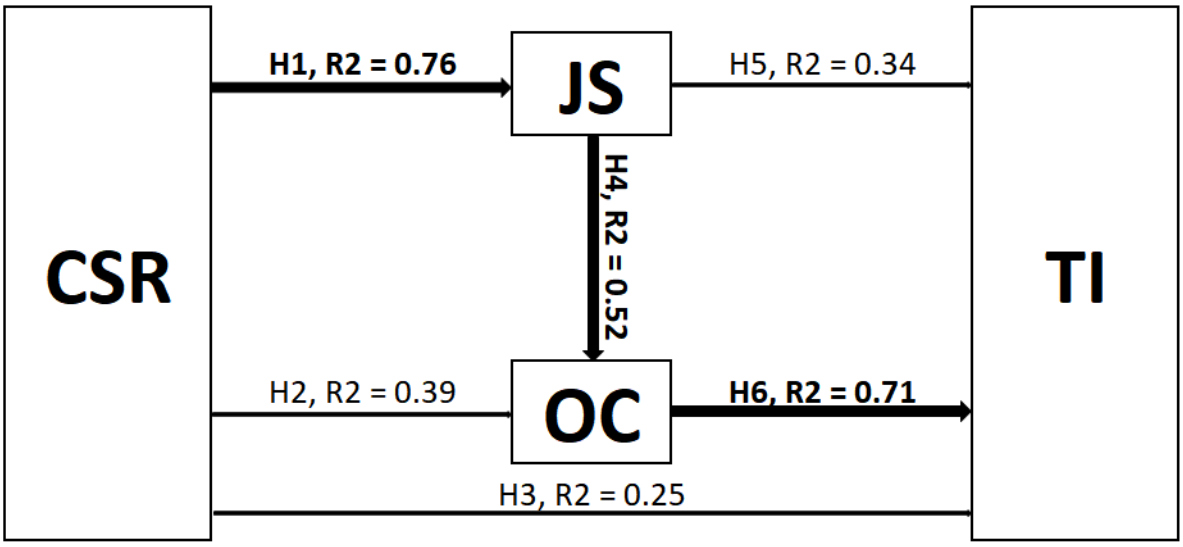
JS → OC (H4, $R^2 = 0.52$, Adjusted $R^2 = 0.52$, $p < 0.001$)
JS → TI (H5, $R^2 = 0.34$, Adjusted $R^2 = 0.34$, $p < 0.001$)
OC → TI (H6, $R^2 = 0.71$, Adjusted $R^2 = 0.71$, $p < 0.001$)

Therefore, the authors of this paper propose the following sequential causal relationship path:

CSR → JS → OC → TI

where CSR plays a significant role as a motivation driver in stipulating hospitality industry employees' JS, and thereafter indirectly contributes to employees' OC and voluntary Retention. This path is illustrated in Fig. 1.

Figure 1 CSR and its relations to employees' attitudes and behaviour



Source: Authors' work.

According to motivation theories (e.g., Deci & Ryan, 2000), different groups of employees are motivated by different motivation factors. This paper does not confirm this statement as the results for 8 subgroups of respondents do not show any deviation from the results of 411 respondents in total, which is in line with other academic research findings on CSR and employees (e.g., Kim et al., 2017; John et al., 2019).

CONCLUSION

The objective of this paper was to examine the effect of CSR (economic, legal, ethical, and philanthropic dimension) on hospitality industry employees' JS, OC, and TI. The empirical research findings suggest that CSR is a significant predictor of employees' examined attitudes and behaviour, mainly in regard to JS. In particular, CSR's ethical and legal dimensions play a vital role in stimulating employees' desirable behaviour. Interestingly, the economic dimension contributes to employees' JS but has no relevance when it comes to employees' commitment to the organization or decision-making whether to leave or stay. Likewise, the philanthropic dimension of CSR influences employees' commitment or intentions to leave the organization but plays no role in employees' JS. Hence, the results indicate the importance of increasing the level of CSR proximity. Organizations should find ways to communicate their CSR activities more effectively to their employees and explain to them the reasons underlying the organization's CSR initiative choices, which in return enables the employees to form substantive attributions and view the employer in a more favourable light. A better understanding of the organization's CSR initiatives and eventual homogenization of shared

values could be achieved by adopting various educational and training techniques or better employer-employee fit. Hence, to use the CSR initiatives as a motivation driver to stimulate employees' desirable work attitudes and behaviour (JS, OC, or TI) to their best advantage, we recommend the practising hospitality managers to increase the level of CSR proximity by using the right communication channels, focusing on substantive CSR initiatives, educating employees on socially responsible behaviour, and attracting the matching type of employees by using favourable employer branding techniques.

Conclusively, based on the summary of knowledge from the SCT, SIT, SET, motivational theories (e.g., Maslow, 1943; Deci & Ryan, 1985, 2000, 2008) and this paper's findings, we can conclude that the individual CSR practices directly or indirectly "fuel" the desirable employees' behaviour (JS, OC, TI). Thus, to use them to their best advantage (mainly the ethical and legal dimension of CSR), we propose the sequential causal relationship path "CSR → JS → OC → TI" as the most beneficial in shaping the "employer-employee" relations. We believe that the above-outlined findings might be found especially useful by upper-scale accommodation providers who challenge similar destination-bound conditions (e.g., Central European capitals or land logged cities with similar tourism-related infrastructure).

Paper limitations and future research suggestions

Notably, the relationship between CSR and employees' work attitudes and behaviour is mutual (CSR → employees, employees → CSR). Hence, further research might focus on how hospitality industry employees shape the organization's CSR and contribute to sustainable regional development in line with a holistic approach to organization. Likewise, as mentioned earlier in the text (see Introduction), CSR has the potency to boost employees' desirable work attitudes regardless of the business cycle phase. As the empirical part of the presented research was carried out in the period of economic growth in 2019, it would be interesting to see if there is any change in the strength of the causal relationship between CSR and JS, OC, or TI in the phase of the economic slowdown (e.g., in the Covid-19 pandemic restriction period). The sole objective of this paper was to demonstrate the potential of CSR functioning as a motivation driver in the hospitality industry setting. Hence, the additional possible motivation drivers on employees' micro and macro environment level (mathematically speaking independent variables) were omitted from the empirical research (linear regression analysis). Therefore, practising hospitality managers should consider this; in reality, employees base their work decisions and choices on multiple stimuli.

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APPENDIX

Finalized set of items for Economic, Legal, Ethical, and Philanthropic dimensions of CSR, JS, OC, and TI (after running variance and reliability tests).

CSR – 4 factors (Results of the factor analysis with the KMO Value:.900, Bartlett Significance Value:.00, Chi-square Value: 788, df: 325, and the Cronbach alpha analysis)
1. Economic dimension: 7 items, min. factor loading: .63, mean: 5.281, variance: 4.021, α: .875

1. The organization I work for has a remuneration system based on performance.
2. The organization I work for offers competitive wages in the lodging industry.
3. The organization I work for strives to ease and/or improve employees' work performance (e.g., by adopting new technologies, work processes, systems, or training and education programs).
4. The organization I work for continuously improves the quality of its products and services.
5. Guest satisfaction is essential for the organization I work for.
6. The organization I work for strives to reduce overconsumption and waste (e.g., food, water, energy).
7. The organization I work for has established a long-term strategy that is socially sustainable and supports economic growth.

2. Legal dimension: 4 items, min. factor loading: .63, mean: 5.218, variance: 1.444, α: .850

1. Employer-employee contractual obligations are always honoured by the organization I work for.
2. The organization I work for complies with all employment-related laws (e.g., recruitment, health and social insurance contribution, safety procedures).
3. The organization I work for applies fair and lawful behaviour towards all stakeholders (e.g., guests, business partners, local community).
4. The organization I work for applies anti-discrimination policy to all stakeholders (e.g., minority, gender, or age anti-discrimination).

3. Ethical dimension: 7 items, min. factor loading: .63, mean: 3.983, variance: 7.123, α: .902

1. The organization I work for has a transparent performance evaluation.
2. The organization I work for responds to every employee complaint.
3. The organization I work for presents the employees with adequate information and allows them to express their opinions freely.
4. In case of employees' redundancy and/or organizational changes, the organization, which I work for, always strives to find the best solution for its employees, even if it is beyond its legal duty (e.g., helping the employees to find a new job out of the organization).
5. The organization I work for does its best to support employees' work-life balance (e.g., flexible working hours, leave of absence).
6. The organization I work for provides complete and accurate information about its products and services to its guests.
7. The organization I work for protects the guests' rights beyond the legal requirements.

4. Philanthropic dimension: 2 items, min. factor loading: .63, mean: 4.653, variance: 2.014, α: .891

1. The organization I work for supports the well-being of the local community and/or society by cooperation with governmental and non-governmental organizations.
2. The organization I work for enables its employees to contribute and/or participate in various volunteering activities financially.

Employees' working attitudes and behaviour JS, OC, TI – 3 factors ((Results of the factor analysis with the KMO Value:.907, Bartlett Significance Value: 00, Chi-square Value: 382, df: 91, and the Cronbach alpha analysis)

1. Job satisfaction: 8 items, min. factor loading: .63, mean: 4.374, variance: 5.070, α: .886

1. I am satisfied with my earnings from my current job.
2. I am satisfied with my promotion opportunities.
3. I feel physically safe at work.
4. This job allows me to sharpen my professional skills.
5. I enjoy working with my colleagues.
6. I am satisfied with my immediate supervisor.
7. My job gives me enough time to fulfil my personal needs and accomplish my family tasks.
8. I feel my job allows me to realize my full potential as a person.

2. Organizational commitment construct: 3 items, min. factor loading: 63, mean: 4.052, variance: 3.152, α: .936

1. I am proud to be a part of the organization I work for.
2. I consider the organization which I work for as a workplace for my whole working life.
3. I accept the organization's future fate as mine.

3. Turn over intentions construct: 6 items, min. factor loading: .63, mean: 3.250, variance: 10.483, α: .903

1. I would like to leave this organization and work for another organization in the same industry.
2. I would like to leave this organization and work for another organization in a different industry.
3. I want to leave this organization sometime in the next year.
4. I want to leave this organization in three months.
5. I am actively looking for a new job opportunity.
6. If I were given a job opportunity in another organization, I would consider the change.

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ELEMENTS OF ENDOGENOUS DEVELOPMENT IN THE REGIONS OF VISEGRAD COUNTRIES

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Abstract

Understanding territorial processes has come to the focus of relevant enquiries in the past few decades but it is especially important in the case of less favoured areas. In this particular research project presented here, the major factors of endogenous development and their presence in the regions of Visegrad countries – Poland, Czechia, Slovakia, Hungary – have been investigated.
The theory of endogenous development, namely the utilisation of the given resources, has become the focus of many empirical analyses and it means the framework of quantitative analysis. The main aim of the paper is the examination and explanation of the effects of each capital on development.
A model is proposed that explains development and includes latent variables symbolising the forms of capital. The model then is further examined using a Partial Least Squares (PLS) path analysis. This shows and helps to understand the connections between the various forms of capital, although the model is only valid in a Visegrad context.
The first part of the paper reviews the academic literature of development theories, and it outlines how the concept has been understood and developed in the last few decades. In the next chapter of the paper, the concept is examined from a narrower perspective and the focus is on the theory of endogenous development, which is assumed to be a qualitative change. Despite the fact that in this case it is very difficult to carry out quantitative analyses, they have an obvious relevance in regional research. Besides defining endogenous development, several models and capitals are compared in the paper. The compa rison shows the most important elements by the usage of which the development of the Visegrad regions becomes measurable.
The methodology of the empirical test can be found in the next chapter, and it means that research questions were tried to be answered based on the latest statistical indicators, i.e., the Eurostat database and the national databases of the Visegrad countries.
In the abovementioned countries 115 NUTS3 regions can be found, hence this array of territories serves as the framework for the quantitative analysis. The territorial units are compared to multivariate analysis, so the accumulation of various forms of capitals has been analysed by PLS path analysis. With the help of the method, a simultaneous factor and regression analysis is run, enabling the analysis of the direct and indirect effects among the latent variables. It helps to highlight the effects of capitals on each of these.

Keywords: Regions of Visegrad Countries, Endogenous Development, Partial Least Squares Path Analysis

INTRODUCTION

The “evolution” of development theories

Current research findings clearly show that the economic development of Eastern and Central European regions has recently shifted from the dominance of exogenous elements to an endogenous direction, i.e., an increasing number of local factors (“soft endogenous factors”,

such as human capital and informal knowledge) define the competitive advantages of regions (Capello & Perucca 2013; Smętkowski 2018). Economic development also includes the role of regional institutions as a significant element, the quality of which evidently contributes to the advancement or decline of a region (EC 2017).

Following a short review of development theories, we examine the elements of endogenous regional development, presenting some special approaches of endogenous development.

"*The concept of development, in the most general terms, refers to the process which leads to a lower level of quality to the higher level of quality*" (Szentes 2011, p. 13.). In this context, Szentes (2011) describes that the concept of development has been interpreted in various ways over the past centuries, especially recently, depending on the discipline of social science. The issue of different interpretations is also mentioned by Todaro and Smith (2009), adding that without a certain degree of general agreement, it is not possible to take measurements and to basically define which country is developing and which one is not. The authors also claim that in strictly economic terms, the concept traditionally referred to achieving a long-term increase in income per capita, which enables an increase in national output at a faster rate compared to the growth of population. Development was in fact defined in the same way much earlier by Lord Robbins (1968), which is in line with this narrower economic approach.

At the same time, Sen (1988) "goes even further", integrating humanum into his approach, based on which he establishes that the improvement of living conditions should clearly be one of the most important, if not the most important, tasks of economics and this, earlier mentioned "improvement" process is an evident part of the concept of development (Sen 1988). Development thus needs to be understood as, for instance, a multi-faceted process involving the significant changes of social structures and national institutions, which includes the stimulation of economic growth, reduction of inequalities, and putting an end to poverty (Todaro & Smith 2009)[1].

The authors of this article agree with the idea claiming that while development refers to a qualitative change, growth means a quantitative change.

Regarding the interpretation of the theory of development, Lewis (1988) uses the term "growth", still, as we understand, his view includes the qualitative character of change. More specifically, the author interprets development theory as *"...those parts of economics that play crucial roles when one tries to analyse the growth of the economy as a whole"* (Lewis 1988, p. 36).

[1] As it is also emphasised by Lengyel (2012/a), Amartya Sen's ideas are apparent in the authors' approach.

Or, as Chant and McIlvaine (2009) describe, development theory is concerned with change much more than it is expected in conventional social sciences. Development theory has always had a close link with the development strategies which intended to put theory into practice. The emergence of the theory was linked to the world after 1945, with its changing financial possibilities in the relationship between the developed and the developing world.

Distinguishing the major trends of the recent decades, the following categorisation is possible (Chant & McIlvaine 2009; Lengyel 2012a):

- modernisation theories, mostly prominent in the 1940s and 1950s but remaining relevant until the 1960s;
- dependency theories, significant in the 1960s and 1970s;
- neoliberal and structural change theories, emerging in the 1980s and continuing in the 1990s and 2000s;
- post-development theories, during the 1990s and 2000s.

Hoff and Stiglitz (2001) also indicate the middle of the 20th century as a point of time since when marked changes have taken place in terms of understanding development. As the authors put it, we know that development is possible but not inevitable and there is no recipe for success.

Related to this review, Szentes (2011) points out that economics has been concerned with the question of *development* since the establishment of modern social-economic systems. The author adds that the theoretical historical[2] review of economics can reveal several theoretical, economic, and political questions which, as described above, are also featured in development economics emerging independently after the Second World War.

In agreement with this approach of the discipline, and, at the same time, referring back to the different approaches of development theory, Sen's (1988, p. 23.) opinion can be called apt and practical, concluding that *"...work on development economics need not await a complete 'solution' of the concept of development".*

If we investigate the territorial aspects of development of any kind, the aim must be the creation or emergence of a successful region. Regarding the concept of success and a successful region, György Enyedi's (1998, 409–411.) idea of success is indicative; besides formulating the criteria of competitiveness, it pays attention to environmental sustainability and the aspects of social justice: *"...in a successful region, produced income increases. A significant part of this income is used locally for investments, entrepreneurial and personal income, as well as settlement management and development in the form of taxes. Broad sections of the population*

[2] Lewis (1988) offers an excellent historical review, examining the theory of development from the dawn of economics.

have a share in the income growth, economic growth does not harm either the natural environment or the built and cultural values of the region. Finally, the growth affects all settlement groups of the region and it does not increase the territorial inequalities within the region".

Among the spatiality-related trends of development, whether it is location theory or regional growth and development theory, in general, two important tendencies have gained ground in the past ten-twenty years (Capello 2012, p. 315):

- *"a tendency to achieve more realism in sometimes abstract conceptual approaches;*
- *a tendency to develop a dynamic perspective".*

In our work, we interpret the concept of development in its narrower economic context. As regards the latter, Capello and Nijkamp (2011) include societal opportunities, healthy environment, and high-standard education as examples. However, as Stimson, Stough, and Nijkamp (2011) refer to regional and economic development in relation to development, they distinguish attributes measurable by quantitative and qualitative tools. Even though the level of wealth and income or job creation are essential, creative capital, the low level of social and economic differences, or sustainable development are of the same importance.

THEORETICAL BACKGROUND

A modern interpretation of endogenous development

The endogenous variety of development can be regarded as its revaluated theory. If we examine the term itself, *"…endogenous in economics refers to factors which are not hereditary ("are not from God") but are created consciously through economic activities. In regional studies, we consider community developments and actions which are consciously created, based on unique local factors, bottom-up and actively involving the local society within a region to have* an endogenous character" (Lengyel 2012b, 145.).

The emergence of endogenous development itself is traced back to the end of the 1980s by Benko (1997), although he referred to industrial and city regions, while Vázquez-Barquero & Rodríguez-Cohard (2016) date its gaining significance at the early '80s.

Similarly, Amin (1999), in his article from two decades ago, establishes that the European regional policy was defined by the Keynesian heritage in the case of developed countries from the '60s to the then recent past. This approach relied on the redistribution of income and the demand stimulating effects of welfare policies in the case of less developed regions. In their case, the Keynesian regional policy undoubtedly increased employment and incomes, but these

territorial units could not maintain the achieved results permanently and could not manage to realise "self-sustaining" growth based on their own resources. Thus, according to the author, after the failures of the Keynesian and the pro-market, neoliberal policies, the focus on the theory of endogenous development can be interpreted as a sort of third-track approach. In line with this, Tödtling (2009) considers the theory of endogenous regional development as a kind of "counter-theory", which responds to the former development concepts that emphasised the importance of external factors in the case of less developed regions, such as interregional trade or the mobility of capital, work, and technology.

Consequently, in the past few decades, there has been a shift in the emphasis and focus of regional development theory from exogenous factors to endogenous elements (Stimson et al. 2011), the prevalence of which is also described by Lengyel (2012/a).

It can be established that the whole theory relies on the assumption that the basic preconditions of development, sense of initiative and enterprises, are available or present in a latent way in most regions (Tödtling 2009). Similarly, according to Capello's (2007, 2011) views, endogenous development basically depends on the concentrated arrangement of a region, it is an integral part of a social-economic and cultural system, whose components determine the success of local economy: entrepreneurship, factors of local production (work and capital), and the relationship management skills of local actors, which increasingly contribute to the increase of knowledge creation.

According to Capello's (2007) approach, the main reason of regional differences is the uneven distribution of innovative activities. It can be observed that while today work and capital move very easily, the least mobile factors are precisely those immaterial factors which are, among others, related to innovative capacity.

When Stimson et al. (2011) refer to regional and economic development in the context of development, they distinguish attributes measurable with quantitative and qualitative tools. In another work, Stimson, Stough and Salazar (2009) make regional economic development subject to the strength or weakness of the quality of the (local) management, the efficiency of institutions, and the level of the significance of enterprises. These dynamic relationships shape the characteristics of development and the performance of a region (Figure 2). It can be observed that institutions, entrepreneurship, and the quality of (local) management are the three most crucial factors, not only in terms of shaping the performance of the region but they can also substantially improve a region's capacity and conditions (Stimson et al. 2009).

Although the present paper primarily focuses on the endogenous variety of development, certain exogenous elements cannot be ignored even under the current circumstances. As

Stimson et al. (2009) suggest, the internationalisation of financial processes and the movement of labour between regions are typical examples. Related to their above-described new framework, the authors claim that it is crucial for a region that the institution system and the (local) management are able to and manage to acquire exogenous factors which are necessary to provide the incomplete endogenous conditions and generate new competences and conditions. Tödtling (2009) also suggests that regional development is always the collective result of endogenous and exogenous factors, thus there are several paths of development, there is no ideal solution.

The endogenous and exogenous manifestations of various capital assets are compared by Vermeire, Gellynck, De Steur & Viaene (2008) (Table 1). It is a fact that the authors base their comparison on the assets assessed and "perceived" as the most important by the entrepreneurs of rural regions (entrepreneurial perception), nevertheless, we still considered their work adaptable[3].

The authors included human capital, physical capital, natural capital, social capital, and financial capital in their system, where the comparison of these elements according to endogenous and exogenous drivers is quite interesting and, in some cases, debatable. Evidently, in the case of social capital, exogenous drivers do not apply, and as for the natural assets, only the climate change appears as an explicitly external driver. Human capital may be brought into the region by occasional newcomers, while physical capital and financial capital may occur predominantly due to subsidies.

As a criticism regarding the drivers, it is to be noted that the delineation of endogenous and exogenous assets by the authors can be debated in the case of natural capital in a sense that several factors listed among the endogenous elements have exogenous aspects. There can be no question about it in the case of wind power.

Regarding the system, the consideration of each driver matters, rather than their weighting in particular regions (Vermeire et al. 2008). I.e., the authors explicitly suggest that the relative importance of the capitals may vary in different regions.

Table 1 Perceived important endogenous and exogenous capital assets

Capital assets	Endogenous drivers	Exogenous drivers
Human capital	Knowledge base: - Agricultural knowledge	Knowledge: - Scientific & technical knowledge

[3] Moreover, the authors refer to NUTS2 regions as rural regions, thus we definitely considered their approach to be applicable.

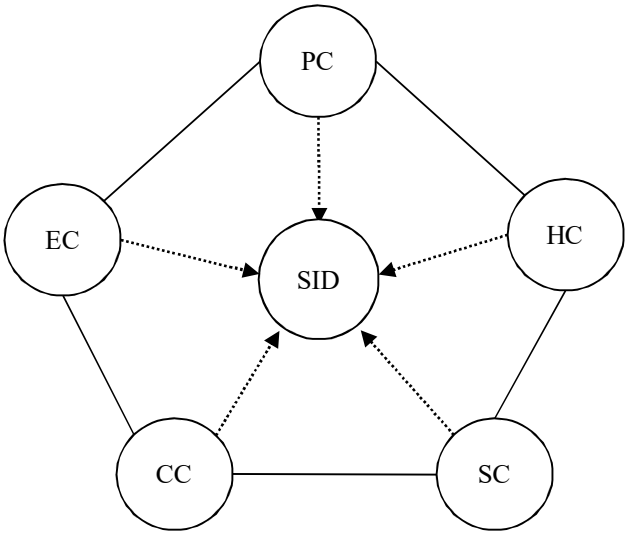
	- Marketing & management knowledge Availability of labour: depopulation - Highly skilled labour & technical skills Entrepreneurship: family character - Absorptive capacity, learning, cooperation - Engagement, dynamism	- High-tech competences Rural newcomers
Physical capital	Accessibility on micro- & meso-level Small scale mobility Proximity of tourist attractions Industrial lands Distribution of water & energy	Accessibility on macro-level Public transport Proximity of urban economic complexes Internet
Natural capital	Natural stocks for production: agriculture, forestry Environmental quality Attractiveness of landscape and nature Processing water Wind and water power	Climate change
Social capital	Strong social cohesion: - informal links - competition - closed networks Family based firms: - internal focus - tacit knowledge - flexibility - attraction Environmental awareness (ecology, fire risk) Acceptance by population (not-in-my-backyard)	
Financial capital	Bank loans Public finances Clear business plan	Subsidies for agriculture & rural development Support to starters, services, SME's Venture capital Financial marketing support Granting procedures & administration External, large-scale investors

Source: Vermeire et al. (2008, p. 851.)

As Lengyel (2012a) establishes, today endogenous trends have gained focus in the field of regional growth and broadly defined development. It is linked to the fact that the various trends include ones which base the system of endogenous elements on the concept of capital (Lengyel 2012a). Thus, besides economic capital, several new forms of capital have gained focus.

Following a similar logic, as a part of the recent evolution of economic thinking, Stimson et al. (2011) write that in the past two decades, a further move has been made in terms of integrating the directives of sustainable development in the area of regional development and planning.

Figure 1 A pentagon model of creative forces for sustainable regional development



Source: Lengyel based on Stimson et al. (2011), Lengyel (2012c, 67.)

Based on the work of Stimson et al. (2011), sustainable innovative development can be explained with their five-factor model (Figure 1) (Lengyel 2012c, 68.):

1. *"Productive capital (PC)*: it is in line with the neoclassical approach, where the traditional production function depends on work and capital.
2. *Human capital (HC)*: it refers to the quality of labour force, which derives from education, training, i.e., fast acquisition of new competences; it is important that human capital is evenly distributed within the population.
3. *Social capital (SC)*: the quality of the interaction and communication between people, which is the condition of social-economic relationships, business networks (formal and informal), cooperation of trust, etc.
4. *Creative capital (CC)*: an efficient response to new challenges and new opportunities, it enables entrepreneurship, novel ideas, innovative visions, etc.
5. *Ecological capital (EC)*: liveable environment, clean air and water, recreation facilities, urban green areas, etc. are all necessary for a long-lasting and balanced development of a region".

DATA AND METHODS

Partial Least Squares path analysis, the original model

For developing the indicator system used in the empirical analysis, we summarise which (capital) factors are mentioned primarily in the academic literature of the topic (Table 2)

Table 2 Appearance of each form of capitals in various endogenous development models

	Fixed Capital	Human Capital	Social Capital	Natural Capital	Cultural Capital	Relational	Infrastructural Capital	Institutional	Physical Capital	Creative Capital	Symbolical	Structural	Cognitive	Settlement	Entrepreneurial Capital	Built Capital	Political Capital	Activities and Business Firms	Markets/External Relations	Image/Perceptio
AEIDL (1999)	x	x	x		x				x	x								x	x	x
Kitson, Martin & Tyler (2004)	x	x	x		x		x	x		x										
Capello (2007)	x	x				x		x		x					x					
ETC (2007)	x	x	x	x	x				x											
Vermeire et al. (2008)	x	x	x	x					x											
Camagni (2008)	x	x	x	x	x	x	x	x												
Braithwaite (2009)	x	x	x	x	x											x	x			
Affuso–Camagni (2010)			x		x	x	x						x							
Milone, Ventura, Berti & Brunori (2010)	x	x	x	x	x			x			x									
Stimson et al. (2011)	x	x	x	x						x										
Brasili, Saguatti, Benni, Marchese, & Gandolfo (2012)	x	x	x	x		x	x						x	x						
Lengyel & Szakáné Kanó (2012)	x	x	x			x	x	x	x											
Atkinson (2013)	x	x	x	x	x		x	x								x				
Dinya (2013)	x	x	x	x	x	x	x	x	x											
Tóth (2013)	x		x	x	x	x					x	x								
Rechnitzer (2016)	x	x	x		x	x		x		x			x							

Source: own construction based on Tóth (2013, 44.)

Based on this, i.e., relying on their frequency in Table 2, three forms of capital have been incorporated in the model: private fixed capital, human capital, and social capital. At the same time, as several aspects of these elements can be described, we have divided them into parts.

Private fixed capital, which refers to the development of economy, but can be approached from several sides (e.g., Brasili et al. 2012; Camagni, Caragliu & Perucca 2011), has been divided into three parts: economic development, which is the target variable of the model, economic capital I., which includes industry and technology elements, while economic capital II. involves the indicators of the economy of primary and secondary sectors.

We were able to describe human capital with indicators related to research and development, thus we indicated it in its name.

Since social capital, similarly to private fixed capital, can be grasped in several ways (e.g., Affuso & Camagni 2010; Brasili et al. 2012), we also divided it into three parts and we tried to express the "content" of each capital type with their names: social capital, demography I, and demography II.

Similarly to the logic of the renewed Pyramid Model (Lengyel & Szakálné Kanó 2012), we categorised the capitals as long-run sources, drivers, and target. Long-run sources include social capital, demography I, and demography II. We involved research and development, the factor formed by industry, technology and economy, and the factor of the economy of primary and secondary sector as drivers in the model.

It must be noted that due to its relevancy, we intended to include natural and cultural capitals in the analysis, however, we could not describe them quantitatively. This failure opens up new directions in research.

If we want to build a path model between the factors, we need to run a factor analysis and regression models simultaneously, which Partial Least Squares path analysis may offer a solution for. Researchers have approved of and applied this method for decades to examine the connections between latent variables (Henseler, Ringle & Sinkovics 2009). In Hungary, however, its use has become common only in the past decade (Kazár 2014). A more detailed description about the methods and their application is found in the articles of Kazár (2014), Kovács (2015), and Krenyácz (2015).

One of the advantages of the model is that it can be used in the case of variables with non-normal distribution and a small sample size (Hair, Sarstedt, Pieper & Ringle (2012), Henseler (2010)). It is also important that the development of latent factors and the analysis of their correlations can be simultaneously conducted with a regression model among the indicators included in the procedure.

The construction of an appropriate model consists of three steps. First of all, we have to find the adequate level of data aggregation. Choosing the appropriate territorial level is an ongoing issue in territorial analyses. If we attempt to conduct an analysis on the level of the European Union, this question arises in the dilemma between NUTS2 and NUTS3 levels. We opted for NUTS3 level similarly to Fratesi and Perucca's (2019) approach, agreeing with its advantages and accepting its disadvantages[4]. Thus, finally 115 NUTS3 territorial units[5] were featured in the analysis, 14 Czechian, 20 Hungarian, 8 Slovakian, and 73 Polish.

[4] But Kotosz and Lengyel (2018) also use mostly this territorial level.
[5] Based on the categorisation of NUTS 2016.

Moreover, an appropriate dataset needs to be be collected (Table 3). It must be noted that in our work, we used the latest data available at the time of writing the article, from the year of 2016.

Table 3 Variables involved in analysis

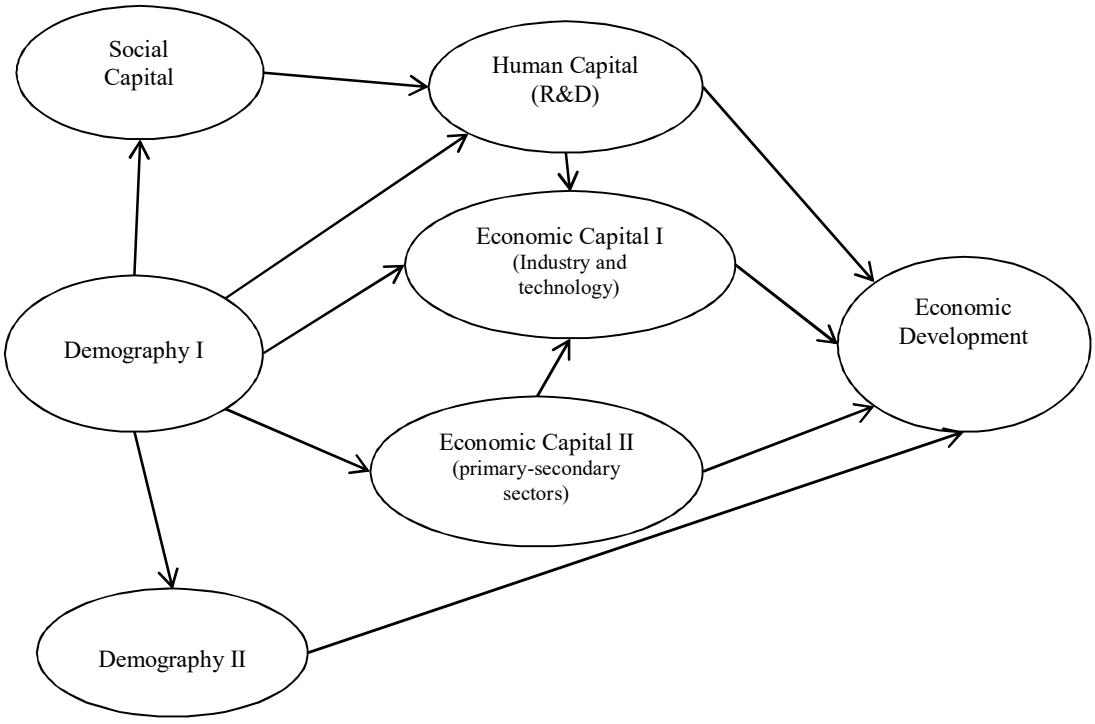
Latent variable	*Variable*	*Source*
Economic Development	GDP (PPS) per inhabitant (in percentage of the EU average, 2016)	Eurostat
	GVA per capita (Gross Value Added, million euro/1000 people, 2016)	Eurostat
	Labour productivity (GDP/employees, 2016)	Eurostat
Human Capital (R&D)	Community design (CD) applications (Per 1.000.000 persons, 2016)	Eurostat
	Registered Community designs (RCD) (Per 1000 persons, 2016)	Eurostat
	European Union trade mark (EUTM) applications (Per 1.000.000 persons, 2016)	Eurostat
	Unemployment rate (with college degree, within all unemployed people, 2016)	V4 countries' statistical offices
Economic Capital I.	Employment (Per thousand persons) Information and communication 2016	Eurostat
	Employment (Per thousand persons) Construction 2016	Eurostat
	Employment (Per thousand persons) Wholesale and retail trade, transport, accommodation, and food service activities 2016	Eurostat
	Employment (Per thousand persons) Professional, scientific, and technical activities administrative and support service activities, 2016	Eurostat
	Employment (thousand persons) all NACE activities employees 2016	Eurostat
	Population of active enterprises in t number - Industry, construction, and services except insurance activities of holding companies (Per 1000 persons, 2016)	Eurostat
Economic Capital II.	Employment (Per thousand persons) Agriculture, forestry and fishing (2016)	Eurostat
	Registered unemployment rate (percentage, 2016)	V4 countries' statistical offices
Social Capital	Employment (Per thousand persons) all NACE activities 2016	Eurostat
	Age dependency ratio, 1st variant (population aged 0-14 and 65 and more to pop. aged 15-64, 2016)	Eurostat
	Population density (Inhabitants per square kilometre, 2016)	Eurostat
	Mean age of women at childbirth (year, 2016)	Eurostat
Demography I.	Median age of population (year, 2016)	Eurostat
	Median age of population (females, 2016)	Eurostat
	Women per 100 men (Percentage, 2016)	Eurostat
	Median age of population (males, 2016)	Eurostat
Demography II.	Change of population (percentage, 2006-2016)	V4 countries' statistical offices
	Total fertility rate (Permille, 2016)	Eurostat
	Crude rate of natural change of population (Permille, 2016)	Eurostat
	Crude rate of net migration plus statistical adjustment (Permille, 2016)	Eurostat

Source: own creation

Thus, as a third and final step, the indicators of the formerly developed factors were utilised, and we conducted PLS path analysis to study the relationships between the latent factors having an identical content by applying SmartPLS 3.2.7. software. By using the "resulting" latent variables, we intended to apply a regression model which can explain the extent of the effect the factors have on the capital describing the economic development of the NUTS3 regions of V4 countries. It is to be noted that *we intend to apply our model with a confirmative aim, i.e.*, as it is established by Münnich & Hidegkuti (2012) in terms of the possibilities of use, *to check how the data confirm the currently hypothetical links between each form of capital*.

With the help of PLS path analysis (Figure 2), we developed a regression model which can explain the effect of the included factors on economic development among the NUTS3 regions of V4 countries. This above-mentioned economic development is represented by the factor having the same name, and the model features six additional factors. In what follows, we present the methodology, whose advantages were discussed by Tubadji and Nijkamp (2015), and we also described it in detail (Kovács & Bodnár 2016, 2017).

Figure 2 Dependencies of elements describing economic development – original **model**



Source: own construction

As it is described by Kovács and Bodnár (2016, 2017), the reliability of latent variables is often examined with Cronbach's alpha (α), which is built on the correlations between manifest

(directly observable) variables related to latent variables. This measure is expected to have a value of at least 0.6. However, in the PLS algorithm the Cronbach-α underestimates the extent of internal consistency as it assumes that each variable is assigned the same factor weight. This problem can be resolved by the composite reliability coefficient, which takes account of the different factor weight values of variables. Its value must exceed 0.7. In our analysis, these expectations are met in each case (Table 4).

Table 4 Attributes of forms of capital

Factor	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Economic Capital II.	0.654	0.851	0.741
Economic Capital I.	0.941	0.955	0.781
Demography I.	0.916	0.945	0.815
Demography II.	0.748	0.827	0.582
Social Capital	0.771	0.856	0.606
Human Capital (R&D)	0.851	0.891	0.673
Economic Development	0.954	0.970	0.915

Source: own construction

The authors (Kovács & Bodnár 2016, 2017) add that testing the validity of the latent construction means checking convergent and discriminant validity. In the former case, we study whether a set of variables is the representative of a given artificial variable. It can be tested with AVE (average variance extracted), which shows the average percentage of each latent variable retaining the variance of their manifest variables. The value of AVE is expected to be at least 0.5 (Henseler et al. 2009), which is realised in each case (see Table 2). Further test results confirming the reliability of the model are shown in the Annex[6].

RESULTS

PLS path analysis – the resulting model

After testing the latent variables, the question arises whether the direct links found in the model are significant. As the significance of the path coefficients cannot be examined directly in the

[6] In the analysis, each value met the expectation, except in the case of HTMT values (between social capital and economic capital I), which was indicated in the relevant table (Annex 3). The correlation between the mentioned two latent variables is quite high, but as they are clearly separate, we considered it justified to include them in the model.

analysis, we conducted the procedure through bootstrap sampling of 5000 subsamples. (See Table 5)

Table 5 Results of testing direct correlations in the model – P-values of the model

Path	Original Sample	T-Statistics	P Values
Economic Capital II. → Economic Capital I.	-0.166	3.379	0.001
Economic Capital I. → Economic Development	0.670	8.445	0.000
Demography I. → Economic Capital II.	-0.311	4.984	0.000
Demography I. → Demography II.	-0.669	12.375	0.000
Demography I. → Social Capital	0.879	11.147	0.000
Demography II. → Social Capital	0.753	9.399	0.000
Demography II. → Human Capital (R&D)	0.415	5.609	0.000
Social Capital → Economic Capital II.	-0.445	9.014	0.000
Social Capital → Economic Capital I.	0.726	11.284	0.000
Social Capital → Human Capital (R&D)	0.538	6.375	0.000
Human Capital (R&D) → Economic Capital I.	0.132	2.251	0.024
Human Capital (R&D) → Economic Development	0.279	2.621	0.009

** significant correlation for value p<0.01*

Source: own construction

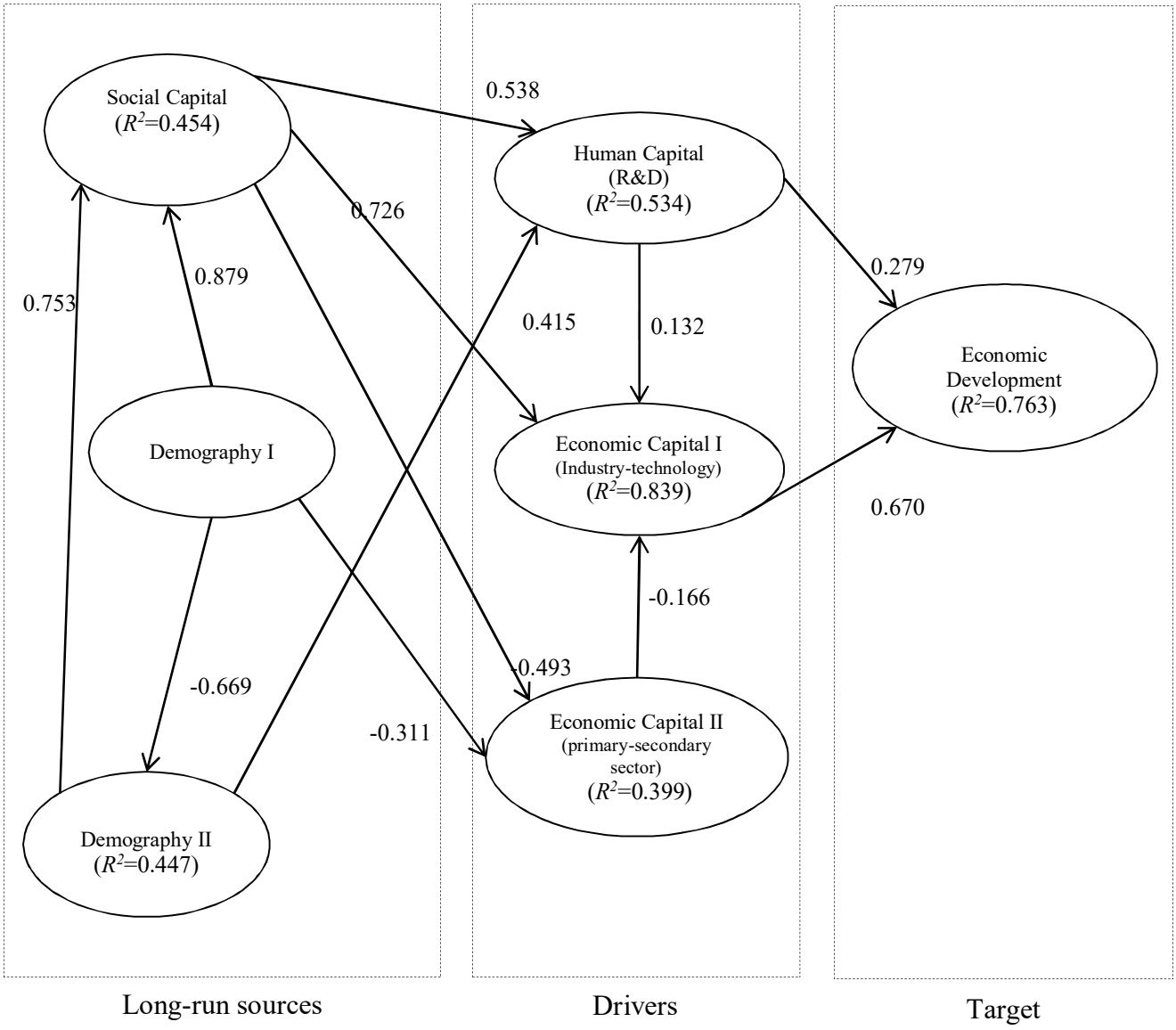
On the basis of the specificities of the indicators involved to measure the element describing the economy of the primary and secondary sector, a higher value is matched with a higher level of underdevelopment, thus the related path coefficients are negative. Furthermore, the direct effect between the two demography factors is also negative, which is also a result of the attributes of the indicators7.

Eliminating the non-significant direct paths, all the other six factors explain the element of economic development either directly or indirectly. Two paths shape the target variable directly, while four factors do so indirectly.

Similarly to the logic of the endogenous-type renewed Pyramid Model (Lengyel 2017), the factors can be categorised as follows: long-run source(s), driver(s), and target (Figure 3). In our model, long-run sources include social capital, demography I and demography II. Research and development, and the factors of the two economic capitals are the drivers, while economic development is the target. Based on model, the variance of this factor can be explained to over 76 per cent, i.e., it is formed by other elements not included in the model to less than 24 per cent.

[7] Thus, for instance, the question may arise whether higher population growth refers to higher development level for a region. To provide an answer is not the subject of our study.

Figure 3 Interactions of factors explaining economic development



Source: own construction

Economic development is directly affected by the factors of research and development and economic capital I. While the former has a weak, the latter has a medium strong effect.

Examining direct effects, more specifically the more significant ones, it can be observed that the factor of social capital has an effect on R&D, and it strongly influences economic capital I. At the same time, the construction of demography II affects demography I, and it also shapes the element of research and development with a value over three tenths.

As Hetesi and Révész (2013), we also tried to explore the extent of the direct and indirect effect each latent variable has on economic development. Direct effects, as it is described by the authors, correspond to the coefficients of the path analysis (see Figure 5); and the total effect is illustrated by Table 6.

Table 6 Values of total effect

	Economic Capital II.	Economic Capital I.	Demography II.	Social Capital	Human Capital (R&D)	Economic Development
Economic Capital II.		-0.166				-0.111
Economic Capital I.						0.670
Demography I.	-0.478	0.342	-0.669	0.375	-0.076	0.208
Demography II.	-0.335	0.710		0.753	0.819	0.705
Social Capital	-0.445	0.871			0.538	0.734
Human Capital (R&D)		0.132				0.368

Source: own construction

Social capital has a direct and medium strong effect (0.538) on the human element, while it has an indirect effect on the factor of economic development through R&D (0.539*0.279=0.150). It is interesting that the studied social factor affects the target variable in three more paths indirectly. It has an indirect effect (0.726*0.670=0.486) through the factor of economic capital I, and it shapes the element of economic development through the factors of R&D and economic capital I (0.538*0,132*0.670=0.048), in addition, it also has an influence through economic capitals I and II ((-0.445)*(-0.166)*0.670=0.049). I.e., the total effect of the social factor on economic development can be considered strong despite the fact that it has an influence "only" through indirect paths (0.150+0.486+0.048+0.049 ≈ 0.734). Besides, the target variable is affected significantly by demography II (0.705), also through four indirect paths. Furthermore, the target is significantly shaped by the economic capital (0.676) including the indicators of industry and technology, but human capital (R&D) (0.368) also has an effect.

The evaluation of the model includes Cohen's f2-values (effect size) (Table 7). The measure shows how the variance of an endogenous variable changes when eliminating an exogenous variable (Hair, Hult, Ringle & Sarstedt 2017, Kazár 2017). Based on the mentioned authors, an actual effect applies over a value of 0.02, and f2-values are medium over 0.15, while significant over 0.35 in terms of the endogenous variable.

Table 7 Values of f Square

Path	f^2
Economic Capital II. -- > Economic Capital I.	0.117
Economic Capital I. -- > Economic Development	1.140
Demography I. -- > Economic Capital II.	0.139
Demography I. -- > Demography II.	0.809
Demography I. -- > Social Capital	0.781
Demography II. -- > Social Capital	0.574
Demography II. -- > Human Capital (R&D)	0.359
Social Capital -- > Economic Capital II.	0.282
Social Capital -- > Economic Capital I.	1.618
Social Capital -- > Human Capital (R&D)	0.604
Human Capital (R&D) -- > Economic Capital I.	0.069
Human Capital (R&D) -- > Economic Development	0.198

Source: own construction

Consequently, if we test the specific f-values in our model (Table 7), it is clearly indicated that each path exceeds the threshold of 0.02, and the value of 0.15 with the exception of three. The correlation between social capital and economic capital I is particularly “exciting”, i.e. the value (1.618) shows that the former has a significant effect on the latter. Economic capital I has a similarly strong influence (1.140) on economic development. The correlation between demography capitals is lower but still considered high (0.809), as well as the effect of demography I on social capital (0.781), and that of social capital on human capital (0.604).

CONCLUSIONS

In our work, we reviewed the prominent literature of endogenous development in order to construct a model which can present various aspects of the theory. Furthermore, we attempted to measure the role of the capital factors of endogenous development in Central European contexts.

In our model tested with Partial Least Squares path analysis, we involved the latent variables defining the social and economic development of the regions of the Visegrad countries. Through categorising these variables into groups, we developed factors which can describe the various aspects of endogenous development. We created seven factors in total, of which social and the two demography constructions were considered long-run sources, while the factors of human capital, economic capital I and economic capital II were the drivers. The target was represented by the element of economic development, which, as it is reflected by its name, is the embodiment of the prospering Eastern and Central European territorial unit.

The latent variables of our model, except for one case, affected the factor of economic development positively, but to a different extent. Economic capital II, as a result of its indicators, has an inverse relationship with the target variable, although this effect is quite weak.

Economic development was most affected by the social factor (0.734) in an endogenous way, but it is shaped by demography II with a similar strength (0.705). It is an interesting fact that both fa ctors have an effect on the target variable only in indirect paths. Of the two direct effects, evidently economic capital I (0.670) is more significant, based on our results research and development is much less (0.279) significant in the examined Eastern and Central European regional context.

As a limitation, the territorial framework of the analysis must be emphasised, i.e., having limited possibilities due to the available set of indicators. As the group of Visegrad regions provided a special framework for the effect analysis of endogenous factors, in other environments, presumably, different effects prevail. The modest effect of the factor of human

capital and that of research and development can be mentioned as an example, i.e., this question requires further analyses.

