

ACTA UNIVERSITATIS CAROLINAE

AUC GEOGRAPHICA



55
1/2020

AUC Geographica is licensed under a Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

© Charles University, 2020
ISSN 0300-5402 (Print)
ISSN 2336-1980 (Online)

The impact of external institutional shocks on Russian regions

Irina V. Danilova¹, Olga A. Bogdanova¹, Angelika V. Karpushkina²,
Tatiana M. Karetnikova^{3,*}

¹ State and Municipal Administration South Ural State University (National Research University),
Department of Economic Theory, Regional Economy, Russia

² South Ural State University (National Research University), Department of Economic Security, Russia

³ State and Municipal Administration South Ural State University (National Research University),
Department of Economic Theory, Regional Economy, Russia

* Corresponding author: karetnikova.susu@bk.ru

ABSTRACT

The aim is to assess the susceptibility of the regional economy to shocks associated with unexpected changes in institutional rules, trading instruments, as well as accession to international organizations. The impulse response approach to the study of shocks served as a methodological basis. The authors propose and test a new methodological approach that consists in identifying regions characterized by persistent development or a potential for changing the gross regional product as a response to an external shock impulse. It also allows to determine resonant factors that affect the vulnerability, depth and scale of economic consequences. The study reveals that an external institutional shock influences the economic development of regions in various ways, which is due to a number of vulnerability factors. This leads to the formation of territories that differ in the level of susceptibility to shocks and possess the ability to maintain the trend of economic development.

KEYWORDS

external institutional shocks; vulnerability; vulnerability factors; regional development; persistence

Received: 6 December 2018

Accepted: 9 February 2020

Published: 14 May 2020

Danilova, I. V., Bogdanova, O. A., Karpushkina, A. V., Karetnikova, T. M. (2020): The impact of external institutional shocks on Russian regions. *AUC Geographica* 55(1), 3–14
<https://doi.org/10.14712/23361980.2020.7>

© 2020 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

Under conditions of free trade and intensive interaction among countries, external shocks, due to changes in world markets, political events, and institutional rules, affect countries and, in particular, regions. A shock can have different consequences depending on the degree of region's openness, the level of its development and industrial structure.

An external institutional shock implies unexpected changes in the norms, rules, procedures, and instruments that regulate foreign economic interactions. These changes introduce uncertainty and unpredictability in the reaction of economic subjects (companies, the population) and lead to unpredictable changes in the parameters of regional development, which can be due to the introduction or adjustment of rules in connection with the formation of interstate interaction (for example, customs unions), the accession to international economic organizations (for example, the WTO), and the unexpected application of trading instruments (for example, imposing sanctions).

The authors classified external institutional shocks based on the following criteria:

- 1) duration (shocks with a limited or unlimited duration);
- 2) the intensity of the shock impulse (one-time changes or a set of measures; shocks that affect trade and economic relations or investments, or both spheres at the same time).

The practical significance of such a classification is related to the fact that the records of institutional changes causing a shock will allow singling out the following types of shocks: a) Temporary shocks, such as the influence of organizations introduced over a limited period. Theoretically, this kind of shocks do not cause fundamental changes in economic development trends (sanctions are typically imposed for a short period, therefore, sanctions and anti-sanctions are considered temporary shocks. Examples of exceptions are medium-level sanctions against Iran and Russia. b) Permanent shocks associated with a set of institutional changes and having an unlimited duration. These shocks change the institutional regime of foreign economic relations and the trend of regional economic development over a long period (illustrated by the accession of Russia to the WTO, the formation of the Customs Union, and the Eurasian Economic Union).

This article suggests that institutional shocks, as unpredictable events, can cause uneven regional consequences in spatially inhomogeneous large countries, which is due to different sets of economic factors that can strengthen or neutralize the impact of a shock. In other words, the specifics of a regional economy predetermines the scale of consequences (the ability to change or maintain the trend of economic development) and affects the status of the region – 'vulnerable' or 'invulnerable' to shocks.

An external institutional shock spreads over a regional economy due to the following factors:

- 1) changes in the institutional rules of foreign trade or foreign investments affect the decisions of companies and the population on production and consumption;
- 2) there is a change in the scale of foreign trade operations, import and export prices, business activity, as well as the size and rate of GRP growth.

The properties of persistence/non-persistence were used to assess the effects of a shock on regional development. Persistence is viewed as the preservation of the long-term impact of a shock on the dynamics of the gross product, which is manifested in a significant change in the previous pattern of its growth without the possibility of returning to it in the future. Non-persistence is characterized by short-term fluctuations of economic parameters followed by a restoration of the current development trend in the economy. Accordingly, depending on their reaction to institutional shocks, regions are divided into two types: vulnerable and invulnerable. The reaction depends on a specific set of 'vulnerability' factors (or factors resonant to a shock).

The economies of a number of countries, including Russia, are currently under the influence of external institutional shocks, namely:

- 1) the intensification of integration processes and the consistent formation of the Customs and the Eurasian Economic Union, as well as the accession of Russia to the WTO;
- 2) striking changes in the directions of the trading policy and its instruments: the defensive change in trade barriers during the crisis in 2008-2009, trade and economic sanctions and retaliatory anti-sanctions.

A wide range of external institutional shocks are clearly observed in Russia, a spatially large and heterogeneous country with significant regional inequalities due to natural and climatic conditions, the historical peculiarities of land development and the location of production, regional resources, and transport routes, as well as proximity to major financial centers. The weight of external institutional shocks, in combination with a high level of regional differentiation, predetermines the authors' interest in studying the impact of shocks on a region based on the example of Russia.

The aim of the work is to assess the consequences of the impact of external institutional shocks on the regional economy in countries with high economic differentiation, using the example of Russia. Differentiation presupposes a significant gap in the level of the socio-economic development of regions. The maximum value of gross regional product per capita exceeds the minimum value of gross regional product per capita 16 times (Bakhtizin, Buchwald, Kolchugin 2017). Regional differentiation, indeed, complicates the process of ensuring the sustainability of the

economic system, which grants the topic of the study with special relevance.

Based on key channels (trade-economic and investment) of the expansion of external institutional shocks in Russia during the period of 2009–2015, the authors identified the factors that indicate the situation of increasing vulnerability. These factors include the diversification level of the industry structure, the level of foreign trade openness, and the activity of investment ties.

2. Literature Review

The study of external shocks intensifies under the conditions of increasing economic openness. The authors of this article used the works of World Bank (2006), Eraydin (2016) and Dominte (2006) as examples, that revealed the impact of changes in world markets and the entire world economy on the stability of economic development. It is especially important to study unexpected institutional changes associated with the rules and instruments of the foreign economic interaction among countries, which is viewed by Shen (2016), Rutherford and Tarr (2006) as an independent factor of destabilizing the economy.

As opposed to deterministic models, the methodological basis for the study of shocks as random influences goes back to the impulse response approach of Slutsky (1937) and Frisch (1933). A shock (impulse) is viewed as a random effect on an economic system, having an exogenous or endogenous nature and triggering the system's adaptation to the impulse.

The research community generally perceives a shock as the prime cause of cyclical fluctuations in economic activity. The study of the mechanisms of the impulse transfer 'along the structural connections of the economic system' (Pilipenko 2011) at the levels of the country and regions is of great scientific interest. In addition to studies of the response to cyclical shocks, there have been attempts to decompose the effects of external impulses, singling out state, industrial and general shocks, as well as idiosyncrasy (hypersensitivity) (Norrbin and Schlagenhauf 1996) factors, supply and demand shocks (Černíková 2010). The methodological basis for the decomposition of the impact of economic shocks goes back to the works of Blanchard and Quah (1989).

Studies on various aspects of an economic system's (of a country or a region) response to shocks, with differentiation of the nature and source of an impulse, the reaction speed, as well as the factors of sensitivity to shocks and various aspects of a system's resistance to shocks represent a vast area of research. An analysis of the impact of demand shocks on various EU countries (Černíková 2010) revealed both positive and negative influences. Moreover, against the background of the asymmetry of price reactions, the economies under analysis showed a nearly identical

rate of response to shocks. An econometric analysis of the impact of shocks on the regions of Greece (Petraikos and Sycharis 2016) revealed an increase in regional inequalities. It is necessary to point out that developed export-oriented regions better adapted to the economic crisis, and solid integration with the EU market did not improve the regional indicators.