An additional research direction may be the extension of the time horizon of the study and the dynamic analysis of the relations between the examined capitals. Different dates would offer an opportunity for a better and deeper understanding of the existing effect mechanisms, or they would also facilitate the preparation of forecasts, which could be useful for practitioners, as well as policy and decision makers.

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Annex

Annex 1 Correlation between factors

	Economic Capital II.	Economic Capital I.	Demography I.	Demography II.	Social Capital	Human Capital (R&D)	Economic Development
Economic Capital II.	1.000						
Economic Capital I.	-0.620	1.000					
Demography I.	-0.472	0.234	1.000				
Demography II.	-0.225	0.353	-0.511	1.000			
Social Capital	-0.547	0.909	0.335	0.243	1.000		
Human Capital (R&D)	-0.348	0.621	-0.076	0.527	0.616	1.000	
Economic Development	-0.566	0.846	0.126	0.457	0.745	0.694	1.000

Source: own construction

Annex 2 Values of HTMT indexes

Pairs of Latent Variables	Heterotrait-Monotrait ratio (HTMT)
Economic Capital I. -- > Economic Capital II.	0.787
Demography I. -- > Economic Capital II.	0.625
Demography I. -- > Economic Capital I.	0.296
Demography II. -- > Economic Capital II.	0.374
Demography II. -- > Economic Capital I.	0.388
Demography II. -- > Demography I.	0.672
Social Capital -- > Economic Capital II.	0.806
Social Capital -- > Economic Capital I.	1.015*
Social Capital -- > Demography I.	0.529
Social Capital -- > Demography II.	0.410
Human Capital (R&D) -- > Economic Capital II.	0.418
Human Capital (R&D) -- > Economic Capital I.	0.602
Human Capital (R&D) -- > Demography I.	0.277
Human Capital (R&D) -- > Demography II.	0.615
Human Capital (R&D) -- > Social Capital	0.658
Economic Development -- > Economic Capital II.	0.708
Economic Development -- > Economic Capital I.	0.867
Economic Development -- > Demography I.	0.198
Economic Development -- > Demography II.	0.496
Economic Development -- > Social Capital	0.800
Economic Development -- > Human Capital (R&D)	0.683

*: Above the expected value

Source: own construction

Original scientific paper

A GAZDASÁGI TELJESÍTMÉNY ÉS AZ ÜVEGHÁZHATÁSÚ GÁZOK KIBOCSÁTÁSA KÖZÖTTI KAPCSOLAT AZ EU ORSZÁGAIBAN, KÜLÖNÖS TEKINTETTEL AZ „I" GAZDASÁGI ÁGRA

THE RELATIONSHIP BETWEEN ECONOMIC PERFORMANCE AND GREENHOUSE GAS EMISSIONS IN EU COUNTRIES, ESPECIALLY IN SECTOR „I"

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Abstract

Nowadays, no one is questioning the fact that climate change is taking place, and this is partly due to anthropogenic emissions. Tourism also contributes to greenhouse gas emissions alongside large emitting sectors, but its impact is very challenging to quantify. For the Member States of the European Union, data on gross value added (GVA) and greenhouse gas emissions were used from the Eurostat database for the entire national economy and Section I (tourism) for the period 2008-2019. In our research, we aim to look for the phenomenon of absolute decoupling in the economy and tourism sector of the Member States of the European Union. Looking for states for which tourism (Section I) has an absolute decoupling feature, their good practice and policy can serve as an example for other Member States.

Keywords: climate change, Section I, gross domestic product, greenhouse gas emission, regression

Összefoglaló

Napjainkban senki sem kérdőjelezi meg azt a tényt, hogy klímaváltozás zajlik és ez részben az antropogén kibocsátásoknak köszönhető. Az üvegházhatású gázok kibocsátásához a turizmus is hozzájárul a nagy kibocsátó szektorok mellett, de a hatása igen nehezen számszerűsíthető. Az Európai Unió tagállamaira vonatkozóan az Eurostat adatbázisából a bruttó hozzáadott érték és a kibocsátott üvegházhatású gázok mennyiségére vonatkozó adatok kerültek felhasználásra a teljes nemzetgazdaságra és az I nemzetgazdasági ágra (turizmus) vonatkozóan 2008-2019 közötti időszakban. Kutatásunkban célul tűztük ki, hogy az abszolút decoupling jelenségét keressük az Európai Unió tagállamainak gazdasága és turizmus szektora esetében. Megkeresve azon államokat, amelyek esetében a turizmusban (I nemzetgazdasági ágban) abszolút decoupling jellemző, jó gyakorlatuk példaként szolgálhat a többi tagállam számára is.

Kulcsszavak: klímaváltozás, I nemzetgazdasági ág, bruttó hozzáadott érték, üvegházhatású gázkibocsátás, regresszió

BEVEZETÉS

Mára már megkérdőjelezhetetlen tény a klímaváltozás folyamata és annak antropogén eredete. Széleskörben elfogadott a nézet, miszerint az emberi tevékenység, ami az üvegházhatású gázok koncentrációjának emelkedését indukálta, klímaváltozáshoz vezet (Sun et al., 2014). Nemrég jelentette meg az IPCC Hatodik Helyzetértékelő Jelentését, ami a természettudományi vonatkozások mellett a következményeket is tanulmányozza. Az üvegházhatású gázok kibocsátásához nem csak a leggyakrabban említett közlekedés és energiaszektor járul hozzá, hanem a turizmus is, aminek a hatása igen nehezen számszerűsíthető.

A világgazdaság egyik legdinamikusabban fejlődő gazdasági ágazata a turizmus, Európa turizmusa pedig ezen belül is jelentős vezető szerepet képvisel, ez pedig megannyi természetes és kulturális vonzerejének köszönhető. A turizmus már önmagában is elég bonyolult definiálást igényel: „Értelmezhetjük, mint a személyek mozgását, áramlását, az egyének szükségleteit és ezek kielégítését, valamint a gazdaság fontos szegmensét." (Kardos, 2011) A WTO által pedig hivatalosan is elfogadott megfogalmazása Lengyel Mártonnak köszönhető, mely úgy hangzik: „Turizmus alatt egyrészt az ember állandó életvitelén és munkarendjén (lakásán és munkahelyén) kívüli valamennyi helyváltoztatását és tevékenységét értjük, bármi legyen azok konkrét indítéka, időtartama és célterülete. A turizmus másrészt az ezzel kapcsolatos igények kielégítésére létrehozott anyagi-technikai és szervezeti feltételek, valamint szolgáltatások együttese." (Lengyel, 1997). A turizmus rendszere sok hatástól függ és igen érzékeny, ilyenek a természeti, környezeti, társadalmi, kulturális, vagy épp technológiai adottságok, melyek meghatározzák az adott idegenforgalmi régió turisztikai intenzitását és fejlődését, emellett pedig erős kapcsolatban van a gazdasági helyzettel is, hiszen a turizmus fejlődésének dinamikáját nem csak a kínálat sokszínűsége, de a keresleti oldal is éppúgy befolyásolja, vagyis a turisták diszkrecionális jövedelme, motivációja és szabadidejük. Egy turisztikai termék szolgáltatásnak minősül, hiszen megfoghatatlan, így szállítani sem lehet, ezáltal minden esetben a turista megy a turisztikai termékhez. Emellett erős szerepe van a termékek szezonalitásának, illetve a politikai és gazdasági események hatásának is. Egy turisztikai tevékenység által, több más gazdasági szektor elemeivel is kapcsolatba kerülünk, így ahhoz, hogy hiteles értéket kapjunk a turizmus gazdaságban betöltött szerepéről a Nemzeti Számlák Rendszere részeként bevezetett „turizmus szatellitszámla" (TSA) értékei tájékoztatnak. Ennek célja, hogy a turizmus közvetett és közvetlen gazdasági kapcsolatait mérni tudjuk, beleértve a turizmusban gyakran

előforduló továbbgyűrűződő hatást, melynek nehéz követhetősége megnehezíti a turizmus tényleges gazdasági szerepére való rálátást, ezen felül segítséget nyújt abban, hogy az országok turizmusának hatásai összehasoníthatóak legyenek (Palancsa, 2005). „A turizmus szatellit számlák módszertani alapját az OECD (Gazdasági Együttműködési és Fejlesztési Szervezet), az UNSD (ENSZ Statisztikai Részlege) és az UNWTO (ENSZ Turisztikai Világszervezete) által jóváhagyott Tourism Satellite Account: Recommended Methodological Framework 2008 (TSA: RMF 2008) határozza meg" (Hinek, 2020). Az országok ettől saját turizmusukhoz igazodva némileg eltérhetnek. Bár a turizmus hozzájárulása igen nehezen ragadható meg, a Nemzeti Számlák Rendszerében meghatározott „I" nemzetgazdasági ág (szálláshelyszolgáltatás és vendéglátás) adatai nemzetközileg összehasonlítható adatokat szolgáltatnak, ami segítségünkre lehet a turizmus szektor működésének értékelésében a klímaváltozás kontextusában.

ELMÉLETI HÁTTÉR

A turizmus az európai országok többsége esetében fontos gazdasági szektor. A globális, európai és nemzeti kibocsátáscsökkentési célok elérése érdekében fontos a kibocsátás csökkentése ebben a szektorban is (Neger et al., 2021). A turizmus nem csak hozzájárul a klímaváltozás fokozódását generáló üvegházhatású gázok kibocsátásához, de egyben igen érzékeny is a klímaváltozás hatásaira (Njorge, 2015). Napjainkban igen fontos kérdés a turizmus és a klímaváltozás közötti összefüggések feltárása és a szektor sérülékenységének vizsgálata (Kocak et al., 2020). Lee és Brahmasrene (2013) kutatásai alapján a turizmus stimulálja a gazdasági növekedést. A gazdasági növekedés korrelál a magasabb szén-dioxid kibocsátással, ami részben a nagyobb energiafelhasználásnak köszönhető. Eredményeik szerint az európai államokban a növekvő turizmus nem jár együtt növekvő kibocsátással a kibocsátáscsökkentő szabályozások és jó gyakorlatok miatt. A low-carbon gazdaság a régió turizmusát környezetbarátabbá tette.

Számos mutató szolgál a karbonhatékonyság, illetve a szennyezőanyagok kibocsátásának és a gazdasági növekedésnek szétválását jellemző decoupling jelenség jellemzésére. Legtöbb esetben a szakirodalomban a Tapio-féle (2005) decoupling rugalmassági együtthatóval találkozhatunk (Vavrek és Chovancova, 2016; Wang és Wang, 2019; Li et al., 2021; Tang et al., 2014). A gazdasági növekedés és az üvegházhatású gázkibocsátás közötti, a

környezetvédelmi szempontok szemszögéből kedvező kapcsolat két fő típussal jellemezhető. 1. Relatív decouplingnak nevezzük, mikor a gazdasági mutató (pl. GDP) növekedési üteme magasabb, mint a kibocsátott szennyezőanyagok növekedési üteme (Ballingall et al., 2003). Ez viszonylag gyakori jelenség. 2. Környezetvédelmi szempontból azonban kedvezőbb az abszolút decoupling, mikor a gazdasági növekedéshez (GDP emelkedő trendje) csökkenő tendencia párosul a kibocsátás terén (Vavrek és Chovancova, 2016).

Kutatásunkban célul tűztük ki, hogy az abszolút decoupling jelenségét keressük az Európai Unió tagállamainak gazdasága és turizmus szektora esetében. Megkeresve azon államokat, amelyek esetében a turizmusban („I" nemzetgazdasági ágban) abszolút decoupling jellemző, jó gyakorlatuk példaként szolgálhat a többi tagállam számára is.

ADATOK ÉS ELEMZÉSI MÓDSZEREK

Vizsgálatainkhoz az Eurostat nyílt adatbázis által közölt adatokat használtuk fel az Európai Unió 27 tagállamára vonatkozóan, ahonnét a bruttó hozzáadott érték és a kibocsátott üvegházhatású gázok mennyiségére vonatkozó adatokat töltöttük le a teljes nemzetgazdaságra és az „I" nemzetgazdasági ágra (szálláshelyszolgáltatás és vendéglátás) vonatkozóan. 2008 és 2019 között álltak rendelkezésre hiánytalanul az Európai Unió tagállamaira vonatkozó adatok, melyeket éves bontásban vizsgáltunk. Szeretnénk hangsúlyozni, hogy a vizsgált „I" nemzetgazdasági ág nem fedi le a turizmus teljes egészét, mind a bruttó hozzáadott érték, mind az üvegházhatású gázkibocsátás adatai esetében sem. A „I" szektor kifejezetten a szálláshely szolgáltatás és vendéglátás által termelt értékeket méri, ezen felül azonban több más gazdasági ágazat is szerepet játszik a turizmus összességében, így mikor a turizmus hatását említjük, az jelen esetben az „I" nemzetgazdasági ágra vonatkozóan értelmezendő.

Az üvegházhatású gázkibocsátás adatai az Eurostat oldalán elérhető „NACE Rev. 2" [env_ac_ainah_r2] [Nomenclature statistique des activités économiques dans la Communauté européenne – Gazdasági tevékenységek statisztikai osztályozása] adatbázisból származik, a kibocsátást ezer tonnában megadva alkalmaztuk. Ezt használtuk fel a levegőszennyezés mutatójaként. Az adatbázis összességében és nemzetgazdasági ágakra bontva megadja az EU tagállamainak éves üvegházhatású gázkibocsátását. A Eurostat magyarázó metaadatai szerint az említett adatbázis 64 NACE Rev.2. alapján meghatározott gazdasági ágra, ágazatra és a háztartásokra vonatkozóan megadja az üvegházhatású gázok kibocsátott éves mennyiségét (összesen és gázonként), illetve a kibocsátott egyéb légszennyező anyagok mennyiségét is. Az alap koncepció és az elvek megegyeznek a Nemzeti Számlák Rendszerében alkalmazottakkal.

Teljes adatbázis 2008-tól áll rendelkezésre. A bruttó hozzáadott érték millió euró mértékegységben megadva a nemzeti számlák aggregátumainak nemzetgazdasági ágak szerinti „up to NACE A*64" [nama_10_a64] adatai alapján kerültek a számításainkba, mint a gazdasági teljesítmény mutatója (Eurostat Database, az adatok letöltésének időpontja: 2021.01.25.).

Statisztikai módszerek:

A bruttó hozzáadott érték és az összes kibocsátott üvegházhatású gáz mennyisége közötti összefüggést először pontdiagramok szerkesztésével vizsgáltuk minden tagállamra vonatkozóan mind a teljes nemzetgazdaság, mind az „I" nemzetgazdasági ág esetében. (Ilyen pontdiagramokat mutat be példaként a 2., 3., 4., 5. ábrák b) része.) A legtöbb esetben a pontdiagramok alapján feltételezhető volt a lineáris összefüggés a bruttó hozzáadott érték és a kibocsátott üvegházhatású gázok mennyisége között, ezért a kapcsolatot egységesen a Pearson-féle lineáris korrelációs együttható segítségével jellemeztük, ami megmutatja az ismérvek lineáris kapcsolatának szorosságát és irányát is. A korrelációs együttható értéke (-1) és 1 közé eshet. Előjele a kapcsolat irányára utal, míg értéke a szorosságára.

A regressziós modell segítségével mennyiségi ismérvek közötti oksági összefüggéseket tárunk fel. Számításainkban a lineáris regressziófüggvényt alkalmaztuk. Az, hogy az egyenes meredeksége szignifikánsan eltér-e a nullától, adott feltételek mellett a minta alapján statisztikai próba keretében igazolható. A hipotézisvizsgálat nullhipotézise szerint az egyenes meredeksége nem tér el igazolhatóan nullától. Az alternatív hipotézisben azt feltételeztük, hogy a meredekség értéke szignifikánsan eltér nullától, ami azt jelenti, hogy a független változó megváltozása valamilyen mértékben maga után vonja a függő változó változását. Az egyenes meredekségére vonatkozó hipotézisvizsgálatot ebben az esetben kétoldali próbaként írhatjuk fel, és adott szignifikancia szint (α) mellett tudunk döntést hozni a hipotézisekről az empirikus szignifikancia szint (p-érték) alapján. Amennyiben a kapott p-érték kisebb értéket vesz fel, mint a rögzített szignifikancia szint, amit 5%-ban határoztunk meg, a nullhipotézis elutasításra kerül, az alternatív hipotézis kerül elfogadásra, vagyis az illesztett egyenes meredeksége szignifikáns.

A jelenségek időbeli alakulásának jellemzésére használjuk a trendszámítást, ami az alaptendencia közelítésére alkalmas. Az analitikus trend függvény nem más, mint regressziós függvény, ahol a magyarázó (tehát független) változó az idő (t) lesz. Vizsgálatainkban a lineáris megközelítést alkalmazzuk.

EREDMÉNYEK

Vizsgálatunk során először értékeljük a tagállamok teljes üvegházhatású gázkibocsátásának és GDP-jének kapcsolatát, majd külön megvizsgáljuk a I nemzetgazdasági ág esetében ezt az összefüggést. A korrelációs együtthatók értékeit az *1. táblázat* tartalmazza.

1. Táblázat A lineáris korrelációs együttható értéke a bruttó hozzáadott érték és az üvegházhatású gázok kibocsátott éves mennyisége között a különböző tagállamok esetében (2008-2019)

Tagállamok	Lineáris korrelációs együttható	
	Teljes gazdaság	I nemzetgazdasági ág
Belgium	-0,68	0,85
Bulgária	-0,57	0,27
Csehország	-0,36	-0,77
Dánia	-0,73	-0,78
Németország	-0,80	-0,88
Észtország	-0,37	-0,47
Írország	0,91	0,22
Görögország	0,90	0,02
Spanyolország	-0,13	0,36
Franciaország	-0,89	-0,79
Horvátország	-0,04	0,22
Olaszország	-0,55	-0,35
Ciprus	0,16	0,90
Lettország	0,27	-0,25
Litvánia	0,42	-0,51
Luxemburg	0,42	0,75
Magyarország	0,06	-0,34
Málta	0,24	0,84
Hollandia	-0,75	-0,15
Ausztria	-0,47	-0,43
Lengyelország	-0,29	-0,83
Portugália	-0,14	0,60
Románia	-0,55	0,75
Szlovénia	-0,10	-0,28
Szlovákia	-0,68	-0,60
Finnország	-0,82	-0,95
Svédország	-0,78	-0,92

Mivel a korrelációs mérőszámok szignifikanciavizsgálatára nem helyeztünk hangsúlyt, így részletesebb elemzésüktől eltekintünk, és tájékoztató jellegűnek tartjuk csak. A lineáris kapcsolat igazolhatóságára a lineáris regressziós függvény illesztésével igyekeztünk fényt deríteni. A teljes üvegházhatású gázkibocsátás és a bruttó hozzáadott érték kapcsolatát az egyszerű korrelációs mérőszám után lineáris regressziós függvény illesztésével közelítettük (*2. táblázat*). Elsődlegesen az abszolút decoupling kimutathatóságát kerestük. Bár erre utalhat a

lineáris korrelációs együttható értéke, de mivel annak szignifikanciáját nem vizsgáltuk, a lineáris regressziós együttható szignifikanciája alapján kaphatunk megbízhatóbb képet a kérdésről. Az abszolút decoupling kifejezés a gazdasági fejlődés és a környezetterhelés szétválására vonatkozik úgy, hogy a környezetterhelés a gazdasági teljesítmény növekedése mellett csökkenést mutat. Ennek megfigyelése azért bírhat nagy jelentőséggel, mert az egyes tagállamok által követett éghajlat politika eredményessége a megfigyelt 12 évben már jól megmutatkozhat, ezáltal pedig a kevésbé eredményes országok számára egy optimálisabb lehetőséget kínálhat, mint jó gyakorlat.

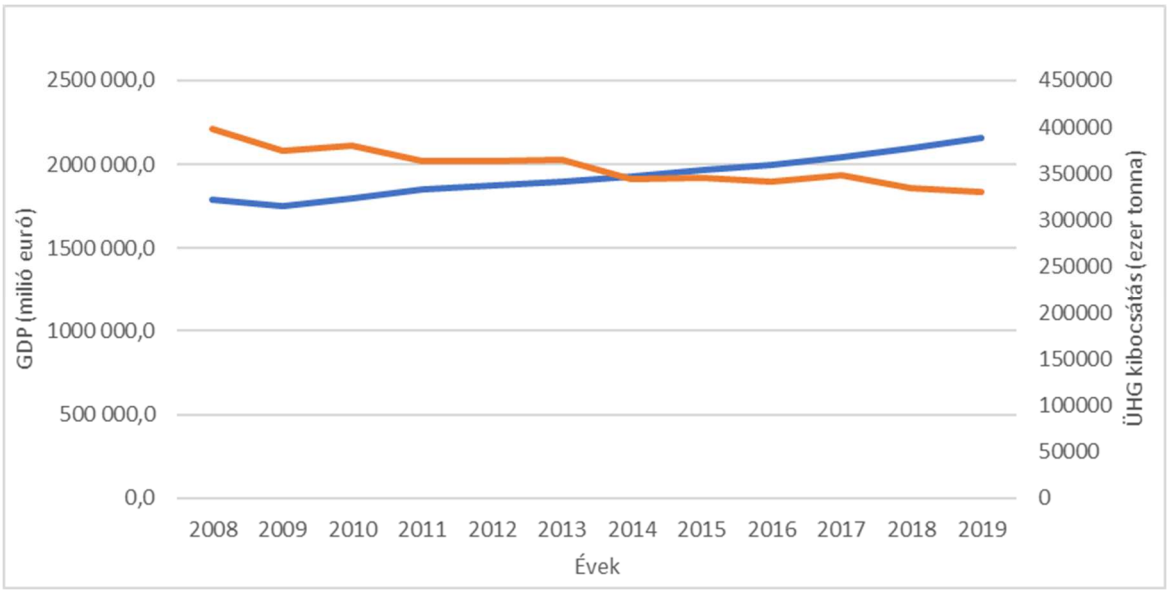
2. Táblázat A gazdasági teljesítmény és a kibocsátás közötti regresszió eredményei (2008-2019 között)

Tagállamok	Teljes nemzetgazdaság		I nemzetgazdasági ág	
	A GDP (millió EUR) és az ÜHG kibocsátás (ezer tonna) közötti regresszió eredménye		A GDP (millió EUR) és az ÜHG kibocsátás (ezer tonna) közötti regresszió eredménye	
	meredeksége	p-értéke	meredeksége	p-értéke
Belgium	-0,107	**0,014***	0,133	**0,000***
Bulgária	-0,320	0,055	0,019	0,392
Csehország	-0,106	0,250	-0,077	**0,003***
Dánia	-0,237	**0,007***	-0,034	**0,003***
Németország	-0,115	**0,002***	-0,041	**0,000***
Észtország	-0,214	0,242	-0,080	0,125
Írország	0,105	**0,000***	0,020	0,500
Görögország	0,438	**0,000***	0,006	0,942
Spanyolország	-0,052	0,694	0,006	0,250
Franciaország	-0,140	**0,000***	-0,064	**0,002***
Horvátország	-0,030	0,910	0,002	0,489
Olaszország	-0,386	0,062	-0,032	0,265
Ciprus	0,106	0,621	0,133	**0,000***
Lettország	0,051	0,390	-0,017	0,442
Litvánia	0,088	0,175	-0,005	0,091
Luxemburg	0,022	0,173	0,034	**0,005***
Magyarország	0,011	0,863	-0,023	0,282
Málta	0,029	0,461	0,005	**0,001***
Hollandia	-0,084	**0,005***	-0,006	0,639
Ausztria	-0,037	0,123	-0,015	0,160
Lengyelország	-0,048	0,359	-0,055	**0,001***
Portugália	-0,046	0,666	0,025	**0,041***
Románia	-0,209	0,064	0,008	**0,005***
Szlovénia	-0,031	0,756	-0,046	0,373
Szlovákia	-0,190	**0,014***	-0,039	**0,041***
Finnország	-0,372	**0,001***	-0,031	**0,000***
Svédország	-0,060	**0,003***	-0,004	**0,000***

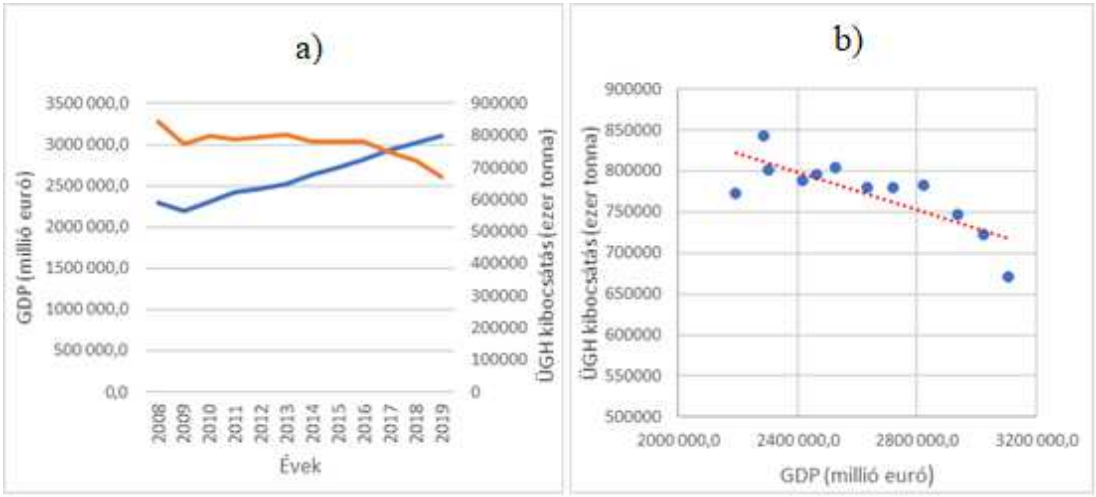
* 5%-os szignifikancia szint mellett szignifikáns eredmény

Szignifikáns negatív összefüggés áll fenn a teljes nemzetgazdaság által előállított bruttó hozzáadott érték és az általa kibocsátott üvegházhatású gázok mennyisége között Belgium, Dánia, Németország, Franciaország, Hollandia, Szlovákia, Finnország, Svédország esetében. Ezen államok esetében megvalósul az abszolút decoupling a teljes nemzetgazdaság vonatkozásában. Példaként a következő ábrákon (*1.-2. ábra*) szemléltetjük az abszolút decoupling jelenségét azon államok esetében, ahol szignifikáns negatív összefüggés figyelhető meg az adatok között. Szignifikáns pozitív összefüggés mutatható ki Írországra (*3. ábra*) és Görögországra vonatkozóan a vizsgált 2008-2019 közötti időszakban. Fontos megemlíteni, hogy a vizsgált időszakban minden nemzetgazdaság esetében szignifikáns növekvő tendencia mutatkozik a bruttó hozzáadott értékben két kivételtől eltekintve (Horvátország és Ciprus, azonban itt is pozitív irányú a tendencia, csak az nem szignifikáns) (*3. táblázat*). Görögország esetében a GDP szignifikánsan csökkent.

1. ábra Franciaország teljes bruttó hozzáadott értéke (kék vonal) és üvegházhatású gázkibocsátásának (narancs vonal) időbeli alakulása (2008-2019)

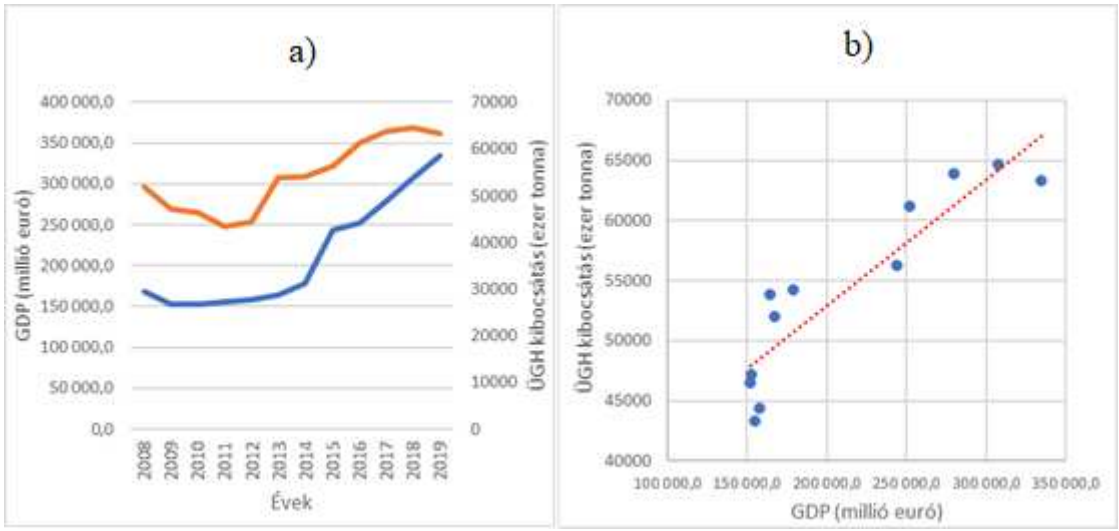


2 .ábra Németország teljes bruttó hozzáadott értéke (kék vonal) és üvegházhatású gázkibocsátása (narancs vonal) időbeli alakulása (a), valamint a két változó kapcsolata (b) (2008-2019)



A levegőszennyezés és a gazdasági teljesítmény együttes növekedése figyelhető meg Írország esetében, ami a klímaváltozás szempontjából előnytelen (*3. ábra*).

3. ábra Írország teljes bruttó hozzáadott értéke (kék vonal) és üvegházhatású gázkibocsátása (narancs vonal) időbeli alakulása (a), valamint a két változó kapcsolata (b) (2008-2019)



Adataink idősoros adatok, ezért az abszolút decoupling azonosításához érdemes megvizsgálni azok tendenciáit is részletesebben (*3. táblázat*).

3. Táblázat A bruttó hozzáadott érték és az üvegházhatású gázok idősorainak vizsgálata az EU országaiban

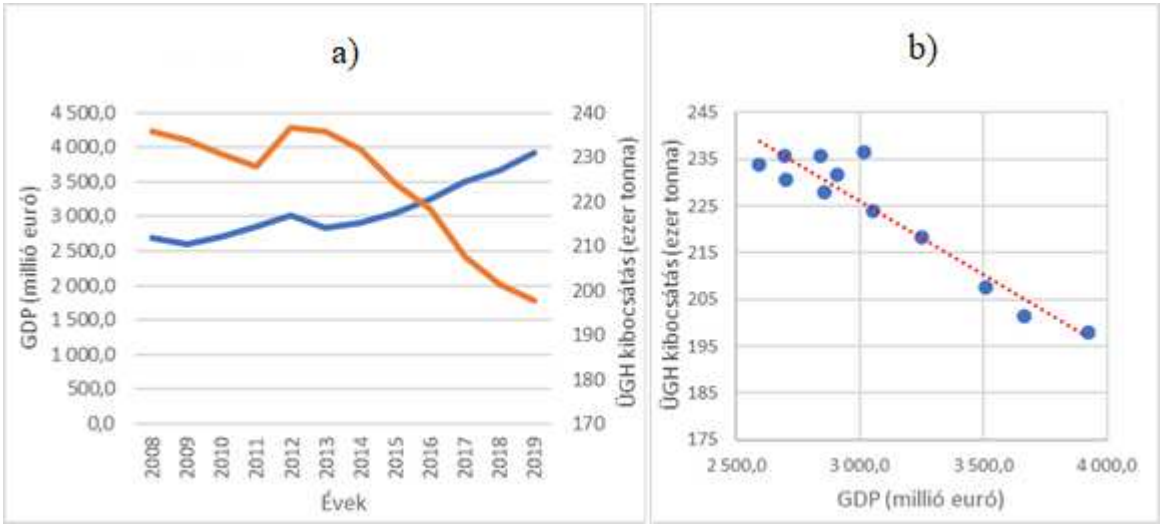
* 5%-os szignifikancia szint mellett szignifikáns eredmény

Tagállam	Teljes nemzetgazdaság				I nemzetgazdasági ág			
	GDP (millió EUR)		ÜHG (ezer tonna)		GDP (millió EUR)		ÜHG (ezer tonna)	
	meredekség	p-érték	meredekség	p-érték	meredekség	p-érték	meredekség	p-érték
Belgium	10395,27	**0,00***	-1246,89	**0,00***	247,50	**0,00***	34,89	**0,00***
Bulgária	1771,64	**0,00***	-675,28	**0,02***	54,68	**0,00***	0,82	0,54
Csehország	4863,48	**0,00***	-1360,32	**0,00***	48,97	0,26	-8,79	**0,03***
Dánia	6404,19	**0,00***	-1770,63	**0,00***	153,29	**0,00***	-6,10	**0,00***
Németország	83153,70	**0,00***	-9831,18	**0,00***	1844,45	**0,00***	-71,05	**0,00***
Észtország	979,19	**0,00***	-188,33	0,32	25,90	**0,00***	-1,81	0,21
Írország	17076,53	**0,00***	1852,94	**0,00***	202,56	**0,00***	-5,77	0,39
Görögország	-5523,05	**0,00***	-3014,35	**0,00***	92,54	0,37	-77,18	**0,00***
Spanyolország	9387,74	**0,06***	-5503,57	**0,00***	911,52	**0,02***	-1,56	0,84
Franciaország	34731,90	**0,00***	-5238,23	**0,00***	1500,12	**0,00***	-107,45	**0,00***
Horvátország	342,38	0,11	-507,25	**0,00***	127,00	**0,00***	0,07	0,86
Olaszország	13767,13	**0,00***	-10124,29	**0,00***	1023,69	**0,00***	-75,96	**0,01***
Ciprus	159,86	0,12	-142,17	**0,03***	39,51	**0,00***	5,51	**0,00***
Lettország	715,61	**0,00***	-0,22	1,00	22,45	**0,00***	-0,93	0,07
Litvánia	1554,28	**0,00***	44,65	0,69	41,50	**0,00***	-0,22	0,09
Luxemburg	2230,55	**0,00***	41,00	0,26	31,91	**0,00***	1,15	**0,00***
Magyarország	3182,43	**0,00***	-321,55	0,15	58,31	**0,03***	-4,08	**0,02***
Málta	618,07	**0,00***	17,16	0,49	31,04	**0,00***	0,18	**0,00***
Hollandia	13008,51	**0,00***	-1213,49	**0,00***	607,92	**0,00***	0,40	0,96
Ausztria	8963,47	**0,00***	-413,88	**0,05***	627,87	**0,00***	-12,02	0,07
Lengyelország	14033,82	**0,00***	-936,04	0,22	250,36	**0,00***	-16,05	**0,00***
Portugália	2306,44	**0,01***	-592,53	**0,05***	352,53	**0,00***	5,94	0,26
Románia	7279,48	**0,00***	-2658,68	**0,00***	261,23	**0,00***	1,68	0,10
Szlovénia	823,27	**0,00***	-189,83	**0,04***	28,79	**0,00***	-4,00	**0,01***
Szlovákia	2193,23	**0,00***	-477,90	**0,00***	45,64	**0,00***	-2,17	**0,01***
Finnország	3910,24	**0,00***	-1678,62	**0,00***	108,05	**0,00***	-3,35	**0,00***
Svédország	11895,04	**0,00***	-853,26	**0,00***	355,96	**0,00***	-1,51	**0,00***

Ha az abszolút decoupling definícióját vesszük alapul, vagyis a bruttó hozzáadott érték szignifikáns növekedése a kibocsátott üvegházhatású gázok mennyiségének szignifikáns csökkenésével jár együtt, akkor megvizsgálva az idősorokat, megállapítható a teljes nemzetgazdaság esetében, hogy megfigyelhető ez a jelenség a korábban említetteken túl az alábbi országokat illetően is: Bulgária, Csehország, Spanyolország, Olaszország, Ausztria, Portugália, Románia, Szlovénia. Az idősorok tendenciáinak megfigyelése arra is rávilágít, hogy Görögország esetében kapott szignifikáns pozitív összefüggés abból fakad, hogy mind a bruttó hozzáadott érték, mind a kibocsátás szignifikánsan csökkent a vizsgált időszakban.

Ezután az „I" nemzetgazdasági ágra helyeztük a hangsúlyt. Negatív szignifikáns eredményt mutatott a regresszió az alábbi országok esetében: Csehország, Dánia, Németország, Franciaország, Lengyelország, Finnország, Svédország, Szlovákia. Közülük példaként a meglehetősen erős negatív korreláció miatt Finnországot emelnénk ki. A korrelációs együttható alapján Finnország esetében az „I" nemzetgazdasági ág által kitermelt GDP és üvegházhatású gázkibocsátás kapcsolata (r = -0,95) igen erős. Ennek ábrázolása során, mely a *4. ábra* jobb oldalán látható (b), valóban látszik, hogy szinte a regressziós egyenesre illeszkedve helyezkednek el az értékek. A *4. ábra* bal oldalán (a) jól látszik az ellenkező irányú tendencia a nemzetgazdasági ág által termelt GDP és a kibocsátás mennyisége tekintetében, ami az abszolút decoupling szerinti elvárásunk.

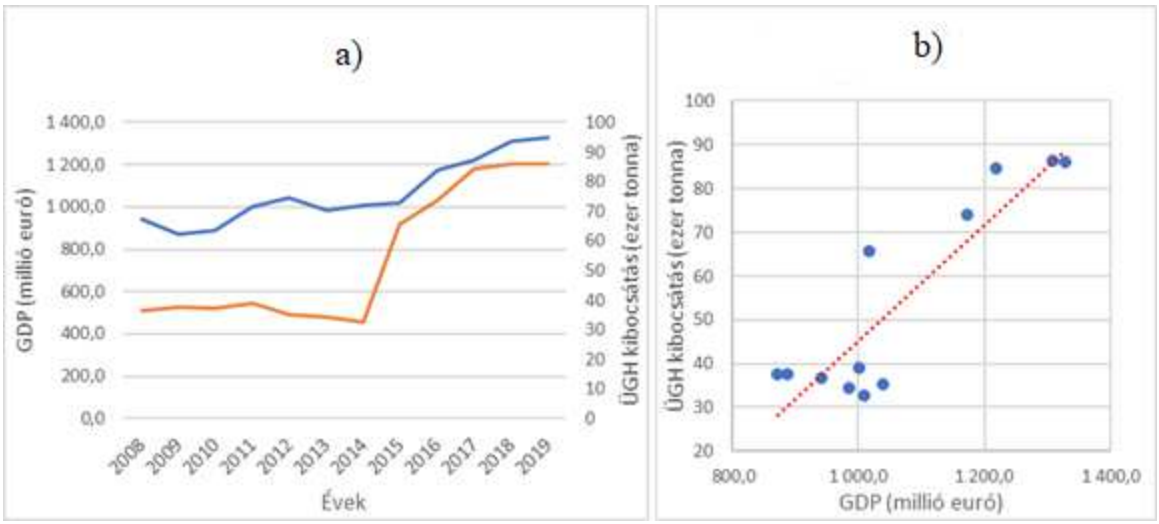
4. ábra Finnország „I" szektor bruttó hozzáadott értéke (kék vonal) és üvegházhatású gázkibocsátása (narancs vonal) időbeli alakulása (a), valamint a két változó kapcsolata (b) (2008-2019)



A vizsgált időszakban a *3. táblázatban* szereplő eredmények alapján megfigyelhető még az abszolút decoupling Olaszország, Magyarország, Szlovénia esetében is a szignifikáns trendeket

figyelembe véve. Ciprus (r = 0,90) esetében pozitív irányú erős kapcsolat mutatkozik az „I” nemzetgazdasági ág GDP-je és kibocsátása között (*1. táblázat*), ezért ezt az államot, mint előnytelen esetet mutatjuk be (*5. ábra*). Az „I” nemzetgazdasági ág által termelt bruttó hozzáadott érték szignifikáns növekvő tendenciát mutat a 2008-2019 között, és a kibocsátott üvegházhatású gázok mennyisége is. Ugyanez az összefüggés figyelhető meg Belgium, Luxemburg és Málta esetében is az illesztett lineáris trendek alapján.

5. ábra Ciprus „I” szektor bruttó hozzáadott értéke (kék vonal) és üvegházhatású gázkibocsátása (narancs vonal) időbeli alakulása (a) és a változók közötti kapcsolat (b) (2008-2019)



EREDMÉNYEK ÉRTÉKELÉSE

Vizsgálataink alapján szignifikáns negatív összefüggés mutatható ki a teljes nemzetgazdaság által előállított bruttó hozzáadott érték és az általa kibocsátott üvegházhatású gázok mennyisége között Belgium, Dánia, Németország, Franciaország, Hollandia, Szlovákia, Finnország és Svédország esetében. Ha az abszolút decoupling definícióját tekintjük, akkor a teljes nemzetgazdaságra vonatkozóan megfigyelhető ez a jelenség a korábban említetteken túl az alábbi országok esetében is: Bulgária, Csehország, Spanyolország, Olaszország, Ausztria, Portugália, Románia és Szlovénia. Az „I” nemzetgazdasági ág teljesítményét vizsgálva negatív szignifikáns eredményt mutatott a regresszió az alábbi országok esetében: Csehország, Dánia, Németország, Franciaország, Lengyelország, Finnország, Svédország, Szlovákia. Szintén ragaszkodva az abszolút decoupling definíciójához, az „I” szektor esetében megfigyelhető még ez a jelenség Olaszország, Magyarország, Szlovénia esetében is a szignifikáns trendek alapján.

Az eredmények közül kiemelendő Belgium esete, ahol a teljes nemzetgazdaságra jellemző a vizsgált időszakban az abszolút decoupling, míg az I nemzetgazdasági ágra nem. Ott éppen ellenkező, a klímavédelem szempontjából előnytelen kép mutatkozik. Szintén érdekes Görögország helyzete, mert a teljes nemzetgazdaság esetében a bruttó hozzáadott érték és a kibocsátás is csökkent, feltehetően az utóbbi az előbbi következménye volt. Viszont az „I" nemzetgazdasági ág esetében azt látjuk, hogy a bruttó hozzáadott érték nem (!) szignifikáns emelkedő trendje mellett az üvegházhatású gázok kibocsátása szignifikánsan csökkent. A teljes nemzetgazdaság és az „I" nemzetgazdasági ág esetében is abszolút decoupling figyelhető meg Dánia, Németország, Franciaország, Olaszország, Szlovénia, Szlovákia, Finnország és Svédország esetében. Bodur et al. (2021) szerint 10 Európai Uniós tagállamban figyelhető meg abszolút decoupling 1990-2017 közötti periódusban a teljes nemzetgazdaságot vizsgálva. Ezek a tagállamok Belgium, Görögország, Svédország, Németország, Portugália, Magyarország, Szlovákia, Szlovénia, Csehország és az azóta már nem tagállam Egyesült Királyság. A KSH egy 2015-ben közzétett tanulmánya szerint hazánkban abszolút szétválás volt megfigyelhető az 1995–2013-as időszakban a légszennyezőanyag-kibocsátás és a nemzetgazdaság bruttó hozzáadott értékének növekedése között. Mesteri és Kocsis (2020) megállapításai alapján Magyarországon az „I" nemzetgazdasági ág karbonhatékonyságában évente átlagosan 5,8 százalékos javulás volt megfigyelhető 1995 és 2017 között.

KONKLÚZIÓ

Az eredmények azt mutatják, hogy Csehország, Dánia, Németország, Franciaország, Lengyelország, Finnország, Svédország és Szlovákia esetében figyelhető meg a turizmus szektorban a gazdasági teljesítmény és az üvegházhatású gázkibocsátás jelentős szétválása. Dánia, Németország, Franciaország, Finnország és Svédország az európai integráció kezdeti szakasza óta a közösség környezeti politikájának alakításában nagy szerepet játszottak. Ezek a tagállamok az Európai Unió jelenlegi környezetvédelmi- és klímavédelmi célkitűzéseinek elkötelezett megvalósítói, és feltételezhető, hogy ennek jegyében a jelentős megújuló energiafelhasználás, a megújuló energiaforrások energiamixen belüli jelentős és növekvő aránya miatt a turizmus energiafelhasználásán keresztül voltak képesek javítani a szektor üvegházhatású gázkibocsátásán. A megújuló energiaforrások nagyarányú használata, az energiaellátás korszerűsítése javasolható a szálláshely-szolgáltatás és a vendéglátás szereplői számára, amivel nagy mennyiségű energia megtakarításhoz juthatnak, ami végső soron nem csak a környezetnek előnyös, de gazdasági szempontból is megtakarításokhoz vezethet.

SUMMARY

Nowadays, there is no doubt that climate change is taking place, and it is partly caused by anthropogenic emissions. Tourism also contributes to greenhouse gas emissions alongside the large emitting sectors, but its impact is very challenging to quantify. In our research, we aim to look for the phenomenon of absolute decoupling in the economy and tourism sector of the Member States of the European Union. Data on gross value added (GVA) as an economic indicator, and greenhouse gas emissions, as environmental indicator, were used downloaded from the Eurostat database for the entire national economy and Section I (tourism) for the period 2008-2019. Looking for states for which tourism (Section I) has an absolute decoupling feature, their good practice and policy can serve as an example for other Member States.

Among the results presented the case of Belgium can be highlighted, where the entire national economy is characterised by absolute decoupling during the research period, whereas it is not valid for the Section I. There is an opposite situation, which is unfavourable from the point of view of climate protection. The situation in Greece is also interesting, because gross value added and emissions have also decreased for the entire national economy, presumably because of the economical regression. However, in the case of Section I, greenhouse gas emissions have decreased significantly parallel with a not (!) significant upward trend in gross value added. For the entire national economy and the Section I, absolute decoupling is observed for Denmark, Germany, France, Italy, Slovenia, Slovakia, Finland, and Sweden. According to Bodur et al. (2021), absolute decoupling can be observed in 10 EU Member States in the period 1990-2017 looking at the entire national economy. These Member States are Belgium, Greece, Sweden, Germany, Portugal, Hungary, Slovakia, Slovenia, the Czech Republic and the United Kingdom, which has not been a Member State since.

The results show that tourism is characterised mainly by a significant division of economic output and greenhouse gas emissions in the case of more developed Western European states. These States have played a major role in shaping the Community's environmental policy since the beginning of European integration. These Member States are committed to the European Union's current environmental and climate protection objectives and can be assumed to have been able to improve greenhouse gas emissions in the sector through the energy use of tourism due to the significant renewable energy use and the significant and increasing share of renewable energy sources in the energy mix. The high use of renewable energy sources and the modernisation of energy supply can be proposed to the actors of accommodation and hospitality, which can lead to large amounts of energy savings, which ultimately can lead not only to savings for the environment, but also to economic ones.

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Original scientific paper

COMPETITION, PROMOTION, AND ACTIVITIES OF MICROBREWERIES DURING THE COVID-19 PANDEMIC

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Abstract

The microbrewery market in the Czech Republic has experienced a tremendous boom, especially in the last 15 years. Recently, people have liked to try new things, and there is a growing demand for non-traditional types of beer offered by these companies. However, due to the COVID-19 pandemic, microbreweries have had to reduce activities or even close facilities. The paper aims to examine microbreweries' perception of competition threat, promotion, and activities during the COVID-19 pandemic in the Czech Republic. We examined the differences related to four microbreweries' characteristics: the location of the facilities, the scale of the operations, the annual volume of beer production, and the number of years in business. The questionnaire survey was carried out in 105 microbreweries. We used statistical methods of Kruskal-Wallis ANOVA, Mann-Whitney test, and Pearson's Chi-square test to prove research working hypotheses. The results show that microbreweries do not consider the threat of competition high. The beer production volume factor influences this perception of competition. We found that enterprises make the most use of websites and customer referrals in their promotions. We proved that the use of the web depends on the range of business activities. Finally, we analyzed the direct impacts of the COVID-19 pandemic on microbreweries. The vast majority of the enterprises partially kept the operation running. Interestingly, some enterprises have taken advantage of the current situation to diversify their activities and look for new opportunities. The main factors that varied between enterprises, in this case, were the range of activities and years in business. The paper's originality is related to the first attempt to analyze the COVID-19 impact on the breweries during the lockdowns and government restrictions.

Keywords: microbrewery, craft beer, competition threat, promotion, COVID-19, Czech Republic

INTRODUCTION

In recent years, the service sector, like other industries, has been gripped by a flurry of rapid, discontinuous change. According to UNWTO (2021), last year, we experienced the worst year in the history of international tourism due to the COVID-19 pandemic. Remarkably, international tourist arrivals (overnight visitors) fell by 73% in 2020 worldwide. To compare, Novotny & Pellesova (2021) point out that it is an almost 75% reduction in visitors from abroad in the Czech Republic and a roughly 51% decrease in tourists staying in hotels. Baum & Hai (2020) discuss how the pandemic denied people the right to travel due to border closures, lack

of international flights, curtailment of travel, closure of attractions and tourism facilities. Duro, Perez-Laborda, Turrion-Prats, & Fernandez-Fernandez (2021) determined several factors influencing tourism vulnerability to COVID -19 (territorial tourism dependence, market structure and demand, seasonality, accommodation, and pandemic health incidence). It is undeniable that the pandemic severely impacts tourism, travel, hospitality, and leisure activities. These effects have garnered worldwide attention in the contemporary time due to uncertain future.

As a result of restrictions, interventions, and issues in tourism, the activity of breweries has been reduced. COVID -19 has significantly impacted the restaurant industry, as nearly all states have enforced regulations minimizing personal contact and mitigating the spread of the virus (Yang, Liu, & Chen, 2020). The sale of draft beer has come to a complete shutdown as the government has closed bars, restaurants, and taps (Pitts & Witrick, 2021). Before the coronavirus crisis, the number of microbreweries in the Czech Republic overgrew (Němec, 2017). Hence, the coronavirus crisis has affected the entire beer market. It is difficult to predict which microbreweries will withstand this pressure and which ones will have to close their business (Vrána, 2020).

The main challenges that exacerbate the effects of the pandemic are changes in customers' behaviors and the increasing competitive pressure in the market. According to Gordon-Wilson (2021), consumers substitute drinking in restaurants or pubs with social drinking on the Internet or completely different initiatives that do not involve alcohol consumption. Breweries and distilleries are struggling to stay on the market and are changing their strategies and marketing methods (Nissen, Bangerter, Tran, Bobke, & Awwad, 2020). Unavailable communication channels and routes to the customer are being replaced by more modern ways of distributing (Brewer & Sebby, 2021) and promoting products (Enz & Škodová-Parmová, 2020).

Recent market changes caused by the COVID -19 pandemic are analyzed in our paper. At present, many publications on the research subject are published only in magazines or as part of brewery association reports. Most publications dealing with the impact of the COVID-19 pandemic generally focus more on tourism or services. Therefore, we investigate the current opaque situation in the brewing market from the perspective of microbreweries. Since this can have serious consequences, it is imperative to understand current brewery industry trends. The paper's main objective is to examine microbreweries' perception of competition threat, promotion, and activities during the COVID-19 pandemic in the Czech Republic.

THEORETICAL BACKGROUND

Definition of Microbrewery

Microbreweries are businesses or entrepreneurs with small beer production volumes not exceeding 10 000 hectolitres per year (Vrána, 2020). Abroad, these breweries may also be referred to as “craft breweries”. However, this term is different and is not based solely on size criterion. For example, in the United States, the Brewers Association set three characteristics: annual production of up to 6 million beer barrels (1 US beer barrel corresponds to about 117.35 liters); no more than 25% of the business owner by another brewery industry member; possessing the Alcohol and Tobacco Tax and Trade Bureau Brewers Notice (Brewers Association, 2018). In addition, subgroup “microbreweries” have produced less than 15,000 barrels per year sold for at least 75% offsite (Brewers Association, 2020). In Germany, the classification of microbreweries includes less than 5,000 hectoliters production volume (Heyder & Theuvsen, 2008). Compared to the Czech concept of microbreweries, there is a noticeable difference in the beer production volume among countries. However, the condition of independence (no affiliation with other brewing organizations) can also be considered an essential feature of microbreweries. To define microbrewery, we can use the criteria set by Morgan, Lane, & Styles (2020). They described microbreweries based on customers' perceived attributes of the craft breweries. These criteria include a value chain based on the local embeddedness, smaller brewery size, process control and production methods, high gravity dilution, independent ownership, unique flavors and ingredients, creativity, and innovation related to the diversity of customers. The main competitive advantages of microbreweries are uniqueness and localness (Toro-Gonzáles, 2014).

Most microbreweries run refreshments (restaurant, pub, snack bar, etc.) in addition to the brewing facility. From microbreweries, the restaurant breweries account for the largest share. These breweries are restaurants or pubs that brew their beer and offer it primarily in their taprooms. Another type is breweries that do not have their “tap” and only sell beer in bottles and kegs. These businesses may have a partial problem with competition because they do not have a direct outlet for their products. In addition to catering services, microbreweries can also provide accommodation (Kozák, Bartók, & Honzková, 2017). The last type is the so-called “flying breweries”, of which there are about one-tenth of the total. These flying breweries are enterprises without their operations and which rent equipment and premises from competitors to produce beer (Němec, 2017).

Competitive Threat Level and Rivalry in the Brewing Market

Competition in an industry is rooted in its economic structure and defines the attractiveness and potential profitability of the industry. Threats from competitors (rivalry between existing enterprises) are fundamental forces determining competition in an industry. Porter (2008) shows that the competitive threat level depends on many factors. For example, the number of competitors, slow industry growth, high fixed or storage costs, lack of differentiation, increasing capacity in large batches, diverse competitors, high strategic stakes, and high strategic stakes high exit barriers.

In 2019, the number of breweries in the Czech Republic reached 617 enterprises, including 98 large producers (Czech Association of Breweries and Maltsters, 2020). At present, our country has approximately as many breweries as it had in the 1930s. The market of microbreweries in the Czech Republic has been booming, especially in the last 15 years. Although some enterprises have disappeared in this period, many have been established, and the total number is constantly growing. Most businesses were founded between 2013 and 2019, with 40 to 60 microbreweries starting annually. This "boom" is since there is now a growing demand for the non-traditional types of beer that these businesses offer. In addition, people like to support more minor and predominantly local companies.

Torok, Szerletics, & Jantyik (2020) analyzed the competitiveness and market structure of the beer industry on the international level and concluded that global beer production is highly concentrated. The situation is similar in the Czech market. In terms of numbers, the smallest breweries (without employees or units of employees) represent three-quarters of the sector, although large industrial breweries made three-quarters of total sales. The craft beer industry includes several regulatory hurdles and barriers that hinder the growth of this segment, such as excise taxes, zoning laws, and distribution restrictions (Malone & Lusk, 2016). According to Pokrivcak et al. (2019), the barriers to craft breweries expansion are the lack of qualified employees, taxation policy, and the increasing consumption of substitutes. The advantage of microbreweries is their little competition with each other.

During the COVID-19 pandemic, microbreweries became more aware of the perceived threat from competitors. In light of the implemented regulations, breweries struggle more intensively for customers. Nevertheless, we expect differences in perceptions of competition threats between microbreweries considering their characteristics. Moreover, some of these characteristics may provide microbreweries with a competitive advantage. These characteristics

(criteria) are brewery location, range of activities, beer production volume, and years in the brewery business. We formulated the following hypothesis:

Working hypothesis H1: The perception of the threat of competition varies among microbreweries during the COVID-19 pandemic according to their characteristics.

The Ways of Products Promotion

Integrated marketing communications is the coordination and integration of all marketing communication tools, avenues, and sources into a seamless program designed to maximize customer impact (Clow & Baack, 2018). The promotion mix is advertising, direct marketing, personal selling, sales promotion, public relations, and sponsoring. Mangold & Faulds (2009) include into promotion mix social media, which encompasses a wide range of online and mobile discussion forums (including blogs and chat rooms), consumer-to-consumer emails, product or service review websites, and social networking websites.

According to Kotler (2017), the Internet brought connectivity and transparency to our lives and shifted from individual preferences to social collaboration. Traditional marketing based on segmentation and targeting is replaced by customer community confirmation because communities are new segments. Diamandis & Kotler (2020) predict that the way advertising will change: social media marketing, e-commerce platforms, and mobile devices, spatial web with augmented reality add-ons, hyper-personalization based on collected user data, or artificial intelligence very soon. In the digital economy, co-creation is the new product development strategy involving customers to customize, personalize products, and improve the success rate of the market (Kotler, 2017).

The promotion of alcoholic beverages faces restrictions from the government (limitations on underage consumption), negative campaigns based on the health threat and diseases caused by the use of the products, and higher prices due to the various taxes applicable to the product type. According to Llopis, O'Donnell, and Anderson (2021), products with little or no alcohol (e.g., ciders) are not as price-dependent as beer and beer drinks. Among the components of the promotional mix, public relations stood out and gained considerable importance during COVID-19 (Altay, Okumus, & Mercangoz, 2021).

Microbreweries have a competitive advantage over large breweries in that they operate using low-volume brands in niche markets instead of high-volume mainstream brands on global markets. Murray & O'Neill (2012) believe that food and beverage operations can satisfy the desire for differentiation through menu variety, faster service, and marketing activities such as tastings, brewery dinners, and other events. They suggest that restaurants create a competitive

advantage by committing to craft beers on menus through promotions and employee and customer education. Microbreweries collaborate with local communities mainly due to their interest in local products. It is linked to fashionable phenomena such as building community-social terroir (taste of place) through connecting people and locality. Some microbreweries have focused exclusively on them (Sjolander-Lindqvist, Skoglund, & Laven, 2019).

Promotion through websites or the Internet, social media, and networking are considered modern. Although this question has been the subject of research by other authors, our purpose was to determine whether the situation had changed during the COVID-19 pandemic. In our view, promotion methods will vary from business to business. The characteristics (criteria) of differences among microbreweries are brewery location, range of activities, beer production volume, and years in the brewery business. Then, we formulated a hypothesis:

Working hypothesis H2: Microbreweries differ in their use of promotion methods during the COVID-19 pandemic concerning their characteristics.

The Impact of COVID-19 Pandemic on Microbreweries Activities

Europe Economics (2021) reported the significant impacts of the COVID-19 pandemic on hospitality and tourism, beer production, consumption and sales, jobs losses, shortening value-added, decreasing government revenue, and issues in upstream supply chains (purchases problems). According to the Czech Association of Breweries and Maltsters (2021), annual beer consumption per capita in the Czech Republic reached 135 liters in 2020, the lowest since the 1960s. In Europe, it was a 42% on-trade drop (Europe Economics, 2021). Coronavirus restrictions and limitations on pub and restaurant facilities at domestic and abroad markets blame the decline of the brewery industry.

The resilient restaurants and bars that have been affected by the closure of various tourist attractions have sufficient financial reserves and can change distribution and use take-away services (Neise, Verfurth, & Franz, 2021). Vandenberg, Livingston, & O'Brien (2021) found that Australia's first and second waves of restrictions resulted in significant reductions in weekly on-premise beer consumption due to reduced availability due to full or partial store closures. Mehrolia, Alagarsamy, & Solaikutty (2021) found that online food delivery services were not used mainly by customers who reported high perceived threat levels, less product involvement, and less perceived benefit of online shopping. Consumers' trust in the restaurant and brand, fair price, solidarity with the restaurant sector, rejection of illness, and faith in health surveillance predicted intention to visit the restaurant during the COVID-19 pandemic (Hakim, Zanetta, & da Cunha, 2021).

The most significant adverse impacts are the closure of pubs themselves, restrictions in the form of reduced opening hours, a ban on alcohol consumption in public or without a meal, seated dining, physical separation barriers between tables, full lockdowns, a shutdown of all indoor hospitality spaces, night-time curfews, exclusion of alcoholic beverages from take-away allowances, interference with sporting and cultural events and other conditions (Europe Economics, 2021). As a result of this state of affairs, businesses maintained only partial operations or suspended operations altogether. Some attempted to diversify their activities or seek new business opportunities. Small enterprises implement business models to overcome many issues, such as leveraging readily available resources, transforming existing resources into new products, and mobilizing distant resources from network partnerships (Bivona & Cruz, 2021). According to Pitts & Witrick (2021), packaging has become an essential promotion tool for coping with the pandemic crisis.

We assume that enterprises choose different ways of dealing with a pandemic situation. The characteristics of the enterprises will determine their activities and strategies. We choose characteristics (criteria) as brewery location, range of activities, beer production volume, and years in the brewery business. Based on related works, we established a hypothesis about the COVID-19 pandemic impact on activities related to the enterprise characteristics for our research:

Working hypothesis H3: The impact of the COVID-19 pandemic on microbreweries activities varies according to business characteristics.

DATA AND METHODS

For the data collection, we choose the questionnaire survey method. According to the CMMA (Czech and Moravian Microbreweries Association, 2021), there were 483 microbreweries in 2021 in the Czech Republic. With approximately 110 flying breweries, the sample population consists of 583 microbreweries. The research was conducted electronically by contacting managers of 560 breweries in January 2021. Contacts to breweries were acquired from the publicly available database (Ceske pivo - ceske zlato, 2021). We retrieved a total of 104 filled questionnaires with an approximate 19% return rate. We examined the impact on the competitive rivalry in the market, promotion, and activities of microbreweries.

The main characteristics of the data sample were the number of employees and the location of the enterprise. The data sample contains the most represented group in the range of 2 to 4 employees (43.40%). Fewer employees are present in the microbrewery that do not produce too

much beer. A total of 24.53% of microbreweries had only one employee. Another group of microbreweries employs 5 to 10 workers (17.92%), and 14.15% of the respondents have more than ten employees. These enterprises generally have higher production volumes and have been on the market for more than two years. The enterprises are located all over the country. Most microbreweries lie in smaller towns, villages, or places with the great majority near a tourist destination. The selected enterprises evenly represented all regions of the Czech Republic (mostly Prague, South Moravia, South Bohemia, and the Olomouc region). For statistical comparisons, further, we divided the enterprises according to four criteria:

- Location of microbrewery facility: village (32.08%), smaller town (39.62%), large town (21.70%), brewery without place elsewhere, referred to as "flying brewery" (6.60% – we did not statistically evaluate this option)
- Range of microbrewery activities: microbrewery only (33.02%), including refreshments (36.79%), including accommodation (including 19.81%), other activities (10.38% – we did not statistically evaluate this option)
- Annual volume of beer production (exhibitions): up to 100 hl (16.98%), 100 – 500 hl (24.53%), 501 – 1000 hl (23.58%), more than 1000 hl (34.91%)
- Number of years in brewery business: up to 3 years (24.53%), 3 to 5 years (39.62%), over five years (35.85%)

The questionnaire contains questions, most of which are in the form of one or multiple-choice questions. First, the questionnaire sought to determine the perceived level of competitive threat for microbreweries (Likert Scale: 1 – competition does not affect the activity, 5 – competition influences activity a lot). Second, we investigated the way of products promotion in microbreweries (multimedia – TV and radio, trade fairs and exhibition, outdoor advertising, social networks, promotional items, customer recommendations, websites). In both of these cases, the effects of the COVID-19 pandemic were indirect. Finally, we examined the direct impact of COVID-19 pandemic (positive impact on activities – new activities, diversification, interruption of activities and partial continuity of activities) on microbreweries, and the way to maintain the services (sale of beer in pet bottles, cans, kegs, small kegs, or glass bottles).

We performed statistical evaluation using Statistica 12 software. We established two-sided statistical hypotheses, which were subsequently tested. In the results, we do not report the values of the test criteria but only the resulting p-values. We evaluated the respective p-value of the test criteria for all tests at the 5% significance level.

A non-parametric Kruskal-Wallis ANOVA was chosen to test the first hypothesis (H1) concerning relation of selected microbreweries characteristics (location, range of activities, production volume and number of years in the market) and the perception of competition. Hendl (2006) presents the equation of test criterion H:

$$H = \left[\frac{12}{n(n+1)}\sum_{i}\left(\frac{(SR_i)^2}{n_i}\right)\right] - 3(n+1) \quad (1)$$

where SR_i denotes the coefficients of the order sums from each group *i* for *n* elements

We chose the Mann-Whitney test for pairwise comparison to determine which groups of firms differed in their perceptions of competition. In this test, the procedure compares the measurements from the first group with those from the second group. The test criterion Z takes the form (Hendl, 2006):

$$z = \frac{U - n_1 n_2/2}{\sigma_T} \quad (2)$$

where *U* is the number of comparisons in favor of one of the groups and *ni* denote the ranges of the group

A different evaluation procedure was used for the other hypotheses (H2 and H3) due to the different categorical data types. We assessed the frequencies dependence between the selected multivalued responses (in categories: promotion and COVID-19 pandemic impact) and the frequencies of firm characteristics (location, range of activities, production volume, and years in the market). Multi-value responses were analyzed separately, i.e., transformed into dichotomous yes/no variables. Pearson's Chi-square (χ^2) test was used to assess dependence. We performed calculations using contingency tables of absolute and theoretical frequencies constructed according to each characteristic for each response. The Chi-square test criterion is shown below (Hendl, 2006):

$$\chi^2 = \sum_{i=1}^{k}\frac{(n_i - np_i)^2}{np_i}, \quad (3)$$

where

k = the number of possible values of the categorical variable,

n_i = observed frequency in category *i*,

np_i = the theoretical (expected) frequency in category *i* calculated assuming null hypothesis validity, where *n* denotes the sampling range and p_i indicates the theoretical probability of type *i*.

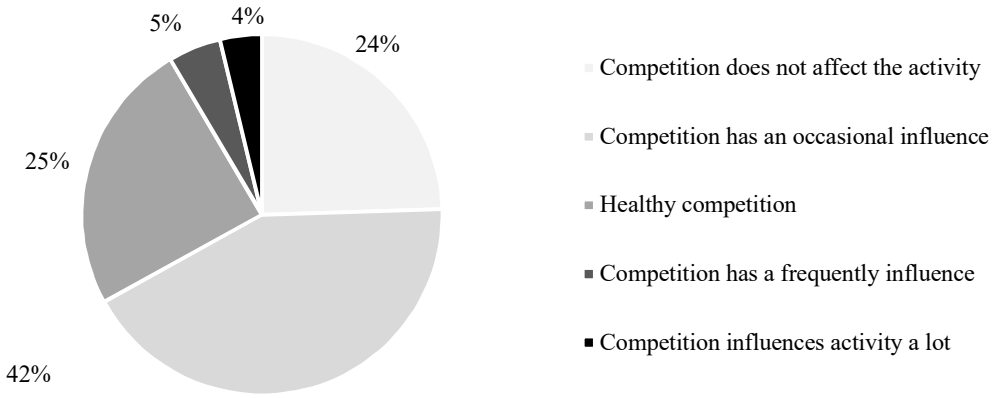
RESULTS

This section provides a quantitative analysis of the results divided into three parts according to the hypotheses. We analyze questionnaire results to determine three research areas: microbreweries' perception of competition threat, promotion, and activitites during the COVID-19 pandemic.

The Perception of the Competitive Threat Level during COVID-19 Pandemic

The rivalry between competitors is surprisingly low despite many enterprises in the market and the COVID-19 crisis. Both categories, “other microbreweries” and “large breweries” are considered the most significant competitors for microbreweries. The questionnaire survey results showed (see Fig. 1) that competition has an occasional influence on the activities of microbreweries. The majority of the participants stated that competition does not (24%) or occasionally influences their activities (42%). A total of 25% of managers said that there is healthy competition in the market, meaning that competition affects the businesses to an acceptable extent for the type of business. Only 9% of respondents said that their business is affected by competition.

Figure 1 Perception of threat from competitors during COVID-19 pandemic



Source: authors' processing

For the perception of the competitive threat (rivalry) level during COVID-19 pandemic, we assessed hypothesis (H1) according to the enterprise characteristics (see Tab. 1).

Table 1 Results of Kruskal-Wallis ANOVA p-values

Criteria	p-value
Localization of brewery facility	0.3912
Range of activities	0.5736
The volume of beer production	0.0273*
Number of years in the brewery business	0.9616

Source: authors' processing

The results showed that:

- In terms of production volume, hypothesis (H1) can be accepted. It has been shown (Tab. 1) that the perception of the threat of competition during the COVID-19 pandemic differs among enterprises concerning beer production volume (p-value = 0.0273).
- In terms of the other criteria (localization, range of activities, years in brewery business), hypothesis (H1) cannot be accepted because there was no significant difference in the perception of the threat of competition.

Further, based on the Mann-Whitney test, we found (see Tab. 2) that the perception of the competitive threat level varies for the largest firms, i.e., those with the highest production beer volume differs from the others. Significant difference was for enterprises up to 100 hl of production volume (p-value = 0.0436), 501-1000 hl (p-value = 0.0059). For 100-500 hl volume, the p-value was close to 0.05 (p-value = 0.0597). Thus, the enterprises with a beer production volume of over 1000 hl feel a greater impact of competition on their activities than the other groups. It implies that the larger enterprises offer products in-home and enter other markets. Therefore, they are more exposed to competition.

Table 2 Results of Mann-Whitney U-Test p-values for category volume of beer production

	Up to 100 hl	100 to 500 hl	500 to 1000 hl	More than 1000 hl
Up to 100 hl	-	0.5051	0.7585	0.0436*
100 to 500 hl	0.5051	-	0.4691	0.0597
501 to 1000 hl	0.7585	0.4691	-	0.0059*
More than 1000 hl	0.0436*	0.0597	0.0059*	-

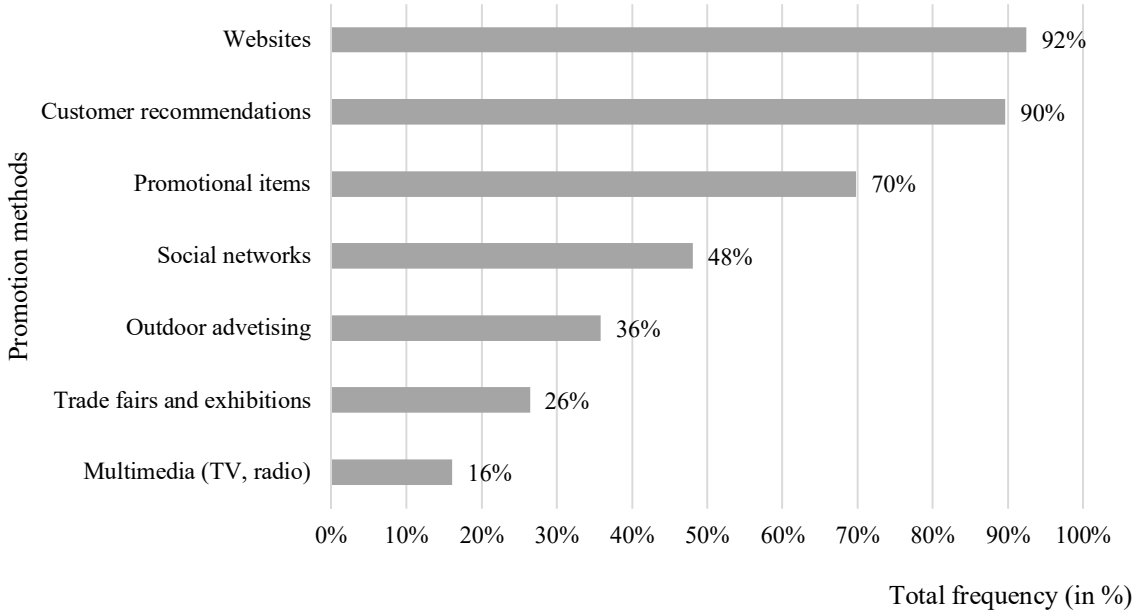
Source: authors' processing

The Ways of Products Promotion

The questionnaire survey showed (Fig. 2) that enterprises during the COVID-19 pandemic combined modern (website and social networks) and traditional ways of promotion (customer recommendations, promotional items, etc.). The most common form of advertisement is the microbrewery's website. Here, potential customers can find information about the microbrewery itself and the beer products. The website may also include an e-shop through which the business sells its products. This method of promotion enables sales despite the anti-covid restrictions in place. Promotion through referrals from existing customers is also frequent and very effective. Promotional items (such as coasters, glasses, etc.) are also popular and used by staff in restaurants offering the establishment's products. Internet advertising is also popular, especially recently, reaching customers via social networks such as Facebook, Instagram, etc.

Multimedia, such as TV or radio spots, are rarely used by microbreweries, probably because of their high cost and unnecessarily broad reach.

Figure 2 The way of products promotion during the COVID-19 pandemic



Source: authors' processing

In promotion, hypothesis (H2) examined (see Tab. 3) that microbreweries differ in modern promotion methods during the COVID-19 pandemic concerning their characteristics. From the results, it is clear that:

- Hypothesis (H2) can be partially accepted for modern promotion methods according to the range of microbreweries' activities. In other words, during COVID-19 pandemic microbreweries differ in their use of websites for promotion concerning the diversification of their activities (p-value = 0.0257). For social networks, no differentiation between the enterprises' groups was significant. In terms of brewery facility location, beer production volume and years in the brewery business, hypothesis (H2) cannot be accepted for modern promotion methods.
- If hypothesis (H2) is evaluated in traditional promotion methods, firms differ statistically significantly in trade fairs and exhibitions, outdoor advertising, and multimedia (p-value < 0.0001). All characteristics of enterprises (localization, range of activities, production volume, and years in the business) are significant in this case. However, microbreweries less use these forms of promotion during the COVID-19 pandemic. For example, outdoor advertising is used more by microbreweries with a larger production volume, located in

larger cities, which have accommodation in the scope of their activities. For traditional promotion methods such as customer referrals, advertising, and souvenirs, enterprises did not differ in their use.

Table 3 Results of Chi-square test p-values for the way of products promotion

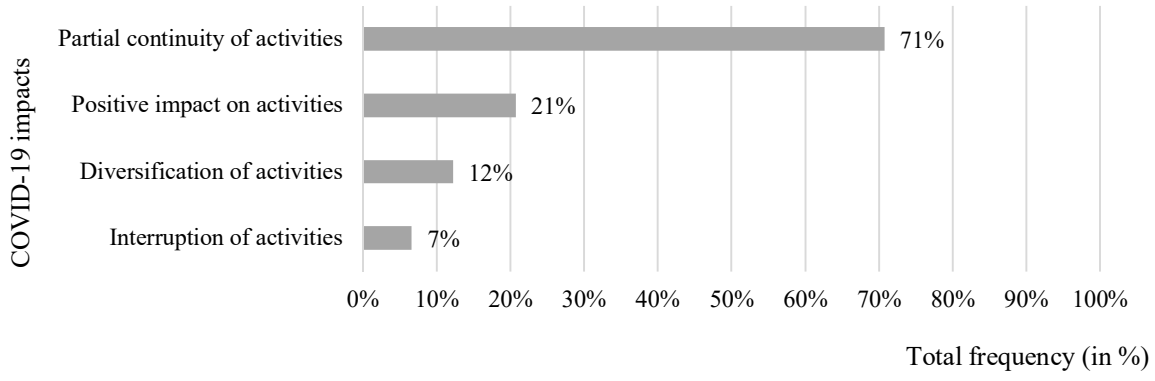
Criteria	Localization	Range	Volume	Years
Websites	0.3261	0.0257*	0.2150	0.9137
Recommendations	0.8499	0.1368	0.1438	0.3355
Promotional items	0.9599	0.6471	0.1672	0.4463
Social networks	0.0594	0.8523	0.6473	0.1060
Trade fairs and exhibitions	< 0.0001*	< 0.0001*	< 0.0001*	< 0.0001*
Outdoor advertising	< 0.0001*	< 0.0001*	< 0.0001*	< 0.0001*
Multimedia (TV, radio)	< 0.0001*	< 0.0001*	< 0.0001*	< 0.0001*

Source: authors' processing

The Impact of COVID-19 Pandemic on Microbreweries Activities

The results showed (Fig. 3) that most enterprises tried to maintain at least a partial operation, some even managed to attract new customers, and others, unfortunately, had to discontinue operations. The majority of microbreweries have been affected by the COVID-19 pandemic. They have had to adapt and find other ways of ensuring sales of their products. Among the respondents, there were some positively affected by the coronavirus epidemic. A total of 21% of microbreweries managed to gain new customers or expand their operations during this time. It is probably due to their focus on promotion and sales to reach additional customers and start or expand the sale of drinks in bottles or cans. Another option was maintaining current operations and focusing on another because the existing activity no longer brought sufficient income for the enterprise.

Figure 3 The Impact of COVID-19 pandemic on microbreweries activities



Source: authors' processing

In the case of the pandemic effect, hypothesis (H3) was examined (Tab. 4) that the impact of the COVID-19 pandemic on microbreweries varies by firm characteristics. The relevant findings are following:

- In terms of the range of activities criterion, hypothesis (H3) can only be accepted for the positive impacts of the COVID-19 pandemic. Microbreweries differ in their perception of the pandemic as a factor bringing new opportunities (p-value = 0.0209). They operate only as a beer producer, a brewery with refreshments, accommodation, or other activities. This situation was less common for enterprises focused only on beer production.
- We found differences between breweries on the criterion of the length of time in the business, with firms differing in their use of diversification (p-value < 0.0000). Particularly enterprises that have been in the market for a longer time considerably benefit from diversification.
- In terms of the other criteria, hypothesis (H3) cannot be accepted. There was no evidence that the effect of the pandemic on microbreweries differed according to production volume and localization of the brewery facility.

Table 4 Results of Chi-square test p-values for the impact of COVID-19 pandemic

Criteria	Localization	Range	Volume	Years
Partial continuity	0.1816	0.0627	0.8073	0.9480
Positive impact	0.4215	0.0209*	0.6935	0.8058
Diversification	0.3312	0.8949	0.7666	< 0.0001*
Interruption of activities	0.1266	0.3672	0.7588	0.6222

Source: authors' processing

Further, we deeply analyzed the possibilities for microbreweries to remain open when catering services are closed, and it is not possible to serve beer through pubs and restaurants. The most frequent reaction of microbreweries to the COVID-19 pandemic was selling beer in PET bottles (90.6%). The sale of these bottles is most often made directly at the brewery or adjacent pub/restaurant via a dispensing window. Despite the current situation, some stakeholders sell beer in kegs (46.2%). Sales of beer in small kegs (43.4%), which end consumers can buy for home or as gifts, also increased. Some participants have taken advantage of the possibility of bottling in cans (12.3%) or glass bottles (5.7%), either using their technology or in collaboration with another brewery or other company offering this service. In the case of the "other" option, the managers mentioned the "Save the Beer" project. This project involved 352 small breweries from all over the Czech Republic. Initially, the project was supposed to save brewed beer that had no sales. Any microbrewery that had problems due to a

sales shortfall could join. The project also served as a pro-center to inform customers about where and what beer they could buy. The website of this project offers a list of all participating breweries, including basic information, contacts, beer offers and links to order beer either through the brewery's e-shop or by contacting the company directly. Some breweries offer the possibility of picking up at the dispensing points or even delivering to nearby or more distant areas (Kopová, 2021).

DISCUSSION

We discuss the research results compared to the other related works. Most of these publications focus on the situation in the microbrewery market before the COVID-19 pandemic. Nevertheless, we tried to find possible differences and discuss them.

First research area related to microbreweries' perception of competition threat during the COVID-19 pandemic. We found that competition has no substantial impact on the perceived threat by competitors for microbreweries. Through working hypothesis H1, we further investigated whether the characteristics of microbreweries may influence this threat. Our results show that beer production volume is a significant factor causing the perceived level of competitive threats. Smaller breweries perceive the threat of competition as more minor than larger enterprises. The results obtained here may explain the relationship between microbreweries size and competitive rivalry. Němec (2017) suggests that smaller enterprises operate locally. It means that could only be threatened by another enterprise built near. According to Pícha, Navrátil, & Švec (2018), there is growing consumer interest in reclaiming their identity, local cultures, and traditional values through “localness”, a new opportunity for small businesses local producers. It also explains why smaller microbreweries perceive less competition. These results were unaffected by the COVID-19 pandemic, and the explanation and conclusions remain the same.

The second research area focuses on the microbreweries' promotion methods during the pandemic. Our research shows that microbreweries mostly use websites, customer recommendations, and promotional items. These results are consistent with other authors regardless of the COVID-19 pandemic situation. According to Březinová & Skořepa (2019), microbreweries consider their reputation, customer recommendations, and websites as the primary marketing communication tools for competitiveness. These methods are the main ways of promotion, although websites have been used the most in the current pandemic situation.

Furthermore, using working hypothesis H2, we sought to investigate whether the characteristics of microbreweries might influence this threat. We found that using trade fairs and exhibitions, outdoor advertising, and multimedia promotional activities related to enterprise features. For these types of promotion, the location of the enterprises, range of activities, production volume, and years in business were essential factors. The promotion through the website was significant only with the range of activities. Březinová & Skořepa (2019) showed in their research that restaurants' microbreweries use more websites for advertising. Managers of breweries with more diversified activities probably require more promotion via websites. The pandemic situation may accelerate this trend. This conclusion is supported by the Czech and Moravian Microbreweries Association (2020) research. They show that 46% of the surveyed microbreweries started significantly more social media during the COVID-19 pandemic. In addition, 42% of microbreweries report intensified advertising and promotional activities on websites, and 41% have initiated online beer sales.

The third research area examined the impact of the COVID-19 pandemic on the activities of microbreweries. We found that 71% of microbreweries reported partial curtailment of activities, and 7% reported more extended interruption. From these results, we can conclude that the COVID-9 pandemic negatively impacts the brewery market. This conclusion is broadly aligned with CMMA (Czech and Moravian Microbreweries Association, 2020) research findings. According to the CMMA research pandemic situation has a strong negative influence on finance for 36% of microbreweries. In addition, 39% of microbreweries report a somewhat negative effect on finance.

Then, we tried to ascertain through working hypothesis H3. The third hypothesis deals with the impact of the COVID-19 pandemic on microbreweries' activities concerning enterprises' characteristics. We confirmed differences between microbreweries in positive perception of the pandemic situation pertaining to the range of enterprise activities. Total 21% of microbreweries in 2021 reported a positive perception of the COVID-19 pandemic. Our results differed from the CMMA research (Czech and Moravian Microbreweries Association, 2020). It is much higher than 5% in 2020 reported by CMMA research. Even the CMMA research stated that 10% of microbreweries in 2010 were unable to assess the impact of the pandemic situation. The difference may be caused by a certain degree of adaptation to market conditions. Some microbreweries have been able to take advantage of the situation to develop further gradually. Therefore, their evaluation of the impact was relatively positive afterwards. In addition, the number of years in the brewery business is significantly related to the diversification strategy of microbreweries during the pandemic period. We found that microbreweries which have been

in business for a longer time are more likely to develop a diversification strategy in response to the COVID-19 pandemic. However, it could provide another possible explanation of this finding. Similarly, Esposti, Fastigi, & Viganò (2017) report that success, especially for agricultural microbreweries, is linked to a higher degree of product diversification. Thus, microbreweries lead to more vigorous market orientation and more favorable conditions for developing the requirements provided by the government.

Besides the perceptions of competition threat, promotion and microbrewery activity, other research areas are emerging concerning the impact of the COVID-19 pandemic. Using the COVID-19 induced stress model, Kang, Park, Lee, & Lee (2021) found that this stress negatively affects organizational trust, job satisfaction, and employee self-evaluation in the tourism and hospitality industry. In SWOT analysis, Kavan (2021) identifies social threats and weaknesses such as the absence of uniform rules, clear epidemiological standards, fear of spread, ignorance of hygienic measures, distrust in care, unwillingness to establish premises, and large-scale impacts on society. Another issue was the problems associated with corporate governance, which affected the people and the enterprises. According to Klimovsky, Maly, & Nemec (2021), these were problems with evidence-based policy, poor communication, COVID-19 as an object of political struggle, leadership quality, and administrative capacity.

CONCLUSION

We focused on examining microbreweries' perception of competition threat, ways of promotion, and activities during the COVID-19 pandemic in the Czech Republic. During the lockdown in the Czech Republic, the situation was very similar to neighboring countries. Enterprises have been forced to streamline their production processes, expand their product range, and change promotion. However, these new strategies require investment, as microbreweries usually do not pasteurize beer, and some do not even have filtration facilities.

Initially, the paper analyzed the perceived competition threat during the COVID-19 pandemic. We conclude that microbreweries haven't considered a higher competitive threat during the pandemic. The competitive situation on the market has not changed much during the pandemic, and companies perceive various types of restrictions as the main threat. Managers' perceptions of threat weren't different between enterprises regarding their location, scale of activities, or length of in brewery business. On the contrary, we identified production volume as the significant factor of perceived competitive rivalry. Microbreweries with higher

production volumes consider higher threat levels. However, these findings generally occur in the brewery market regardless of the COVID-19 pandemic.

Furthermore, the promotion methods of microbreweries during the COVID-19 pandemic were examined. We proved that enterprises mostly used websites, referrals from existing customers, and promotional items. These results do not differ from the situation before the pandemic. Microbreweries have strengthened local marketing by simply putting up information signs around the roads, introducing beer dispensing from windows, and starting e-shops. The deeper analysis revealed that modern promotion methods such as websites vary depending on the range of business activities. Enterprises with more activities use their websites for promotion activities more. We confirmed that different preferences in other promotions methods related to all examined characteristics such as localization, range of activities, production volume, and the number of years in business. Especially leveraging social networks, promotional items, and customer recommendations depend on these enterprise characteristics.

Finally, we looked at the impact of the COVID-19 pandemic on microbrewery activities. Our research findings show that the pandemic negatively impacts the brewery market, and microbreweries curtail their activities. Further, the impact of the COVID-19 pandemic was examined concerning the characteristics of the enterprises. Obviously, a range of activities influences the positive perception of the pandemic situation. Businesses with a diversified strategy perceive the pandemic more positively by developing more open business models. Similarly, diversification is associated with the length of time enterprises have been in the industry. Enterprises that are in business longer use this diversification to reduce business risk. Most microbreweries have tried to maintain partial operations by selling through the outlet window or the Internet despite the unpleasant situation. Most beers were sold in PET bottles, kegs, or small kegs. Some businesses managed to attract new customers despite the adverse situation. On the other hand, enterprises have been forced to refocus their activities or cease operations.

This research constitutes a contribution and practice recommendations for stakeholders of microbreweries towards the obtained results. Microbrewery managers have their place in the marketplace, primarily in the local conditions of small towns, taking advantage of the patriotism of the place. In the current situation, they should avoid high levels of debt and employ more modern methods of promotion and sales. Microbreweries should find a range of customers, fulfil their wishes, and work with one or more restaurants facilities to ensure long-term sales. If they succeed, competition will continue to have little or no effect on them. Furthermore, microbreweries should use modern ways of promotion in addition to the traditional ones. Most

enterprises have websites, but if they add an e-shop or extend their promotion to social networks, awareness of the business and its products could spread to a more comprehensive range of customers.

Theoretical benefits are seen in the extension of the view on the effects of the COVID-19 pandemic on microbreweries. Fascinating are the conclusions regarding the threat from competition, which is not very high in the microbrewery segment, even though these are small businesses. It turns out that a broader range of activities (diversification strategy) or a more prolonged presence in the industry has a positive effect on microbreweries in overcoming the current situation. Future research should focus on other areas that have been affected by the COVID-19 pandemic in microbreweries. These are, in particular, the areas of finance (Europe Economics, 2021), distribution (Mehrolia et al., 2021), or human resource issues (Kang, Park, Lee, & Lee, 2021). As a result of the closure of businesses, there are higher levels of unemployment in the tourism and service sectors.

A brief conclusion to the shortcomings related to the limitation of our study is given. One problem with the research may be the sample size, which, relative to the population, yields a margin of error of 8.5%. This value is higher than the recommended value of 5%, and it may be a source of fluctuation in the results to a greater extent when replicating the research. Another issue, particularly in terms of comparison, is the inconsistency in definitions of microbreweries, most often the varying threshold for determining the maximum volume of beer produced. Internationally, different ranges of this value are specified.

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Original scientific paper

ECONOMIC DEVELOPMENT OPPORTUNITIES IN THE HUNGARIAN-SLOVAKIAN CROSS-BORDER AREA – SZIGETKÖZ AND CSALLÓKÖZ (Žitný ostrov) ACCORDING TO DEVELOPMENT DOCUMENTS AND LOCAL STAKEHOLDERS PERCEPTIONS

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Abstract

The current research investigates the Hungarian-Slovakian cross-border area of Szigetköz-Csallóköz in the context of new economic opportunities facilitated by water level regulation. The objective of the research is to unearth the potential economic opportunities triggered by the planned interventions and reveal the latent resources in the regional socio-economic fabric. The research employs two analytical methods: a situation analysis phase comprising an in-depth analysis of strategic documents that discuss various economic features of the Szigetköz – Csallóköz area, and a needs assessment phase based on in-depth interviews with decision-makers and institutional leaders of the selected municipalities (N=22). The research results are presented in the form of proposals related to infrastructural developments, such as the construction of a cycle path along the Old Danube embankment (from Danakiliti to Gönyű) or economic development such as the creation of a unique tourism brand.

Keywords: cross-border research, economic structure, economic development, regional development, Szigetköz, Csallóköz

INTRODUCTION

"The Danube, which is past, present, future," wrote the great Hungarian poet Attila József, musing on the connection between the past and the present of his country, "entwines its waves in tender friendly clasps (József, 2013:52). The unspoiled area could be found downriver of Bratislava, first in the fabulous inland delta of the Csallóköz (Žitný Ostrov in Slovak) and Szigetköz, and then in the Danube Bend, where the river turns abruptly south, among forested

hills, towards Budapest. As Algernon Blackwood, a novelist from the beginning of the twentieth century described the river among the Csallóköz and Szigetköz "the Danube here wanders about at will among the intricate network of channels intersecting the islands everywhere with broad avenues" (Blackwood, 2019:7–8).

Among this stretch of varied treasures, the communist regimes of Czechoslovakia and Hungary joined forces in 1977 to launch a massive dam project. The nature and consequences of the scheme serve as a fitting representative of similar projects across the world, both past and present. The Hungarian campaign that emerged to challenge it also provides us with a unique and greatly needed example of a society rising against the destruction of its natural heritage (Reynolds, 2020). The legal status and history of the hydropower plant have been the subject of numerous studies (Fitzmaurice, 1998; Deets, 2009; Raisz & Szilágyi, 2017).

River and water regulation in the Szigetköz–Csallóköz area in the second half of the 1980s has drastically reduced river and groundwater levels, which, in addition to its ecological hazards, has transformed the socio-economic life of the region. Nagy (2014) provided the spatial interpretation of the process. With the construction of the dam near Bős, a series of artificial interventions disrupted natural processes on both banks of the Danube, modifying the flow conditions of the river, and thus the mass of water flowing into its branch systems, as discussed in the historical review of Vari & Linnerooth-Bayer (2010). The construction of the dam and the ensuing modification of water supply have also impacted the natural and economic environment of the region. The research is based on the premise that the prospective construction of new engineering structures will ensure stable and adequate water levels in the Old Danube branches, thus realizing a long-cherished dream of residents. The paper outlines proposals for economic, transport and tourism development and interventions for the period following the stabilisation and rise of water levels, with a special emphasis on sustainability and the preservation of green and blue infrastructure. Water system stabilisation would enable the planning of the complex utilisation of the whole area, ensuring the articulation between tourism and economic objectives. Water level regulation could trigger new economic opportunities for economic and municipal stakeholders in the Szigetköz–Csallóköz cross-border area.

The research seeks to identify economic opportunities, examine their feasibility and elaborate economic development proposals based on the analysis of information acquired in the needs assessment phase. Unless our research results are exploited, latent regional economic opportunities are likely to remain untapped and their under-exploitation would deteriorate the employment opportunities and living conditions of the local population, triggering increased

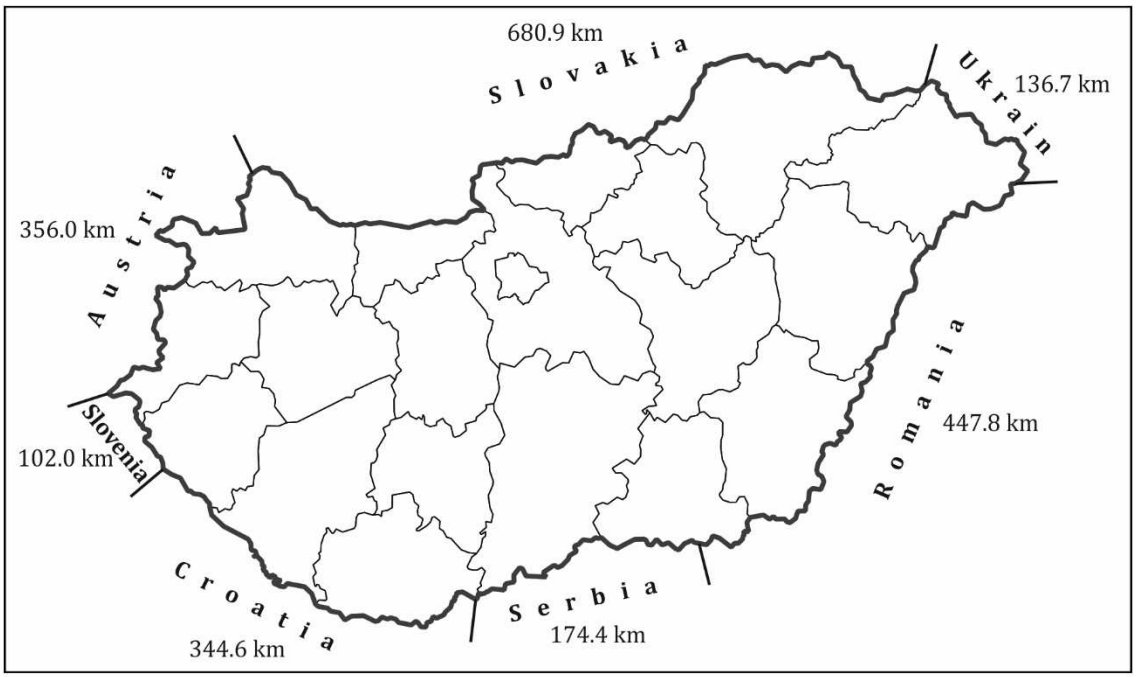
outmigration. The benefits of water level regulation could not be fully exploited in the absence of an economic needs assessment – which is crucial for mapping the demands of the municipalities and the needs of the local population. The diffusion of the positive effects of water level regulation from the natural environment to the local population requires a heightened focus on local economic development and the exploitation of potential economic opportunities. Thus, the objective of the present paper is to analyse the Hungarian-Slovakian Szigetköz–Csallóköz cross-border area and its economic development potentials.

THEORETICAL BACKGROUND

The radical geopolitical realignment of the post-WWI era triggered a proliferation of new states and state borders in Central Europe, encompassing the full territory of the Carpathian Basin (Baranyi, 2014). The divisive state borders imposed by the Trianon Peace Treaty (1920) radically redrew the map of the Carpathian Basin, causing an unprecedented loss of territory and population and dismantling organically evolving spatial structural units, nascent and functional regions that hitherto formed a coherent entity in socio-economic, infrastructural and ethnic terms. The subsequent decades were marked by Hungary's efforts to reposition its system of cross-border relations. The 'fragmentation' of the relatively uniform spatial structure, impacting the entire spectrum of socio-economic relations, and the concomitant emergence of external (cross-border) peripheries on both sides of the state border is a major barrier to cross-border cooperation to date (Baranyi, 2007).

European countries in the contemporary era are characterized by a higher-than-average number of border crossings, as demonstrated by a large number of so-called border intersections. Hungary is also referred to as a "cross-border country" (Hajdú, 2000). Currently, its seven neighbors include an old EU Member State (Austria), new Member States with internal EU borders (Slovenia, Slovakia), the new Member States with Schengen borders (Croatia, Romania), a pre-accession country (Serbia), and a third country (Ukraine) (Fig. 1). This diversity produces unique specificities and challenges on various (diplomatic, political, economic, cultural, everyday life, etc.) levels (Rácz, 2017). Research has therefore devoted increasing attention to the study of cross-border areas. Hardi, Hajdú & Mezei (2009) provided a detailed summary of the genesis of the spatial structure of the cross-border area of the Carpathian Basin, highlighting the role of historical, economic, political and social factors in shaping the nodal or peripheral position of various cities.

Figure 1 Border regions in Hungary, 2021



Source: Own compilation

Examination of cross-border projects

Cross-border funds have been gaining increasing momentum in the European Union since the 1990s. Cross-border cooperation is a highly prioritized issue for Hungary as a significant part of its population resides in the border region (Horváth, 2002). The analysis of cross-border projects has been undertaken by Kaszás, Péter, Keller & Kovács (2016a) and Kaszás, Birkner, Németh & Kovács (2016b). Kaszás et al. (2016a), in their comparative analysis, identified the main factors contributing to the success of cross-border projects of Austria and Hungary, Slovenia and Hungary, and Hungary and Croatia. Their findings point to the influence of organisational and individual factors such as time, project manager's authority and management competence on project implementation. The leadership competencies of the project manager are instrumental to the success of project management. Kaszás et al. (2016b) analysed the success rate of projects implemented between 2007 and 2013 under the aegis of the Austria-Hungary Cross-border Cooperation Programme. According to their findings, the main factors of success are time, successful project management and satisfaction level among the project target groups and over half of the cross-border projects could be qualified as successful.

Hakszer (2017) provided an assessment of Hungarian-Slovakian Cross-border Cooperation Programmes between 2007 and 2013. Ocskay & Hardi (2021) examined the causes of the failure of a spectacular number of winning project proposals targeting the valorisation of cultural heritage along the Hungarian-Slovak border to trigger stronger cohesion in the border region and the means to improve their inefficiency. According to a study by Péti & Szaloky-

Hoffmann (2016), the representation of networks of Hungarian communities from various countries in projects funded by EU territorial cooperation programmes is not particularly significant. They stress the need for a strategic approach to elaborating policies and development measures, with a focus on existing networks of national minorities in Central Europe (Péti & Szaloky-Hoffmann, 2016).