The assessment of the impact of shocks on the level of the national economy, including shocks caused by external factors, requires a wide range of diverse instruments for analysis, the most popular of which is the vector autoregression method (Crescenzi et al. 2016; Pesaran et al. 2003; Vorontsovsky et al. 2013). Based on the model designed, the authors of the study draw conclusions about the changes in the dynamics of the economic parameters. The results of the research of Pesaran et al. (2003) and Vorontsovsky et al. (2013) show that the consequences of a shock impact can be long-term or short-term, termed as persistence or non-persistence in development. Persistence of a shock is defined as a 'break point' of an economic system's development trend. The evolution of methods for estimating the stochastic factors in the process of macroeconomic modeling is represented in detail in the research of Vorontsovsky and Dmitriev (2014). Bristow and Healy (2015) point to the importance of time in the process of ensuring the sustainability of a regional economy, using the example of Wales. They argue that short-term adaptation to shocks does not guarantee long-term sustainability in the future.

Crescenzi et al. (2016) broaden the concept of an economy's susceptibility to external shocks. The authors argue that there is a relationship between the effects of shocks and the factors of an economy's vulnerability. The research of Briguglio et al. (2009) presents a wide range of factors that increase vulnerability. They include trade openness, export specialization, dependence on imports, access to the sea, poor ecology, the size of an economy, institutional weakness, and a lack of inbuilt stabilizers. Based on the analysis of the impact of the economic crisis during 2008–2009 on the regions of Poland, Marsik (2014) revealed specific factors in each region, capable of strengthening or neutralizing the effect of a shock. Later, the author conducted a study of eight regions from different European countries and proved the importance of the diversification of the economy and human capital in the process of ensuring stability to shocks (Marsik 2016).

Based on the US data, Crone (2005) and Beckworth (2010) revealed multi-directionality of the impact of monetary shocks on various regions and placed an emphasis on the asymmetry of the response of the 'energy zone' (groups of states exporting energy resources). Using the VAR (or vector autoregression) and SVAR (or structural vector autoregression models), the scholars obtained comparable results. A study based on the VAR model was conducted across groups

of states united by peculiarities of economic cycles. The study led to the conclusion that the monetary policy of states that export energy resources is less sensitive to shocks (Crone 2005). Using the example of the impact of oil shocks on various states, Engermann (2014) observed spatial asymmetry – an atypical reaction of several states to negative shocks when the rest of the regions are insensitive.

The implementation of the VAR model on the example of Australia (Owyang and Wall 2009) showed that the regional response on monetary shocks is determined by three channels of shock distribution. Moreover, the intensity of the recession depends on the concentration of the banking sector in the region, while the size of the recession depends on the peculiarities of the regional industry. Fraser, MacDonald and Mullineux (2012) used the structural vector autoregressive SVAR model to show that regions differ in their response to a monetary shock: most regions have a response similar to changes in nationwide parameters; states in Western Australia and Queensland are more sensitive, which is associated with the low diversification of their economy (the mineral and raw material specialization).

Using the example of East Asian countries, the structural model of VAR with block exogeneity (SVARX) (Allegret, Couharde, Guillaumin 2012) made it possible to evaluate the comparative impact of each shock type on the internal variables of these countries, showing the priority significance of real shocks in comparison with nominal ones. The analysis of the impulse response shows that East Asian countries are more sensitive to the trading than monetary channel.

The use of dynamic stochastic general equilibrium models (DSGE models) in the study of regional response to external shocks is quite a difficult task since the openness of flows within a region (compared to the country level) complicates the modeling of the regional economic system. Although DSGE models allow investigating impulse response functions, they still have limitations. The results of a study of the influence of external and internal shocks on the regional indicators of the Sverdlovsk Oblast in Russia (Serkov 2018) can be quite useful in the management of regional development. It is necessary to point out that the model does not take into account the mutual influence of regions. The mechanisms of this influence are analyzed, for example, in the work of Tamegawa (2012), who proposes a single model for two regions.

A number of researchers attempted to transfer the assessment of the impact of shocks to the meso and micro levels. Thus, using the example of Norwegian peripheral regions, Salamonsen (2015) conducted a multilevel analysis of the impact of an exogenous shock on development processes at the macro and micro levels. The researcher revealed a strong and, interestingly, positive impact of an oil shock on the peripheral municipality, despite the noncontiguity of institutional structures and signs of regional

inequalities. Moreover, the researcher suggested that it is the influence of external shocks that allows overcoming regional inequalities.