Economic changes in the Slovakian-Hungarian cross-border region in recent years

Slovakian-Hungarian border areas have been analysed by a wealth of studies, see, e.g. Szörényiné-Kukorelli (1997, 2001), Hardi (2008, 2012), Baranyai & Baranyai (2017), Hardi, Kupi, Ocskay & Szemerédi (2021). Economy-driven commuting has shown a rising tendency in recent years, whose entrepreneurship-related implications were analyzed by a study by Antalík (2017) exploring the external environmental factors that influence doing business in Slovakian-Hungarian cross-border areas. In his investigation of cross-border commuting, Egedy (2017) detects a high degree of spatial concentration in the case of commuters to Slovakia, namely in the Szigetköz settlements of Rajka, Mosonmagyaróvár, Győr, Bezenye, Dunakiliti and Hegyeshalom. Letenyei & Morauszki (2019) investigated the factors of cross-border influence through a survey by questionnaire focusing on two Slovakian and two Hungarian cities. According to their findings, ease of accessibility outweighs the significance of geographical proximity, and it largely determines the frequency of visits. The study, demonstrating a direct relationship between the frequency of visits and the knowledge of the native language of the region emphasises the bridge-building function of visits, noting that individuals with higher incomes and education levels are likely to benefit more from proximity to the border. Karácsony, Vinichenko, Antalík, Dávid & Vasa (2021) investigated the commuting workforce along the Hungarian-Slovakian border and the main drivers of commuting through a questionnaire survey. The results pointed to similarities between Hungarian and Slovakian commuters, i.e. commuter satisfaction was mostly determined by the variety of available jobs and the level of wages. In close relation to commuting, the suburbanisation effects of Bratislava and Győr were investigated through a questionnaire survey method by Pawera & Domonkos (2020). Jóna, Henézi, Döbrentei & Gaál (2021) found that in the post-2000 period, agglomeration processes triggered a significant rise of the housing stock in Szigetköz in the catchment area of Győr. In the conurbation of Győr, the expansion of the housing stock was considerably (thirteen per cent) higher than the national average. In particular, Dunaszeg, Dunaszentpál, Győrladamér, Győrújfalu, Győrzámoly, Kisbajcs and Vámosszabadi had seen a significant, twenty percent increase of their housing stock. The intensification of agglomeration processes indicates the predominance of young, working-age

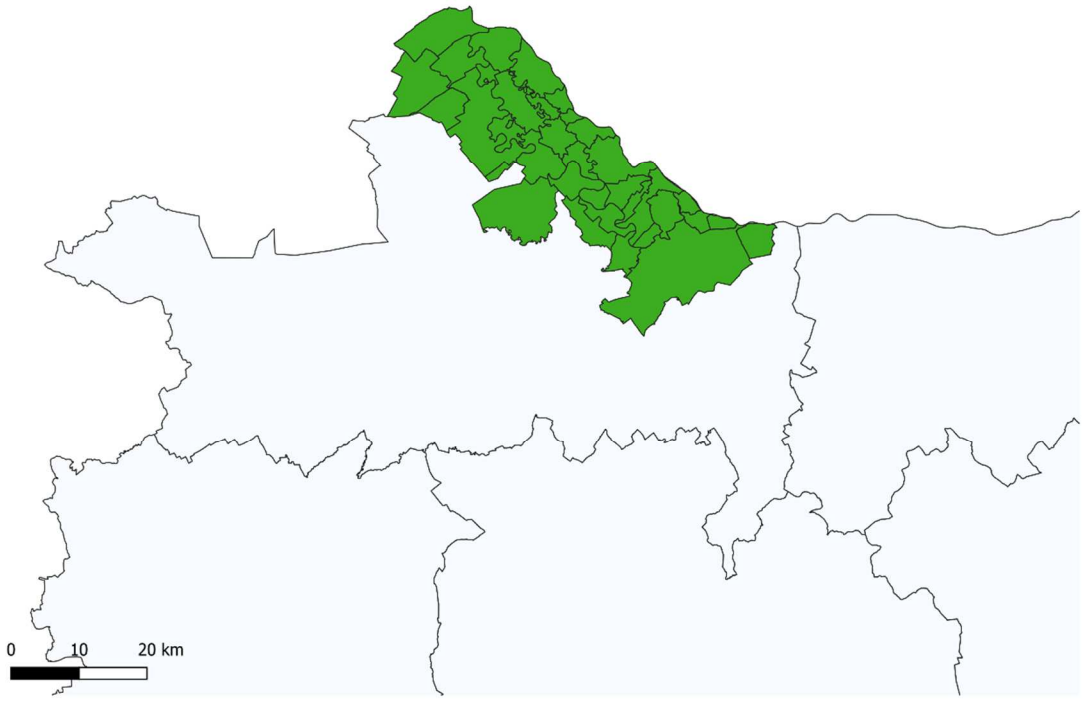
population migrants moving out of their hometown or closer to their workplace, contributing to population growth in the targeted municipalities (KSH, 2014). Hence, the higher proportion of the active population also underlines the importance of investigating the economic development opportunities in the region.

DATA AND METHODS

Territorial delimitation

Territorial delimitation constitutes the first step of the analysis. The study's main focus is on Szigetköz on the Hungarian side of the Old Danube and Csallóköz on the Slovakian side. 25 municipalities were selected in Szigetköz: Ásványráró, Darnózseli, Dunakiliti, Dunaremete, Dunaszeg, Dunaszentpál, Dunasziget, Feketeerdő, Győr, Győrladamér, Győrújfalu, Győrzámoly, Halászi, Hédervár, Kimle, Kisbajcs, Kisbodak, Lipót, Máriakálnok, Mecsér, Mosonmagyaróvár, Nagybajcs, Püski, Vámosszabadi and Vének, and four municipalities in Csallóköz in Slovakia: Čiližská Radvaň, Šamorín, Dunajská Streda and Gabčíkovo (Fig. 2).

Figure 2 The administrative boundaries of Szigetköz municipalities



Source: Edited by the Authors and Zsófia Magyar based on TeIr base maps

Strategic document review

The first phase of the situation assessment comprises an in-depth analysis of strategic documents with relevant information on the Szigetköz–Csallóköz area. This information, as a "point of departure", provides the basis for further needs assessment analyses. This section explores the economic situation of selected municipalities of Szigetköz and Csallóköz, the employment figures of the population, the infrastructural investments realized, and the opportunities for cross-border collaborations and partnerships. The review of national and county strategic documents summarized in Tab. 1 was performed in the preparatory phase.

Table 1 National and county strategic documents used in the analysis

National Strategic Documents	1. National Development 2030. National Development and Spatial Development Concept [Nemzeti Fejlesztés 2030. Országos Fejlesztési és Területfejlesztési Koncepció] 2. Hungarian Rural Development Program 2014-2020. [Magyar Vidékfejlesztési Program 2014-2020.] 3. National Environmental Program 2015-2020. Policy strategy [Nemzeti Környezetvédelmi Program 2015–2020. Szakpolitikai stratégia] (Földművelésügyi Minisztérium, 2015)
County Strategic Documents	4. Győr-Moson-Sopron County Integrated Territorial Program 2014-2020. [Győr-Moson-Sopron Megyei Integrált Területi Program 2014-2020.] 5. Győr-Moson-Sopron County Regional Development Programme 2021-2027. [Győr-Moson-Sopron Megye Területfejlesztési Program 2021-2027.] 6. Győr-Moson-Sopron: a dynamic, innovative and homely county. Győr-Moson-Sopron County Spatial Development Programme [Győr-Moson-Sopron a dinamikus, innovatív és otthonos megye. Győr-Moson-Sopron megyei területfejlesztési program] (Universitas-Győr Nonprofit Kft., 2014.)
Other strategic documents relevant to the region	7. Domestic implementation of the Water Framework Directive, River Basin Management Plan [A Víz Keretirányelv hazai megvalósítása, Vízgyűjtő-gazdálkodási terv] (Vízügyi és Környezetvédelmi Központi Igazgatóság, Észak-dunántúli Környezetvédelmi és Vízügyi Igazgatóság, 2010.) 8. Major water management issues 1-1 Szigetköz river basin management planning sub-unit [Vízgazdálkodási stratégia (2020). Jelentős vízgazdálkodási kérdések 1-1 Szigetköz vízgyűjtő-gazdálkodási tervezési alegység] 9. Szigetköz-Moson-Sík LEADER Association Local Development Strategy 2014-2020. [Szigetköz-Mosoni-Sík LEADER Egyesület Helyi Fejlesztési Stratégiája 2014-2020.] 10. The local tourism organisation, "TDM" strategy 2013-2020 of the Szigetköz Tourism Association [A Szigetköz Turizmusért Egyesület helyi turisztikai szervezeti, „TDM” stratégiája 2013-2020.] 11. Maintenance plan for the HUFH30004 Szigetköz High Nature Conservation Area (Fertő-Hanság National Park Directorate, 2014). [A HUFH30004 Szigetköz kiemelt jelentőségű természetmegőrzési terület fenntartási terve] (Fertő-Hanság Nemzeti Park Igazgatóság, 2014)

Source: Own compilation

In-depth Interviews

The second phase of the situation analysis comprises the needs assessment, during which in-depth interviews were conducted to monitor the opinions of municipal leaders and other economic stakeholders on potential economic development opportunities. The qualitative data collection and analysis were conducted, using the methodology of Kvale (2007) and Corbin & Strauss (2007). The in-depth interviews took place between 30 April 2021 and 15 May 2021. Out of the 32 municipal leaders contacted, 22 were willing to participate in the in-depth interviews as well as two municipal public (school) leaders, which indicates a 70% response rate. All 22 interviews aimed to explore and understand the respondents' knowledge, views, and opinions, but at the same time, it provided an opportunity for new, unexpected points, which is important with regards to the topic.

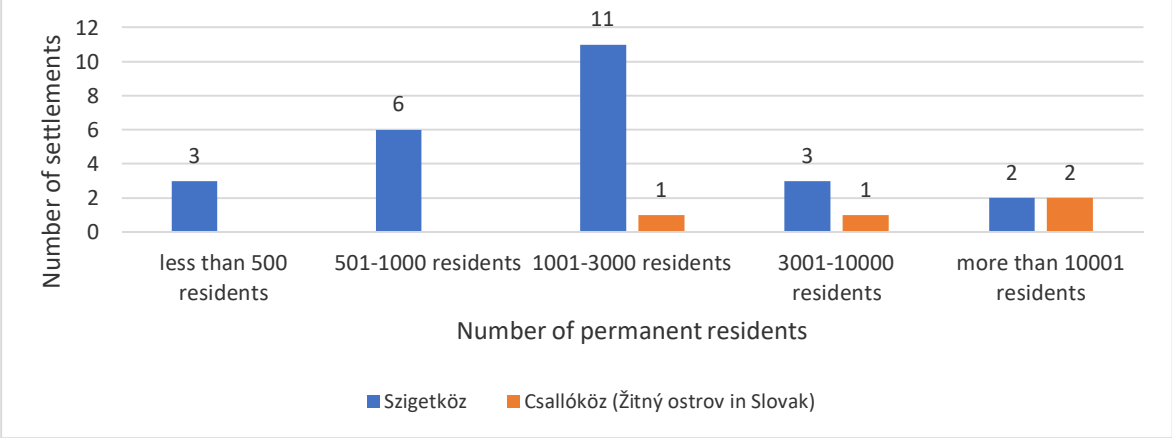
The municipalities and institutions involved are Darnózseli, Dunakiliti, Dunaszeg, Dunaszentpál, Dunasziget, Feketeerdő, Győr, Győrladamér, Győrladamér Primary School, Győrzámoly, Halászi, Kimle, Kisbodak, Lipót, Lipóti Primary School, Mecsér, Mosonmagyaróvár, Nagybajcs, Vámosszabadi in Hungary and Čiližská Radvaň, Šamorín, Dunajská Streda in Slovakia. Due to the situation triggered by the COVID-19 pandemic, only 7 individuals agreed to be interviewed in person, the rest of the interviews were realised online. The average length of an interview was 45 minutes and included 5 open questions. The added value of elaborate answers to in-depth interview questions was justified by the fact that "open-end questions allow interviewees to answer in their own words, and often reveal more about people's opinions. They are particularly useful in exploratory research." (Kotler & Lane, 2012:104)

The following aspects were considered in the preparation of in-depth interviews: the evaluation of the socio-economic situation of each municipality, a review of development projects realised over the past ten years, as well as prospective developments impacting the socio-economic life of the municipality in the next 5 to 10 years. The willingness of municipalities to participate in cross-border economic cooperation and the identification of dormant opportunities contributing to the innovative and sustainable development of the Szigetköz–Csallóköz area were given special emphasis. Five open questions were posed during the interview, which is included in the annex. Our results were processed through text analysis.

RESULTS

The two study areas, Szigetköz and Csallóköz cover 25 and 4 settlements, respectively. Municipalities in Szigetköz are divided based on topographical boundaries into lower and upper Szigetköz municipalities, with Győr and Mosonmagyaróvár as their centers, the demarcation line stretching between Hédervár and Ásványráró. A developed industrial base characterises the two cities in the planning area, Győr (123,475 permanent residents) the county seat and Mosonmagyaróvár (32,316 permanent residents). Csallóköz also has two important economic hubs, Šamorín (12,801 permanent residents) and Dunajská Streda (23,044 permanent residents) alongside the small town of Gabčíkovo (5,232 permanent residents) and the small village of Čiližská Radvaň (1,175 permanent residents). Fig. 3 depicts the structural composition of the surveyed municipalities in terms of population. As demonstrated by Fig. 3, the region is characterised by the predominance of medium-sized settlements rather than small villages (Hungarian Statistic Office, 2021; Slovakian Statistical Office, 2021).

Figure 3 Structural composition of municipalities surveyed in the Szigetköz–Csallóköz area in terms of population



Source: Own compilation based on the Hungarian and Slovakian Statistical Office (2021)

Results of the analysis of strategic documents

The documentary analysis comprised a review of the national, county, and other strategic documents. According to our findings, while the national strategic documents contain no explicit reference to the Szigetköz-Csallóköz area (which is mentioned only in the context of Győr-Moson-Sopron county and Győr's catchment area) and the environmental policy strategy highlights its central role only in the context of water management, the county strategic documents provide a detailed assessment of the conditions of Szigetköz and the adjacent Csallóköz. The strategic directions and development opportunities of the area appear to be well aligned to county-level strategic objectives and development directions (development of creative human resources, promotion of innovation, improved accessibility of the county and

its settlements, renewal of the environment, promotion of culture, amelioration of the quality of life, improved internal cohesion of the county and development of cross-border cooperation). The county documents put special emphasis on potential developments in the two urban centres (Győr and Mosonmagyaróvár) and the two adjoining districts. Tab. 2 provides a summary of recent development proposals for the study area for 2021, outlining economic, social and engineering development directions, with an emphasis on strengthening cooperations.

Table 2 Development opportunities of Győr-Moson-Sopron county based on the Győr-Moson-Sopron County Regional Development Programme 2021-2027.

Settlement network development opportunities	Catching-up of peripheral regions Strengthening cooperation Differentiated and targeted use of local and regional assets Strengthening linkages Inter-municipal cooperation Communication between urban centres and agglomerations
Social development opportunities	Promoting equal opportunities Human resources development Establishing and maintaining a universally accessible and well-functioning health and social care system
Economic development opportunities	Business infrastructure development Embracing digitalisation Development of SMEs Complex tourism development Food economy development Digitalisation Upgrading the innovation ecosystem
Technical development opportunities	Water management: closing the public utility gap - protection of groundwater resources, climate change adaptation, management of the Danube river bed subsidence Transport: development of motorway and trunk road networks, better access to municipalities, development of railway services, development of intermodality, development of water infrastructure

Source: own compilation based on the Győr-Moson-Sopron Megye Területfejlesztési Program 2021-2027. (2021, p. 258-269.)

The results of the analysis of other strategic documents relevant to the region underline the significance of water management in the Csallóköz–Szigetköz region, the involvement of various interest groups and the convergence between their conflicting viewpoints in the planning process of river basin management. The region is also a special area for nature conservation and the protection of birds, hence it is important to be mindful of these objectives as well. In this spirit, the local Szigetköz and Moson-Sík Association fixed the target of the development of local organisations, the promotion of networking and sustainability and local integrated economic development for the 2014-2020 period (Szigetköz-Mosoni-Sík LEADER Egyesület Helyi Fejlesztési Stratégiája 2014-2020.) and the local Szigetköz Tourism

Association aims to promote the Szigetköz as a tourist destination to reach the national average and catch up with its competitors and the national average.

Results of in-depth interviews

The first question targeted the socio-economic situation of the selected settlement and its specific role in the life of Szigetköz/Csallóköz. While the question allows for a great variety of responses due to the diversity of socio-economic situations and the regional position of the surveyed municipalities, some commonalities and basic trends can be detected. There was a general agreement among the responding municipalities about the uniqueness of their natural environment and their economic position that places them above the national average. The proximity of Győr and Bratislava, as well as the nearby international road and rail links, all have a positive labour market impact for people living in the area. Among the economic sectors, tourism is also a significant force in the region as an income-generating and job-creating economic sector. This positive tendency is mainly concentrated in the lower inter-island settlements around Győr, while tourism is more typical of smaller settlements, usually located on the banks, branches and canals of the Danube (e.g. Kisbodak, Dunasziget). None of the settlements showed any evidence of a downward trend in their population, and a massive influx of new residents was recorded in larger cities' (Győr, Mosonmagyaróvár, Bratislava) and their conurbations (lower Szigetköz settlements, Feketeerdő, Dunakiliti, Rajka, etc.). The number of holiday homes and holiday cottages is on the rise, as a powerful indicator of the area's touristic attractiveness. Traditional farming activities, such as agriculture, fishing and forestry are in decline in both Szigetköz and Csallóköz, mostly practised by local 'indigenous' people, or occasionally in rural and ecotourism destinations as a part of tourist attractions. Municipal leaders unanimously agreed on the need to develop tourism and related infrastructure, as the sector is lagging behind the national average in this area in both regions, and the Szigetköz municipalities in particular (Lack of catering and accommodation facilities).

While the dominant touristic activities are cycling and summer water tourism, settlements are experiencing severe infrastructure deficiencies in both. More attention should be paid to the connection and integration of the various tourism sectors, a process still in its infancy in Szigetköz and Csallóköz. The main tourist destinations of the region include the touristic attractions of riverbank settlements, Győr and Lipót on the Hungarian side, and Šamorín and Dunajská Streda on the Slovak side (thermal baths, wellness centres e.g. xBionic Hotel and

Wellness Center). Several municipalities mentioned the need for the comprehensive and innovative development of Szigetköz, as well as promoting territorial cooperation. They also mentioned the importance of creating a possible "Szigetköz brand" similar to the Slovakian Kukkonia brand, which is a great example of how local products and services can be effectively represented and marketed through local cooperation and the involvement of local economic actors, e.g. in Slovakia, MOL petrol stations offer Kukkonia brand products in the region. The Kukkonia brand was created by the Kukkonia civic association in Dunaszerdahely, which is also a member of the local TDM. Being attentive to synergies and trends and strengthening the TDM organisation are highly recommended.

Győr, despite being the major population and economic centre of the region, exerts a modest impact on the socio-economic life of Szigetköz. The settlements of Szigetköz and the county seat are weakly connected, which is a significant barrier to infrastructural developments. Mosonmagyaróvár and Lipót in the Szigetköz area, and Šamorín and Dunajská Streda in the Csallóköz area have identified themselves as central settlements besides Győr. The size of Csallóköz naturally explains the "need" for a greater number of settlements with central functions, and the spatial structural specifics of southern Slovakia justifies the "demand" for urban centres in Csallóköz, a predominantly rural area. Due to its smaller size, dense settlement network, and proximity to major urban centers, Szigetköz shows the features of a peri-urban area or a conurbation rather than a region with predominantly rural characteristics. According to a tourism expert from Dunajská Streda, the settlements of Csallóköz are "split" in two, the western part is a dynamically developing area with agglomeration characteristics, due to its proximity to Bratislava and denser urban network, while the eastern part is a backward, rural-type area with a scarcity of urban centres and a regional centre, Komárom, whose urban functions have a weak impact on the region's socio-economic development.

The second interview question targeted the developments undertaken by the municipalities in the post-2010 period and the type of funding resources used. It also aimed to detect any non-realised developments in this period and their underlying causes. This latter helped us to identify latent gaps that could be incorporated into the proposals later on. The answers confirm the realisation of developments by the settlements of both Szigetköz and Csallóköz, implying large-scale investments in some cases. The majority of the settlements have mentioned the renovation of public institutions (kindergartens, primary schools, health centres) and the upgrading of the road network and public infrastructure. The objectives defined in district operational programmes for 2014-2020 and the priorities of the LEADER association have been

partially met. Institutional reconstructions were emphasised at the expense of tourism infrastructure, whose development would have been crucial in the case of both the Szigetköz and Csallóköz settlements. The realised infrastructural investments mainly target cycling and water tourism, i.e. the development of regional cycle routes and related services, the catering sector, riverboat harbours and campsites and accommodation facilities. Large-scale tourism destination development was realised in the spa area of the municipality of Lipót, and a major economic development project was realised within the Lipót Bakery. In the case of lower Szigetköz settlements, the main problem is the highway that traverses them, which, besides increasing the risk of accidents, also deteriorates the condition of local roads and air quality in the settlements. For many municipalities (e.g. Győrzámoly, Győrladamér, Dunaszeg), the poor condition of roads and pavements is a major problem, and these have not always been improved over the last ten years. The condition of roads also impacts the local economy by facilitating or hindering the access of local small and medium-sized enterprises to national and international road networks. Hence, road network development constitutes a major priority for economic development.

As regards individual development interventions, the four cities included in the survey (Győr, Mosonmagyaróvár, Šamorín, Dunajská Streda) were given separate treatment due to their size, population and settlement hierarchical status distinguishing them among other settlements of the region. Since 2010, these cities have witnessed large-scale economic and urban development interventions, connected mostly to national or international location decisions and transport infrastructure developments, and less to bottom-up regional processes. The specific situation of Győr in the region is highlighted as a beneficiary of the Modern Cities Programme launched recently by the Hungarian government. The programme contributed to the realisation of large-scale development projects in Győr (e.g. a new outdoor bath, large-scale development of the zoo as a strategic tourism attraction, and transport infrastructure investments), strengthening its nodal position within the region. The programme also targeted the construction of a new 2×1 lane, approximately 12 km long road to relieve the existing motorway, between Győr and Dunaszerdahely, which would connect the two cities but also the Szigetköz and Csallóköz regions (Fekete, 2018; 2021). Széchenyi István University is a major regional bridging institution, which, in addition to its central campus in Győr, operates a faculty in Mosonmagyaróvár, thus establishing its presence at two major "entry points" of the Szigetköz. The current Győr-based research also benefits from collaboration with researchers from Mosonmagyaróvár mostly engaged in agricultural research. The recently renovated castle

in Mosonmagyaróvár, which is home to the university's Faculty of Agriculture, has already demonstrated its capacity to host large-scale scientific and project events focusing on the region.

The implemented development projects drew on a variety of funding sources, including government and EU funds, and their contributions as well. A major tendency of the last few years is the increasing role of government funds in municipal development projects running mainly under the Hungarian Village Programme.

In addition to the aforementioned infrastructural deficiencies, the failure to realize various economic development investments and the delay of public catering subsidies are serious causes for concern.

The third question enquired about future development needs in a 1, 5, and 10-year timespan. This could be regarded as the key aspect of economic development interventions, providing a basis for desirable visions of the future. Most municipalities seek to obtain funding to develop their deficient tourism infrastructure and to improve the state and supply of roads in the next 5-10 years. Interestingly, some settlements of Szigetköz - mainly in the conurbation of Győr and Mosonmagyaróvár - see the extension of villages, the construction of new streets and new housing as a pressing task to counter the ongoing, increasingly unmanageable suburbanisation processes that may violate settlement image regulations and land-use plans. Almost all municipalities regard the poor condition of roads and the deficiencies of vital infrastructure as increasingly problematic, and accord a top priority to their development and modernization. In addition, further institutional reconstruction works and the building of new community centres and public squares are envisaged, but on a more modest scale than in the case of the former development priorities. The studied cities constitute an obvious exception, due to the availability of a wider range of opportunities and resources for future development activities than in the case of the rest of the settlements. Győr as the region's major economic hub accords a key priority to the development and modernization of its tourism destination in the coming years as well. In contrast to the eco- and sports tourism profile of Szigetköz and Csallóköz, Győr focuses on the development of cultural and sacred tourism and the exploitation of destination advantages connected to its industrial heritage. These types of developments will feature among the main priorities of urban development in the next 5 to 10 years.

The next question sought to explore the engagement of Szigetköz and Csallóköz municipalities in various (local, regional and cross-border) types of economic cooperation. This issue deserves special emphasis due to the growing importance of territorial cooperation and collaboration, and the fundamental role that territorial networks and synergies play in the

efficient use of resources. Cooperation raises the efficiency of bottom-up development, which is a major cornerstone of the EU policy framework. Mapping cross-border relations is a crucial element of collaborations in Szigetköz and Csallóköz, as the two regions are "twin islands" of the Danube, forming a coherent entity in terms of their natural geography and social development, yet attached to different countries as a result of historical events. The EU's Schengen Agreement allows for the interoperability of borders and its policy prioritises the development and strengthening of cross-border cooperation. Its significance for the research lies in the fact that it facilitates the complex development of a unique landscape by two different countries. On a national scale, Szigetköz is regarded as a Hungarian territory that shows an excessive reliance on cross-border cooperation due to the loss of its natural catchment area and its neighbouring region.

While almost all of the responding municipalities are involved in cross-border cooperation, the economic intensity of ties shows considerable variation. The great majority of Szigetköz municipalities participate in the activities of Arrabona EGTC, which is the main facilitator of cross-border cooperation in the region. The responding municipalities in Csallóköz are also involved in collaborative development projects of Arrabona EGTC, and several civil and religious organisations have created similar partnerships in recent years (e.g. the Somorja Benedictine Priory in Győr). Besides the intensity of cooperation, it is worth noting that the strength and intensity of twinning relations in the region have declined in recent years. The involved municipalities should place greater emphasis on strengthening and "reinvigorating" these ties, which could serve as the backbone of cross-border civil and non-profit partnerships.

Overall, while the municipalities of Szigetköz and Csallóköz are involved in cross-border economic cooperation, the intensity of cooperation varies from settlement to settlement. Larger municipalities are generally more capable of developing efficient economic cooperation, whose major engine is Győr on the Hungarian side and Dunajská Streda on the Slovak side. In the area of cooperation, the cities emphasised the renewal and development of local cultural spaces, such as the restoration of the refectory of the Benedictine Priory in Győr and the renovation of the Paulus House in Šamorín. Strengthening cross-border economic ties is a key priority for the next 5-10 years, as both sides of the border are constituted by areas dominated by small settlements, whose development is conditioned by the successful and efficient allocation of EU and government funds. In the case of small municipalities, this necessitates the strengthening of cooperation and synergies.

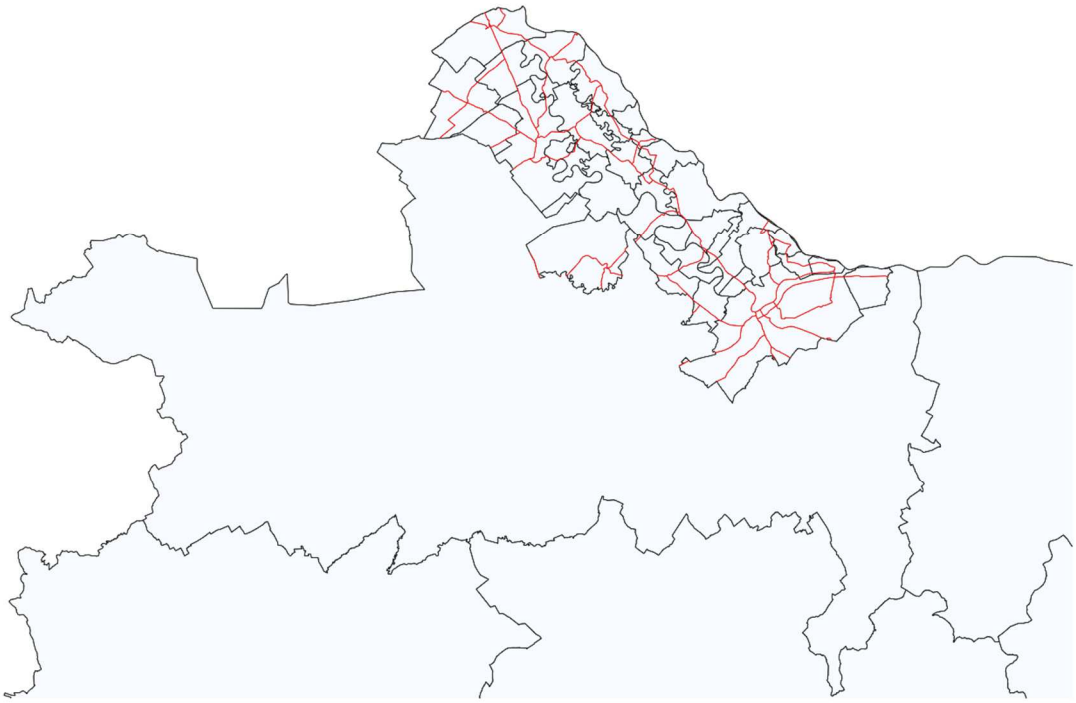
The fifth and final question targeted untapped and underutilised regional economic assets promoting the innovative and sustainable development of Szigetköz and Csallóköz. This relies on the identification of latent assets as a key component of regional planning and economic development interventions.

The great majority of municipal leaders, and those in Szigetköz in particular, emphasised latent opportunities or "inefficiently" functioning assets connected to their touristic potential. This points to the underdeveloped or low-standard tourism infrastructure of Szigetköz (Fig.4), which constitutes the main area of intervention in the coming years. Municipal leaders would put more focus on the revival of water tourism, facilitated by the planned water level regulation. Preference would be given to the use of small pleasure boats and kayaks and canoes, rather than larger and faster water equipment.

The development interventions should include – following the example of Slovakia – the construction of a cycle path along the Old Danube embankment, between Dunakiliti and Gönyű (Fig. 5). This would be a key infrastructure element for boosting cycling tourism in Szigetköz. Many of our interviewees agreed on the need to open up the Szigetköz branch system for tourists, especially for the organisation of rowing contests and boat cruises. They would also contribute to the re-utilisation of latent touristic assets, such as the Hédervár Castle, which requires clarifying ownership of these facilities and obtaining the necessary funding. These tourist attractions should form a network with cycling and water tourism, providing easier access for a wide range of catering businesses and services, and thus increasing the area's income-generating capacity and economic potential.

Improving the organisation of ecotourism, and making previously closed areas accessible to visitors, such as floodplain forests and backwaters would enable a more efficient promotion of natural assets. This is presently hampered by the complex ownership of different areas, and the interests and priorities of nature conservation should also be considered. Raising the water level of the Moson-Danube is a key prerequisite to the realisation of the aforementioned touristic developments since the uniqueness of Szigetköz relies on the density of its water network and branches.

Figure 4 The existing cycle route network of Szigetköz



Source: Edited by the authors and Zsófia Magyari based on TeIr base maps

Figure 5 Route of the planned Dunakiliti - Gönyű cycle route on the Danube embankment

Source: Own compilation based on google. maps.

Various elements of the basic infrastructure for cycling and water tourism are more developed in Csallóköz. The lack of adequate tourist accommodation capacity is more problematic for the region. Although there is ~~a~~ demand for infrastructural investments, the proximity of Bratislava as a major factor of development has already raised its standard over recent years.

As indicated by the results of our analyses, despite the heterogeneous situation and position of the settlements of Szigetköz and Csallóköz, they invariably benefit from a favourable socio-economic environment, manifest in positive labour market indicators, moderate population loss and an abundance of economic opportunities. A large number of municipalities are located in the conurbation of larger cities, showing signs of urbanisation and the characteristic traits of commuter towns (increased traffic, different use of services). As regards developments, the majority of targets fixed under the 2014-20 EU programming cycle have been achieved by the municipalities, mostly comprising the renovation of institutions and public spaces. These were financed from EU, governmental and own resources of municipalities.

DISCUSSION

The region has witnessed unprecedented positive processes in the post-1980 period, reigniting hope that stable and predictable water levels that enable touristic exploitation and the preservation of natural values would finally be achieved in areas hitherto menaced by drainage and extreme water levels. The technical investments, in addition to their anticipated positive impacts in terms of nature conservation and water management, will reinvigorate the economy and tourism sector of settlements in the vicinity of the Old Danube's branches.

Based on the results of our in-depth interviews, the greatest deficiencies according to municipal mayors and institutional leaders are found in the state of local tourism and the related facilities and infrastructure. This is an important finding since the Szigetköz and Csallóköz municipalities rely on tourism and related services as the main pillars of local economic development. Tourism is a key driving force in the life of Szigetköz and a key priority of economic development interventions. These may include water tourism-related investments, such as the construction of new ports, the development of water tourism infrastructure, the amelioration of gastronomic offer, the building of a new visitor centre or the development of a unique brand for the municipalities to improve the international visibility of the Szigetköz–Csallóköz area. The area has also witnessed the emergence of cooperation projects aimed, for instance, at preserving and cultivating local traditions, building partnerships between local

farmers, developing a joint damage warning system, or strengthening collaboration among local SMEs.

Another key priority is to improve the condition of roads, identified as a problem area by all of the municipalities. This is a crucial prerequisite to the emergence and operation of SMEs, the main drivers of local economic development. The construction of a new 2×1 lane, about a 12 km long road diverting traffic from the current road is highly significant for the lower Szigetköz area. The planned road, bypassing Dunaszeg, Győrladamér, Győrzámoly and Győrújfalu would link Szigetköz settlements to the main road 14 connecting Slovakia and Hungary at the Szitásdomb housing estate in Vámosszabadi. As pointed out by Jóna et al. (2021), the construction of the bypass would improve the viability of settlements, allow for the vehicle load to be distributed and spread, and render the traffic impact between Szigetköz-Győr-Csallóköz more predictable. Not to mention the construction of a much larger-scale highway connecting Győr to Dunaszerdahely and eastern Szigetköz to Csallóköz, which would ensure fast and safe transport between the two regions.

CONCLUSION

The objective of the paper was to explore the latent resources of the Hungarian-Slovakian cross-border area of Szigetköz-Csallóköz, a region particularly rich in unique natural assets. It highlights economic development opportunities whose exploitation would enable municipalities in the region to safeguard and ameliorate their favourable socio-economic environment, positive labour market indicators and modest demographic decline. Since a large number of municipalities are located in the conurbation of larger cities, the effects of urbanisation and the residential economy (increased traffic, diversification of services) are increasingly felt, which poses significant challenges for municipal leaders. Despite the successful realisation of the majority of targets of the 2014-20 EU programming cycle – comprising mostly renovation of institutions and public spaces – by the municipalities, a key objective of the 2021-2027 cycle is to strengthen regional tourism and related services as the main pillars of local economic development.

As a result of the research based on the analysis of strategic documents and in-depth interviews with municipal leaders, the following recommendations were made in the area of tourism and infrastructural development. The uniqueness of Szigetköz stems from its dense water and branch network, however, making previously closed areas accessible to visitors, such as floodplain forests and backwaters would enable a better promotion of its natural assets whilst

boosting ecotourism, water and sports tourism (rowing, e.g. boat, kayak, canoe and stand up paddle tours). Besides natural assets, the refunctionalisation and repositioning of cultural and touristic resources (e.g. the Hédervár Castle), notably through more efficient linkages and networks, would connect a wide range of local catering businesses and services to active tourism (cycling and water tourism), contributing to the region's income-generating capacity and economic potential.

Similar to the Kukkonia brand the creation of a unique Szigetköz "brand" would largely contribute to these objectives. The "Kukkonia, our golden garden" brand established in recent years in the neighboring Csallóköz is an illustrative example of both qualitative and destination development. There is an urgent need to address the poor condition of roads, regarded as problematic by all of the municipalities. This is also a prerequisite for the emergence and operation of SMEs as the main drivers of local economic development. The construction of a cycle path – following the example of Slovakia – along the Old Danube embankment, between Dunakiliti and Gönyű would boost cycling tourism in Szigetköz. In conclusion, the study has demonstrated the existence of latent regional resources in the tourism sector, and in the Szigetköz area in particular, whose exploitation and development constitutes a key priority for the coming years, and will increasingly rely on the efforts of municipalities to advance regional cooperation and synergies.

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Appendix

Economic development opportunities related to in-depth interview questions

1. Please evaluate the current social/socio-economic situation of the settlement, what role it plays in the life of Szigetköz/Csallóköz.
2. Please describe the developments undertaken in the municipality since 2010.
   - What sources of funding have supported the realization of these developments?
   - Please describe in detail which planned development projects have not been implemented and on what grounds.
3. Please list the developments planned in the municipality in the next 1-5-10 years.
4. What type of local/Szigetköz/Csallóköz or cross-border economic cooperation is your municipality involved in? Please elaborate!
5. Please identify the potential, unexploited or untapped opportunities in your region that you consider worth exploring and instrumental to the innovative and sustainable development of the local/Szigetköz/Csallóköz area.

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Original scientific paper

EXAMINING A MENU ON THE BASIS OF THE KASAVANA - SMITH MODEL IN A HUNGARIAN RESTAURANT

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Abstract

Gastronomy is currently undergoing a renaissance, different gastronomic trends influence the way menus are set up. The purpose of this study is to investigate the menu of a restaurant in a Transdanubian city in terms of sold portions and margins. After an unstructured interview with the manager, the breadth and depth of the offer were investigated. Then the data were examined, based on the restaurant's menu selection, traffic and cost data with the help of time series analysis. During the processing of time series data, the analysis takes into account seasonality and compares the same terminology of the years studied. With the turnover and cost data, the Kasavana and Smith portfolio analysis method was used and based on the margin and the number of portions sold, the Menu engineering worksheet was used to create the data series for the presentation. The research provides a detailed picture of sales decisions for the period 2016-2019. The results of the examination show that reducing the selection and offering special dishes are in line with the gastronomical trends, but not necessarily with the location of the restaurant and the needs of its target audience. Using the model, seasonality was examined for the first time, which did not prove that restaurant guests were looking for seasonal food. With a well-selected menu – which is one of the most important marketing communication tools - the restaurant is able to influence guests' food choices. Proper use of colours, shapes and prices all affect the guest's subconscious mind, which is responsible for a large percentage of decisions. The character of the restaurant and its guests are usually determined by the dishes on the menu. In the case of the investigated restaurant the solution could be to tailor the prices to the target group and to strengthen the marketing communication. The restaurant — taking advantage of the large space — can be used to serve different target groups by sharing the room.

Keywords: menu, Kasavana-Smith, matrix, restaurant

INTRODUCTION

Menu analysis is a less studied area in the palette of Hungarian scientific life, but internationally there is relatively only a few publications were written on the subject as well. In his research, Sándor (2007) examined the traditional regional dishes of the tourist region of Southern Transdanubia according to main food groups. Kőmíves (2018) examined the roots of gastronomy in Győr and its surroundings in his empirical research. Ivancsó-Kőmíves (2018) also analysed the menus of Rábaköz and Szigetköz, focusing on regional dishes. However, the

authors did not find any examples in the Hungarian literature to examine the relationship between supply and turnover.

The menu is an integral part of the restaurant. Guests form an opinion about the restaurant based on the menu. The menu affects the senses: the quality of the graphics and paper are very important factors in judging, but it also includes where and how each food is placed on a given menu. While the external style of the menu is a marketing tool, putting together and placing food on the menu helps restaurateurs make a profit. Of course, it is worth noting at the beginning of the study that a large number of guests does not equate to profit maximisation, as the choice of guests does not always fall on the most profitable food. It is therefore of great importance that the menu includes foods that generate adequate returns while providing value and satisfaction to the guests, i.e. the importance of the menu is high both in terms of restaurant profitability and guest satisfaction. In an expanding competitive position, a menu with the right pricing and graphics is an essential accessory for a restaurant. Choosing the right foods is not an easy task. By using different menu analysis matrices, the menu can be compiled more efficiently, as they are used to map out which foods produce profit and loss.

In this study, the individual analysis options are presented in the literature review. In the primary research, the menu of a restaurant in Western Transdanubia will be examined based on the Kasavana-Smith model.

THEORETICAL BACKGROUND

The CLV. Section 14 § (3.4.5) of the 1997 Consumer Protection Act stipulates that "The selling price, the unit price and the service fee must be indicated clearly, easily identifiable and clearly legible. With the exception of the cross-border provision of services, the selling price and the unit price, as well as the service fee, must be expressed in the legal currency of Hungary, indicated by it's name (forint) or its abbreviation (HUF). The actual price to be paid by the consumer, including value added tax and other mandatory charges, must be indicated as the selling price and unit price of the product, as well as the service fee" (https://net.jogtar.hu/jogszabaly?docid=99700155.tv). The menu includes the goods offered for sale in the restaurant, item by item[8], per unit of quantity (portion), with the gross consumer price indicated in the legal currency of Hungary (HUF), including value added tax. There are several definitions in the literature for the conceptual definition of a menu. According to Borda

[8] According to strict professional groupings (in order of consumption: cold appetiser, soup, hot appetiser, fish dishes, poultry, pork, veal, beef, game, finishing dishes (cheeses, sweets, fruits).

et al. (1993), "the menu is a reflection of the restaurant", the presentation of the food selection with indication of prices. It gives an account of the quality and selection of the business, the professional knowledge of the people who work there…. " (Borda et al. 1993, 31). Dunszt et al. (2005) amended the definition of the former authors with the following: "It attracts the attention of the guest and encourages consumption,… our eating culture, business policy, distributor of the reputation of our expertise, the professional signature of the business" (Dunszt et al. 2005:475). According to Voleszák (2006), "the menu is a price list presenting the selection of food together with prices in catering businesses" (Voleszák 2006:68).

The menu is extremely important for restaurants from a marketing point of view, as it has been described in the work of many researchers (Frei, 1995; Main, 1995; Scanlon, 1995, Goldstein, 1997; Sandeep - Vinti, 2009).

A suitable method for analysing the composition of menus is vertical and horizontal examination and the quality of the selection. The first model was created by Miller in 1980. This is the so-called MAM (Menu Analysis Model), with the help of which it is possible to define the foods that are popular and also have a low in food cost. Miller developed a four-quadrant matrix where the two factors are the quantity and the percentage distribution of average cost of cooking. The names of the four quadrants are: Winners: high popularity and low in food cost, Marginals II: high popularity and high in food cost, Marginals III: low popularity and in food cost, Losers: low popularity and high in food cost. According to Miller, if 60% of the food is in the Winners and Marginals III categories, that is already appropriate for the restaurant.

Kasavana and Smith modified the Miller model in 1982 and used contribution margin instead of production costs. The Kasavana-Smith (1982) model was based on the BCG matrix[9]. The only disadvantage of the model is that it clearly records the margin as profit, even though the margin provides a cost and benefit coverage. One of the biggest limitations of the MEM (Menu Engineering Model), is that it favours higher priced foods, which in turn reduces demand and profitability. In the matrix, the foods in the Stars quadrant are the ones with the highest margins and the highest sales numbers. Plowhorses include foods with high sales numbers and low margins. Question marks include foods with high margins and low sales. Dogs include low-margin and low-selling foods.

In 1983, Pavesic further developed the above models and created the CMAM (Cost Margin Analysis Model) model, which focuses on cost analysis. It is based on the margin and the cost

[9] Henderson B., founder of Boston Consulting Group, created the market growth share model in 1968

of producing the food. In this model, the four quadrants are Primes, the foods with low production cost and high profitability, Standards, with high production cost and high profitability, Sleepers with low production cost and low profitability, and Problems with high production cost and low profitability (Taylor-Brown 2007).

The biggest flaw of the three models, according to Taylor and Brown (2007), is that they do not take into account other costs, most notably labor costs.

Hayes and Huffman's model focuses on the income statement for each food by calculating fixed and variable costs. In their view, only those foods can remain on the menu, whose income statement meets the intended financial targets.

The model by LeBruto, Quain, and Ashley (1995) is a further variation of the menu engineering model, in which the 4 quadrants were divided into 4 additional parts based on variable labor cost, each of which includes foods with high and low labor demand.

Cohen, Meshika, and Schwartz (1998) provided a multidimensional approach as a solution to the limitations of two-dimensional models. Thus, food procurement costs, prices, labor costs, popularity, and margins were also included in the analysis. They rated foods on a scale of 0-10, where foods between 8-10 are ideal, foods between 4-8 are acceptable, and foods below 4 are unacceptable. According to Taylor and Brown (2007), the biggest flaw in the model is that, on the one hand, they did not specify how variable costs, including labor costs, were calculated, and on the other hand, they did not take into account other factors of production.

According to Bayou and Bennett (1992), the following rounds of analysis are missing from the analyses: analyses by food groups, time of the meal (breakfast, lunch, or dinner), as well as short- and long-term profitability of a given food. In their model (PAM) - profitability analysis model - they defined overhead costs, which include e.g. advertising costs as well, and in their opinion, proper cost allocation is very important.

Horton (2001) rethought the MEM model by analysing the same restaurant menu set in practice, once with labor costs and then without labor costs. As a result of the research, it can be said that the labor cost is significant and worth calculating with it in order to get adequate results.

Alternatively, multivariate analyses can be used to examine profitability (Taylor-Brown, 2007). In 2016, Linassi et al. used the Kasavana-Smith model for menu planning, supplemented with activity-based costing. The traditional ME approach uses only food costs to determine the contribution margin (CM) of each individual menu item. This combined approach uses both food and traceable operational costs to estimate CMs more accurately.

DATA AND METHODS

In Hungary, it is not common for restaurants to analyse menus in such detail, even though in many cases restaurant management could be improved and supply could be better aligned with demand by it. We conducted in-depth interviews with the managers of 10 prominent restaurants to find out how menu planning and pricing is done at their establishments. The responses we received confirmed that managers make both menu planning and pricing decisions intuitively, taking into account only the use of ingredients. We then decided to analyse the menu of a restaurant run by a contributing manager.

In our work, we analysed the menu and offer of a restaurant in Western Transdanubia from several points of view. Prior to the study, we conducted an unstructured interview with the manager in charge, which provided a good basis for learning about the restaurant and planning the analyses. We examined the breadth and depth of the offer, and then performed a time series analysis of the data based on the restaurant's menu selection, as well as traffic and costs. We examined the change of the menu according to seasonality, i.e. the change of ingredients, and by time, taking into account special occasions and holidays.

Finally, using the turnover and cost data obtained for the period January 2016 to December 2019, we first decided to use the Kasavana and Smith portfolio analysis method, since it is the most commonly used method of analysis. Although — as it is visible from the literature review — there are more recent models, the data provided by the manager in charge did not allow to examine the types of costs in detail with the exception of (material costs) COGS, which would have been necessary for the use of other models. We preferred to classify labour costs – like Kasavana – as fixed costs, because if the restaurant has no guests on a given day, it still has to pay the labour in the same way. Based on the margin and the number of portions sold, we created the data sets required for the representation using the menu engineering worksheet.

The total number of portions sold from each dish was used to calculate the total number of portions sold in the period under study, then the % distribution of sales of each dish. We then calculated the popularity rate of the Menu Mix (100/number of dishes tested)*70%. This value determines whether a dish has a low or high sales volume. If the distribution ratio of sales for a dish is greater than the popularity rate, it is in the high zone, if it is less, it is in the low zone. Next, we calculated the net purchase price of the ingredients needed to prepare a portion of a dish, then calculated the margin per portion for each dish. After this, we calculated the total margin for each dish, by multiplying the number of portions sold with the margin per portion.

The total margin divided by the total number of portions sold gave the average margin per portion. This value determined whether a dish was low or high margin. Margins above average placed the food in the high zone and margins below average placed the food in the low zone.

In the course of the study, we wanted to answer the following research questions:

- To what extent does the compilation of the menu meet consumer needs?
- Is there a correlation between food choice and seasonality?
- Is there a correlation between food choices and prices?
- How well does the menu correspond to the quality of the restaurant?

In light of the results, we made suggestions for the future design of the restaurant's menu. It is important to note that our research was practice-oriented, aiming to provide the restaurant with a practical solution to a problem.

Within the limits of our research, it is important to mention that the method itself only examines the purchase value of the goods sold and the margin. And the margin includes costs and profit in different proportions, so we do not have a complete data set. The model does not address wage costs, which are of great importance in hospitality, but, according to the model makers, the division of wages between each meal would be very complicated, because the restaurant manager would have to determine the operating times and costs for each dish. Most managers do not use this method because it is time-consuming, as each operation must be accurately observed, measurements must be taken, and it is not enough to simply allocate costs to each dish.