Russian research includes the search for the indicators of sustainability of regional development (Ochkin 2018). A number of Russian studies focus on the impact of financial, price (Pilipenko 2015) and demand shocks on the sustainability and balance of the development of economic systems, as well as the issues of shock transfer among countries (Burlachkov and Golovnin 2014) and various responses of countries to global challenges. Bakhtizin, Buchwald, Kolchugin (2017) showed the relationship between the level of differentiation and the cyclical nature of economic development in regions. The indicator of the economy's spatial heterogeneity increases during the recovery phase and decreases during a crisis. Given that the vector of a country's regional development policy focuses on reducing economic differentiation, studies on the impact of shocks are of great practical value.

3. Methods and Data

The research methodology includes three components of analysis.

1. The formulation of an indicator of changes in institutional rules, which aggregates and quantitatively generalizes changes in standard and non-standard measures that have changed for the country, taking into account the structure of the trade and economy of the region.

The regional index of trade restrictions (or RITR) is proposed as an indicator (Danilova and Zimmerman 2014). This index was calculated with regard to an indicator of tariff and non-tariff protection level, which is applied by the country to its trading partners, i.e. general trade restriction index (or OTRI).

The conversion of a country's general trade restrictions index into regional indices is based on the difference in trade policies for each region. Regional differentiation depends on the import volume and structure, as well as on the regional sectoral diversification. The RITR calculation formula for the i -region is:

$$RITR_i = \frac{s_{ai}OTR_{ia} + s_{mi}OTR_{im}}{s_{ai} + s_{mi}} \times D_i \quad (1)$$

OTR_{ia} – agricultural trade restriction index and
 OTR_{im} – industrial trade restriction index;

s_{ai} – share of agricultural imports in the i -region;

s_{mi} – share of industrial imports in the i -region;

D_i – variance of specialization coefficient values. The specialization coefficient (Kd) is defined as the ratio of r -industry production in the i -region to the share of this industry in the country's economy. The greater the value of the r -industry specialization coefficient by the i -region, the average value of the

industry specialization coefficient by the *i*-region, the higher the dispersion value and higher the level of trade barriers for the region are. The regional index of trade restrictions can serve as a tool for monitoring foreign trade policy programs.

Based on the volatility of the RITR value, it is possible to trace changes in trade rules for individual regions and, accordingly, estimate the intensity of the incoming shock impact on the economy.

2. The classification of regions by susceptibility, depending on the quality of persistence. The Hurst index (Hurst et al. 1965) was calculated based on the standardized range (R/σ-analysis) for each region and four analyzed time periods. The method is presented on the example of one of the periods (2000–2012):

a) The average GRP (*x*) growth rates value for a sample of length *N*; for 2000–2012, *N* is equal to 13. Definition of the average value requires the allocation of sub-periods: I – 2000–2012, II – 2001–2012, ..., XII – 2011–2012, and calculation of the average GRP growth rate for each sub-period:

$$\bar{x}_I = \frac{x_{2000} + \dots + x_{2012}}{12}, \bar{x}_{II} = \frac{x_{2001} + \dots + x_{2012}}{11}, \dots, \bar{x}_{XII} = \frac{x_{2011} + x_{2012}}{2} \quad (2)$$

Where $x_{2000}, \dots, x_{2012}$ is the GRP growth rate value for 2000, ..., 2012.

b) For calculating the standardized range, the deviations of the GRP growth rates from the average value for each sub-period 200–2012 are determined:

$$\begin{aligned} z_{I.2000} &= x_{2000} - \bar{x}_I, \dots, z_{I.2012} = x_{2012} - \bar{x}_I \\ z_{II.2001} &= x_{2001} - \bar{x}_{II}, \dots, z_{II.2012} = x_{2012} - \bar{x}_{II} \\ &\dots \\ z_{XII.2011} &= x_{2011} - \bar{x}_{XII}, \dots, z_{XII.2012} = x_{2012} - \bar{x}_{XII} \end{aligned} \quad (3)$$

c) The deviation range for each sub-period is calculated on the basis of the maximum and minimum values for the region concerning the sub-period analyzed:

$$\begin{aligned} R_I &= \max(z_{I.2000}; \dots; z_{I.2012}) - \min(z_{I.2000}; \dots; z_{I.2012}) \\ R_{II} &= \max(z_{II.2001}; \dots; z_{II.2012}) - \min(z_{II.2001}; \dots; z_{II.2012}) \\ &\dots \\ R_{XII} &= \max(z_{XII.2011}; \dots; z_{XII.2012}) - \min(z_{XII.2011}; \dots; z_{XII.2012}) \end{aligned} \quad (4)$$