It should also be mentioned that the peculiarity of the model is that due to the calculation methods, there is an interdependence between the foods on the menu, which is why foods will always be included in all fields.

RESULTS

The examined restaurant is located in Western Transdanubia, close to the city center, but not in a frequented place. The restaurant has 100 seats, its main profile is event organisation, but there is also a strong emphasis on serving a'la carte guests. The menu is formally clean, it reflects the atmosphere and style of the restaurant, the colours are in line with the aesthetics of the restaurant.

Numerically, the range of available menu items is narrow in line with current trends, but is adequate in terms of positioning. The editing of the menu does not follow the current trends,

according to which, contrary to the usual practice in previous years, the indication of the style of the dishes (for example, sirloin Budapest style) should be avoided on the menu. Instead, reference should be made to the kitchen technology of cooking (steamed, grilled, sous-vide, grilled), the type of meat (pike perch, veal, wild duck) and the ingredients that characterise the food (roasted base, goose liver, green pea stew, rice base). The consumer needs to find something to his liking from relatively few menu items. The menu includes a total of three appetisers, three soups, ten main courses, one pickles and four desserts.

The specialty is also suggested in the dishes on the menu, although the soups include "Chanterelle cream soup with smoked beef tongue", "Goulash soup made with shin of veal" and "Újházy chicken soup".

In terms of pricing, main dishes cost between HUF 2,990 and HUF 5,990. The restaurant uses psychological pricing, with all prices ending at ninety. Prices are subject to a 10% service charge as well.

Time series analysis of sales

Using data received from the manager in charge, we analysed sales between January 1, 2016 and December 31, 2019. First, we identified the main indicators of sales. Net sales revenue has been virtually stagnant since 2016, and has even declined somewhat in the last two years. The number of dishes on the menu ranged from 49 to 64 between 2016 and 2018. Then, the restaurant started the year 2019 with a new concept and only offered third of the menu items than previously. Examination of the number of servings sold showed that the restaurant sold the most menu items in 2017, when nearly 50 main dishes were on the menu, similarly to 2016. Supply was deeper in 2018, but sales fell drastically, similarly to 2019, when a much narrower menu selection was chosen by the management. Examining the margin and COGS, we can see that the ratio has shifted more and more towards a higher margin, this change is also shown by the gross profit margin (GPM%). Based on the interview, the restaurant identified the previously very low margin content as the problem, which they definitely wanted to change. (Tab. 1) A consumer survey would also be necessary to get an accurate answer to the problems from the consumer side as well.

Table 1 Key sales figures

Year	Number of menu items	Total number of servings sold	Margin%	COGS%	GPM %
2016	56	6833	55,8	44,2	122
2017	49	6995	56	44	126
2018	63	4970	63	37	175,7
2019	21	4978	65	35	182

Source: Own editing

After defining the main sales indicators, the financial and sales data related to the sales of the main dishes were sorted and evaluated using "Menu engineering worksheets". First, we determined the average margin value for each year from the margin data and classified each main dish into a low or high margin category, and then after calculating the menu popularity index, we also classified the sales volume for each main dish into a low and high category. The values obtained were placed in a modified BCG matrix used by Smith and Kasavana (Tab.2).

Table 2 Individual fields in the Kasavana and Smith matrix

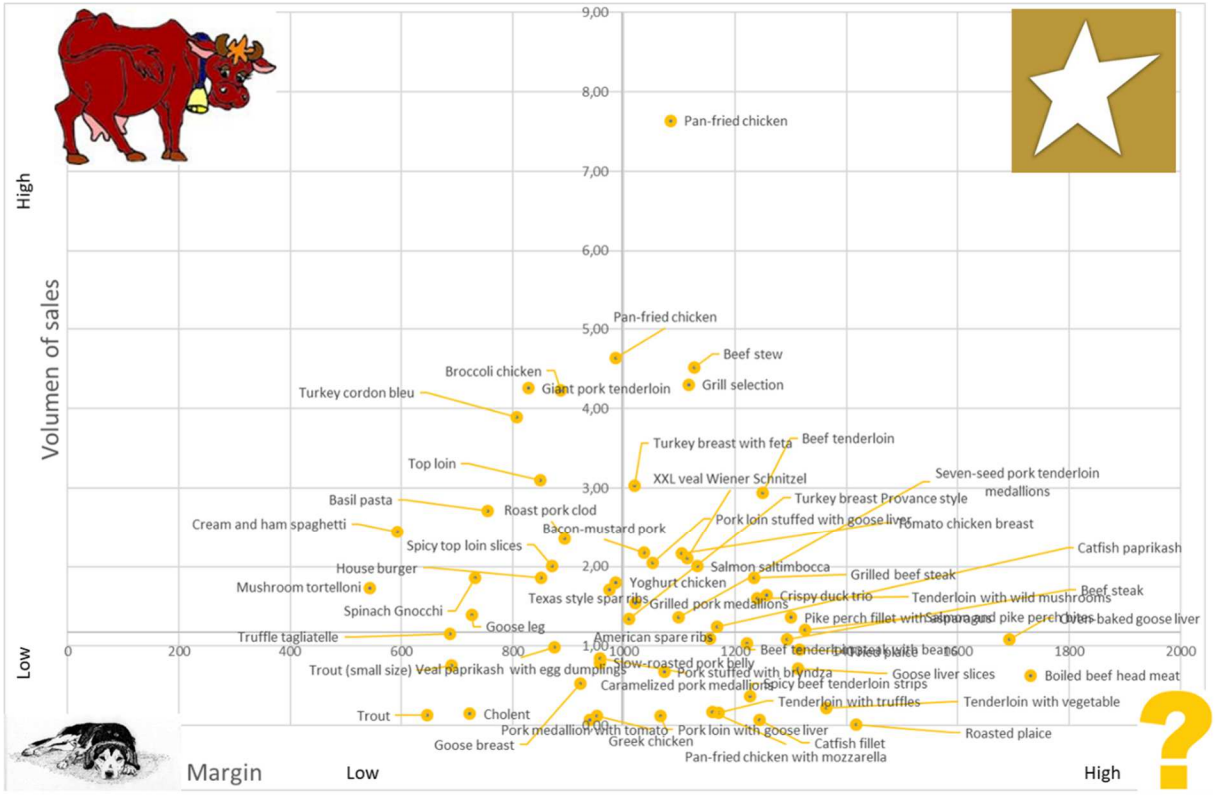
	Sales volume		Margin	
	low	high	low	high
Stars		X		X
Question marks	X			X
Cash cows		X	X	
Dogs	X		X	

Source: Own editing

The figures obtained reveal a lot about the sales decisions of each year. In 2016, the majority of the 56 main dishes sold during the year belong to the stars and cash cows categories. The figure shows well that the most popular menu items were the main dishes belonging to the classic, not very high price category, for which the content of the margin exceeded the average level. Chicken nuggets, beef stew and the grill selection had the largest sales volume, and these menu items, together with 17 other main dishes, were among the "stars" due to their high margin content. Pan-fried chicken, turkey cordon bleu, creamy spaghetti, giant pork tenderloin to highlight just a few of the 16 classic, popular but low-margin dishes were among the "cash cows". The majority of foods sold at high prices - and with a high margin content - a total of 15 foods were included in the "question marks" because the popularity of these foods was not

high and the portions sold did not reach the high category either. Dishes like these include oven-baked goose liver, plaice, and sirloin steak. 8 dishes were included among the "dogs", and had a low margin content and were not very liked or chosen by the guests either (Fig. 1).

Figure 1 Representation of sales volume and margins of main courses in the Kasavana - Smith matrix (2016)



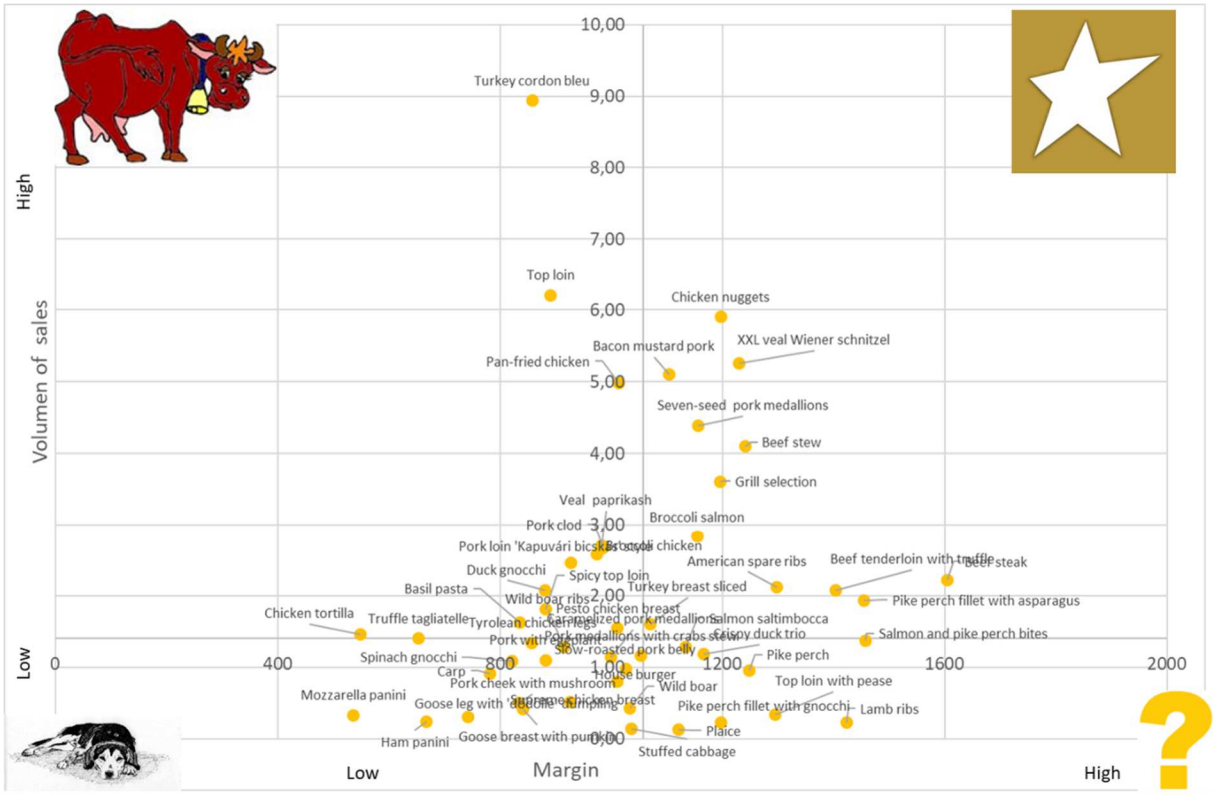
Source: Own editing[10]

In 2017, we found a significant rearrangement in the matrix (Fig. 2). The reason for this change was the greater variance in the numbers of portions sold. In terms of margins, no significant change is observed for each dish. The location of each food in the fields changed to the extent that the number of foods among "dogs" more than doubled (18 foods) compared to the previous year, despite the fact that several items were removed from the menu from the previous year. From the analysis of the second year, the target group - who visits the restaurant - is already visible, as well as the consumer needs. Although the restaurant positions itself highly, it is believed that due to its location and judgment, it does not attract the guests they actually want to. The "stars" of the 2017 main dishes are once again the chicken nuggets, and XXL veal Wiener Schnitzel. In addition, bacon-mustard pork, seven-seed breaded pork medallions, beef stew and the grill selection are leading the 12 dishes in the category. According

[10] Source of the symbols used in the matrix: http://mediapedia.hu/bcg-matrix

to sales, the most popular food among the "cash cows" (11 dishes) is the turkey "cordon bleu" along with the sirloin and pan-fried chicken. Fish dishes are still not among the leading dishes. It is only salmon that, although not very popular, has been ranked among the "stars". Based on Figure 2, it can be seen that the more special foods are located between either the "question marks" (8 foods) or the "dogs".

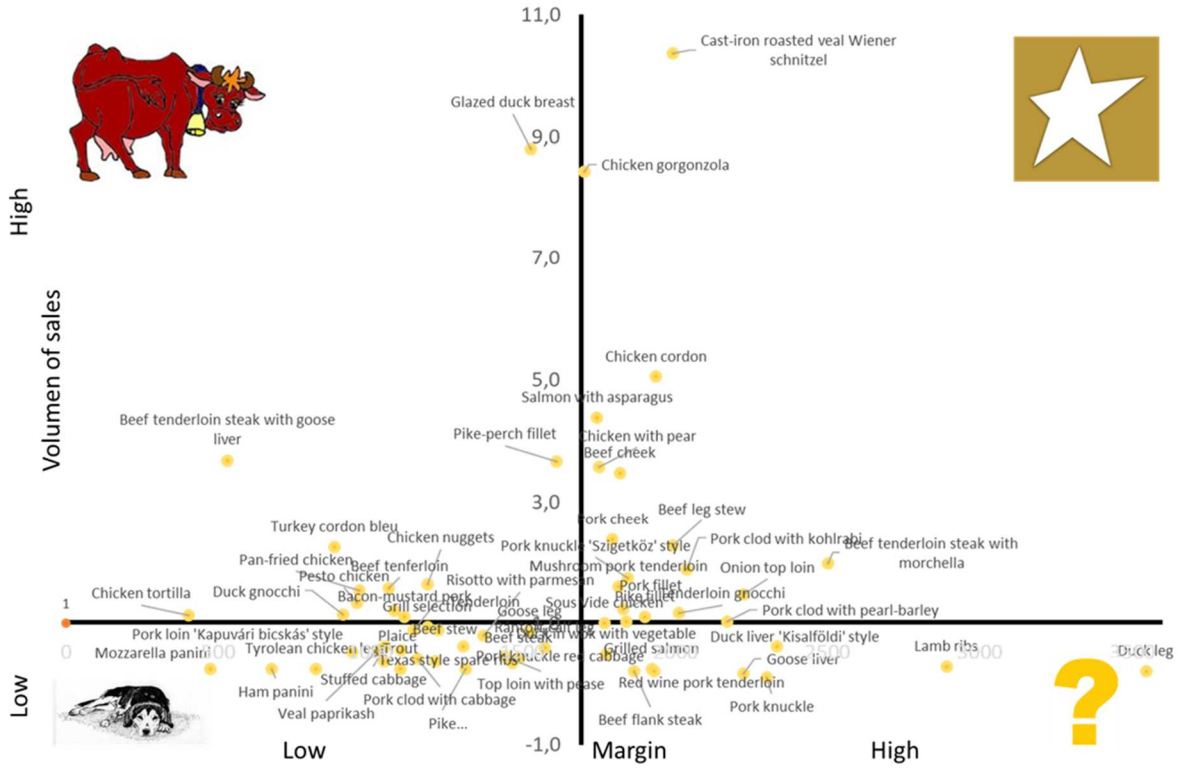
Figure 2 Representation of sales volume and margins of main courses in the Kasavana - Smith matrix (2017)



Source: Own editing

Analysing the sales of 2018, we obtained data that are very similar to the ones from 2017. On the one hand, a significant change in the general level of margins brought about a substantial change, as a result of which the most significant growth-producing foods, which were already highly popular, moved to the "stars" category (20 dishes). Most of these dishes were once again different variations of chicken breast as well as beef stew. Of the fish dishes, salmon fillet performed well again. Foods that were a little more special in either their name or technology were mostly included in the analysis as "question marks" (10 foods) or "dogs" (21 foods). Among the "cash cows" (12 dishes), the glazed duck breast and the pike-perch fillet should be highlighted. The highest number of portions were sold of these two from the cash cows category and their margins are also very close to the average margin level (Fig. 3).

Figure 3 Representation of sales volume and margins of main courses in the Kasavana - Smith matrix (2018)

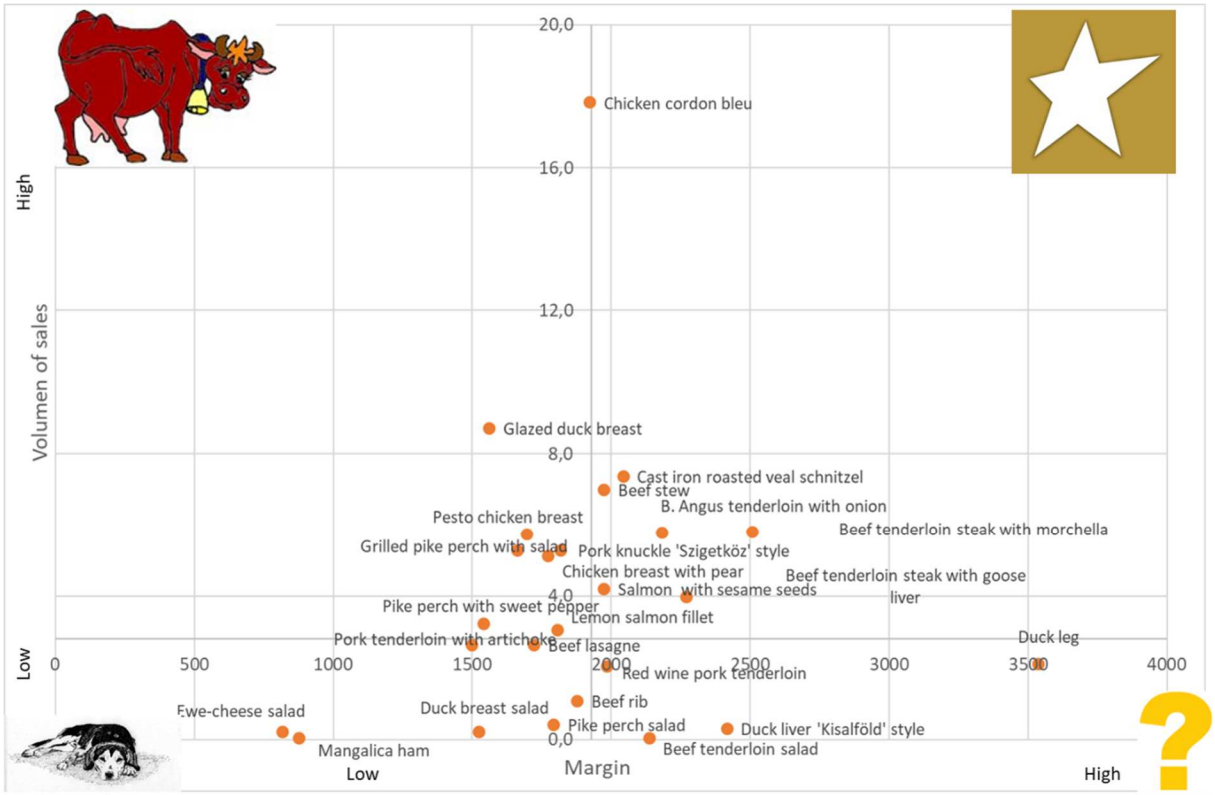


Source: Own editing

The year 2019 brought a radical change in the restaurant's offers. The wide and deep menu structure of previous years has been replaced by a narrow and shallow menu in line with the trend typical of fine dining restaurants. The selection of main courses has dropped drastically. Instead of the previous 49-63 main courses, only 23 main courses remained on the menu. The average margin level continued to increase by 2019. The concept is interesting because previous years have proven that guests tended to choose traditional, relatively cheap food in the first place. The sales of really special and more expensive food were on a low level. In 2019, of the 23 menu items, 6 were among the "stars", 4 among the "question marks", 8 among the "cash cows" and 7 among the "dogs".

However, the restaurant could not steer the guests 'choices in the desired direction with this menu either, as chicken cordon bleu is still the most popular main dish, followed by glazed duck breast, cast iron roasted veal schnitzel and beef stew. This is a clear indication that the restaurant's clientele prefers classic dishes despite the new trends. The menu offer is also controversial, because although more expensive, special dishes appear on the menu, there is also chicken cordon and beef stew next to them. Salads, which have just appeared on the menu as main dishes, were among the low-selling dishes without exception.

Figure 4 Representation of sales volume and margins of main courses in the Kasavana - Smith matrix (2019)



Source: Own editing

After analysing and comparing the individual years, we also examined whether seasonality can be spotted in terms of supply and demand.

In terms of supply, we examined the spring and summer menus of 2019. The difference was only due to the summer appearance of the salads, but as the general analysis has already shown, there was little interest in these dishes. Since no consumer survey was conducted, no reliable statements can be made about the reasons, however, an examination of prices makes it likely that value for money may have greatly influenced decisions, as salad prices were very close to similar meat-based dishes served with garnish (Tab. 3). The limitations of the model results in the fact that there is no menu offer that only includes “stars” and no “dogs,” but in our opinion, it is a management decision that foods constantly falling in the “dogs” category should be replaced with other dishes. In the case of the foods included in the “question marks”, it is necessary to intervene and help the guests to get to know these dishes by reducing prices or with stronger marketing activities (recommendation, discount). There are very popular foods that distract from other items on offer. The question is whether in this case the other foods should be adjusted to the popular ones or vice versa.

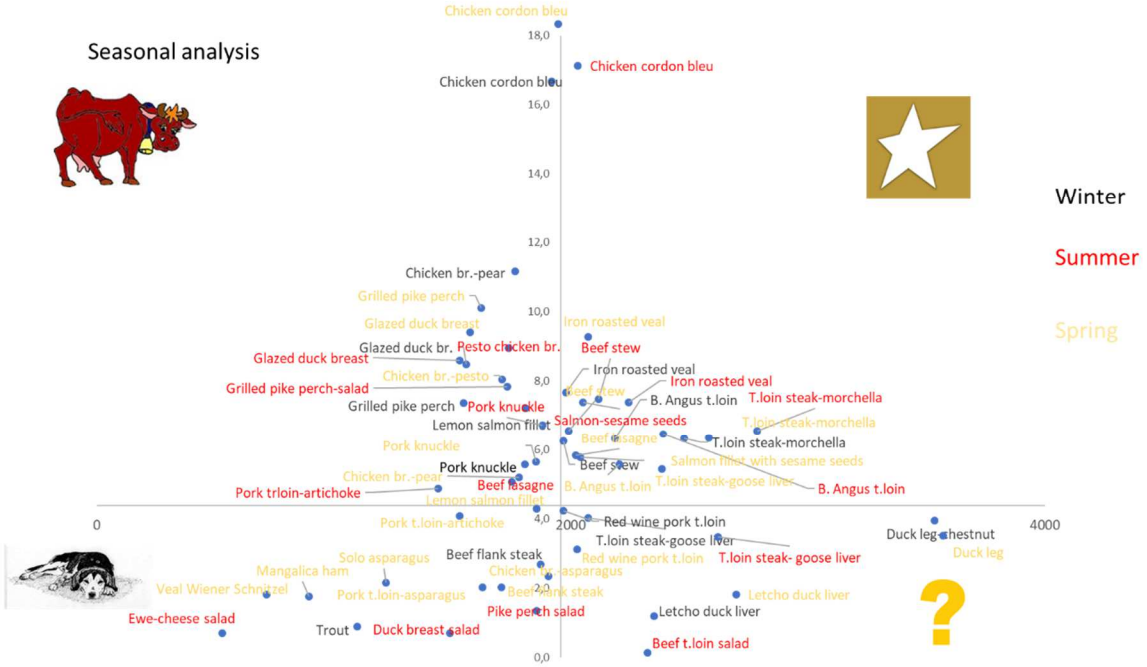
Table 3 Prices of foods in 2019

Name of the menu items	Price (HUF)
Ewe-cheese salad	1590
Pink roasted duck breast on colourful salad	2490
Pesto chicken breast roasted with sun-dried tomatoes, pasta	2590
Beef lasagne with mozzarella	2590
Glazed duck breast with tonka bean apple puree and potato fritters	2590
Pork tenderloin medallions with artichokes, red wine-garlic prunes and jasmine rice	2590
Chicken cordon bleu with red cheddar and crispy diced potatoes	2690
Beef shank stew with home made dumplings	2690
Mustard pork knuckle „Szigetközi" style with roasted potatoes	2790
Pike-perch fillet with green salad and balsamic vinegar	2890
Roasted pike-perch fillet with marinated sweet pepper, chilli-lime yoghurt and wild rice	2990
Cast-iron roasted veal Wiener schnitzel with baked potatoes	3490
Dry-aged Black Angus sirloin with dijon mustard, fried onions and skin-on roast potatoes	3690
Cold tenderloin medallions with garden salad	3690
Salmon fillet with toasted sesame, lentils and spinach tagliatelle	3790
Beef tenderloin steak with morchella and hash browns	4690
Beef tenderloin steak with goose liver in madeira sauce and roasted vegetables	4790

Source: Own editing based on data received from the restaurant

In our research, we examined seasonality separately, but as Fig. 5 (prepared from 2019 data) shows, no correlation could be found between food choice and seasonality. In the case of the examined restaurant, the fact that the menu was not replaced by dishes made from ingredients that are classically closely related to certain seasons may also have played a role.

Figure 5 Examination of foods including the seasonality factor



Source: Own editing

Finally, we examined the relationship between price and sales volume by regression analysis. In the study, we obtained 0.359 as the R^2 value (p=0,018), which means that the price explained the food choice by 36%, so it is worth paying even more attention to pricing.

DISCUSSION

It can be stated that a well-designed, appropriate range of menu items is invaluable to restaurant operators because it can determine a restaurant's success in a competitive situation.

Although the model used in the current study has limitations, it presented well the characteristics of the range of the examined restaurant and the effect of the changes on the traffic data.

In the general analysis of the restaurant, we found that the restaurant is trying to keep up with new trends in hospitality, however, the analysis also confirmed the importance of finding the right target groups and pursuing targeted marketing activities for them. In our opinion, the current composition, width and depth of the selection is not in line with the location and design of the restaurant, neither with its primary function (event organisation). The profit margin increased from 120% to 180% in 4 years, while turnover slowed down in terms of rations sold. In addition, while gross revenue stagnated, VAT fell from 27% to 5%. According to our study, there is a significant relationship between the price and the sale of food, and 36% of the portions sold is explained by the price.

We were the first to use the Kasavana-Smith matrix for the seasonality study. As a result of the research, it can be concluded that on the one hand, seasonality only slightly appears in the selection on the menu, however, sales do not even support this. Consumers were not looking for seasonal foods in the first place, but for what seemed to be the most favourable value for money. Overall, it can be stated that for the restaurant it would be worth repositioning itself as well as redefining the target groups based on the above analysis.

In general, it can be stated that it would be useful for restaurants to carry out menu analysis, for which there are already appropriate softwares on the market. However, it is not enough to only categorise the menu items, they must also be adapted to the target group, because as it is visible from the research, a poorly chosen menu repositions the restaurant and changes the clientele.

It is also important to consider the impact of seasonality, and which seasonal foods should be included in the menu.

CONCLUSION

It would be necessary to better tailor the menu offer to the target group. In addition to the more popular restaurant reserved for events, it would be possible to create a smaller fine dining restaurant by dividing the current restaurant. If management decides to keep the current target group, prices should be adjusted to the target group, which can increase traffic. It is necessary to strengthen marketing communication and address the real target group.

If only the classic measures assigned to the model are envisaged, the restaurant should strive for high-quality production of the dishes in the “Stars” field — because of their outstanding popularity and high margins — and these dishes should also be properly recommended by the service staff.

In the case of “question marks”, as they have a high margin content but are less popular, more emphasis should be placed on their presentation and recommendation. It should also be examined whether there is a change in sales volume after a smaller price-cut.

In the case of “cash cows”, the food is very popular but has a low margin, so the restaurant should try to increase the profit with a small price increase, or by serving more favourably, i.e. reducing the portion somewhat, while keeping the original price, a higher margin can be provided.

As for the “dogs category”, the restaurant should try to replace the menu items with other food. In some cases, it is possible for a restaurant to succeed with a more popular dish made

from the same ingredients, but in some cases e.g. in the case of fish, it was clear that only certain fish species were liked or chosen by the guests. In the case of salads, it was interesting that most had a low margin content in addition to the relatively high price, which was not accepted by consumers based on the results of the study.

It would be useful to supplement the present research in the future with a questionnaire that better explores consumer behaviour as well.

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MARKET PERSPECTIVES FOR SERBIAN PDO PRODUCTS IN THE REPUBLIC OF SERBIA

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Abstract

Protected designation of origin products can contribute both to consumers and producers, as well as to rural development. As high percentage of population in Republic of Serbia lives in rural areas, and agricultural sector is very important for the country, protected designation of origin products could bring many benefits for the country, rural population and rural development. The objective of the paper was to analyse potential of two Serbian products, with geographical indication, in the market in Republic of Serbia. Another objective was to understand who are consumers of these products and if they would pay for these products. These questions were explored in cases of two Serbian PDO products – Futog cabbage and Petrovac sausage, on the market in Serbia.

Keywords: protected designation of origin, food products, market perspectives, Republic of Serbia

INTRODUCTION

There is a growing interest in the agricultural sector to produce differentiated products in order to avoid strong competition, with the main objectives to assure quality of the product to consumers, to improve incomes of farmers and to contribute to rural development by retaining population in less-favored areas. Because of that focus on quality issue, with emphasis on products as protected designation of origin (PDO) or protected geographical indication (PGI), has acquired such an important role within CAP (the Common Agriculture Policy) of today. Furthermore, the number of GI protected products in EU has been increasing, as well as their market.

The agricultural production is an important sector of Serbian economy. Agriculture greatly contributes to the overall values of its society, much more than it is the case in many other European countries. Beside, high amount of population in Serbia lives in rural areas. In order to enter and survive on EU market, Serbia had to implement agricultural quality policy, and within it geographical indication policy. The Law on protected designations of origin in Serbia exists from 2010 ("Official Gazette RS" № 18/2010). It is written completely in accordance to EU regulation 510/2006. There are not many certified products in Serbia, but their number has

been increasing over a decade. Beside, there is a question whether the population in Serbia is introduced about existence of this type of certificated products.

The objective of the research was to analyse potential of two Serbian products, with geographical indication, in the market in Republic of Serbia. Another objective was to understand who are consumers of these products and if they would pay for these products. These questions were explored in cases of two Serbian PDO products – Futog cabbage and Petrovac sausage, on the market in Serbia. To understand market perspectives both supply and demand side were analysed. Supply side analysis was a qualitative analysis. Field research was conducted with open interviews, in order to collect data about selected products, to get information from authorities and producers, in order to have enough information to continue research with consumers.

Demand side analysis was a quantitative analysis. Consumer surveys were conducted, in order to assess future perspectives for two products. Aspects that were analysed are Serbian consumers' behavior and attitudes towards PDO/PGI products; exploring the food consumers' preferences related to the geographically determined food; their attitudes towards the quality guarantee labeled food and if they are willing to pay for it. On the basis of data collected from consumers in Serbia, collected data were analysed quantitatively, by using cluster analysis.

Matching supply and demand side analysis together, i.e. strengths and weaknesses of the products, and their possible opportunities and threats on the market, with consumers' attitudes and preferences, some future indications for market positioning of these products could be proposed.

This paper and results can be beneficial for the future market studies for other Serbian PDO/PGI products, and also other quality label products. On the base results obtained in the research, clearer picture about market of typical, quality and especially PDO/PGI products in Serbia is gained.

THEORETICAL BACKGROUND

GIs as an instrument for institutionalising collective reputation has very important role in protecting both the consumer (through addressing information asymmetries and quality) and the producer (by protecting reputation as an asset) (OECD, 2000). The presence of asymmetric information is common in agricultural markets. On agricultural markets product characteristics, including overall quality, usually cannot be discovered and known from the consumers prior to purchase and/or after consumption. Furthermore, regarding to GIs, it is presumed that some quality attributes are linked to the specific geographical origin and/or special methods of

production of the product. Those attributes consumers cannot determine prior to purchase the product and sometimes after consumption. PDO/PGI products can be considered a bundle of all three types of attributes: search attributes have specific features and an even greater role is played by experience attributes (ex. unique taste, texture and other sensory characteristics) related to higher quality of products. Such search and experience attributes are (or should be) all outcomes of a particular processing technique taking place in the specific place of origin (credence attributes) (Galli, 2011).

European Union protects by legislation product names with special link to territory and origin or to a production method since the 1990s (EEC Regulation 2081/92, EU Regulation 510/2006, EU Regulation 1151/2012). EU quality policy aims to protect the names of specific products to promote their unique characteristics, linked to their geographical origin as well as traditional know-how, so to prevent misleading indications of geographical source, to provide consumers better understanding of specific characteristics of the product and to protect regionally products and production methods from exploitation of reputation, imitation and deception (EU Commission, Menapace, Moschini, 2012,, Chilla et al., 2020).

Consumers seem to be increasingly preoccupied with the quality of the food they purchase and have come to associate geographically labeled foods with high quality products and their reputation (London Economics, 2008). Because of that, consumers have increased demand for products that have such quality designations like PDO or PGI (Fotopoulos et al., 2009). Reasons for which consumers consider valuable labels are that they inform consumers that the expected quality of the product is provided and they assure the degree of quality and thus reduce the risk connected to the purchase decision (Menapace et al., 2009).

Factors that influence consumer behavior may be divided into three groups: properties of foods; individual, related factors (e.g., biological, psychological, and demographic); and environmental factors (i.e., economic, cultural factors, and marketing aspects (Steenkamp,1997. as cited by Zisimos, 2016). Important factors for consumers are trust and good knowledge of the product (Calvo, 2001, Fearne, Hornibrook, Dedman, 2001, Velcovska, Sadilek, 2015, Bredahl, 2001, as cited by Zisimos, 2016). These factors reduce complexity and uncertainty when it comes to making a purchasing decision (Herrera, Blanco, 2011 as cited by Zisimos, 2016). The impact of trust and its correlation to the willingness to pay, is higher among consumers of PDO/PGI products (Herrera, Blanco, 2011, Yi Y, La , 2004 as cited by Zisimos, 2016).

In order to understand wether the consumers were willing to pay more for PDO/PGI labelled products, in terms of methodology, questionnaires and interviews were most often used. The results of these studies show that in most cases, consumers were willing to pay a premium for

PDO or PGI products (Török, Moir, 2020). Consumers are typically willing to pay more for GI products, but the size of the premium may show differences. (Török, Moir, 2020).

The relationship between the region-of-origin cue and consumers' goals and how they initiate, direct and terminate decision-making processes and behaviour. Marketing products using their region of origin is a viable and valuable strategy. Gaining fundamental insights into consumers' motives to purchase regional products and the processes underlying the purchase decision of these products, would enable marketers to develop, position and market regional products more effectively (van Ittersum, 2001). Consumer response to food labeling is that the consumer must perceive high eating quality in order for the food product to command a premium (McCluskeyand and Loureiro, 2003).

The welfare impact of GIs affects also producers, in situation of imperfect information and high-quality differences (Zago and Pick, 2004). For a producer, the possibility to signal quality and thus reputation means that a GI becomes a commercial asset for the firm, as in the case of trademarks (Grossman and Shapiro, 1988) and a valuable offensive marketing tool. The production under this scheme enhances quality, as well as imposes some standards, granting fair competition amongst producers (Sanjuan, 2002).

The economic rationale for protecting GIs fundamentally derives from the fact that place of origin may be used as a quality signal and that the resources of the region may be captured in the origin-labeled product as quality attributes (Pacciani et al., 2001). The informative meaning of the geographical name is emphasized in order to reduce information asymmetries. Where place of origin is used as an attribute, resources of the region are used to increase the value of the product (Pacciani et al., 2001).

The institutional framework in support of GIs provides a legal instrument for producers to achieve property rights to the differentiated product, because of preventing other producers from entering the market. GIs furthermore enable collective production and marketing. Enabling the achievement of economies of scale is an important dimension, as the majority of GIs are artisanal products produced in small scale production. Devising a common marketing strategy which allows these producers to reach a scale of production large enough to justify the investment in the differentiated product image, increases these products chances of success (Barjolle and Chappuis, 2000). By reaching conditions for successful differentiation, and maintaining the image among consumers and preventing imitations of the product, and also owing producers rights, expenses of production can be justified and profit can be achieved (Bramley, 2011).

GIs have a further potential income effect through its collective process of value creation. The PDO/PGI group of firms often includes numerous small businesses o industrial agricultural

cooperatives, and even industrial operators whose objective is not profit maximisation (Barjolle and Sylvander, 2000).

PDO/PGIs may contribute to rural development. Definition of PDOs/PGIs reflect a strong linkage between a product and its territorial origin in that the product derives its characteristics from the region's unique environment, including climatic and human factors. Protected GIs may contribute to rural development. PDOs and PGIs present the main pillar of the European Union's agricultural product quality policy and are seen as strong development tool for developing rural economies. The EU"s perspective on GIs has been described as "a legal and commercial basis for development of rural areas, the preservation of cultural heritage [and] the promotion of small and medium firms in the rural economies context" (Sylvander and Allaire,2008 as cited by Hudges, 2009, Bramley 2011). The ability of PDOs/PGIs to strongly express locality leads to positive rural development dynamics (Pacciani et al., 2001). The valorization of typical products may work as a rural development tool which the local community may use, given that collective and shared strategies for the remuneration of the specific resources of the area are activated around the product (Pacciani et al., 2001).

There are very limited data available on the importance and market share of GI products According to the DOOR database, Majority of GI products come from Mediterranean EU Member States (in descending order: Italy, France, Spain, Portugal, and Greece), and most of them are vegetables and fruits, cheese, processed or raw meat, and olive oil (Török, Moir , 2018., Jantyik, Török, 2020.). Based on the results of research conducted in 2010 (Chever et al., 2012), 60% of the GI production is sold in domestic markets. (Török, Moir, 2018). Therefore, the most important market for GI products is the domestic market of the country of production (Török, Moir, 2020).

The agricultural production is an important sector of Serbian economy. Agriculture greatly contributes to the overall values of its society, much more than it is the case in many other European countries. The agricultural sector employs, directly and indirectly, a large part of the total population of the country. Around 20% of total workforce is employed in agricultural sector, which presents 8% of total population. About 44% of the country's population lives in rural areas and find their most basic income in agriculture or in industries closely related to agriculture. The Law on protected designations of origin exists from 2010 ("Official Gazette RS" № 18/2010). It is written completely in accordance to EU regulation 510/2006. In Serbia until 2020, there were 57 food products that have been registered for designation of origin or geographical indication (zis.gov.rs). All of these products are registered in Republic of Serbia Intellectual Property Office.

According statistical facts and literature, there can be potential on Serbian market for food products with protected designation of origin. As for the majority of EU GI products, domestic market is the main market where these products are sold, it is very important to examine Serbian market and it's potential. It is important to understand who are the consumers of these products and whether and how much they are willing to pay for these products. By increasing the market and recognition from the consumer's side, producers could have more interest to produce and register products, which would have positive implication to rural development.

DATA AND METHODS

Two Serbian PDO products were chosen for the research– Petrovac sausage and Futog cabbage.

In order to understand the market in Serbia and examine market perspectives for Serbian PDO products, both supply and demand-side were analysed. Supply side analysis was mainly conducted in order to get enough information to continue with consumers side analysis. Thus, research was divided into two parts. Supply side analysis was done using a qualitative analysis approach. Field research was conducted with open-ended questions by means of personal face to face structured interviews, in order to collect data about two chosen products, to get information from authorities and producers, in order to have enough information to continue research with consumers. Interviews were conducted with two representatives from Ministry of Agriculture, Forestry and Water Management of Serbia, and two representatives of producer associations. The transcipts of all interviews were further analysed by coding and categorization. Four categories of the SWOT analysis were used, firstly to identify the key aspects of system ability to ensure power and mark shortcomings in dealing with the changes in a surroundings, which are characterized by agriculture in Republic of Serbia, and secondly to identify current position of two products: Futog cabbage and Petrovac sausage. Sthrengths, weaknesses, opportunities and threats were identified for both products separately, on the basis of data collected from interviews with producers, by identifying advantages and disadvantages, as well as opportunities and threats of producers of these products from different aspects, such as: the way of the production, traditional knowledge, mechanization and technology level, scale of production, land resources, costs, supply chain, logistics, and social relations. Demand side analysis was a quantitative analysis. Consumer surveys were conducted, in order to assess future perspectives for two products. On the basis of data collected from consumers in Serbia, collected data were analysed quantitatively, by using cluster analysis. In order to collect data from the consumers, the decision was made to use the survey technique, by conducting the questionnaire.

Questionnaire explored following aspects: Consumer attitude towards specific product item; Consumer attitude about labeling, food quality; Consumer knowledge and trust toward

PDO/PGI scheme, Consumer interest and attitude regarding typical products, Consumer knowledge about Futog cabbage, and attitudes towards it, interest for buying the product and WTP, Consumer knowledge about Petrovac sausage, and attitudes towards it, interest for buying the product and WTP, Consumer personal profile (demographic and socio-economic attributes such as gender, age, education level, place of origin, and place of living). For creating survey, it was decided to use online survey site Survey Monkey. Questionnaire was provided online via e-mails and Facebook, and also by personal interviews in the marketplace. All surveyed persons were from Republic of Serbia. Sample is based on 251 responded questionnaires. Interpretation of the results is based on calculated mean values and frequencies of responses

In order to find out which type of consumers could be an interesting market target for the two products, and to trace their profile, associated as a whole set of characteristics, cluster analysis was done. Collected data were analysed by calculating frequencies, to have explanation of the samples. Before starting the cluster analysis, variables were chosen. Variables were questions from the questionnaire. Demographical and socio-economic variables were not taken into the cluster analysis process. Both the hierarchical and the non-hierarchical (k-means) techniques were used at different stages, as well as two step clustering method. As a first step, in order to determine how many natural groups exist in the sample, hierarchical cluster analysis was done. Looking at a dendrogram was helpful, in order to display the distance level at which there was a combination of objects and clusters. As a second step, in order to form the clusters actually, the k-means was used, a non hierarchical clustering procedure. In order to control results that are considering cluster numbers, two-step cluster analysis was also done. All analysis was done in statistical software package - SPSS program, version 17.0.

RESULTS

Petrovac sausage is dried meat sausage, equable dark red color, with white grass parts. Sausage should have nice, not strong smell on smoke. Taste should be good, piquant chili, but no acid. For production of Petrovac sausage can be used only pigs breed “Landras”, domestic white pig, 9 to 12 months old, with weight of 135-200 kg. Every household produce its own red hot pepper, that is special red hot pepper sort from Bački Petrovac, and preserve its own seeds. Producer of Petrovac sausage is Agricultural Cooperative “Kulen” from Bački Petrovac. History of production of Petrovac sausage comes from 18th century in the village of Bački Petrovac, and way of the production is preserved until these days.

Results obtained when interviews with producers were conducted are summarised in SWOT matrixes.

Table 1 SWOT– Petrovac sausage

Strengths	**Weaknesses**
• Tradition – sausage production exists and it is preserved in the same way for more than 200 years. • Experience of the producers – every sausage producer has improved the process of sausage production from his father and grandfather and they are doing in the same way for years. • Own impute production – households produce inputs on their own, so they are sure that ingredients are good and they do not need to search the market in order to buy them. • Good quality and Typicality – for the quality they have certificate from Research Institute Laboratories, and they also win medals on fairs. • Reputation in area and even some other countries - word of mouth. • Good relationships between members of the cooperative. • Near Novi Sad city – near big market. • Developed agricultural region	• Small, individual capacities for drying and preserving on all households and whole quantity cannot be produced in one time. • Small quantity of produced sausage - around 500 kg/household. • distribution channels are not developed – usually direct on farm or through cooperative, without professional and well connected traders (larger market chains). • Low investments in promotion activities – only internet and local manifestations. • Small number of households that produce pigs – just 50% of households have their own pigs, and other producers depend on them, which results with small quantity of produced pigs, and it can be limitation factor for sausage production • Low possibility in current situation to produce more sausages – because of producers' capacities.
Opportunities	**Threats**
• Higher market demand than quantity of production – market is interested in product. • Higher price in respect of other similar products – possibility for producers to have higher income. • Cultural events – ideal opportunity to do promotion of the products. • Tourism development – with bringing people from different places that have never eaten Petrovac sausage, possibility for sale increases.	• Pig prices vary every year – unstable price predictions and income generation. • Variation of cereals and animal feedings prices – makes production unstable. • Low interest from Ministries and public institutions to provide incentives – as Public bodies do not have special funds in budget to help all producers. • Lack of own resources and public subsidies – lack of possibility to increase production and tendency to decrease. Bank credits not accessible.

Source: author's own presentation of the results

Although Petrovac sausage has many strong sides and potential opportunities, as old tradition, experience, good quality, many medals won on the fairs and with a possibility to expand sale, the production is still based only within small households with small capacities, and producers cannot produce bigger quantities. Another important point is that pig production in Serbia is instable, so interest in pig production is not constant, which influences Petrovac sausage production amount. So, there is possibility that higher market demand could not be satisfied.

Futog cabbage is registered both as fresh and acid cabbage, got from autochthon Futog cabbage population, with specific natural characteristics for fresh cabbage, and specific characteristics and way of production for acid cabbage. The long-duration selection was responsible for the creation of the population called Futog cabbage, which was important for the fresh consumption, and for souring, as well. Cabbage production in village Futog, has

tradition from 16th century. Fresh Futog cabbage, Futog cabbage population recognized on specific morphological characteristics, color, shape of the head, leaves overlapping, size of the root, leaf's nervature. Other important characteristic is amount of sugar that exists in fresh Futog cabbage, and that is very important for preparation of acid Futog cabbage. For acid Futog cabbage preparation quantity of NaCl is also important, as well as kalium-sorbate. Those characteristics differentiate Futog fresh and acid cabbage from other hybrid cabbages.

Analysis of the interviews with producer of Futog cabbage is presented with SWOT analysis.

Table 2 SWOT - Futog cabbage

Strengths	**Weaknesses**
• Well-known name in Serbia and other nearby countries – consumers are already well informed about quality of Futog cabbage • Near Novi Sad city- near big markets • Tradition – cabbage production in village Futog exists for more than 200 years • Favorable climate conditions -benefit to the production • Other institutions are involved in promotion – which helps promotional activities and brings higher impact • Experience of the producers – every cabbage producer easily makes difference between Futog cabbage and hybrid cabbage • Good quality and Typicality –certificated from Research Institute Laboratories • Good relationships between members of the association	• Less resistant than hybrid - many producers keep producing hybrid cabbage • Hybrid cabbage yield is higher – many producers keep producing hybrid cabbage • Costs of the production are higher than hybrid - many producers keep producing hybrid cabbage
Opportunities	**Threats**
• Eating habits and tradition of Serbian population – eating acid cabbage in winter period is habitual diet in Serbia • High Domestic demand – as cabbage is in habitual diet there is high demand for both fresh and acid cabbage in Serbia • High foreign demand – export can be increased which can bring higher income to producers and name of Futog cabbage can be wider well-known • Manifestations and fairs – where promotions can be made, in order to increase the demand	• There is low willingness of producers to replace hybrid production with Futog cabbage – because hybrid is more resistant, costs of the production are lower • Trade relations are not harmonized – many times there were frauds with using the name of Futog cabbage • Law regulation - there are frauds on market with using the brand name of Futog cabbage • Low support of governmental institutions

Source: author's own presentation of the results

Futog cabbage production has a long tradition and it is well-known for many years. But, fraud in its name usage still exists. Also, there is possibility that demand for the acid cabbage could not be satisfied.

On the base of the results obtained from the consumer questionaries; some major characteristics of the sample are described. About two third of respondents were women and one third were men. More than one out of four (27%) in the sample are young people between 20 and 34 years old; almost one half of respondents (47%) are people between 35 and 49 years old. 67% of the sample is highly educated. Monthly income, that is not high, can be one limiting factors for PDO/PGI products consumption and purchase for this sample

Analysing the demand side and the sample, it can be concluded that both products are recognized from the consumers, but name of Futog cabbage is more familiar to them. As in Serbian traditional diet both acid cabbage and dried sausages are present, majority of the respondents would buy both Futog cabbage and Petrovac sausage for the price similar to some other similar products. Furthermore, more than half of the sample would pay some level of higher price for both products. This is connected to interest of the sample for typical products, and also to their awareness of PDO/PGI scheme. Even though these products are familiar for the Serbian consumers, their PDO label is something new, consumers recognize the value that brings that label, and are willing to pay for it

Segmentation of the sample was created in order to ascertain the profile of consumers that show a stronger and more concrete interest in the two focus products. The analysis that was done highlights the existence of homogeneous groups of consumers, characterized by similar habitual daily diet attitudes, attitudes towards typical foods and products, perception and awareness of PDO/PGI scheme and attitudes towards two analysed PDO products – PDO Futog cabbage and PDO Petrovac sausage. These three different consumers groups can be identified as “consumers with strong interest in Futog cabbage and Petrovac sausage” (AI), which represents 28.7% of the sample; “consumers moderately interested in Futog cabbage and Petrovac sausage” (MI), that represents the largest part of the sample, 41.8%; and the third group “consumers not willing to pay more for Futog cabbage and Petrovac sausage” (NOPP) with 29.5% of the sample.

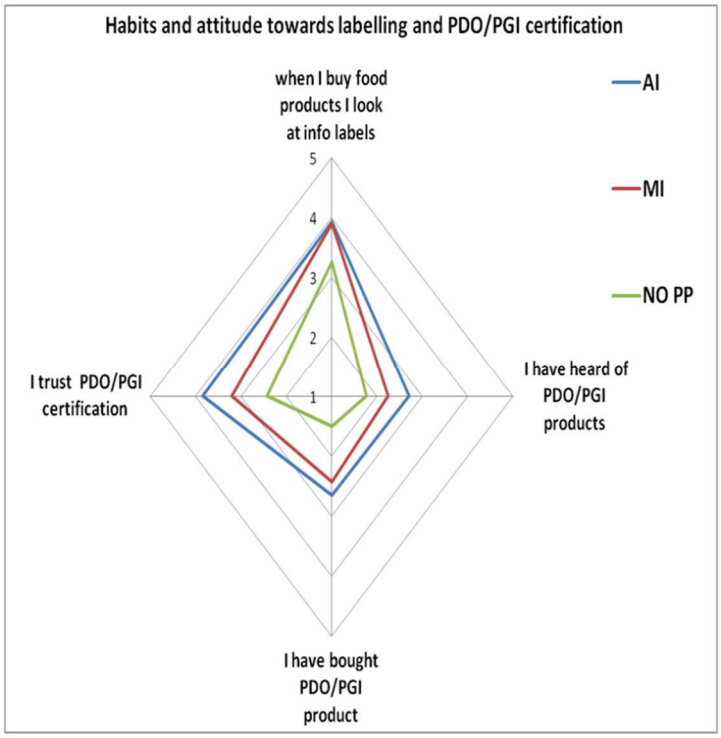
First cluster, that is made of ‘’Consumers strongly interested in Futog cabbage and Petrovac sausage’’ (AI), is characterized by very high level of interest for buying both products, and paying extra price in range 10-20% for them. It represents 28.7% of the sample. These persons are mostly females, younger, between 35 and 45 years old, highly educated. Income of these persons is on higher level and they can permit themselves additional expenses for food. They express high level of interest for typical products, and are also aware of PDO/PGI scheme. They consume acid cabbage and dried sausages often, mostly because they like the taste.

Second cluster consists of “consumers moderately interested in Futog cabbage and Petrovac sausage” (MI). It represents the largest part of the sample, 41.8%. Moderately interested means

that these consumers would pay the same price for PDO sausage and Futog cabbage as for some other similar products. Although there is possibility that they would pay slightly more for both PDO Futog cabbage and PDO Petrovac sausage, than for generic substitutes. But this willingness to pay is lower than for persons from the first cluster. They eat dried sausages and acid cabbage but less frequently than persons from the first cluster do. They are young persons, with very high level of education, live in town, and with a work that brings income that can be considered as high in Serbia.

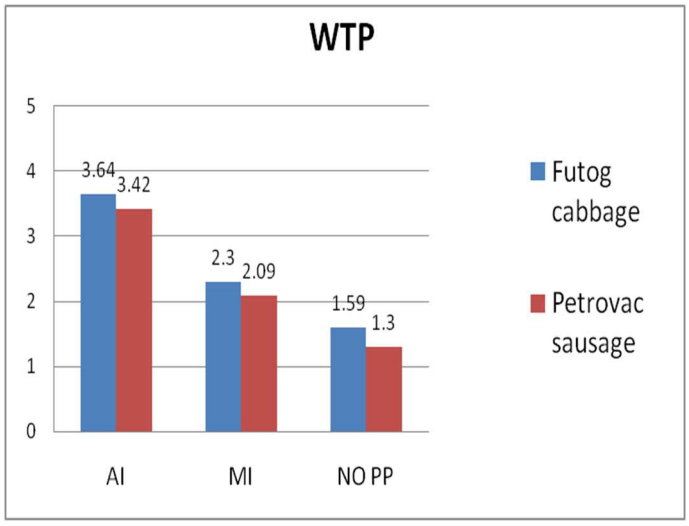
The third cluster, represented by "consumers not willing to pay more for Futog cabbage and Petrovac sausage" (NO PP) represents 29.5% of the sample. It consists mostly of women, older than 35 years old, with high school education, and families with 4 members. They work, but the salary is very low. They eat both acid cabbage and dried sausages, but only sometimes, even if they like their taste very much. Because of their diet habits, they would buy both products, but for the price which is not higher than for other similar products. Because of the low income they would not pay any extra price. Besides, also their awareness of PDO/PGI scheme is lower than in other two clusters. They do not show high interest towards typical products as persons form the first cluster do.

Figure 1 Habits and attitude towards labelling and PDO/PGI certification – differences between clusters



Source: author's own presentation of the results

Figure 2 Willingness to pay higher price for 2 PDO Serbian products – differences between clusters



Source: author's own presentation of the results

DISCUSSION

Being aware of the consumer attitudes, producers can develop their strategies for positioning the products on the market. Besides demand side analysis, a supply side was analyzed as well. Supply side analysis was done in order to collect data of the two products, and to understand better position of the products on the market. Matching supply and demand side analysis together, i.e., strengths and weaknesses of the products, and their possible opportunities and threats on the market, with consumers' attitudes and preferences, some future indications for market positioning of these products could be proposed.

Before explaining demand side, some basic conclusions of the supply side should be mentioned, as they are very important for possibilities of positioning on the market. Both products, Petrovac sausage and Futog cabbage, have many strong sides and potential opportunities, such as old tradition, experience, good quality. But for both products, there is a limitation of expansion of produced quantity, especially for Petrovaac sausage.. Beside, there are still problems with using the name of these products by some other producers that do not produce these products.

Cluster analysis revealed the existence of three different groups of individuals with different daily diet habits and tastes, regarding dried sausages and acid cabbage, with a diverse degree of knowledge and interest in the typical attributes of foods and PDO/PGI certification, and different attitudes towards buying two selected PDO products. The first group includes people that like products, PDO Futog cabbage and PDO Petrovac sausage, and would pay higher price for both of them. The second group consists of people that do not show strong attitude, they consider the possibility to buy both PDO products and to pay higher price, but without defined

interest and attitude. The third group is made of people that definitely would not pay any higher price for these two PDO products.

Clusters consist mostly of females, as usually they do household shopping in supermarkets and markets. Age of the people in all three clusters is significantly different. In the first and second cluster around half of the population are in age group between 35 and 49 years old, and the third cluster has larger share of persons older from 65 years old, in respect to other two clusters. Income of the people from the third cluster is lower than income from the people from the other two clusters, as well as level of education. People from the first cluster are mostly females, with high level of education, young, with level of income higher than average in Serbia, and they show strong interest for purchasing both products and to pay extra price for both of them. Opposed to that, people from the third cluster are ones with lower level of income, which contributes the most to their willingness to pay more. Also their level of education is lower than level of education of people from other two clusters, and also their awareness of the PDO scheme is lower.

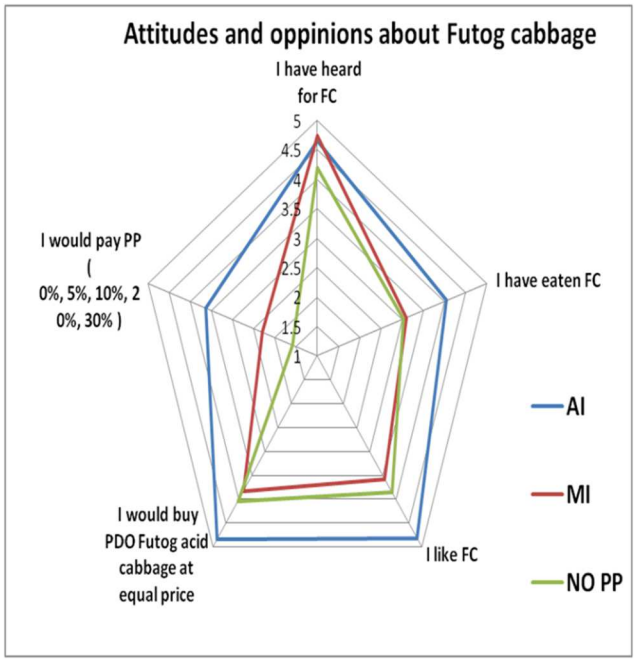
Looking at other characteristics and attitudes, clusters show peculiarities of interest for the research. Regarding daily habits and attitudes towards dried sausages, people from the first cluster eat them often (4.10), from the second - rarely (2.69) and from the third – sometimes (3.58). Besides, time for preparing dried sausages is very important for people in the first cluster (4.18), less important for the people in third cluster (3.42) and definitely not important for people in the third cluster (1.09). Also, for people from the first cluster a very important thing for eating dried sausage is the fact that they are used to have them in the habitual diet. People from all three clusters like to eat acid cabbage. And also, all of them have similar opinion about its nutritional value. But respondents from the first cluster eat it more often than respondents from other two clusters, and they like its taste more, (4.71) regarding second (3.61) and third cluster (4.09).

People from all three clusters have similar habits for looking info labels while buying food. Respondents from third cluster have lower level of awareness of existence of PDO/PGI scheme and thus lower trust into it. Respondents from first cluster have higher level of knowledge about PDO/PGI products. But although they are familiar with the scheme, they have not often bought these products, as well as respondents from other two clusters. But people from the first cluster have bought them sometimes, from the second rarely and from the third almost never.

According to interest in typical products, variations and differences between clusters are not so big, but still differences exist. Respondents from the first cluster are more interested in typical products (4.31) than other two clusters (3.20 and 3.21)

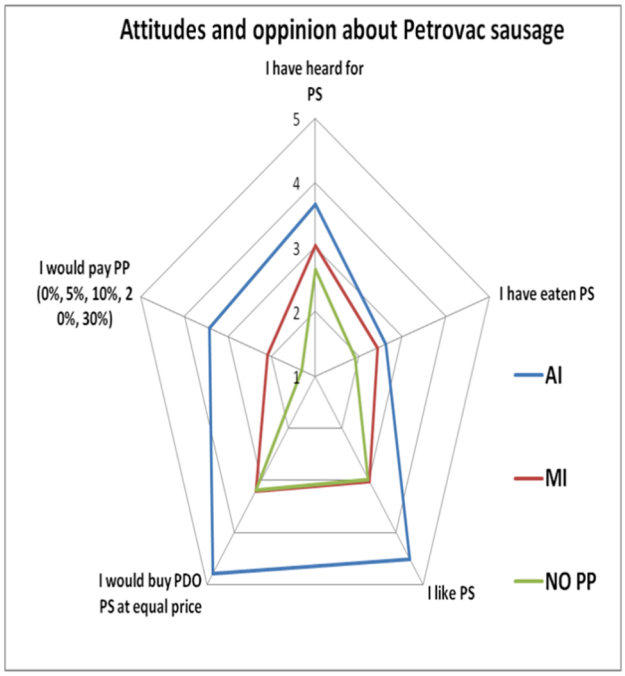
It can be concluded that daily habits and preferences towards acid cabbage and dried sausages influence very much on purchasing decision for PDO Petrovac sausage and Futog PDO cabbage. People from the first cluster eat acid cabbage more often and find its taste very important for buying. They also like Futog cabbage very much. They are very convinced that they would pay equal price for Futog cabbage; even they are willing to pay 10% higher price for it than for some other acid cabbage. But also, this group has income that can afford buying some products that cost more because of the quality. People from the third cluster also like to eat acid cabbage, as well as Futog cabbage, but this group does not have level of monthly income that can afford any additional purchasing of products that are not just for satisfaction of their needs. They cannot afford buying extra quality products for higher prices. So, people from the third cluster would not pay any additional price for Futog cabbage. People from the second group eat less acid cabbage than people from first and third clusters. They have awareness of PDO/PGI scheme which is higher than people in the third cluster acknowledge, and they also trust it. Even more, level of income of people from the second cluster is higher than level of income of the third cluster. Although, presence of the acid cabbage is lower in their habitual diet than for other two groups, they would pay 5% higher price for PDO Futog cabbage. Reason for that could be found in awareness in PDO/PGI scheme and willingness to eat products of higher quality. The same situation is with PDO Petrovac sausage.

Figure 3 Attitudes and opinions about Futog cabbage – differences between clusters



Source: author's own presentation of the results

Figure 4 Attitudes and opinions about Petrovac sausage – differences between clusters



Source: author's own presentation of the results

CONCLUSION

There is potential for Serbian PDO products on the market in Republic of Serbia. Results of the research and cluster analysis has shown that demand in Serbia for both PDO products, that has been examined, exists.

Petrovac sausage and Futog cabbage are products very well recognized by the consumers in Serbia. But they are famous not because of the certification, but because of tradition. As in Serbian traditional diet both acid cabbage and dried sausages are present, majority of the respondents would buy both PDO products for the price similar to some other similar products. Moreover, more than half of the sample would pay a higher price, to some extent, for both products. Furthermore, there is interest for typical products in Serbia. These products are mostly linked to tradition. Although PDO/PGI scheme is relatively new in Serbian market, people are aware of its existence. Considering other prices and expenses that people have, monthly income for sure can be one limit factor for PDO/PGI products consumption and purchase in Serbia.

Considering consumer demand for PDO/PGI products, it is important to adequately understand consumer segments. With adequate strategy 70% of the population would pay higher price for Futog cabbage and Petrovac sausage.

Consumers who have very high level of interest for buying both products, and paying extra price in range 10-20% for them, are mostly females, younger, between 35 and 45 years old, highly educated. Income of these respondents is on higher level and they can permit themselves

additional expenses for food. They express high level of interest for typical products, and, also, they are aware of PDO/PGI scheme. They consume acid cabbage and dried sausages often, mostly because they like the taste. Producers should focus on this group of consumers. As for this group both products are already familiar, and they have already purchased them, producers should keep them as consumers.

Consumers that are "moderately interested in Futog cabbage and Petrovac sausage", represents the largest part of the sample, 41.8%. "Moderately interested" means that these consumers would pay the same price for PDO sausage and Futog cabbage as for some other similar products, although there is possibility that they would pay slightly more for both PDO Futog cabbage and PDO Petrovac sausage, than for generic substitutes. But this willingness to pay is lower. They eat dried sausages and acid cabbage but less frequently They are young people, with very high level of education, live in town, and with a work that brings income that can be considered as high in Serbia. From a producer's point of view these group of people should be market segment with a high potential. As it was already mentioned, from a literature view, people who are young, highly educated, and live in town, are more likely to buy PDO products. Also, income of this group would not be limitation factor. Besides, they like to eat these products. They are not so much interested into typical products, and marketing strategy for this group should be oriented on food quality. It is necessary to promote PDO/PGI scheme, as with higher level of awareness of the PDO/PGI scheme, their interest for these two products would increase. Besides, as this group of people has families and also prepare meals for them, and buy sausage and acid cabbage, because members of the family eat them, promotions that underline food quality addressed to children health can be taken.

There is still need to inform Serbian consumers more about benefits that PDO/PGI certification brings. With greater knowledge about the PDO/PGI certification, demand for two PDO products, and also willingness to pay for them, could increase. By more intensive promotion of the PDO/PGI scheme, consumers will be more aware about quality benefits of the products. Thus, they will be more interested in purchasing these products, and also, willing to pay more for them. That could have a positive impact on increasing producers‟ income, also on involvement of other actors, and as a consequence it can enhance rural economy and rural development. It is necessary that Serbian PDO producers attend and expose on food and typical products fairs and manifestations.

By higher promotion for both producers and consumers, producers will find motivation to produce and to protect more traditional products. This could be motivation factor to remain in the rural areas. By enabling rural people to produce traditional food PDO/PGI products rural

development will be fostered. Republic of Serbia has very interesting history which is influenced also on food habits and food products. Besides, geographically there are various regions in which can be produced various types of products. Because of these facts here are many traditional food products in Serbia that could be protected and promoted as products with protected designation of origin or protected geographical indication.

On a theoretical level, this research provides a base for future researches related to Serbian products with geographical indications. On the base of the results obtained for these two products market perspectives for other Serbian PDO/PGI products, and also other quality label products can be predicted. Regarding to the results of detailed analysis for two selected products on both supply side, where production side analysis was described, and consumer analysis, with market segmentation technique as cluster analysis, future implications for other Serbian products with geographical indications can be assumed. This research provided clearer picture about market of typical, quality and especially PDO/PGI products in Serbia. It can be concluded that also other traditional, typical and well- known Serbian products could find place on the market in Serbia as PDO-/PGI products.

This research investigates market perspectives of two products at domestic market, where these two products are part of local cuisine. It would be interesting for future research to analyse market perspectives of these, or similar Serbian PDO products, in different foreign markets. It should be also taken into account for the future research to analyse market possibility of PDO products that are not from EU, in EU countries.

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THE INVOLVEMENT OF NATIONAL DEVELOPMENT BANKS IN PROMOTING SUSTAINABLE FINANCE

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Abstract

The need to take action to mitigate the effects of climate change is widely recognized by governments and economic actors around the world. Likewise, an awareness of a more holistic approach to financing policy goals, so that all social, economic, and environmental aspects receive adequate consideration, has been on the rise, too. The UN sustainable development goals (SDGs) combined with the European Green Deal objectives have themselves induced a major funding challenge, which is now aggravated by the COVID crisis and the war in Ukraine. Development finance and investment are strongly needed. In the public finance sector, besides European institutions and national governments, national development banks (NDBs) play an important role in providing funds and implementing development and investment programmes. By using public and private funds, they are actively involved in financing infrastructure projects as well as they are acting as holding fund managers or financial intermediaries for different financial instruments such as investment platforms or EU funded financial instruments.

The paper assesses the compliance of European national development banks with sustainability requirements by exploring their strategic objectives and investment activities. The aim of the paper is to examine whether and how the contradiction between stimulating growth and maintaining a sustainable fiscal strategy can be resolved. The new obligations stemming from the EU Taxonomy rules and the weight of national development banks in investments and specifically in infrastructure finance gives particular relevance to the enquiry.

European National Development Banks satisfy a wide range of specific missions to address market failures. They can be clustered based on the basis of the duration of their operations, the financial market situation and level of economic development in their country as well as the sustainable development index. The level of commitment the government makes to green growth and of the influence it holds over the bank has been observed to correlate with bank's contribution to sustainable finance. The results of the analysis of their various management and investment areas show that the investments they currently finance are to a large extent harmonized with the sustainable finance requirements and regulations of the European taxonomy. Meanwhile, their mandates and the wider context of national development strategies continue to provide strong incentives for sustainable finance.

Keywords: development banks, public finance, sustainable finance, EU taxonomy

INTRODUCTION

While traditional finance and financing solutions focus on financial returns, where the financial sector is separated from society and the environment, the sustainable finance approach considers financial, social and environmental returns together. The question may occur: why should public and private finance contribute to sustainable development? The main role of the financial system is to allocate resources and provide finance for the most productive solutions. At the same time,

the financial sector can play a leading role in financing sustainable companies, projects and investments thus accelerating the transition to a low-carbon, circular economy. Sustainable finance takes into account how finance (investment and lending) impacts on economic, social and environmental factors. Via its allocative role, finance can contribute to strategic decisions on sustainable goals. By pricing risks from a valuation perspective, finance can contribute to the appropriate management of uncertainties related to environmental issues. Finance and sustainability are mutually reinforcing and forward-looking areas.

The financial and economic crisis reinforced the focus on public financial institutions, particularly development banks. Public financial institutions can play an important role in financing development, too. National development banks are specialized state-owned entities, their long-term development objectives are essentially aligned with the country's development priorities. Given that a significant proportion of the world's countries are committed to implementing the Paris targets, investment policies of development banks seem to evidently allocate resources to projects that meet ESG criteria. National development banks perform a wide variety of duties, such as development tasks of general interest (addressing market failures) and they use a variety of financial resources, mainly from public sources. Development banks can be either 'sectoral' banks, focusing on specific sectors, e.g. SME development, or 'universal' development banks, dealing with all aspects of development banking. Export-import banks carry out the traditional activity of export-import financing. Most development banks focus on providing services to both the public and private sectors and to companies of all sizes. Interest in development banking to promote growth and boost investment has recently increased, particularly in Europe (Nyikos, 2017).

It will become clear that the current strategy of governing through financial markets in the EU employs constrained public funds as well as the radiance of anchor investments by public institutions to steer market-based finance. The financial system is in transition to address the lessons of the financial crisis and to help the forming of a greener and more sustainable economy. Reorienting public and private capital to more sustainable investments became a requirement. In view of the current state of affairs, an important question relates to what extent the investments made by the national development banks and the resources they use meet sustainability requirements. The issue is further exacerbated by the so-called EU taxonomy regulation which imposes new sustainability requirements for the European financial sector as a whole. To answer this research question we have analyzed the mission and functioning of national development banks and categorized their operations and investment activities according to the EU taxonomy

rules. This is one of the publications which presents the results of an extensive survey and data analysis to explore this issue.

LITERATURE REVIEW

Sustainability and the transition to a low-carbon, more resource-efficient and circular economy are critical to a globally competitive EU economy. Sustainability has long been at the heart of the European Union project and the EU Treaties give recognition to its social and environmental dimensions[11].

There exist many definitions of sustainability and sustainable development in particular (see Pezzey, 1989; Toman et al., 1995; van den Bergh & Hofkes, 1999; Ayres et al., 2000). Neoclassical models tend to use growth and development synonymously, however, environmental economists no longer see the concepts of development and growth as being unreconcilable. This is well-illustrated by the fact that the discipline's representatives have replaced GDP with GPI, an indicator of real development. In ecological economics, the concepts of development and growth are clearly separated. In the second half of the 20th century, it was recognised that growth, due to its ecological and biological limits, is development-friendly only up to a certain point, (Meadows et al., 2005). Beyond this level it causes significant socio-psychological and environmental damage. On the other hand, economic growth without welfare state interventions leads to social polarization, income and territorial inequalities, mainly in favour of the owners of capital. Quality of life is seemingly unrelated to the economy and sustainable development, nonetheless in reality, social perceptions of the quality of life have a profound impact on sustainability (Kerekes, 2018).

Literature on state-owned financial institutions has principally focused on their financial performance (e.g., Micco et al., 2007). State-owned financial institutions mostly present a modest track record. This is for that reason that they prioritise to remain financially solvent, maintain good credit ratings, reduce high arrear ratios, and to stay adaptable to changing market conditions (Berger et al., 2005; Lin & Zhang, 2009; Mian, 2003). Direct government ownership of banking institutions is also correlated with increased corruption (Barth, Caprio Jr, & Levine 2004). A study of German banks from 1995 to 2007 concluded that state-owned banks are more stable, although less profitable, than private banks (Beck et al., 2009).

Authors of previous studies defined “development bank” in various terms. Diamond conceives them as “an institution designed to promote and finance enterprises in the private sector”.

[11] See, among others, art. 3.3 of the Treaty on the European Union (TEU) and the role of environmental and social issues in international cooperation (art. 21 TEU).

However, Keyns and Akintola provide a wider definition by interpreting a DB as a financial intermediary supplying medium and long-term funds to bankable economic development projects. World Bank defines development banks as financial institutions that derive their funds mainly from the government, other financial institutions, and supranational organizations.

State-owned development banks are dedicated to promote pre-defined socioeconomic goals. Their role, institutional set-up, and size differ significantly across countries and these attributes are closely linked to the historical trajectory of national political economies and their distinctive public–private financial networks to furnish growth and development (Shonfield, 1965; Zysman, 1983). During the crises, most development banks have assumed a counter-cyclical role by scaling up their lending operations precisely when private banks experienced temporary difficulties in granting credit to the private sector (De Luna-Martínez, & Vicente, 2012; Farkas, 2018). Griffith-Jones et al. (2012) and Ocampo et al. (2012) provide empirical evidence for the counter-cyclical response of regional and multilateral development banks, whilst Brei and Schlarek (2013) and Luna Martinez and Vicente (2012) illustrate evidence for the counter-cyclical role national development banks play. Development banks can serve as focal points for regional and subregional cooperation (Józsa, 2016; Rácz, 2019), thus promoting economic integration (Bloch, 1968). Wruuck (2015) notes that not only were many European national development banks engaged in counter-cyclical activities, but many also launched financial activities additional to their original scope. In recent years, the valuable role that national, regional and multilateral development banks fulfill has received a growing recognition in wider and ever-growing circles (Griffith-Jones, & Cozzi 2015).

The so-called pro-market activism model acknowledges that development banks could play a key role in developing specialized knowledge as well as offering tools to address problems of accessing finance through working closely with the private sector. NDBs have a financial advantage as they can access finance at longer maturities and at more economical terms than private actors. Therefore, they can provide lower-cost, longer-term financing for investment and/or co-investment in infrastructure. Professionally managed and independent, development banks are well suited to detect un- or under-served market niches and fill the gaps (Schmukler, 2017; & Nyikos, 2016). NDBs have a development mandate and are well placed to offset market failures and financing constraints, which approach is associated with the theory of market failures (Stiglitz & Weiss, 1981; Stiglitz.1990). NDBs could pursue multiple economic development activities, with diversified scope and focus, targeting a broad base of customers or specific types of clients, such as SMEs or start-ups (Nyikos et al., 2020a, 2020b) and they could also be engaged with

infrastructural projects that are regarded as growth-related (Béres et al., 2019). Development banks also seek to generate positive development impacts, among others social and environmental benefits.

DATA AND METHODS

We chose a combination of qualitative and quantitative methodological approaches for this research. First, we conducted a desk-based review and analysis of relevant literature on NDBs, infrastructure finance, green finance and the financial instruments employed by MDBs, DFIs and sovereign wealth funds as well as European regulations, policy documents, supervisors' and institutions' websites. We also reviewed the annual reports on activities of the NDBs (balance sheet, annual volume of loan, guarantee and equity) as well as relevant country-specific data (real GDP per capita, SDI[12]). In the cluster analysis we used the K-means cluster method. The variables were tested in different combinations: the combination of the variables SDI, GDP and annual volume of loans allowed the construction of three well distinguishable clusters. Second, we analyzed publicly available data on NDB activities and investments. Third, we interviewed 18 European development banks or financial organizations with the help of a survey including 46 questions. Additionally, we used the results of a questionnaire comprising 138 questions prepared by the World Bank with inputs from the WFDFI. This questionnaire was sent to the 230 members of the WFDFI in 2017, and 64 responses were received.

While there are several historical, organizational and strategic differences between (European) national development banks, they all are devised to fulfil politically set tasks. The analysis builds up decision-making/functional models based on an examination of their governance and activities. Supplementary to the descriptive comparative analysis the research approach has been based on the clustering of NDBs by combination of SDI, GDP and the annual volume of loan variables, enabling the examination of their role in addressing market failures and improving access to finance. The data were analyzed in SPSS database using cluster analysis, which included the application of the K-means cluster method.

[12] The Sustainable Development Index (SDI) measures the ecological efficiency of human development, recognizing that development must be achieved within planetary boundaries. It was created to update the Human Development Index (HDI) for the ecological realities of the Anthropocene. The SDI starts with each nation's human development score (life expectancy, education and income) and divides it by their ecological overshoot: the extent to which consumption-based CO2 emissions and material footprint exceed per-capita shares of planetary boundaries. Countries that achieve relatively high human development while remaining within or near planetary boundaries rise to the top.

As a second step we describe the broader regulatory shift towards sustainability in the EU and assess whether strategic goals, key functions and the activities of EU NDBs are in line with EU taxonomy criteria.

We analyzed the specificities of the NDBs in the different clusters and presented the different groups. Despite the common goals, mandates and main specificities we could still capture differences between the NDBs, even variations linked to the economic situation and SDI of the country.

RESULTS AND DISCUSSION

An important question relates to what makes development banks and their products sustainable and how. The definition of sustainability relating to the bank's investments should be linked to transparency over the nature of each financial product/investment; the impact on the economy, society and environment is a critical factor, as well.

As European development banks are public entities, their activities align with national strategies and programmes to promote economic growth. They should ensure that development outcomes take precedence over profitability, and they should reinvest any profits in reinforcing the development focus of the institution. Strong public accountability must be in place as NDBs are frequently financed by public funds and due to increasing pressure they must become more efficient in justifying the use of public money. This requirement translates into clear and transparent goals and key performance indicators, which are based on broad public consensus looking for the best deal for the taxpayer while fulfilling the economic policy goals defined in the institution's mandate. Requirements on development banks do not differ from standard commercial banks in terms of a professional approach to risk management and banking operation in general. However, development banks are using public money to overcome market failures and financing gaps and therefore they must satisfy a higher level of transparency and sustainability in terms of the modalities they employ when using the funds to reach their goals. NDBs need to cooperate with other institutions and complement their services to efficiently fulfill their tasks. Successful development banks have evidenced a clearly defined mandate and an efficient split of roles and responsibilities with other institutions. Development banks can be "sectoral" banks, which focus on specific sectors, or "universal" development banks, which deal with all aspects of development banking. In defining the development objectives and mission statements of the European national development banks, there are differences in the way the development of

different sectoral areas is reflected in the founding regulations and strategy documents (see Table 1).

Table 1 Definition of the mission of European national development banks

Agriculture, rural development	Export promotion	SME support	Environment and energy-efficiency	Education health	RDI	Employ. culture, sport	Real estate, financial system dev.
36,1%	**39,7%**	**60,7%**	**42,9%**	**46,6%**	**29,8%**	**17,4%**	**55,9%**

Source: Nyikos' compilation from websites and the Survey on European Development Banks and Promotional Financial Institutions 2016

The degree of government involvement in decision-making is an important indicator too. The degree of government involvement typically increases with the breadth of the mandate. A minimum government involvement in decision-making is typical in case of a dedicated and exclusive focus on SMEs. As regards large deals, these actions are often backed up politically, which results in a higher degree of overall dependence on the government, incl. profit orientation vs. subsidy role. The role of government is generally wider in institutions operating in Eastern Europe. On the contrary, more recent institutions present a lower level of government involvement. These institutions are profit oriented and focus on finding the "best deal for the taxpayer".

Figure 1 Decisions/functions models of development banks

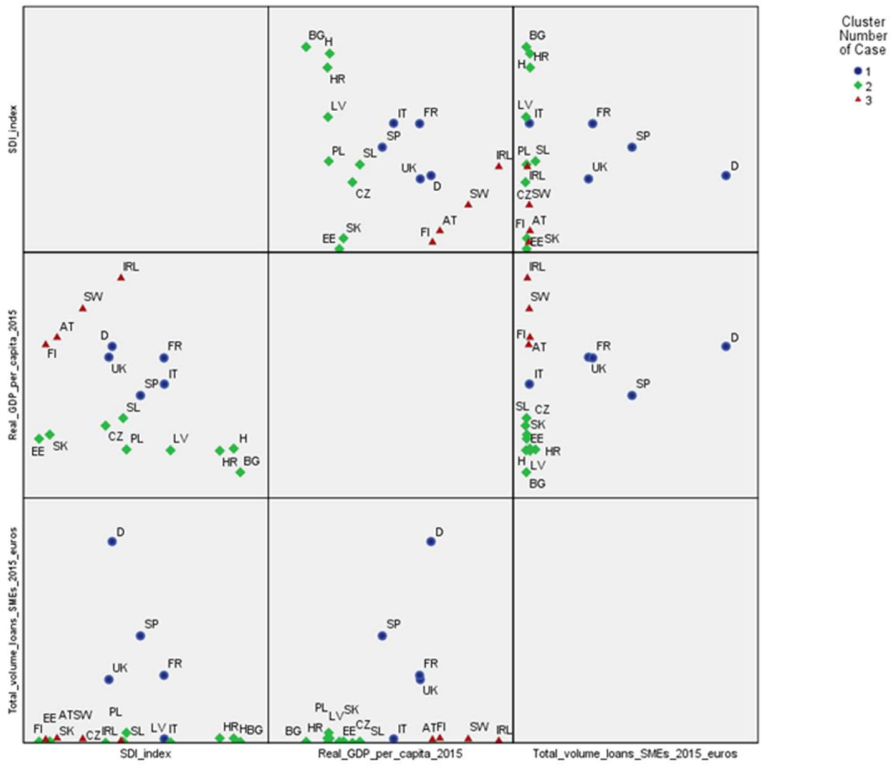
The owner of the strategic initiative is responsible for financing the operations		
Government	Mandate	Government
Development bank	Strategic initiative	Government
Development bank	Execution	Development bank
Development bank	Financing	Government

Source: Nyikos compilation

This means that if the national government is strongly committed to green and sustainable development, a higher degree of overall dependence on this government by the NDB will lead to sustainable finance.

However, besides the strategic commitment the economic importance of the NDB in the financial market is relevant, too. Data on the activities of national development banks (balance sheets, annual loan, guarantee and capital balances) and country-specific data (real GDP per capita, SDI) allow us to assess the role of EU national development banks in addressing market failures in the provision of access to finance. Two iterations of this analysis were performed as identified in the chapter "Data and Methods" and the cluster are presented in Figure 2.

Figure 2 Clusters of European NDBs



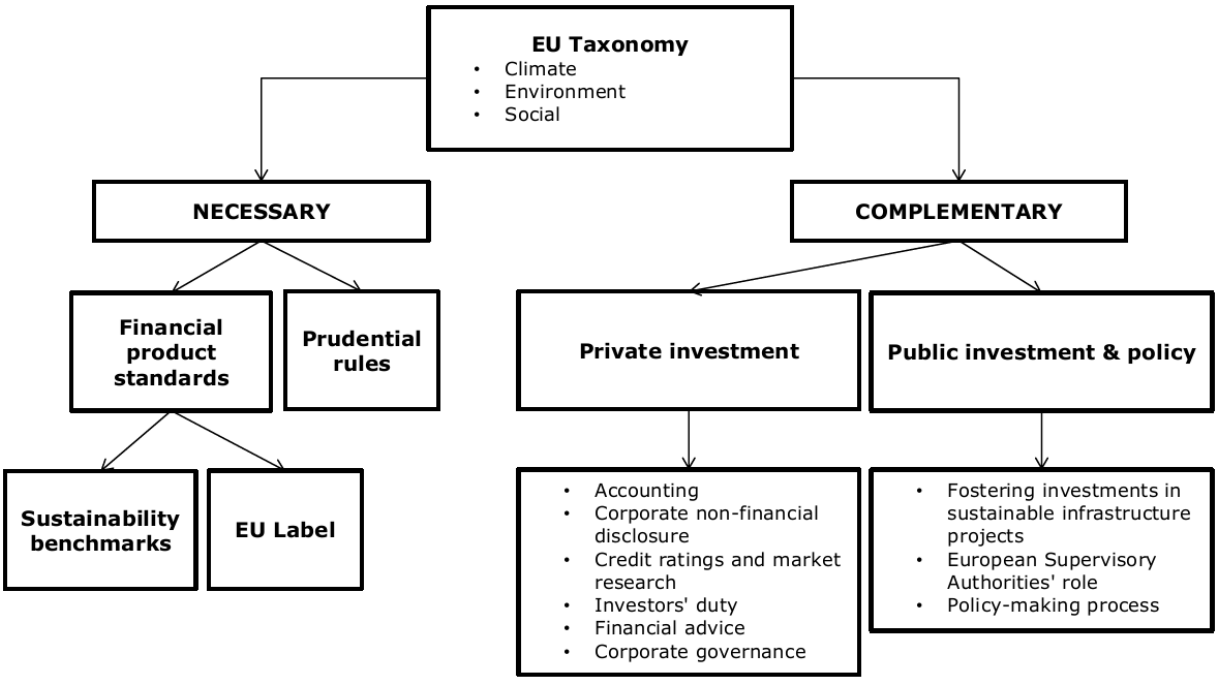
D Germany	1	CZ Czech Re	2
UK United K	1	SL Slovenia	2
IT Italy	1	HR Croatia	2
FR France	1	H Hungary	2
SP Spain	1	PL Poland	2
EE Estonia	2	AT Austria	3
LV Latvia	2	FI Finland	3
SK Slovakia	2	IRL Ireland	3
BG Bulgaria	2	SW Sweden	3

Cluster 1 includes countries with a higher development index and GDP (AT, SE, IE and FI), and a strong financial market. For this reason, ensuring better access to finance for SMEs is is less of a priority in their economic development policy. Cluster 2 includes countries (HU, BG, HR, LV, SK, SL, CZ, PL and EE) with lower levels of GDP and different levels of SDI. These so-called cohesion policy countries provide significant amounts of EU support for sustainable economic development, however, the results of these efforts show divergences (see SDI values). These countries have started to use repayable financial assistance and are therefore characterised by a lower volume of loans to SMEs. Cluster 3 is composed of countries (IT, FR, UK, ES and DE) with moderate SDI and a higher use of SME lending as a share of GDP. In these countries, NDBs have a longer tradition and play a greater role in national economic development policies. Although

financial markets are well developed and strong in these countries, their governments support SMEs with substantial financial assistance and a wide range of business development instruments. The results show that, despite common objectives, mandates and main specificities, there are identifiable differences between national development banks that are linked to the country's economic situation and the SDI.

Development banks can lend directly to customers (1st tier/retail) or channel credit via other (private) banks (2nd tier/wholesale). Many development banks operate with a mix. Most of the banks hold a comprehensive portfolio, i.e. also offering other types of development activities than loans and guarantees, e.g. venture capital investments or advisory services. Accordingly, the different financial tools need to be examined and evaluation with regard to sustainability and European Taxation[13]. This regulation prescribes specific rules for financial market participants, investors, large companies and national regulators. Indeed, when an economic activity[14] meets the EU Taxonomy performance thresholds it is certified as “EU Taxonomy-aligned”.

Figure 3 Structure and effect- of EU Taxonomy



Source: European Commission[15]

[13] REGULATION (EU) 2020/852 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 June 2020
[14] The EU Taxonomy adopts NACE for industrial classification. The selected NACE Macro-Sectors are: Agriculture, Forestry and Fishing; Mining and Quarrying; Manufacturing; Electricity, Gas, Steam, and Air Conditioning Supply; Water Supply and Waste Management; Construction; Information and Communication. Within each NACE Macro-Sector, 72 economic activities are identified as eligible.
[15] COM(2018) 97 final

Financial market participants should demonstrate the environmental objective(s) to which their investments contribute as well as the taxonomy of their investments as a percentage of the investment, fund or portfolio. The taxation regulation states the specific requirements related to reaching the six environmental objectives[16] and also the economic activities have to be qualified on the basis of the NACE[17] system. NACE codes were used as a framework to capture all economic sectors, and hence almost all economic activities. In the qualification system the defined Macro-Sectors are as follows: Agriculture, Forestry and Fishing; Mining and Quarrying; Manufacturing; Electricity, Gas, Steam, and Air Conditioning Supply; Water Supply and Waste Management; Construction; Information and Communication. Within each NACE Macro-Sector, 72 economic activities are identified as eligible environmentally. However, NACE codes do not directly cover certain economic activities despite their relevance to climate change mitigation and adaptation. Therefore, some themes are identified as a cross-cutting activity for both climate change mitigation and adaptation.

National Development Banks also support infrastructure[18] projects under long-term financing facilities: from transport networks (railways, motorways, seaports, airports, etc.) to energy networks (electricity grids, gas and oil pipelines, etc.) and production (power plants, renewable energy, etc.), and social housing and education infrastructure. However, the capacity to develop and implement sustainable projects varies widely across the EU and across sectors (Hoffman, 2018; Hajdu et al., 2016). In addition to large-scale infrastructure projects (Béres et al., 2019), national development banks can also provide appropriate financing for smaller-scale, distributed projects for the clean energy transition.

The quality and design of infrastructure plays a key role in how we live, what we do and how we interact with each other in almost every aspect of life (Nyikos, 2022). They determine economic structures and outcomes, social systems, personal well-being, environmental impacts and development pathways. Infrastructural systems such as health, energy, water and sanitation,

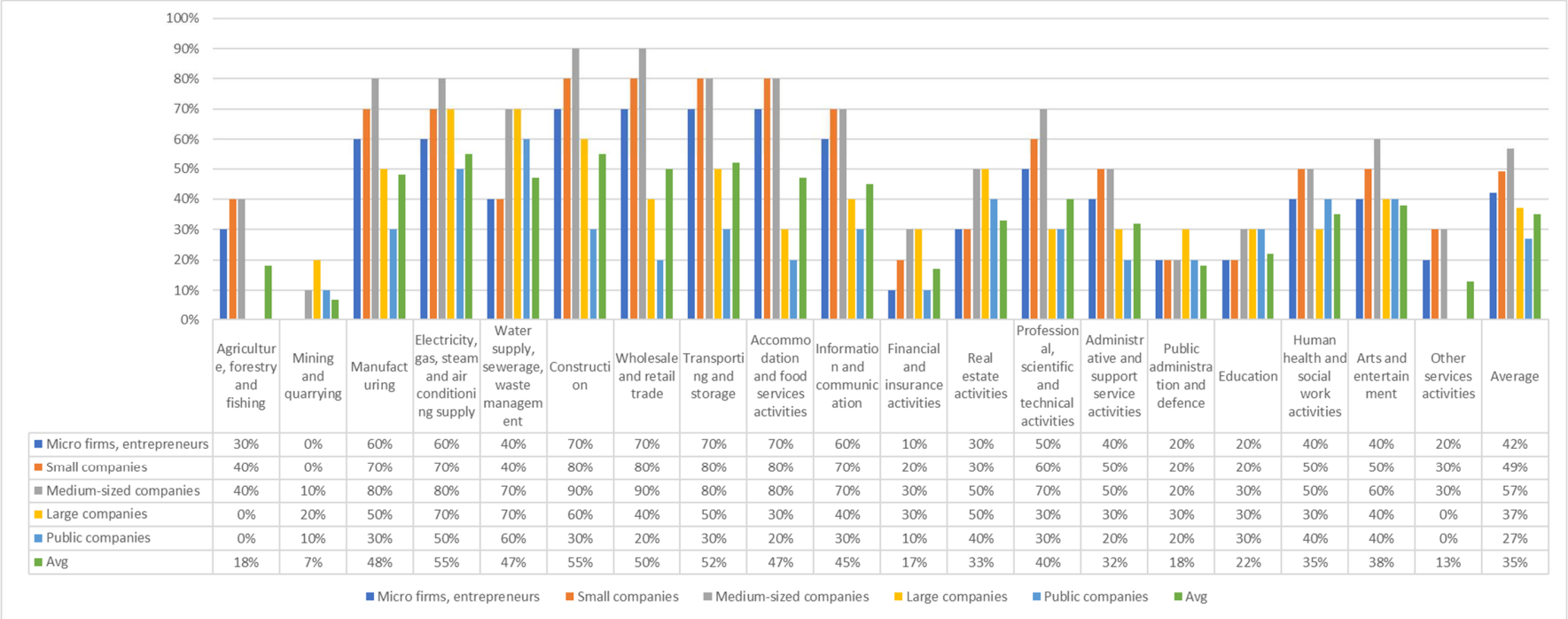
[16] Climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems.
[17] Nomenclature des Activités Économiques dans la Communauté Européenne
[18] The OECD defines infrastructure as the system of public utilities in a country, state or region, including roads, utility lines and public buildings - essentially the tangible backbone of the basic goods and services that underpin the economy. See https://stats.oecd.org/glossary/detail.asp?ID=4511

transport and telecommunications provide essential services, contributing to economic and social activity and fostering wider economic and social resilience. Disruptions and stresses to infrastructure can exacerbate challenges such as underfunding, poor maintenance and mismanagement. Quality Infrastructure Investment (QII)[19], i.e. implemented through appropriate delivery mechanisms and managed effectively throughout the life cycle, is vital to support economic growth and enhance human well-being as well as it is critical to achieving the Sustainable Development Goals and meeting the targets of the Paris Agreement. From a sustainability perspective three types of infrastructure can be distinguished: i) “net zero”, ii) “grey” and iii) “ecological” or “natural capital”. Net-zero infrastructure includes renewable energy and electric buses, which strive for zero or near-zero carbon emissions. 'Grey' infrastructure comprises water infrastructure or roads, assets that contribute to significant pollution during their construction and operation, but which can still be improved. 'Ecological' or natural capital assets, such as mangrove swamps, provide a range of services, such as protection against coastal erosion.

As detailed information on the current investments of the NDBs for NACE categorization has not been available yet, the study analyses investment related information obtained via the survey on European Development Banks and Promotional Financial Institutions. Considering the fields of activity and investment of NDBs together with NACE codes (see Figure 4), it should be stressed that in addition to clearly sustainable sectors other economic activities can also contribute significantly to sustainability: for example, economic activities carried out in an environmentally sustainable way, such as so-called greening activities. We also need to recognize the enablers. These include economic activities that enable a significant contribution to other activities through the provision of products or services (e.g. an economic activity that produces a component that improves the environmental performance of another activity).

[19] The World Bank Group and the Government of Japan have established the Quality Infrastructure Investment (QII) Partnership to raise awareness and increase attention to the quality dimensions of infrastructure in developing countries. These include maximising the positive impact of infrastructure, increasing economic efficiency in terms of life-cycle costs, integrating environmental and social considerations, building resilience to natural disasters and strengthening infrastructure governance. The QII partnership will achieve this by providing financial support for project preparation and implementation, as well as knowledge dissemination. The QII Partnership is aligned with the G20 principles.

Figure 4: Economic sectors and size of companies financed by the NDBs



	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply	Water supply, sewerage, waste management	Construction	Wholesale and retail trade	Transporting and storage	Accommodation and food services activities	Information and communication	Financial and insurance activities	Real estate activities	Professional, scientific and technical activities	Administrative and support service activities	Public administration and defence	Education	Human health and social work activities	Arts and entertainment	Other services activities	Average
Micro firms, entrepreneurs	30%	0%	60%	60%	40%	70%	70%	70%	70%	60%	10%	30%	50%	40%	20%	20%	40%	40%	20%	42%
Small companies	40%	0%	70%	70%	40%	80%	80%	80%	80%	70%	20%	30%	60%	50%	20%	20%	50%	50%	30%	49%
Medium-sized companies	40%	10%	80%	80%	70%	90%	90%	80%	80%	70%	30%	50%	70%	50%	20%	30%	50%	60%	30%	57%
Large companies	0%	20%	50%	70%	70%	60%	40%	50%	30%	40%	30%	50%	30%	30%	30%	30%	30%	40%	0%	37%
Public companies	0%	10%	30%	50%	60%	30%	20%	30%	20%	30%	10%	40%	30%	20%	20%	30%	40%	40%	0%	27%
Avg	18%	7%	48%	55%	47%	55%	50%	52%	47%	45%	17%	33%	40%	32%	18%	22%	35%	38%	13%	35%

Source: Nyikos compilation, Survey on European Development Banks and Promotional Financial Institutions 2016.

Looking at the economic sectors financed by NDBs, it is clear that their investments are more heavily concentrated in sustainable sectors. Moreover, the long-term financial mandate and the climate change objectives of European countries in their strategic development plans (which NDBs are required to support) suggest that all relevant factors are pressing NDBs towards sustainable financing.

CONCLUSION

The contemporary European political economy, as it is widely recognized, faces a set of challenges that policy makers have tried to address amongst other things through a mode of 'governance through financial markets,' (Mertens et al., 2018). With greater attention on international challenges such as climate change and sustainable development, a discourse on how to achieve and finance these goals has been at the forefront of international discussions.

National development banks have a broad range of specific missions. They are addressing market insufficiencies, such as the SME-financing gap or long-term infrastructure finance, covering the hidden transaction costs of exports and fostering innovation, addressing general-interest missions from supporting the agricultural sector to developing infrastructure and promoting tourism. These missions all respond to market needs, which, for various reasons - ranging from the extent of the investment horizon to the presence of external factors - are underserved by the private banking sector. Through assisting policy driven investments, in particular infrastructure expansion and modernization, they have very special influence on the satisfaction of sustainability goals. The new obligations, which the EU Taxonomy rules instigated, add another layer of relevance to the research on their current standing and future prospects for promoting sustainable finance.

In this research, we described the different strategic, governance and investment areas of European national development banks and explored their interactions. We examined whether NDB investment practices are in line with the sustainable financing requirements and regulations of the European taxonomy.

We argue that well-defined and clearly articulated mandates, division of roles and responsibilities with other institutions are central to the successful functioning of national development banks. We found that the commitment the government assigns to sustainable development and growth as well as the influence it holds over the bank directly impacts on the bank's approach to and active engagement in sustainable finance.

The remit of NDBs dictates that they act in case of a market failure. The national development banks functioning in Europe could be categorized in accordance with the length of their operation, the financial market situation as well as the level of economic development and the sustainable development index of the country. Based on the analyses of the relevant data three distinct clusters emerged which were clearly underpinned by the examined information and accorded with the operational experiences. Accordingly, despite the similarity of their objectives, mandates and main specificities national development banks present marked differences that are closely linked to the economic context and sustainable development index of the country they operate within.