Where $\max(z_{I.2000}; \dots; z_{I.2012}), \max(z_{II.2001}; \dots; z_{II.2012}), \dots, \max(z_{XII.2011}; \dots; z_{XII.2012})$ – the maximum value of the deviation from the average value for the subperiods I, II, ..., XII; $\min(z_{I.2000}; \dots; z_{I.2012}), \min(z_{II.2001}; \dots; z_{II.2012}), \dots, \min(z_{XII.2011}; \dots; z_{XII.2012})$ – the minimum value of the deviation from the average for the subperiods I, II, ..., XII;

e) The standard deviation (σ) is determined for each sub-period:

$$\begin{aligned} \sigma_I &= \sqrt{\frac{(z_{I.2000} + \dots + z_{I.2012})^2}{12}}, \sigma_{II} = \sqrt{\frac{(z_{II.2001} + \dots + z_{II.2012})^2}{11}}, \\ \dots, \sigma_{XII} &= \sqrt{\frac{(z_{XII.2011} + z_{XII.2012})^2}{2}} \end{aligned} \quad (5)$$

d) The final Hurst (*H*) indicator value in general terms is defined as:

$$\frac{R}{\sigma} = cN^H,$$

where *R* is the set ($R_I, R_{II}, \dots, R_{XII}$); σ is the set ($\sigma_I, \sigma_{II}, \dots, \sigma_{XII}$); *c* is a constant.

After bringing the equation to a linear form, the Hurst index (*H*) for a sample of length *N* is defined as the regression coefficient (the regression line inclination angle):

$$\ln\left(\frac{R}{\sigma}\right) = \ln(c) + H \ln(N)$$

Interpretation of the Hurst exponent values (Table 1).

3) The identification of vulnerability factors for susceptible regions. The authors of the article identified a number of coefficients that allow quantitative representation of vulnerability factors in terms of resonance to a shock, namely:

- a) the diversification level of sectoral structure is estimated with regard to the specialization economy coefficient of the *i*-region (K_d);
- b) the level of foreign trade openness is determined by the following indicators such as export the specialization coefficient (or *Cex.spec*, %) as the export ratio of the *i*-region to the country's export; share of GRP imports (d_{GRP}^{IM}) as the imports percentage of the *i*-region to GRP; the export-import ratio (or *Rex/imp*) as a ratio of the export volume of the *i*-region to import;

Tab. 1 Interval scale for the Hurst exponent.

Value	Characteristics	Classical interpretation	Adapted interval scale
$0 \leq H < 0.5$	Non-persistence	'Return to the average' situation	The impact has the effect of short memory, which is eventually neutralized in the context of a time range. This means that the region's economy is insusceptible.
$H = 0.5$	Random series	This implies the presence of white noise, i.e. fulfillment of some independent, random process. All the events are not correlated.	Implies an independent random process, for which the impact of a shock is not determined.
$0.5 < H \leq 1$	Persistence	Offset stochastic volatility. The closer <i>N</i> is to 0.5, the more noisy noisier the range is and the less pronounced is its trend.	Potential to maintain a long-term impact on a time range; an environment susceptible to shocks.

c) investment related activity, i.e. foreign direct investment share (or FDI) of the i -region in the country's FDI (C_{FDI}) as the ratio of the FDI of the i -region to the FDI of the country; foreign direct investment share in gross investment of the region ($d_{\Sigma I}^{FDI}$) as the ratio of FDI to the main investment of the i -region.

The influence of resonance factors on the susceptibility of regions is estimated by the Vulnerability Index, which is defined as the weighted average of the three most important variable factors: the coefficient of export specialization, the coefficient of the import quota, and the coefficient of foreign direct investment (see Formula 6).

$$I = \sum_{j=1}^3 w_j \bar{k}_j \quad (6)$$

Where w_j is the weight of each of the factors; it is calculated on the basis of the paired correlation coefficients between the Hurst index (H) and each of the three explanatory factors j (see formula 7):

$$w_j = \frac{cor_{jH}}{\sum_{j=1}^3 cor_{jH}} \quad (7)$$

cor_{jH} – the value of the coefficient of correlation between the j -th explanatory factor and the Hurst index (H);

$\sum_{j=1}^3 cor_{jH}$ – the sum of the values of the coefficient of correlation between the indicators of export specialization, import quotas, foreign direct investment, on the one hand, and the Hurst index, on the other.