The new Taxonomy regulations have been designed to increase, through mandated adherence to environmental objectives and a robust qualification system, the transparency of how the banks advance the sustainable development goals. The key challenges in analyzing the European situation rest with identifying and assessing all aspects and to defining clear and workable solutions. Although the entire European financial market and its relationship to sustainable development constitute too broad a topic and a high share of the data are publicly not available - this article, as a first step offers a starting point on which further research can be built.

The available data examined in this study confirm that the economic sectors and investments financed by NDBs are more concentrated in sustainable sectors. This is in line with the climate change objectives of the EU and the goals its Member States set forth in their Strategic Development Plans (which NDBs should support). Meanwhile, their mandates, government involvement, although to different degrees across the countries, continue to provide strong incentives for sustainable finance.

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Original scientific paper

THE MIGRATION OF HEALTH CARE PROFESSIONALS FROM HUNGARY – GLOBAL FLOWS AND LOCAL RESPONSES

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Abstract

The migration of health care workers is a longstanding process which causes shortages in the sending countries. The Eastern enlargements of the European Union strengthened the East-West migration flows causing serious political controversies and jeopardising medical services. Hungary is also heavily affected by these processes and in the last 10 years; thousands of doctors and nurses left the country. Managing migration processes requires complex policy answers with the involvement of actors from various spatial scales – but most of the studies on medical migration from Hungary focuses on the national scale. To fill this research gap, this study aims to analyse local political responses to the outmigration through the content analysis health care development documents to reveal the role of local scale. On local scale individual needs and preferences, emotional factors can influence the decision on staying or moving. Therefore, local policies, which take local features into account and apply place-based approach, can be useful elements of (re)migration policies in the case of health care workers, too.

Keywords: migration, health care, brain drain, Hungary, policy analysis

INTRODUCTION

The migration of health care professionals (i.e. physicians, nurses, midwives) is a long-standing global phenomenon. Many countries of Global South have experienced the "medical brain drain", i.e. losing skilled medical workforce due to migration into more developed countries (Bundred & Levitt, 2000; Bach, 2004; Cooper, 2005; Okeke, 2013). Besides these South-North flows, the Eastern enlargement of the European Union increased the East-West migration. After the gradual opening of labour markets, significant number of health care workers have moved from the new member states to the more developed Western countries (Lados et al., 2013;

Botezat & Moraru, 2020). Hungary is also experiencing this problem, which jeopardises health care provision and the well-being of population, thus causes political conflicts (Kovács et al., 2019).

Several researches have analysed the processes and the problems caused by outmigration and medical brain drain: the characteristics of migration flows (Humphries et al., 2019, Domagala et al., 2022), the challenges in health care provision (Apostu et al., 2022; Boboc, Vasile & Ghita, 2011; Zuk et al, 2019), the motivations and preferences of migrant doctors (Humphries et al., 2019; Botezat & Moraru, 2020; Sociu et al., 2017), the possible solutions on national scale, often focusing on wage issues (Witter et al., 2020), etc. However, geographical aspects were often neglected in the previous researches. On the one hand, we can find relatively few examples that peripheral areas are hit more by outmigration of health care professionals, while on the other hand, the importance of locality and identity are neglected during the evaluation of migration motivations. However, according to social concepts of place and space (Soja, 1980; Lefebvre, 1991) places are not only the sites of events or "containers", they are connected with processes and influence the decisions of individuals on migration.

Our main aim is to explore some of the geographical features of medical brain drain from Hungary, and to present the assumed role of place in emigration or stay of doctors (and other healthcare workers) in Hungary from the policymakers' point of view. Thus, the main research questions are the following:

- What is the relevance of the local actors in retention policies aiming at the medical workforce in Hungary?
- How the relation to place (e.g. identity, place attachment) is taken into account in the policies?

The study is based on statistical data and content analysis of development documents. The statistical data is used to reveal the key features of Hungarian medical brain drain and the problems arising from it – thus providing crucial contextual information about the processes. The development documents reveal, how decision-makers interpret the problems; e.g. what are the perceived causes of them. In addition, the approaches reflected in these documents shape policy actions and frame the public opinion as well. Thus, analysing policy documents it is possible to gain a deeper understanding on the processes that affect migration. The COVID-19 pandemic highlights the problems related to the shortage of medical workers; several countries face challenges regarding health care provision thus affecting various aspects of quality of life or economy (see e.g. Morar et al., 2022). The migration of doctors and other health care workers contributed to the evolution of these problems.

THEORETICAL BACKGROUND

Migration has always been one of the crucial forming factors of population change and labour market processes. However, in recent years the causes, effects, motivations, and even the directions of global migration flows went through significant changes (Docquier & Rapoport, 2009; Nagy, 2010). On the one hand, push and pull factors were intensified, e.g. political instability, lack of job opportunities, or higher pay rates motivate migrants to move abroad, but on the other hand, globalisation has introduced the network factor that might also facilitate migration (Massey et al., 1993; Round, 2008). This change also affected migration research, which mainly was focusing on voluntary migration with a special attention to some sub-processes as the motivations of highly skilled migrants (Carr et al., 2005) and the main characteristics of return migration during the last decades (Cassarino, 2004). Moreover, it is widely accepted that international migration reshapes societies and politics both in origin and destination countries (Castles & Miller, 2009). Hence, the economic approaches of migration were also taken into account (Akay et al., 2013), such as the individual changes (e.g. identity change) that is rooted in the socio-psychological theory (Sussman, 2010).

The migration of health care professionals affects mainly the highly skilled workers who have prominent labour market positions. The flexibility of their knowledge strengthens their motivation to migrate in a lot of cases. International migration of medical and health professionals is an area of increasing policy interest due to the global health workforce crisis (OECD, 2014). Globally, "the medical brain drain problem" is closely following the general trends of international migration: the movement of health care professionals from developing countries to developed countries is escalating rapidly (Astor et al., 2004; Grignon et al., 2012). This main trend has specific reasons (e.g. demand for health care workers, specialisation of health services, ageing, etc.) in the developed countries – especially, in OECD countries –, but on the other hand, has negative effects in the developing countries (e.g. reducing the size and quality of human resources in health care, larger systemic health challenges, etc.) (Luboga, et al., 2011).

There are many push and pull factors that motivate health professionals to migrate (Rutten, 2009): higher income, better working and life conditions, advantaged career prospects, good educational opportunities, earning money for remittances (Aluwihare, 2005; Watkins, 2005; George et al., 2007; Patay, 2018). These economic and social advantages to those who migrate from source countries to destination countries are very similar in the European Union when comparing EU-15 and EU-12 countries. Increasing mobility of health care workers from post-socialist countries in Eastern Europe to the Western European countries is primarily towards higher-paying, more prestigious, more amenity-rich areas. The negative effects of the migration result in specified spatial inequalities at national and international level. For example, health

professionals migrate from rural to urban areas, from lower to higher income countries, from developed countries with lower wages to those with higher ones.

The migration of health care workers may be a feature of globalised labour markets (Anthamatten & Hazen, 2011). Previous researches on the migration of health care professionals have mainly focused on the migration from underdeveloped African and Asian countries to the countries of Global North. Several researches stressed the importance of human resource and training cost loss using a kind of cost-benefit framework (e.g. Grubel & Scott, 1966; Bhagwati & Hamada, 1974; Bhagwati & Rodriquez, 1975; Johnson, 1979). Other researches pointed out that migration can have positive effects on both sending and target countries by creating and strengthening professional and business connections (Meyer & Wattiaux, 2006) or providing extra motivation for learning in the sending countries (Beine et al., 2001; Clemens, 2006). However, these latter approaches emphasise that migration is not a zero-sum game, in which sending countries experience only negative impacts. Instead, they can also benefit from migration through gaining skills, establishing professional networks.

Since the Central and Eastern European medical migration processes intensified after the Eastern Enlargement of the EU, the number of studies focusing on them is constantly growing. The main argument of these researches is that the problems in the health care service caused by the outmigration of professionals and the structural elements (differences in salaries, situation of health care sector, quality of life in the sending and target countries, policies that were designed to slow down, stop or even reverse outmigration or manage its negative effects, etc.) related to medical migration (Ognyanova et al., 2012; Buchanan et al., 2014; Witter et al., 2020). As the researches show, the motivations of outmigration of medical workforce from the region are complex. Aside from higher salaries abroad, other significant factors have their role as well, such as high level of corruption in the source country, better working conditions and equipment in destination countries or possibilities of professional skill-development (Botezat & Moraru, 2020; Domagala & Dubas-Jakóbczyk, 2019). Furthermore, gender and family status also have their roles in migration attitudes; according to various researches, more male practitioners consider leaving their home countries and singles are more likely to emigrate than those doctors who live in a relationship (Gostautaite et al., 2018). Excessive workload can also contribute to migration decisions. In peripheral regions the lack of medical workforce leads to an increasing workload for those who have stayed – thus increasing their dissatisfaction with their working conditions. This can result in a downward spiral of outmigration, further deepening the crisis of health care provision in the affected regions (Glinos, 2015; Pál et al., 2021; Uzzoli et al., 2020). Work-life balance is important for maintaining productivity, job satisfaction – therefore places that contribute a more balanced life (e.g. through providing better

quality of life, providing cultural or educational facilities) can have greater possibility to keep their qualified workforce (Connell, 2020).

So far, relatively few studies (e.g. Connell, 2020; Prilleltensky, 2008; Siankam, 2012; Tankwanchi, 2012) analysed the role of place in the migration of health care professionals as most of the researchers focused on national policies and other macro-level processes, and on work environment or migration preferences on the micro-level (e.g. Matutyte et al., 2020, Sociu et al., 2017). Thus, our research aims to highlight the role of place and local embeddedness in the migration-related decisions of individuals.

European countries use various forms of policies to retain or (re)attract medical workforce: personal or professional support (e.g. family-friendly practices), education interventions (e.g. increasing capacities, internships), regulatory interventions (e.g. changes in job-related regulations) and financial measures (salary increase, incentives to attract workforce to underserved areas). However, the effectiveness of the different measures is rarely assessed. Most of the measures is initiated and executed by central governments (Kroezen et al., 2015). Several countries in the post-socialist region (e.g. Poland, Slovenia, Slovakia) increased their training capacities in order to keep the medical workforce stable despite the outmigration processes. Financial measures were also used in the region: increasing the salaries (e.g. Estonia, Slovakia), loans to start health provision business (e.g. Poland) are the most notable examples (Albreht, 2011; Benusová et al., 2011; Kautsch & Czabanowska, 2011; Saar & Habicht, 2011). However, as the example of Lithuania shows, an adequate mix of research-based policies can contribute more effectively to the retention of medical workforce despite the challenges (Starkiene et al., 2013). However, in some cases, the post-socialist countries suffer from the lack of strategic attitude, appropriate institutions and measures. The cooperation among actors from different sectors and geographic and administrative levels is also a problematic issue (Domagala & Klich, 2018).

Based on the results of previous researches, the starting point of this research was that decisions and motivations to outmigration and return migration overlap the aforementioned factors such as different wage level or better living conditions (Christens & Perkins, 2008; Botezat & Moraru, 2020). Previous researches were focusing either on the micro level individual factors (e.g. Wolpert, 1965; Crawford, 1973) (behaviourist approaches) or on the macro level structural factors (e.g. Zelinsky, 1971; Blythe et al., 2009). On the other hand, other, less commonly used approaches, such as the perspective of Eco-Psychopolitical Validity Framework (used mainly in psychological research) aims to incorporate several factors influencing individual migration-related decisions (Christens & Perkins, 2008; Prilleltensky, 2008; Siankam, 2012; Tankwanchi, 2012). These factors contribute to the to a better understanding of the role of different decision-making levels, factors, actors through identifying

the various conditions helping and hampering the wellbeing of individuals – thus affecting one's willingness to migrate or not. According to this analytical framework, individuals seek to overcome the negative state (state of oppression) which is caused by various elements from different geographical scales and by different actors, elements, and processes. According to the researches on the migration of medical workers, low wages, institutional problems, social processes, and political problems all can be behind oppression (Tankwanchi, 2012). According to the Eco-Psychopolitical Validity Framework, these factors all can contribute to the decision to migrate. The process through this happens is called liberation or empowerment: this gives the opportunity to handle difficulties, to solve problems which cause oppression (Siankam, 2012; Tankwanchi, 2012).

As Domagala & Dubas-Jakóbczyk (2019) and Domagala et al. (2022) emphasise in relation to the formation of Polish policies, that modifiable factors, such as physician satisfaction should also be taken into account. Thus, a more complex, holistic approach is needed to deal with the frustration and dissatisfaction of medical professionals – as other researches in the post-socialist countries have also demonstrated (e.g. Apostu et al., 2022). In our research, we interpreted localities (i.e. geographical places) as a possible sources and actors of liberation and satisfaction. Place attachment, identity, feeling home, being integrated into a social network, the feeling to be important in a community all can be sources of liberation a satisfaction. Furthermore, successful policies have to be context sensitive, more participatory, thus creating a more favourable environment and providing flexible answer to the challenges (Kroezen et al., 2015; Kuhlmann et al., 2018). Through the analysis of health care development documents, we investigated whether they use this potential role of localities or not.

DATA AND METHODS

The study is based on the analysis of statistical data on medical migration and a qualitative content analysis of policy documents. The statistical data serve to present the context and the magnitude of the processes, while the documents provide insights to the policy answers; the approaches, aims and tools of the policymakers.

As the first step of the empirical phase of the research, statistical data related to the migration of health care professionals was analysed, in order to reveal the context of medical migration to Hungary. It is important to note that usually statistical analyses of migration usually do not provide a comprehensive and accurate picture of the process because of the free movement principle of the EU as the labour force can move without barriers within the unified labour market. However, the case of doctors is a slightly different as they have to register themselves at the Office of Health Authorisation and Administrative Procedures (OHAAP) of to get an

official recognition of their specialisation – which makes their job seeking easier. Therefore, this can provide us a dataset on those who plan to migrate, however, its limitations must be taken into account. The first one is that the intention of migration (i.e. registration) is not equal with actual migration. The second one is related to the registration. There are outmigrants who do not register themselves (e.g. for nurses this method is not applicable or doctors can also skip the registration and irrespectively of that apply for a job abroad). Furthermore, the number of registrations is different from the number of actual migrants, since the data shows the number of registrations for different specialisations, not the individual doctors. As physicians' can have multiple specialisations, thus, for example, a doctor with three specialisations could appear in the statistics three times (once for each specialisation) if all of his/her specialisation is registered. Last, but not least, the statistics do not show if a doctor had a job abroad but returned to Hungary or those ones who only have a part-time job abroad (e.g. works abroad at the weekend for additional income). In this case, they could be in the statistics if they registered themselves at the OHAAP, but in reality, they are not working abroad – therefore, the statistical data could be misleading.

As the second step of our analysis, we analysed local, regional, and national policy documents and strategic plans to explore the role of localities in the decisions related to migration or staying. "General" development documents usually present a general description of health status and health care provision of the areas concerned. Therefore, these do not provide sufficient information on the local efforts to manage the migration of medical workforce. Thus, the main body of this material was constituted by a special kind of documents called local health care development plan/strategy. The importance of these strategies is that they serve as a basis for fostering local initiatives using local knowledge and implementing bottom-up development logic in order to improve local health care and quality of life (Füzesi et al., 2001; Beke, 2019). We collected all the publicly available documents from the homepages of local, regional and national authorities. The reason behind the decision to search online these materials is that authorities have to make their development documents available online – therefore, theoretically, the majority of the completed and still valid plans and strategies should be available online. Based on this, at first, we checked the homepages of the largest towns and county seats for the documents. Thereafter, we searched the internet using the terms of "Egészségfejlesztési Terv" (Health Care Development Plan) and "Egészségfejlesztési Stratégia" (Health Care Development Strategy), but the general development documents and the special health related ones (e.g. drug strategies) were excluded from our analysis. Consequently, 57 development documents (from local, micro-regional, regional and national

scale) were selected and analysed altogether, the earliest was adopted in 1998, while the most recent was in 2013. Thus, the timeframe of the document analysis is 1998-2013.

In the content analysis the following aspects were examined: the role of place and local actors in the documents, the target group of proposed measures (e.g. residents, doctors, other health care worker, etc.), problems mentioned (e.g. aging medical staff, outmigration of professionals, wages in health care sector, etc.), areas of proposed intervention (e.g. renewal of buildings, equipment, trainings for staff, training for residents). In other words: how the analysed documents deal with the problems highlighted by the statistical analysis?

RESULTS

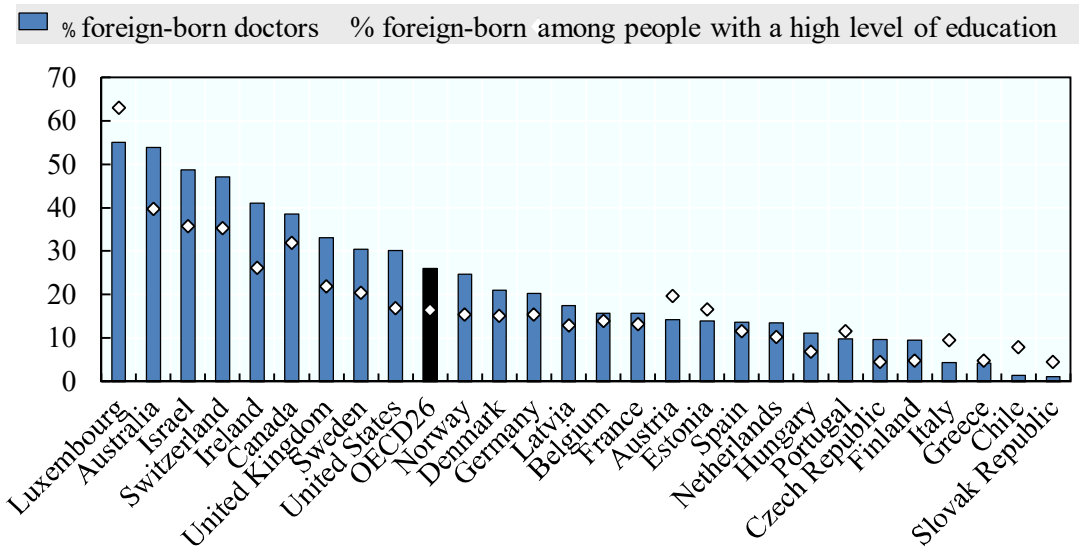
The migration of health care professionals – global processes and the Hungarian context

Because of various economic, demographic, and political reasons, the global migration of health care professionals is a long-standing process. The training of doctors is an expensive and time-consuming process requiring a lot of expertise, therefore, it is not possible to react to the growing demand promptly without attracting foreign workforce. The ageing societies of Western countries increase the need for human resources for health (HRH) – which causes a favourable situation for migration. The growing demand and the shortage of health professionals make it easy for nurses and doctors from underdeveloped regions to find a job in more developed countries. Moreover, the global economic crisis (2008-2009) has led to austerity policies in a lot of countries, which resulted in decreasing funding for the health care sector causing decline in working conditions and in wages (Solberg et al., 2013). As push factors, these elements contributed to the strengthening migration flows of HRH from the crisis-hit countries. Therefore, medical brain drain represents a significant transfer of resources and knowledge from underdeveloped, crisis-hit countries towards more developed countries (Blacklock et al., 2012; Groenhout, 2012).

Some of the countries of Global North are heavily reliant on the immigration of health care workers from abroad (Forcier et al., 2004; Cooper, 2005) (Fig. 1). For example, the ratio of foreign-born physicians in the United States is 24.4%, New Zealand, Australia, Ireland, Canada or the United Kingdom have even higher numbers. The most obvious policy answers in the source countries are to restrict international mobility with legal measures. However, these policies are not successful - as previous researches highlighted - because of the problems of arising from the side of administration and implementation (Reid, 2001; Dovlo, 2003). Furthermore, the free movement principle of the European Union aims to eliminate such

measures which are considered to hinder common labour market, thus jeopardisingeconomic development.

Figure 1 Ratio of foreign-born physicians in some OECD countries, 2019



Source: OECD

As mentioned earlier, the outmigration of medical workers has serious impact on human resources, finances, and health service provision. In addition, the migrants are possible role models, potential entrepreneurs, employers, and trainers of under- and postgraduate students thus their movement also decreases the average educational level in the sending countries (Aluwihare, 2005; Cooper, 2005). Therefore, it is understandable, that sending countries try to slow down or stop the migration of doctors and other skilled health care workers and convince those to return who have already moved to other countries. Several forms of policy answers can be found regarding these issues in developing Asian, African and Latin-American countries. In Ghana, for example, policy makers thought that the increased capacities in health workers' training could be a solution – this strategy is used in Central Eastern European countries as well. However, it turned out that because of the strong pull factors, it was not an efficient tool, either. The demand for health professionals is so strong, that target countries attract the increased number of health workers, even so (Dovlo, 2003; Hagopian et al., 2005). Furthermore, the expansion of training capacities also increases the training costs on national scale, while the economic return (i.e. the staying professionals who contribute to the national economy) would not grow significantly in the same way. Besides, in several countries incentives and income raise were introduced to keep the workforce, however, this also resulted in mixed results: in some cases, the system of incentives has led to growing dissatisfaction because of the perceived disadvantage in some professions or geographical areas. This dissatisfaction could also lead to increasing outmigration. Other solutions were also

implemented such as community-based training of doctors to provide locally relevant knowledge, or extended retirement age to fill the gaps in labour market caused by outmigration while changing the language of education from English to Thai in Thailand decreased the attractiveness of Thai health workers in target countries (Dovlo, 2003). However, changing the language of training could have negative effects, as the quality of education may fall since the most recent research materials and literature are available in English (Hussey, 2007).

Most of the above-mentioned measures were implemented on national scale by governmental actors and their main aim was to reduce the negative effects of outmigration on a macro-scale. The locally embedded initiatives seem to be less prevalent. Moreover, it is important to highlight, that migration can have significant negative effects on the individuals' family relations, well-being, integration in the host country, professional and social status, etc. (Hnatiuc, 2011).

Aforementioned, the EU enlargement in 2004 and 2007 and the liberalization of the labour market in EU15 facilitated the migration of health care professionals from post-socialist countries. In terms of maintaining health systems, outmigration of qualified workers is harmful for the sending countries in Central and East Europe, moreover, emotional and financial loss of the country is significant, as well. Besides, lack of health professionals enhances the so called "health paradox in East Central Europe"; the health status of societies is worse than it could be expected based on the economic development level of the countries concerned (Pál & Uzzoli, 2008).

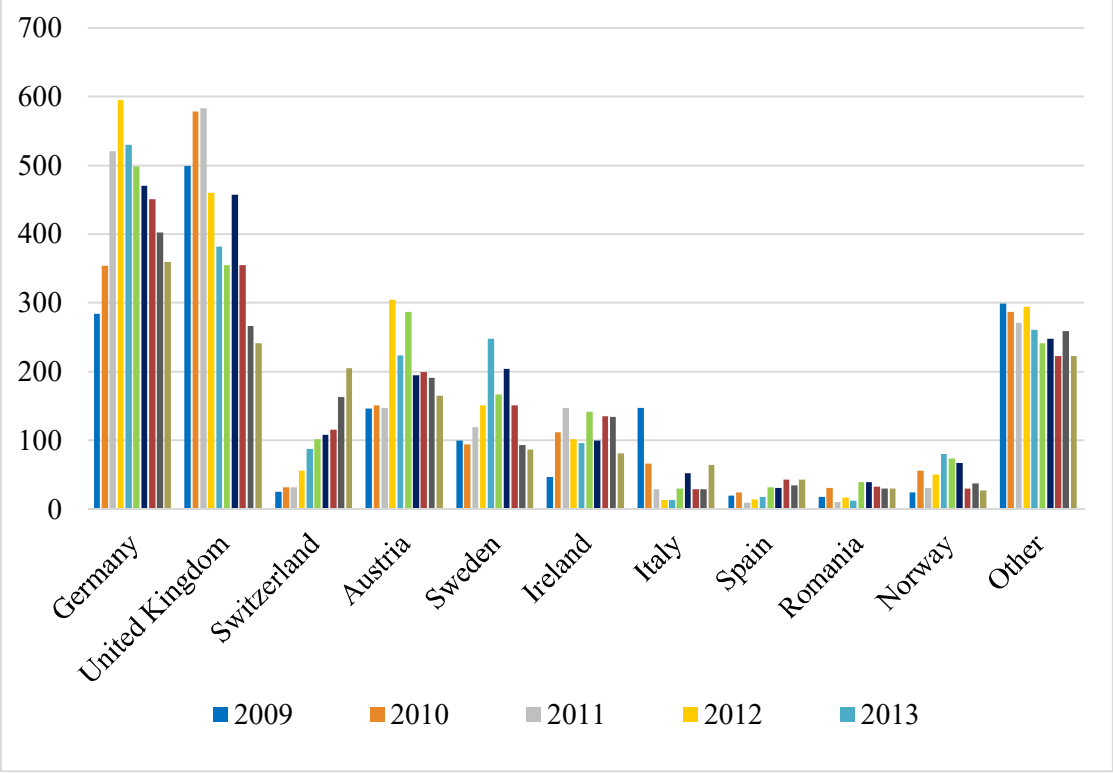
The above-mentioned phenomena could be experienced in Hungary, as well. According to the Office of Health Authorisation and Administrative Procedures and previous researches, more than 10 000 health care professionals left Hungary until 2014 (Balázs, 2009, 2012). According to surveys (e.g. Gyorffy, Dweik & Girasek (2018), around 40% of Hungarian resident doctors plan to migrate. The number of doctors moving abroad equals the number of graduates in every year. The most important destination countries are the United Kingdom, Germany, and Austria (Fig. 3), because of the higher wages and the acquired language skills of doctors (i.e. most of them speak English or German as foreign language, therefore they can be easily integrated into the local labour market).

For the sake of reducing outmigration, several initiations were implemented by the Hungarian government with slight results. Among the implemented measures the most important ones were: (i) restriction of mobility, (ii) enhancement of working conditions, (iii) increased salaries, (iv) grants and other incentives. The restriction of mobility was manifested the most visibly in the so-called student contracts, as university students have to stay and work in Hungary after their graduation for a certain time. As the part of the enhancement of working

conditions, new equipments were bought and several hospitals were renewed. The problem of salaries is considered as one of the main issues in the Hungarian health care. To solve this problem, the Hungarian government increased the salaries of medical workers – however, the earnings are still lower than the salaries in Germany, Switzerland, Austria, United Kingdom, or other Western European countries. Last but not least, grants were introduced to attract doctors to peripheral regions or to keep resident doctors in these areas to prevent the further outmigration and keep younger generations of doctors.

Several researches were implemented because of the relevance and consequences of doctors' migration in Hungary. On the one hand, they were mainly based on statistical databases focusing on the size, statistical features and geographical directions of migration (Eke et al., 2009; Girasek et al., 2013), on the other hand, the possible deficiencies in measurement were investigated (Balázs, 2009; Girasek, 2012). In addition, some researches were focusing on one specific target group of health care professionals (Fejérdy et al., 2004) using questionnaire surveys to reveal migration motivations of medical university students about to graduate, and trying to provide estimations about migration tendencies in the nearest future (Girasek et al., 2009; Girasek, 2012). These researches revealed the complex nature of migration decisions and the high level of willingness to migrate.

Figure 2 The number of doctors' emigration registrations by country, 2009-2018

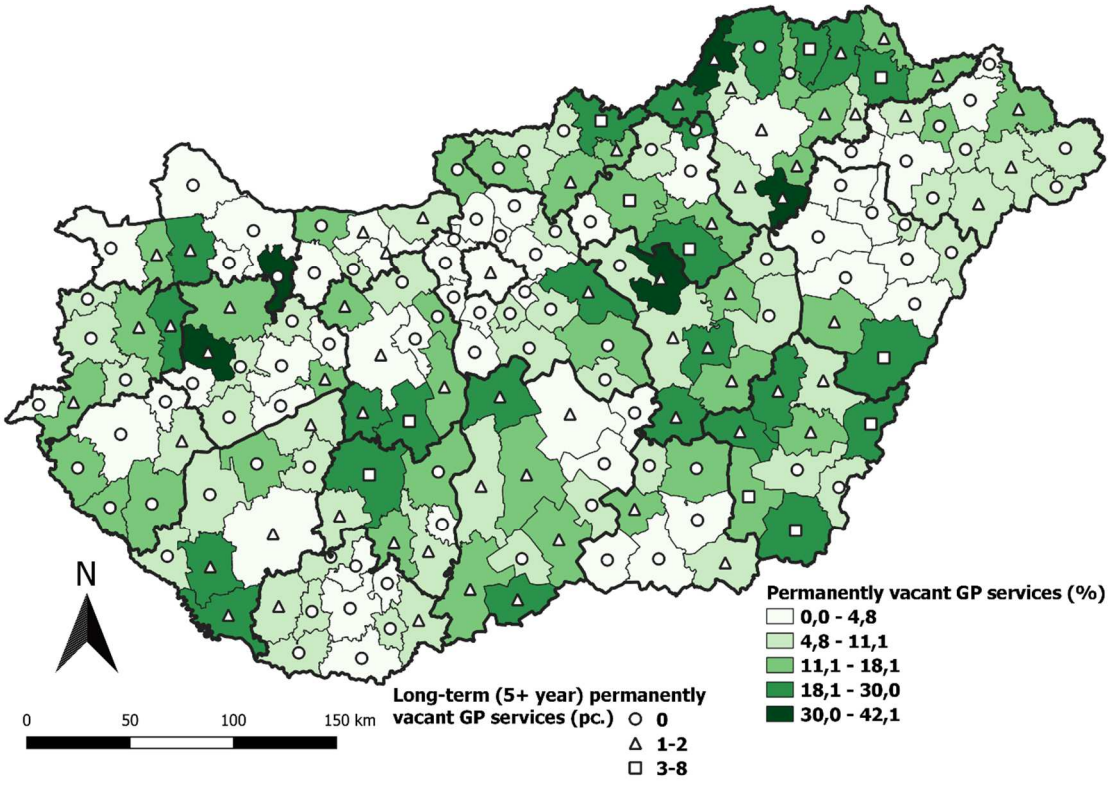


Source: OHAAP

The statistics on the migration of physicians reveals the most popular destination countries. According to the number of registrations, the most popular destination for Hungarian doctors is Germany since the opening of German labour market in 2011 (Fig. 2). The number of physicians who plan to move to the United Kingdom shows a slight decrease since 2011 because the British labour market was open for Hungarian doctors since the Accession to the European Union (2004), while other countries (e.g. Germany) opened their labour market gradually. Thus, with the widening accessibility of new destination countries resulted that emigration was divided between more countries.

The outmigration of health care professionals causes problems in health care provision in Hungary. The lack of doctors hits harder the peripheral and lagging behind regions – deepening their social problems (Fig. 3). Thus, managing outmigration could be crucial element in enhancing quality of life in these regions.

Figure 3 Long-term vacancies in general practices in Hungarian micro-regions, 2018.

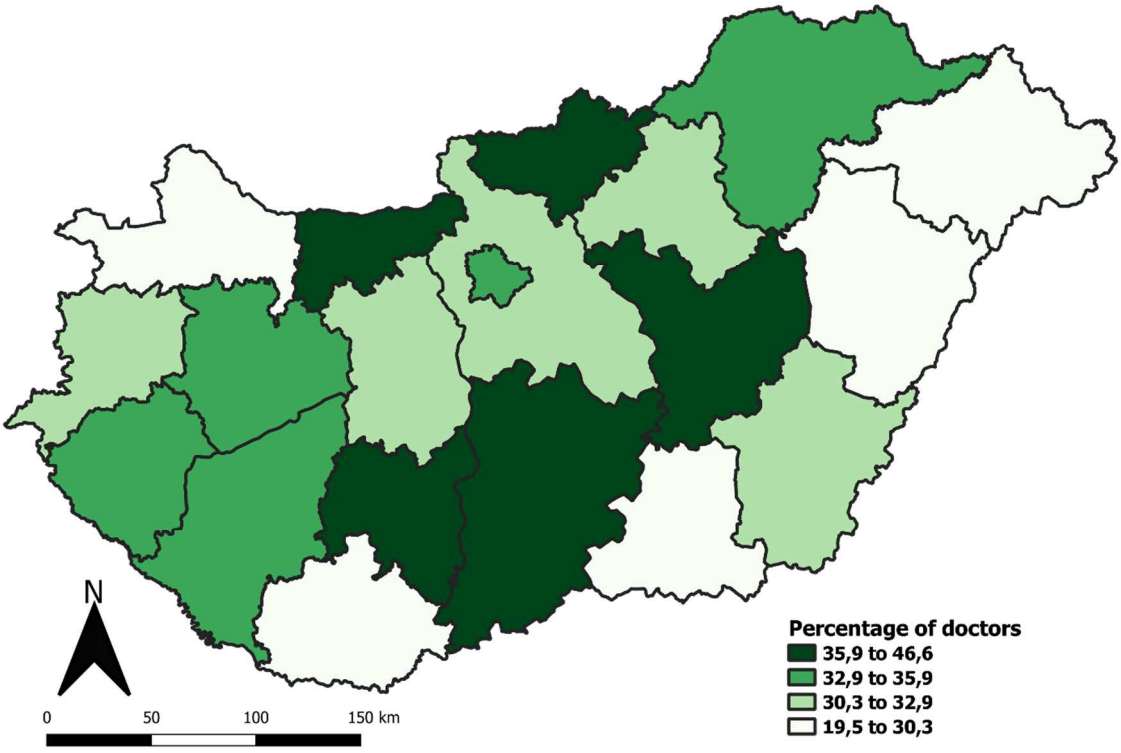


Source: NPHI

Since mostly the young and middle-aged physicians move abroad, the average age of doctors and the ratio of doctors approaching their retirement age are both increasing. In half of the Hungarian counties, the percentage of doctors over the age of 60 is higher than 25% (Fig. 4). As a consequence, doctors have to work after retirement (otherwise there would not be a

substitution for them), and health care services are going to be further jeopardised in the near future because of the ageing workforce.

Figure 4 Percentage of doctors over 60 years of age, 2018.



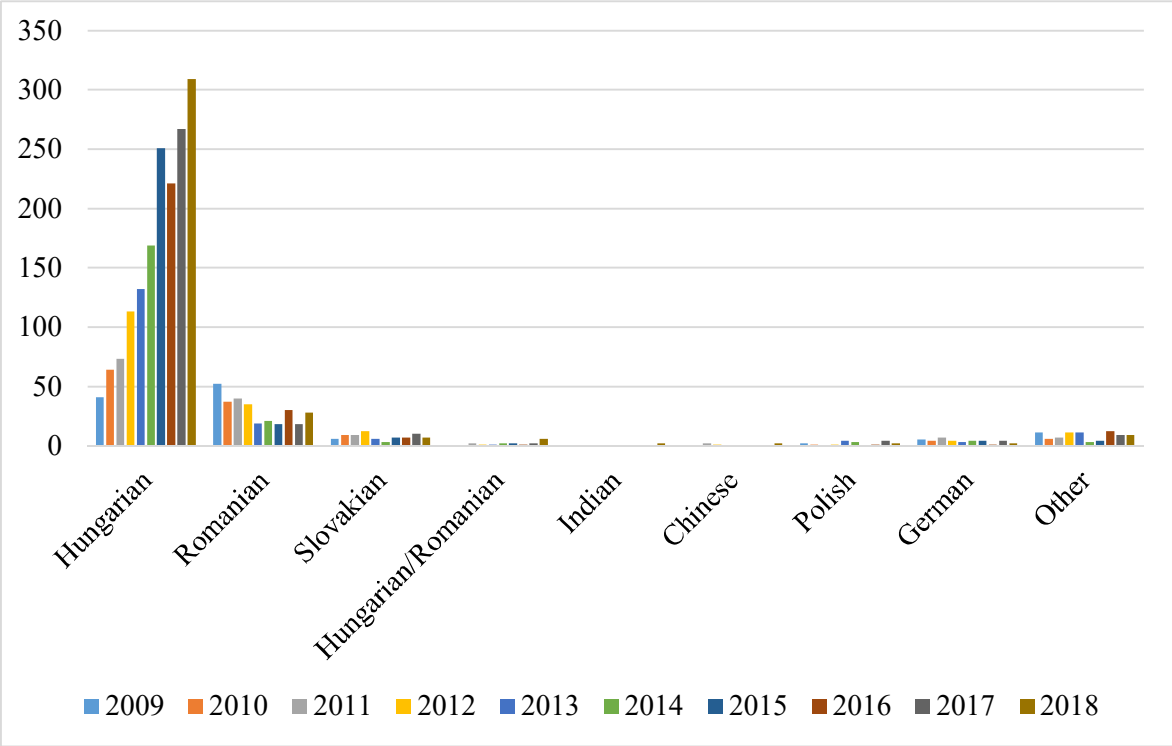
Source: CSO

The number of job vacancies is growing since 2009. In 2009, the last major reorganisation and capacity cut took place in the Hungarian health care, which resulted in a sudden decrease in vacancies in this year. However, this was only an administrative move, which did not stop the growth in job vacancies and the outmigration of physicians. Furthermore, since some of the doctors has more jobs (in some cases even 4-5 different positions), the overall number of vacancies does not seem to be extremely high. However, it is a result of overwork of physicians – which influences the quality of health care provision. Thus, the 'real' situation is worse than the statistics show.

Immigration could be a solution to the problems caused by medical brain drain and incoming doctors from other countries could be a substitute for the ones who left Hungary. This is a common solution and is often utilised to handle labour shortages, as for example, richer African countries (e.g. South Africa, Namibia) do so, and recruit international migrant health care workers from other poorer African countries (Dovlo, 2003). However, according to the data provided by OHAAP (Fig. 5), the number of incoming doctors is less than those of the outmigrating ones. Because of the language barrier, the immigrant doctors are mainly ethnic

Hungarians from the neighbouring countries (Romania and Slovakia being the most prominent ones in this case) who do not have problems communicating with patients. According to some results, a lot of incoming doctors see Hungary as an interim destination and plan to move to Western Europe after spending a few years in the Hungarian health care system. Therefore, Hungary is rather a sending than a target country for incoming medical workers.

Figure 5 The number of incoming doctors to Hungary by nationality, 2009-2018.



Source: OHAAP

Locality and medical migration – policy answers

In this section the Hungarian policy answers to medical migration are analysed. The basis of this part is the content analysis of local health care plans prepared and adopted by local governments. In addition, documents from other spatial scales are also analysed, in order to understand better the policy framework. Local health care development plans and strategies show a great variety in terms of length and structure. The shortest one was only 8 pages while the longest 268. Interestingly, the size of locality for which the plan or strategy was compiled, does not correspond to the length of the material: e.g. in the case of Budapest, it was 53 pages, while in the case of some villages (with a few thousand inhabitants) was more than 100 pages. The authors themselves – who wrote these plans - also show great variety: among them were local doctors, independent development agencies, departments of the local governments, local

development experts, or consortia of various professionals who worked out the health care development plans and strategies. Thus, the approaches used and structures can vary from one document to another.

Having analysed these documents, we found that the problem related to the outmigration of doctors, nurses, or any other medical staff are rarely discussed topics in local development documents. Instead, local health conditions, infrastructural issues, medical equipment or legal conditions were discussed in more detailed manner. Only one of the documents mentioned the problem of the ageing of health care workers as a possible threat to medical services;

> "5 dentists among the owners of 31 praxes are older than 60 years. The law describes the conditions of transfer of praxes; currently one transfer is ongoing." (County seat in Eastern Hungary)

According to this document national initiatives - grants provided for resident doctors by national government - are the potential solutions for the lack of doctors and finding replacements for retired physicians.

Most of the documents focus on the residents, for example, highlighting the most important health problems among them. The most prominent element of the plans proved to be the emphasis on health and lifestyle education, as the following quotes demonstrate:

> „The aim is to promote knowledge on healthy nutrition" (County seat in a peripheral region)
>
> „We have to decrease the prevalence of addictions" (small town in a peripheral region)
>
> „To encourage health conscious attitudes, raising the awareness to preventive measures. These aspects should be emphasised in education as well. (small town in a Western Hungary)
>
> "To acknowledge health as a value." (County seat in Western Hungary)

According to the results of the analysis, the decision-makers were focusing mainly on aspects of quality of life and health awareness. In this manner, the actors of change (i.e. health care professionals) were considered as given elements of the system and their tasks were defined. But the role and the situation of the doctors, nurses and other health care workers were both completely neglected. To sum up, most of the local health care development documents do not pay much direct attention to medical workforce and the threats on human resources of health care. In some cases, the content of documents was too general as they do not focus exclusively on health care issues but on broader development problems.

Only 4 out of 57 analysed documents mention the role of place. One of them (a county seat with 100 000 inhabitants) present place as a container, as a place where health related issues

occur. Two others (one of them is from a middle-sized town while the other is a county-level document from Western Hungary) apply a more active interpretation of place, presenting it as a possible resource for health care provision. But neither of them specifies the opportunities in detail. The last one is discussing a micro-region and in its health development strategy, the place is presented as the first place for intervention and an assemblage of processes and relations. Only four out of the analysed documents propose initiatives which target medical workers. The proposed measures are not detailed – the general principles are laid down instead, as the following quote demonstrates:

> "The local authority has to support the migration of doctors into the town with the creation of favourable conditions for them and their families." (Small town in Northern Hungary)

The migration of health workers was mentioned only in one local development document – from a peripheral town in Eastern Hungary. Therefore, there were no local initiatives proposed to deal with the problems caused by migration or to keep medical workforce. At the same time, migration trends of the concerned region or town were usually discussed without any reference to the medical workforce – as if they were outside of the general social processes.

The doctors and nurses are usually mentioned when the document is presenting the medical infrastructure of the towns or villages. They sum up how many general practitioners and specialised doctors, pharmacies are available locally and what centres of medical services are nearby. Usually, the number of cases treated by local doctors is also presented to describe the typical health problems. In several cases, other institutions which are not directly connected to health care provision (e.g. community centres, schools etc.), are also presented as possible locations for activities to enhance local health awareness.

At the same time, the problem is much more discussed in documents on national level but only those ones which were adopted after 2004. The earliest analysed document (Béla Johan Programme, 2002) surprisingly neglects the threat of medical brain drain, in spite of being adopted only two years before the EU accession. The document adopted in 2011 (Semmelweis Plan) have identified the problems and possible threats of outmigration. This plan interprets migration as a structural process, which is driven by higher wages and other factors in Western and Northern European countries;

> "The lack of resources has resulted in low wages. Together with the instability and the lack of professional perspectives, the outmigration of doctors and other medical workers is increasing. This could lead to difficulties in health care provision."

Therefore, the proposals made in it focus on material elements and higher wages, better medical equipment, renewed or new offices and hospitals are identified as the most important tools to manage the threat of outmigration. The Semmelweis Plan also highlights the threat of outmigration and proposes the continuation of earlier governmental programs (grants, increase of wages). At the same time, gender and family status are both neglected in the analysed documents. These factors are usually not mentioned or considered significantly less important compared to the wages or working conditions.

To sum up the above, the role of place seems to be marginal in health care development documents and the dominant discourse is the traditional/nationalist one which emphasises the loss of human resources, training costs and the threat on the quality of life of residents. Wages are considered as the most important motivation of migration, therefore, the proposals usually focus on the improvement of material conditions. Documents from sub-national and national scale seem to be more sophisticated and contain more concrete and more relevant analyses and proposals. Place attachment, identity, local working conditions or embeddedness in local social networks are mostly neglected in the development plans.

DISCUSSION

The migration trends of Hungarian health care professionals are similar to those experiences in African or Asian countries: doctors and nurses leave the country in great numbers which endanger health care provision. The policy answers to this phenomenon are also similar to the previously experienced ones (e.g. Robinson, 2007; Witter et al., 2020): restriction of mobility through legal bonds and gradual improvement in salaries or in working conditions. Since the demand for health care workers is still high and the gap in incomes is still significant, these measures cannot solve the problems. A more active role of localities and local actors could be used to increase the efficiency of migration policies; i.e. improving local conditions or focusing on the emotional factors (e.g. local identity, emotional bonds) of migration decisions.

According to the available data, the outmigration of Hungarian doctors is a significant problem. It causes problems in the health care provision – especially in peripheral areas. Thus it is crucial to understand of local (and national and national) preparedness to migration processes – which is reflected in the development documents. The results show that the role of local scale is marginal in the public discourse and the management of outmigration – thus the policy answers lack the necessary context sensitivity and the cooperation between stakeholders is also weak. This corresponds with the experiences in other countries (e.g. Romania, Poland

from the region): the most popular approaches regarding medical brain drain are the traditional ones with cost-benefit analyses and most of the measures are taken on the national scale. At the same time, due to the rapid changes (and the associated problems), those approaches which try to emphasise the possible benefits of migration are missing. Moreover, due to the importance of the issue, debates on the migration of doctors can be both ideological and political, and the political side determines the points of view.

In the Hungarian development documents, healthcare professionals were regarded as "components" that are easy to replace, but not actors of change. Strategy documents and healthcare development plans do not deal with space and place and do not try to utilise it. There are three interrelated reasons of this situation. The first is the centralised political structure which was strengthened in the last couple of years (Loewen, 2018; Hoffman, 2018; Szatmári & Hoffman, 2020). The second one is also related to the centralisation as most of the local authorities have very limited resources which prevent them to actively contribute to policies aimed at dealing with outmigration (Somlódyné Pfeil, 2017; Szabó, Józsa & Gordos, 2021). The third reason is the following: according to decision makers, the migration of physicians, nurses, midwives, and other medical workers are considered as a process driven exclusively by the higher wages in destination countries. Therefore, decision on migration is interpreted as a rational choice – which is a narrow interpretation of the process and ignores the emotional factors. As a result, local responsibilities and possibilities are also missing from the answers provided by local decision-makers.

However, income is not the only one oppressing factor for health care workers. General well-being, trust or distrust towards colleagues, politicians, local and national actors, identity and local embeddedness (or the lack of it) etc. all have their role. According to various theories (e.g. Massey et al., 1993; Nagy, 2021; Forcier, Simoens & Giuffrida, 2004; Siankam, 2012) focusing only one, hence crucial element of decisions to migrate or not, the long-term efficiency of policies is questionable. As other researches in the region demonstrate the motivations of migration decisions cumulate; thus multi-dimensional responses can be more successful (Botezat & Moraru, 2020).

These results may also have a wider geographical relevance since they can be also interpreted in the context of social production of space, place, and geographical scales, as documents made on local and national scales both consider migration as a problem to be managed on national scale. Thus, they contribute to the predominance of national scale (Ságí, 2022). Local policy makers and other actors give up the possibility to influence migration processes among health care workers. As a consequence, there are new local health development plans since the

adaptation of the ones analysed in this study. However, despite the above-mentioned factors, local authorities still have the legal basis to implement local policies to retain or re-attract health care workers, e.g. through differentiated wages, financial help for settling in or starting a practice. Furthermore, other instruments which do not require significant financial support could also be applied, e.g. local appreciation of health care workers, strengthening their motivation, local identity or local embeddedness. Still, the analysed development documents neglect these opportunities – which is rooted in their approach, which focuses on the material and rational elements of decision-making. Space and place are considered as passive elements of socio-spatial processes as locations or containers which do not have influence on health care provision or migration decisions.

CONCLUSION

The outmigration of Hungarian doctors and nurses remains a problem in the future. To give more appropriate and effective policy answers, policy makers should mobilise resources in other scales besides the national one. According to our results, the active role of place and local factors are not appreciated in local and national health care policy. As a result, place-based policies are rarely formulated, the generalised solutions are widespread. In our point of view, effective policies should consider the diversity of motivations, actors, life situations which all influence migration decisions.

Obviously, local conditions alone cannot slow down, stop or reverse outmigration processes. As our analytical framework suggests, the decision on staying or moving is a result of the interplay of various actors, scales, processes, rational and emotional elements. On local scale, rational and emotional elements both can have significant effects on migration related decisions. As several previous researches demonstrate, the migration-related behaviour of medical workers is shaped by various elements. Better working conditions, place attachment, strong local identity can all contribute to keeping the skilled workforce in health care. Of course, medical brain drain is a national (or even international) problem, but various actors from different scales could contribute to more efficient and nuanced policy answers.

Last, but not least, different actors of health care policy influence social production of place, space, and scale. Local actors, through their passive role they strengthen the power asymmetry and also may strengthen those processes which are parts of the oppressive elements in positions of health care professionals.

Like any piece of research, this study has certain limitations that need to be highlighted. The analysis was limited to Hungary; thus the findings cannot be generalized. The efficiency of the policies cannot be evaluated based on the policy documents: the implementation process should be analysed as well. The policies only reveal the approaches and intentions of decision makers but it remains to be seen which elements of these documents were implemented? The analysed timeframe is also limitation, since several political and other factors had effect on migration decisions of medical professionals – for example, the challenges related to COVID-19 pandemic or the governmental reforms in health care. The effects of these factors are yet to be analysed.

The study revealed several various directions for future research. First, the analyses should focus on the comparative aspects, aiming to reveal the similarities and differences in the policy approaches of various countries. Second, the implementation of the strategies should be also analyised; which elements were implemented, and which ones were not? The effects (e.g. increased workload, risk, governmental reactions to the pandemic etc.) of the COVID-19 pandemic should be investigated as well. Last, but not least, the effects of policies should be also analysed through surveys among health care professionals; how the policy actions affected their migration attitudes? These surveys also could offer opportunities to compare the assumptions reflected in the policies and the motivations of health care professionals.

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Original scientific paper

SOCIO-ECONOMIC INDICATORS OF THE UKRAINIAN LUTSK CITY DEVELOPMENT: DYNAMICS, TRENDS, AND SOME PARADOXES

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Abstract

The decentralization reform in Ukraine allowed the territorial communities to develop their Strategies of Development. The long-term planning should be based on an analysis of the socio-political state of the community and its socio-economic indicators. For analyze the socio-economic indicators of the city of Lutsk (2008–2018) in the main spheres of its life, which allow the study of various urban systems and control over their development according to management strategy involving citizens in urban planning, the sociological and statistical data for the certain period were used. According to sociological data, residents of Lutsk reoriented themselves from material problems to more important needs of a social, political and professional nature. The statistics demonstrate an improvement in a number of the economic indicators of its development, negative demographic trends and some paradoxes of public services. Sociological data and statistics demonstrate the primacy of resolving some of the issues related to the quality of human capital in the cooperation of scientists, city authorities, business and the public sector.

Keywords: Budget revenues; Education and Health Expenditures; Population Forecasting**;** Urban Development; Ukraine.

INTRODUCTION

One of the successful reforms in Ukraine - the decentralization reform - allowed the local communities to independently manage most of the revenues. When planning the annual budget, the local authorities were faced with the problem that some projects could not be implemented in the time indicated by the budget; therefore, plans for the future should be made. Long-term planning or the so-called Strategy of Development should be based on the indicators of socio-political condition of the community and its economic indicators. At the same time, it is necessary to take into account not so much current indicators as their dynamics over a definite long period of time - forecasting is always based on the trends.

The formation of development strategies for particular cities or territories is not something new for Ukrainian realities, but the efficiency of such strategies is a big question. Many of them are “good intentions” because they do not rely on scientific analysis and do not imply specific indicators to measure the efficiency of its implementation. Thus, it is necessary to study well enough the vital functions of the city before proceeding with the formation of its Strategy of Development. This article is the study to achieve this understanding with the goal of developing a strategic development plan for the city of Lutsk (Salnikova, 2018; Salnikova, & Khanin, 2021).

The study of the local case is also significant for another reason. Rapid urbanization and technology-driven development strengthen the role of the city; in particular, the city becomes the key actor in a globalized world (Nordström, & Schlingmann, 2014). Thus, both the city in particular and the network of cities in general are the subject of research in other conceptualizations (Farias, Bender, 2011; Gere, 2018), and comparable knowledge about each city will be extremely necessary.

So, «New European Union’s policy seeks to cultivate complete urban policies», because «Urban regions are the driving forces of Europe’s economic development, they are centers of creativity and innovation and also, they are the factor of the achievement of “Europe 2020” strategy» (European Commission, 2018).

The significance of the cities is also evidenced by the Intercultural cities program from the Council of Europe, whose participants are more than 140 cities in the world since 2008. Lutsk is also a participant in this program, within it is possible to compare not only the state of the urban environment of the participating cities, but also the features of their development, borrow interesting experience, coordinate development goals, etc. (Kuznetsova, 2016; Council of Europe). The Lutsk case study is one of many studies of urban centers that have recently been conducted at an international level more and more intensively (Delitheou, & Georgakopoulou, 2019; Deng et al., 2018).

THEORETICAL BACKGROUND

The conception of smart city development, which is also being implemented in Lutsk (Fedoniuk, & Fedoniuk, 2018), requires a holistic strategy of urban development, as smart city ideas despite its great potential for development are based on individual innovation (Czupich, Kucherenko, & Riznyk, 2020). D. Balashov links strategic development with city branding through the “unite efforts of the city government, residents and entrepreneurs” and demonstrates the success of such an institution on the example of cities London and Lviv

(Balashov, 2019, p. 149). Other scholars consider the conception of marketing city to be the best alternative to the traditional approach to urban development (Seisdedos, 2004; Dril, Galkin, & Bibik, 2016). The conception of sustainable urban development is more comprehensive one (Tsenkova, 1999; Haughton and Hunter, 2005). According to the sustainable development conception, environmental (named as urban metabolism conception in (Gonzalez-Garcia, Manteiga, Moreira, & Feijoo, 2018)), social, and economic indicators (Salnikova, Khanin, 2021) must be integrated into urban planning processes at different levels (Pavlikha, Voichuk, 2019, p.12).

This research was conducted in framework of two urban research directions: (1) the study of various urban systems (transport infrastructure, healthcare, education, ecology, urban economics, human capital, etc.) with (2) the involvement of citizens in the urban planning process. Alas, classical theories do not have sufficient explanatory potential; the concept of the city as a space of breaking traditional social ties (mainly the European approach, G. Simmel (Simmel, 1903), M. Weber (Weber, 1958), et al.) is not applicable to small cities with a traditional way of life (there are many such cities in Europe, and Lutsk among others); the concept of the city as an interconnection of social communities (the American approach, in particular the Chicago school – R. Park and E. Burgess (Park, & Burgess, 1925), L. Wirth (Wirth, 1938), et al.) leaves out the research space the physical space interconnected with social space is much stronger than it seems. A city ~~is~~ does not mean separately people, buildings, transport, landscapes, schools, etc., it is their relationships and resources, and communities located in the physical space, and everyday practices ordered in a certain way, etc. Even ordinary food consumption as a powerful social institution, according to a study by C. Steel (Steel, 2009), can tell us a lot about the city and its inhabitants. But there are not so many research cases of "understanding" of the city (e.g. Laing, 2016; Jacobs, 1961; Gehl, 2010; Owen, 2010).

The study of the urban environment in order to make a long-term development program for the city of Lutsk is not a new research direction for the authors of the article. Previously, attempts were made to form such a document; the authors of this article were also involved in the process. But long-time managerial and political instability did not contribute to long-term planning, and attempts were unsuccessful, but they left some groundwork (Salnikova, 2018; Salnikova, & Khanin, 2021) and launched the topic of strategic planning into public discourse. "Involvement of residents in the urban planning process" (see above (2)) requires knowledge of the social space of the city and an understanding of "how" and "what" the inhabitants of the city live, such knowledge we receive as a result of sociological research.

Although the first indicators of the city's readiness for changes were recorded back in 2010, their clear focus was formed in 2014–2016 (Salnikova, 2017). And while Ukrainian society under conditions of total anomy (Salnikova, 2014) was changing very slowly, the Russian-Ukrainian war in Eastern Ukraine exposed the problems and accelerated the "recovery" process. The conclusions obtained on the basis of the data of monitoring the social well-being of the townspeople more than predispose that the urgent, sometimes radical, changes in the city be launched. The methodology for studying the social well-being is interesting in that it determines those social benefits that are most in demand; at the same time, the methodology demonstrates the situation in different social spheres (Golovakha, & Panina, 1997). We also use this approach in the analysis of socio-economic indicators of the development of the city. It is important that the concept of social well-being is key for J. Stiglitz in the study of competitiveness in urban development planning; somewhat later, he also concludes that the focus should be on "attributes and freedoms that people value" and "the importance of a number of features that go beyond command over resources" (Stiglitz, Sen, & Fitoussi, 2009, p. 42).

The results of the monitoring "Social well-being of Lutsk Residents" (2008–2018) show that before the war, the townspeople were interested in the benefits of basic necessities: proper nutrition, employment, health, vacation, etc. But in the period 2014–2016 they reoriented to individual benefits – initiative, self-dependence, decisiveness, ability, knowledge, etc. In addition, the most demanded benefits in recent years are stability in the state and society, confidence in improving the situation in the country, managers capable of governing the state, the state protection from lower living standards, etc. (Salnikova, 2017, p. 105). Thus, the poor social well-being of residents of the city of Lutsk is associated with problems of the state, not local, level; the townspeople need specific individual qualities to refine their well-being. But the most important indicator of the demanded changes is the appearance in 2016 among the most insufficient benefits of the following one - the norms and values that unite people in the state and society. This is the realization by Lutsk inhabitants that double institutionalization, double morality and norms do not allow the state to develop, and that such a double burden on interpersonal relations does not contribute to the progress of trusting relationships, which means interaction, openness, and innovation. Only general and agreed rules / norms / values can be the basis of those interpersonal and social relations that will allow society to get out of the "anomy peak" and develop. And when the society is ready, and until it has received a new political disappointment, as it usually happens a year after each election, it is worth reflecting the changes.

The sociological survey "Main Directions and Prospects of Development of the Lutsk City" (2016) is also one of the important aspects of the social diagnosis of the urban environment (Salnikova, 2018). This study exposed the demographic problem associated with the outflow of youth and the need for special social inclusion of people of mature age.

In addition to sociological research data, statistical data are also necessary; in particular, the city authorities are interested in the making of a Strategy of Development with a scientific basis for its main directions. Here, researchers turned to the definition of approaches to creating a strategy and found that there are many directions and traditions. For example, Mintzberg, Ahlstrand, & Lampel (2005) distinguish two groups of strategies, each consisting of several research areas or schools.

Management strategies: The Design school: strategy as an attempt to meet internal and external capabilities (based on SWOT analysis); The Planning school: formation strategy as a formal process based on quantitative presentation of goals (Ansoff, 2007); The Positioning school: developing key strategies based on competitive advantage (Porter, 1998).

Descriptive strategies: The Entrepreneurial school: formation a strategy based on foresight, intuition; The Cognitive school: formation strategy as a mental process of cognition; The Learning school: formation strategy as an informal learning process for solving partial problems; The Power school: formation a strategy based on the use of influence, including political; The Cultural school of: formation a strategy based on organizational culture; The Environmental school: formation a strategy in response to the external environment; The Configuration school: formation a strategy as an organization transformation, moving from one sustainable state to another one.

If the formation of a Strategy of Development is in the focus of research and practical interest, then "Strategy and Strategists" by Cunningham, & Harney, (2012) will be most useful.

Formation a strategy that would formulate measurable goals and a time frame for their achievement was a fundamental task from the city authorities. Therefore, *management strategies* were the basis for a Strategy of Development. Such strategies involve processing a large array of quantitative indicators, identifying on their basis certain trends, relations, positive and negative factors of development, etc. Here we cannot refer to the variety of sources used, except for the Main Department of Statistics in the Volyn region (State Statistics Service…, 2019) and internal documents of the Lutsk City Council[20].

[20] https://www.lutskrada.gov.ua/

DATA AND METHODS

Data sources

Sociological and statistical data used in this study as its empirical base.

Reforming any sphere means changes, as a rule, decisive and cardinal. The population can react differently to changes; its reaction often depends on the degree of readiness of society itself to change. Therefore, the measurement of socio-political indicators by sociological means is very important. For this purpose, we used the secondary data from the urban monitoring "Social well-being of Lutsk Residents" (2009–2018) and the sociological study "Main Directions and Prospects of Development of the Lutsk City" (2016), conducted by the Sociological Research Laboratory (SRL) of Lesya Ukrainka Eastern European National University[21] (Lesya Ukrainka EENU).

Data analysis

Indicators of economic activity of the city are also important. For the purpose of their analysis, data as separate documents on the main spheres of life of the city of Lutsk (2008–2018) were provided to the researchers by the different departments of Lutsk City Council, based on the analysis of documents, the authors identified relevant indicators and formed data arrays in the .xlsx format; some free access data were obtained from State Statistics Service of Ukraine (2019). The results of data analysis were discussed at scientific and public events. In particular, a round table and a conference at the university and some meetings at the city council, and local television broadcasts, etc. were held on the topic of this project.

The **purpose** of the article is to analyze the socio-economic indicators of the city of Lutsk for the period 2008–2018 in the main spheres of its life, which allow the study of various urban systems and control over their development according to management strategy involving citizens in urban planning.

We suppose that the residents of the city are aware of the key problems of the city, and the importance and necessity of solving them. It is not only about the expected threats, but about the problems that have already been reflected in the indicators of the socio-economic activity of the city.

We also demonstrate the effectiveness of combining local statistical and sociological data in the formation of a management strategy in the absence of reliable statistics (the last census in Ukraine was conducted in 2001).

[21] Renamed Lesya Ukrainka Volyn National University in 2020.

This study is an exploratory one. If the data of sociological studies were partially published in various scientific and popular sources, then statistical analysis will be presented for the first time in this article.

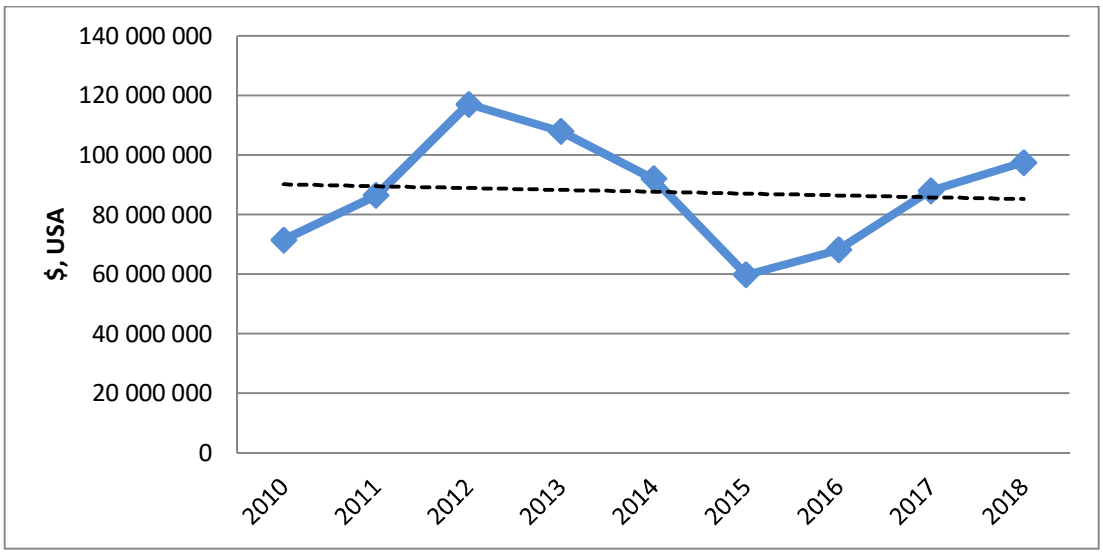
RESULTS AND DISCUSSION

To analyze the socio-economic indicators of the development of the city of Lutsk we used the approach of primary identification of the spheres of life (Golovakha, & Panina, 1997), according to which we will provide the following empirical results. But not all spheres and indicators are provided in this article.

The budget of the city of Lutsk and the economic activity of its enterprises

The basis of long-term planning is the state of the city budget. The last three years demonstrate the average annual growth rate of total budget revenues ($, USA) at the level of 17.7%. This certainly characterizes the positive development trend of the city's economy, especially given the significant fall the national currency in 2014. However, as can be seen in the (Fig. 1), the budget increase in the period 2015–2018 has not yet reached the mark of 2012.

Figure 1 Dynamics of budget revenues of the city of Lutsk



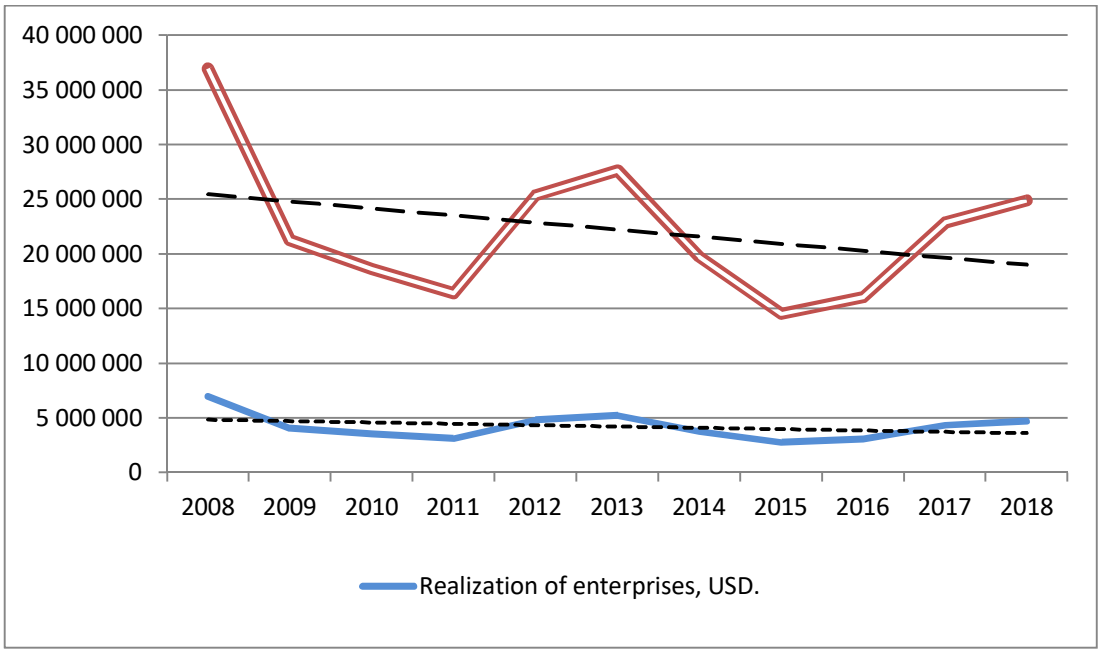
Source: own work

Budget revenues are associated with the economic activities of city enterprises. It is important to note that many large enterprises are officially located outside the city, but in fact they are part of it and use its resources, in particular infrastructure. Thus, the profit of

these enterprises does not affect the economic activity of the city. Nevertheless, the indicators of the last three years (2015–2018) demonstrate a positive dynamics of the city's economic activity: the average annual growth rate of sales of one enterprise ($, USA) is 17.1%, and it is an outstripping indicator in comparison with the growth rate in the Volyn Region (State Statistics Service of Ukraine, 2019a), as well as in Ukraine as a whole (State Statistics Service of Ukraine, 2019b). This indicates better conditions for enterprises in the city of Lutsk than in the country as a whole.

The correlation coefficient between the revenues to the budget and the volume of realization of the city enterprises ($, USA) is 0.88.

Figure 2 Volume of realization by the enterprises of the city of Lutsk



Source: own work

Lutsk enterprises are starting to increase their turnover from 2015. This fact is also evidenced by an increase in the total number of employees. By the way, the number of unemployed has been reduced (from 7.6% in 2013 to 5.1% in 2018). The number of small enterprises is increasing, but this does not particularly affect the share of workers employed in such enterprises. The distributions associated with the number of medium-sized enterprises and the workers employed in them are the most interesting: they have opposite directions; there is a feeling that such enterprises are gradually emerging from the shadows. The fact that the medium-sized enterprises are more often shadowy is evidenced by the correlation coefficient between the city budget revenues ($, USA) and the number of employed workers in medium-sized enterprises: it is negative (-0.81). Moreover, the correlation coefficients for the case of large and small enterprises are positive (0.97 and 0.96, respectively).

Table 1 Employees by type of enterprise, Lutsk

Year	Number of enterprises			Number of employees				Distributions of employees, %		
	Big	Middle	Small	Big	Middle	Small	Total	Big	Middle	Small
2012	6	151	2 318	17 600	23 823	14 204	55 627	32	43	26
2013	6	129	2 496	17 810	21 923	14 519	54 252	33	40	27
2014	6	124	2 496	9 660	23 054	13 542	46 256	21	50	29
2015	5	125	2 539	6 038	28 948	13 042	48 028	13	60	27
2016	4	135	2 331	**6 038**	**28 948**	12 987	**47 973**	13	60	27
2017	6	130	2 609	10 936	25 563	13 391	49 890	22	51	27
2018	7	130	2 712	12 801	27 631	13 565	53 997	24	51	25

Source: own work

There are three components of the shadow economy: (1) Underreporting of business income, (2) Underreporting of real number of employees, (3) Underreporting of real value of paid wages, or «Envelope wages». According to the Kyiv International Institute of Sociology, the first component as a key reason for the shadow economy is decreasing (60.2% and 56.7% in 2017 and 2018, respectively), the second important reason remains unchanged (21.4% and 21, 9% in 2017 and 2018, respectively), the third reason is increasing (18.3% and 21.4% in 2017 and 2018, respectively). Due to the increase of the shadow economy in West of Ukraine, there is no illusion that the situation in Lutsk is radically different (Shadow Economies in Ukraine, 2019).

The main problem of the shadow economy is that the budget does not receive tax revenues from income, which means that financing of infrastructure and social services is problematic. We are talking only about registered enterprises and their employees, therefore, an increase in the number of employees may be related to their official registration. The Lutsk City Council took into account both local and national data, it decided to implement primarily those projects that allow minimizing the share of enterprises in the shadow economy. One of these projects was the project on electronic passenger service in public transport, owned by the municipality and private entrepreneurs. Entrepreneurs were strongly opposed at first; some even provided a business plan for one city bus (Yavorska, 2019), so they publicly admitted that it was not profitable for them to pay net salaries to drivers (only «Envelope wages»). Thus, entrepreneurs involved in urban transport service have publicly admitted that they work in the shadow economy sector.

It is worthwhile to separately analyze the sphere of public transport in Lutsk. A significant increase in the fleet of city buses was only in 2018, while the length of routes since 2013 increased by 13%. Demand for transportation services is growing; however, the age of city

buses is also growing. In fact, the number of city buses increased, not their quality. Perhaps the increase in the number of transport units is due to the fact that not all of them can go on the route and require more frequent and / or lengthy repairs. Thus, there is a problem of the quality of the services provided, in particular the safety of passengers.

Also in 2018, the number of trolleybuses and their age increased, and the number of trolleybus routes decreased.

Table 2 Public transport in Lutsk

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**Av. growth, %**
Buses routes (BR)							
Total number BR	32	30	30	31	32	34	-
Total length BR, km	843.10	817.00	826.60	888.90	874.4	954.8	-
Total number of city buses on	249	235	236	238	223	240	-0.9
Average age of city buses,	6	7	8	7	8	9	-
Trolleybus routes (TR)							
Total number TR	12	14	14	14	15	13	-
Total length TR, km	256.75	277.55	277.55	277.55	-	-	-
Total number of trolleybuses	39	44	41	41	41	43	2.5
Average age of trolleybuses,	22	22	22	23	24	25	-
Population of the city							
Total	212 993	214 020	214 367	213 950	213 422	213 804	0.1
per unit of public transport	740	767	774	767	808	755	0.5
60+	32 870	33 866	34 919	35 983	37 253	38 458	4.0
60+ per unit of trolleybuses	1494	1539	1587	1579	1552	1538	0.7

Source: own work

It is interesting that the number of the population of the city in general, and of retirement age in particular, is growing faster than the trolleybus fleet, the main provider of preferential services. Knowing the real passenger flow in the temporal dimension today is necessary to avoid the transport collapse in the near future, as well as to remove from the shadows private businesses in the sphere of urban public transport.

Some housing and communal services

An important part of the housing and communal services of the city is road repair. The tendency to reduce overhaul of roads and increase the ongoing road repairs is noticeable.

Table 3 Dynamics of road repairs, Lutsk

Year	Overhaul of roads		Ongoing road repairs	
	Length, km	Road repairs, %	Length, km	Road repairs, %
2008	12.5	89.9	1.4	10.1
2009	6.5	80.1	1.6	19.9
2010	3.3	50.3	3.3	49.7
2011	2.2	81.0	0.5	19.0
2012	8.9	84.4	1.6	15.6
2013	10.8	51.6	10.1	48.4
2014	9.5	47.5	10.5	52.5
2015	9.4	63.9	5.3	36.1
2016	11.3	57.9	8.2	42.1
2017	11.8	45.7	14.1	54.3
2018	8.8	47.9	9.6	52.1

Source: own work

No less important is the service of garbage collection - in recent years it has become especially relevant for some million-plus cities of Ukraine. The culture of consumption is now not only a problem of an economic nature, but also a no less costly environmental one.

Here the paradox of garbage collection was revealed. It consists in a significant increase in garbage taken out with a slight increase of the population of the city and its economic activity. An increase in the volume of garbage taken out is observed at an average level of 5% per year. So, in 2018, the volume of garbage collected increased by 63% compared to 2008. At the same time, volumes of products realization by city enterprises ($, USA) decreased by 33%.

Table 4 The paradox of garbage collection, Lutsk

Year	Garbage collection, thousand m^3	Realization by city enterprises, $ USA	Year	Estimated garbage collection, thousand m^3
2008	404.5	7 014 531	2019	**660.3**
2009	416.7	4 039 943	2020	**682.9**
2010	447.2	3 540 752	2021	**705.6**
2011	491.2	3 114 136	2022	**728.2**
2012	532.0	4 816 445	2023	**750.9**
2013	549.6	5 256 496	-	-
2014	560.4	3 750 416	-	-
2015	538.5	2 757 830	-	-
2016	570.1	3 048 471	-	-
2017	598.7	4 353 396	-	-
2018	658.9	4 732 040	-	-
Coefficient of liner correlation		**-0.22**	-	-

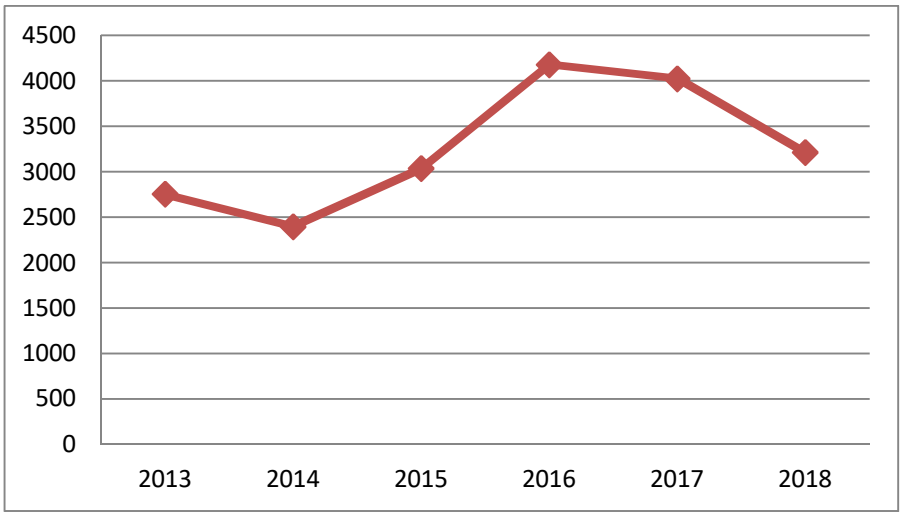
Source: own work

The explanation for this paradox remains open for researchers. There is no simple, linear solution. Many factors are the reasons for it. It can be assumed that Lutsk, as the center of urbanization of Volyn, is characterized by significantly higher rates of population increase (that is, the number of permanent and actual population is too much differing in absolute terms). Another assumption is that the territorial limitations of the city allow residents of nearby territories to use its infrastructure; in particular, they can simplify the problem of waste disposal. In the joke with the "tossing of Lviv garbage" there is a share of truth: the majority of workers in Lutsk live outside it, but every day either by public or private transport they go to work in the city. One possible explanation may also be an increase in the share of the shadow sector of the city's economy, meaning that real economic activity is much higher.

Well-being of residents of Lutsk

The number of crimes increased significantly in 2014–2016; in the period of revolutionary and / or war activities, crime is always intensified in country, which we see on the (Fig. 3). Both the stability of the social order and the well-being of society are important. The high negative correlation between retail turnover ($, USA) and crime rate (-0.72) indicates the importance of real well-being of citizens.

Figure 3 Dynamics of crime, Lutsk



Source: own work

The question arises: can retail turnover be considered an indicator of the well-being of the population? The idea is that the more a person earns, the more he spends, and he must pay all utilities on time. But, the increase of the average salary in Lutsk did not increase retail

turnover and did not improve the level of payment for utilities. If the retail turnover per inhabitant in Lutsk is significantly higher than in Ukraine as a whole, and the average salary is lower (State Statistics Service of Ukraine, 2019c), then it cannot be argued that a person's salary is an indicator of his well-being. In sociology, the financial condition of a family has long been measured by indicators of what the family can afford, that is, by spending. By the way, payment of utilities is also a spending, and it is mandatory. Therefore, in this case, the retail trade represents the welfare of the city's inhabitants - and it is getting worse.

Table 5 The relationship between retail turnover (RT) and average salary, and utility bills

	Average salary, UAH	**RT, millions UAH**	**RT, millions USD USA**	**Utility bills, %**	**RT per 1 person, Lutsk, thousand USD USA**	**RT per 1 person, Ukraine, thousand USD USA**
2013	2531	9 451	1182	98	5.6	2.4
2014	2618	10 774	906	99	4.2	1.8
2015	3291	11 624	532	89	2.5	1.1
2016	4047	11 986	469	94	2.2	1.1
2017	5849	9 556	359	91	1.7	0.7
2018	7324	10 295	379	-	1.8	0.8
Correl. Coeff.	**-0.22**		**0,82**		-	

Sources: own work; State Statistics Service of Ukraine (2019c)

Another paradox that requires additional research and discussion: retail turnover are decreasing, and volume of realization by city enterprises are increasing. In addition to the already mentioned shadow sector of the economy, it can be assumed that the polarization of the population is growing by income. But this assumption on the example of the city of Lutsk requires additional research.

Table 6 The relationship between retail turnover and volume of realization by city enterprises

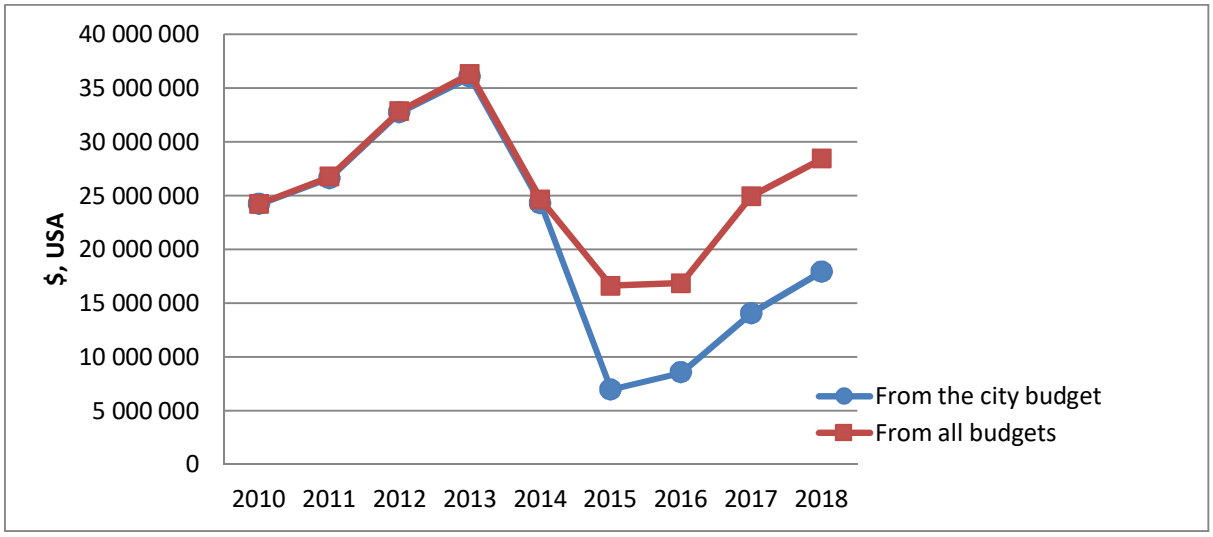
	Retail turnover, millions USD USA	**Realization, millions USD USA**	**Budget revenues (General Fund), millions USD USA**
2014	906	3 750	42
2015	532	2 758	22
2016	469	3 048	29
2017	359	4 353	37
2018	379	4 732	45
Correl. Coeffi.	**-0.28**		

Sources: own work; State Statistics Service of Ukraine (2019b)

Sphears of education and health care in Lutsk

The education sphere is not particularly "interesting": a decrease in funding (Fig. 4), a decrease in the number of children enrolled in preschool educational institutions (from 909 children in 2008 to 1,593 children in 2012 and 600 children in 2018), while the number of children in groups increases (from 23 in 2008 until 27 in 2018), only one residential quarter was built with the appropriate social infrastructure (kindergarten, school), two private schools and several kindergartens were opened. State institutions dominate in the educational sphere of Lutsk.

Figure 4 Dynamics of education spending, Lutsk



Source: own work

The curve for total health care costs coincides with the curve for education costs, but the share of financing from the state budget decreases (from 99% in 2013 to 76% in 2018), and from the city budget, accordingly, increases (from 0% in 2013 to 19% in 2018), the rest is the share of capital expenditures from the development budget.

It is worth paying attention to the fact that the frequency of visits to the hospital is more or less stable, but the frequency of visits to clinics decreases. This occurs with an increase of the population of the city, as well as the proportion of elderly people (from 14% in 2008 to 19% in 2018) (Tab. 7). Indeed, the number of visits to the hospital have a positive correlation with the total population (0.64), while the number of visits to clinics have a negative correlation with the total population (-0.49). "Perhaps something is wrong with the outpatient treatment of residents of Lutsk?" – one of the authors asks. Perhaps... But there is

another explanation. In Lutsk, as in any other city in Ukraine, there is a sufficient number of private medical institutions working on the principle of outpatient treatment. Therefore, there is an alternative to polyclinics with their constant waiting queues, doctors without inpatient practice, etc. Medical reform allows patient to sign a contract with private doctor. Most likely, this paradox is a consequence of the availability of alternative medical institutions and the specifics of medical reform. The increase in demand for private health services explains the decline in demand for public health services.

Table 7 Medical attendance rates

Year	Inpatients, total	Polyclinic visits, thousand	Population, total	Population 60+	Hospital visits, per 1 person	Polyclinic visits, per 1 person
2008	30 033	2 100.7	206 202	28 574	0.15	10.2
2009	29 448	2 089.0	207 692	29 659	0.14	10.1
2010	29 289	2 101.9	208 700	30 615	0.14	10.1
2011	29 304	2 114.7	209 980	31 818	0.14	10.1
2012	30 602	2 044.1	211 644	32 870	0.14	9.7
2013	30 830	2 066.3	212 993	33 866	0.14	9.7
2014	30 920	2 092.8	214 020	34 919	0.14	9.8
2015	30 397	2 048.5	214 367	35 983	0.14	9.6
2016	30 528	2 009.3	213 950	37 253	0.14	9.4
2017	30 118	1 913.3	213 422	38 458	0.14	9.0
2018	29 912	1 734.5	213 804	39 870	0.14	8.1

Source: own work

Demographic situation

The demographic situation is especially acute for residents of the city. Among the top problems in 2016 were the following: the outflow of young people to large cities and abroad (30.8%), the lack of gerontological institutions for serving the elderly people (Salnikova, 2018, p. 49-50). The main reason for the first problem is the impossibility of professional realization in the city, residents of the city of working age (up to 41 years old) with a higher education and good financial condition speak about this; they are characterized by a high level of mobility. Higher education encourages relocation in the event of a polar financial condition of the family.

Thus, the lack of opportunities for professionals will contribute to the fact that they will consider Lutsk as a place to obtain a good education, as a transit settlement (Salnikova, 2018, p. 47, p. 51). Contrary to the expectations of researchers, the main reason for leaving the city

was not educational mobility, but professional one. Professionalism should be associated with a high economic status, but, unfortunately, low salaries and an appropriate standard of living are characteristic of Lutsk. Representatives of professional employment are not worked, as a rule, in the shadow sector, therefore, the average official salary is 7324 UAH in 2018 can not be considered as a high one (see Tab. 5). “If talented individuals cannot gain access to education, employment and successful careers, for any reason but certainly because of discrimination, then the entire economy is less competitive” (Kresl, et al., 2020). Only access to the city's educational institutions can be considered non-discriminatory.

The second problem is partially related to the first: the decrease in the category of working people automatically increases the category of people of retirement age. But this situation is much more complicated than it seems at first glance.

Decrease in birth rate and decrease in mortality, increase of population in age 60+, downward trend of natural and migratory population growth are characteristic of the city (see Tab. 8). If such main demographic trends of Ukraine as population aging due to a decrease in the working-age population, population decline due to depopulation, the dominance of labor migrations flows over permanent migrations are also characteristic of Lutsk, then this is natural. It is surprising that Lutsk as a center of urbanization of Volyn has a low migration inflow. the demographic situation in the region is similar to the situation in Ukraine as a whole (Fig. 4). But the Volyn region has always been a major donor of human resources for Lutsk. Today, only three northern districts of the region – Kamin-Kashyrskyi district, Manevytskyi district, and Ratnivskyi districts – show a general population growth.

Table 8 Demographic indicators

Population, person	**Average annual growth rate, %**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	***2020***	***2021***	***2022***	***2023***	***2024***	***2025***	***2026***	***2027***	***2028***	***2029***	***2030***
Total	**0.4**	206 202	207 692	208 700	209 980	211 644	212 993	214 020	214 367	213 950	213 422	213 804	*216 316*	*217 114*	*217 913*	*218 711*	*219 509*	*220 308*	*221 106*	*221 905*	*222 703*	*223 502*	*224 300*
Newborn	**-2.6 (-7,0*)**	2 719	2 869	2 647	2 589	2 644	2 631	2 677	2 533	2 447	2 170	2 100	*2 189*	*2 130*	*2 070*	*2 010*	*1 951*	*1 891*	*1 831*	*1 771*	*1 712*	*1 652*	*1 592*
The dead	**-2,8 (-2,0*)**	-	-	-	-	2469	2450	2498	2575	2497	2217	2080	-	-	-	-	-	-	-	-	-	-	-
Natural growth	-	-	-	-	-	175	181	179	-42	-50	-47	20	-	-	-	-	-	-	-	-	-	-	-
Migration growth	-	678	356	424	166	609	253	120	-119	-244	-266	260	-	-	-	-	-	-	-	-	-	-	-
3 years (kindergarten)	-	2 520	2 555	2 687	2 857	2 619	2 592	2 640	2 621	2 638	2 530	2 447	*2 170*	*2 100*	*1 892*	*1 719*	*1 545*	*1 372*	*1 198*	*1 025*	*851*	*678*	*504*
6 years (school)	-	2 033	2 232	2 316	2 528	2 573	2 684	2 875	2 624	2 598	2 651	2 624	*2 664*	*2 530*	*2 447*	*2 170*	*2 100*	*2 004*	*1 884*	*1 765*	*1 645*	*1 526*	*1 406*
Up to 24	**-1.4**	67 273	65 774	64 906	63 731	63 089	62 074	61 324	60 606	59 609	58 838	58 644	-	-	-	-	-	-	-	-	-	-	-
25-59	**0.4**	110 355	112 259	113 179	114 431	115 685	117 053	117 777	117 778	117 088	116 126	115 290	-	-	-	-	-	-	-	-	-	-	-
60+	**3.4**	28 574	29 659	30 615	31 818	32 870	33 866	34 919	35 983	37 253	38 458	39 870	-	-	-	-	-	-	-	-	-	-	-
Avg. age	**0.6**	**36**	**36**	**37**	**37**	**37**	**37**	**37**	**38**	**38**	**38**	**38**	***39***	***39***	***39***	***39***	***39***	***40***	***40***	***40***	***40***	***41***	***41***
%																							
Up to 25	-	32	31	30	30	30	29	29	28	28	28	27	*27*	*26*	*26*	*25*	*25*	*25*	*24*	*24*	*23*	*23*	*22*
25-59	-	54	54	54	55	55	55	55	55	55	54	54	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*	*55*
60+	-	14	15	15	16	16	16	16	17	17	18	19	*19*	*19*	*19*	*20*	*20*	*21*	*21*	*22*	*22*	*22*	*23*
Intensity of structural shifts, % with as of 2009	-		**0.26**	**0.45**	**0.64**	**0.79**	**0.99**	**1.19**	**1.31**	**1.45**	**1.54**	**1.64**	-	-	-	-	-	-	-	-	-	-	-

* Ukraine. Source: State Statistics Service of Ukraine (2019d)
Source: own work

It is possible not to take into account the Lutsk district and part of the Kivertsivskyi district, they will become part of Lutsk as a result of decentralization reform - the process has already started. Thus, for Lutsk there is a very important number of districts, which will be allocated as new administrative units due to decentralization. If there is a fourth district centered in Kamin-Kashyrsk, Lutsk will remain the urbanization center of Volyn; if not, the city of Kovel will face serious competition to Lutsk in getting the human capital. Other cities of the region do not have such opportunities.

Table 9 Population growth / decline

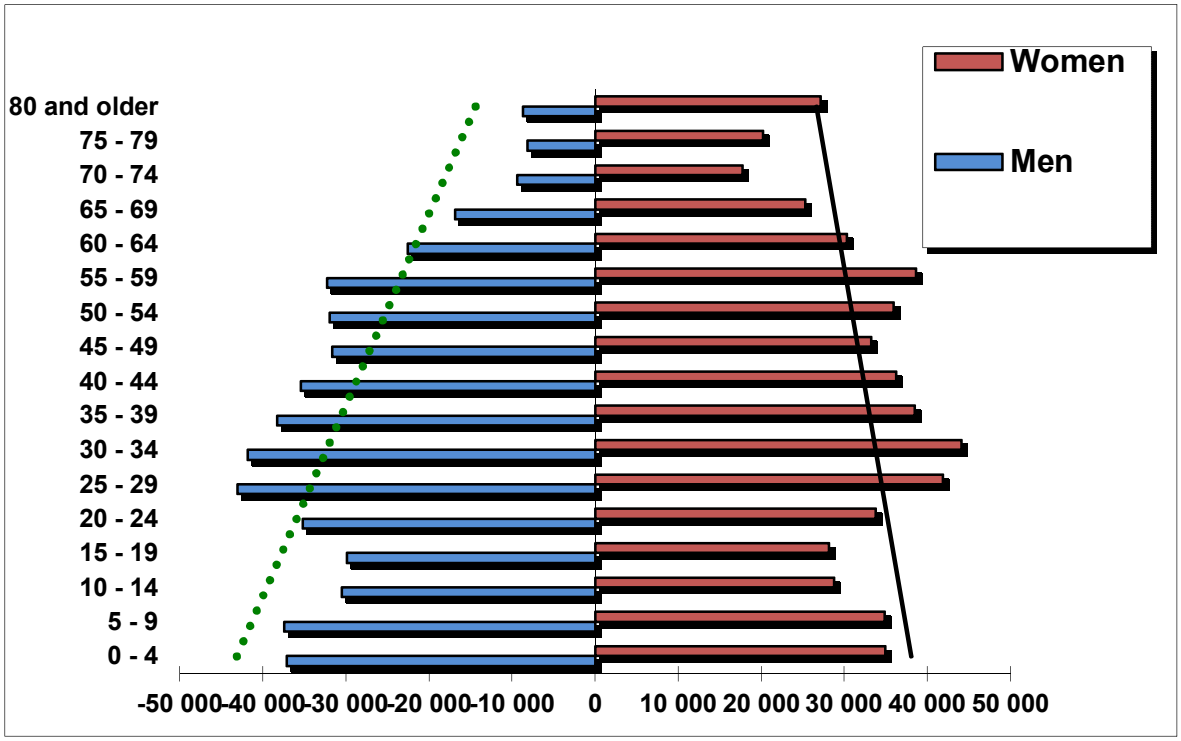
№	District / city	Total	including		Population as of Jan 1, 2016	Population as of Jan 1, 2017	%
			natural	migration			
1	Kamin-Kashyrskyi	299	238	61	63903	64202	100,5
2	Lutskyi	192	80	112	63664	63856	100,3
3	Manevytskyi	66	53	13	54451	54517	100,1
4	Ratnivskyi	36	80	–44	52183	52219	100,1
5	Kovel city	59	92	–33	69235	69294	100,1
6	Kivertsivskyi	–94	8	–102	63945	63851	99,9
7	Lyubeshivskyi	–54	27	–81	36041	35987	99,9
8	Rozhyshchenskyi	–30	–101	71	39288	39258	99,9
9	Lutsk city	–417	462	–879	217450	217033	99,8
10	Horokhivskyi	–104	–315	211	51710	51606	99,8
11	Kovelskyi	–97	–56	–41	40449	40352	99,8
12	Volodymyr-Volynskyi city	–165	–91	–74	39306	39141	99,6
13	Lyubomlskyi	–157	–169	12	39552	39395	99,6
14	Shatskyi	–71	–53	–18	16955	16884	99,6
15	Lokachynskyi	–120	–60	–60	22357	22237	99,5
16	Starovyzhivskyi	–141	–68	–73	30518	30377	99,5
17	Novovolynsk city	–358	–173	–185	57742	57384	99,4
18	Ivanychivskyi	–194	–145	–49	32155	31961	99,4
19	Volodymyr-Volynskyi	–159	–99	–60	25457	25298	99,4
20	Turiyskyi	–205	–169	–36	26307	26102	99,2
	Volyn	**–1714**	**–459**	**–1255**	**1042668**	**1040954**	**99,8**

Source: own work (Main Department of Statistics in Volyn oblast)

The Fig. 5 shows that in 10 years the problem of the labor resources deficiency will be more serious than today. The problem of aging from its economic aspect was well studied by economists of the Czech Republic, their forecasts are quite applicable to Ukrainian realities (Arltova et al., 2016). Therefore, the city authorities and all those who manage human resources in the city should already deal with the problem of human capital as the most valuable resource for the successful development of the city, and not just maintain its territory for the sake of simple existence. “Substantial rural-to-urban migration of people with few skills, little

education, and no savings" (Kresl, et al.b 2020) requires the creation of comfortable conditions for professionals.

Figure 5 Sex and age structure of the population, Volyn region, as of January 1, 2017



Source: own work (Main Department of Statistics in Volyn oblast)

CONCLUSIONS

Conceptions of city development are in the focus of interest of many scientists; all of them consider that the conceptions of the smart city, the city branding, the marketing city, the urban metabolism, the sustainable development, etc. need a more comprehensive in content and time framework document based on socio-economic indicators of the city, and aimed at solving not only development but also current issues.

An analysis of the socio-economic indicators of the city of Lutsk for the period 2008–2018 in the main spheres of its life was done at the request of the Lutsk City Council to form the Strategy of City Development, which should be based on measurable goals and a time frame for their achievement. Management strategies respond to such a request.

To form measurable goals, we recommend using the approach of primary identification of spheres of life (Golovakha, Panina, 1997), as well as sociological and statistical data for their measurement. To study various urban systems, it is necessary to involve citizens in the process of urban planning, in particular professionals from certain spheres, scientists, urbanists, etc.

The data of sociological studies of the Sociological Research Laboratory of Lesya Ukrainka Eastern European National University indicates that the residents of Lutsk reoriented themselves from material problems to more important social, political and professional needs. At the same time, the demographic problem has become especially noticeable for city residents, consisting in the outflow of young people from the city and the need for social inclusion of the elderly. The demographic situation in the city is aggravated by the problems of population aging, increased professional migration, low migration inflows, etc. Negative demographic trends and territorial limitation of the city depend on the result of the decentralization reform in Volyn region.

The statistics of the socio-economic activity of the city show an improvement in a number of economic indicators: the city budget ($, USA) and the average annual growth rate of sales of one enterprise ($, USA), the number of enterprises and employees employed there in (respectively, the number of unemployed people is decreasing), etc. The public transport sphere needs updating. The indices show the presence of the shadow economy. Here the paradox is revealed: retail turnover is decreasing, and sales volumes by enterprises are increasing.

The garbage collection paradox has been identified in the housing and communal services. It consists in a significant increase in garbage taken out with a slight increase in the population of the city and its economic activity.

The negative dynamics of retail turnover, the level of payment for utilities, crime rates, etc., does not allow us to testify to the improvement of the well-being of city residents.

The spheres of education and health care in Lutsk are determined by insufficient funding, the first sphere is mainly state, the second sphere is characterized by the demand for private medical services (with an increase in the number of population, the demand for services in polyclinics decreases).

Sociological and statistical data demonstrate the primacy of resolving some of the issues related to the quality of human capital in the cooperation of scientists, city authorities, business and the public sector. The practical recommendations are as follows. The starting point of any decision is the expansion of the city limits, which is made possible by the reform of decentralization with the subsequent mandatory planning of social infrastructure. Social infrastructure should be developed in a competitive environment of public and private enterprises (in particular, preschools, out-of-school institutions, and schools, rehabilitation centers, geriatric institutions, etc.). The city authorities must demonstrate economic attractiveness for the activities of enterprises in order to register them in the city and support non-shadow activities, and planning taking into account not only the city limits but also

demographic trends, including the number and quality of transport units, etc. Educational, cultural and scientific programs initiated by the city authorities should be a priority for Lutsk to be a powerful cultural center.

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