\bar{k}_j – the average value for each of the factors (j) by regions for the analyzed period.

For comparison purposes, the vulnerability index is defined separately for the group of restrictedly susceptible regions (19) and for the group of unresponsive regions (19) for the period of 2000–2012.

A change in the composite indicator of the Vulnerability Index allows estimating the intensity of the impact of trade and investment flows on the degree of regions' susceptibility to trade shocks and the sustainability of regional development.

Data. The study was conducted based on the data of 80 regions of Russia. The annual statistics of Rosstat for 2009–2015 was used to calculate indicators of the trade and investment channels.

The time series for calculating the Hurst index correspond to the GRP annual growth rate, which is the minimum period published by official statistics by region. The Hurst index was determined for four time periods (2000–2009, 2000–2012, 2000–2014, 2000–2015), which is explained by the need to assess the intermediate effects of external institutional shocks: the accession of Russia to the WTO, the creation of integration and the reduction of trade barriers (2009–2012); the introduction of restrictive sanctions and "antisandictions" (2013–2015).

Data (2000–2012) were used to estimate the vulnerability index, which is explained by the change of

the methodology for calculating the foreign direct investment by the Central Bank of Russia in 2014 and the format of data by regions, which excluded the possibility to use the comparable calculations without modifying the indicator.

4. Results

The assessment of the regional index of trade restrictions for the years of 2009 and 2012, which correspond to the initial dates of drastic changes in the institutional rules, confirmed that the shock of trade liberalization led to a decrease in trade barriers due to the formation of the Customs Union and the preparation for accession to the WTO (Table 2). The RITR decreased from 11.75% to 7.98% (at the mean across the block of regions); the breakdown of regions in terms of the average value reflects the fact that 2/3 of the regions are in the zone of low trade barriers (RITR is below average).

Tab. 2 Fragment of data on the regional index of trade restrictions, %*.

	2009	2012		2009	2012
Vologda Oblast	3.44	1.55	Republic of Karelia	10.46	12.50
Kaluga Oblast	3.53	1.46	Krasnodar Krai	10.77	8.88
Vladimir Oblast	3.62	2.10	Jewish Autonomous Oblast	11.45	9.29
Chuvash Republic	3.92	1.35	South Ossetia-Alania	14.38	12.87
Udmurt Republic	4.24	1.26	Chechen Republic	16.85	16.63
Tver Oblast	4.50	2.01	Tymen Oblast	19.92	5.67
St. Petersburg	4.52	2.57	Arkhangelsk Oblast	20.40	13.22
Smolensk Oblast	4.57	3.70	Kaliningrad Oblast	21.08	16.92
Voronezh Oblast	4.63	4.31	Republic of Ingushetia	21.47	8.14
Leningrad Oblast	4.71	3.77	Chukotka Autonomous Okrug	23.03	14.29
Moscow	7.34	2.95	Republic of Dagestan	23.70	49.91
Republic of Sakha	9.23	6.17	Republic of Altai	28.17	11.38
Orenburg Oblast	10.92	3.44	Republic of Kalmykia	41.09	21.30
			Average regional	11.57	7.98

Source: Authors' calculations using OTRI data (World Bank 2013)

As a result of the trade liberalization shock, changes in the 'input parameter' are ambiguous. The institutional shock led to a decrease in the RITR in the group of regions with low trade barriers by 50% and to an increase in a number of regions by more than 100%. The group of regions with high barriers included agrarian regions or regions that specialize in the fishing industry (the Arkhangelsk Oblast, the Kamchatka Krai, etc.). These sectors are the most protected sectors by countries even when there is an overall increase in openness. The second shock event was

Tab. 3 Values of the Hurst coefficient for all periods under analysis.

Region	H				Region	H			
	2000–2009	2000–2012	2000–2014	2000–2015		2000–2009	2000–2012	2000–2014	2000–2015
Kamchatka Krai	0.3202	0.3403	0.2799	0.3692	Tyumen Oblast	0.5757	0.5030	0.2842	0.3728
Krasnodar Krai	0.5345	0.3795	0.2834	0.3752	Oryol Oblast	0.6148	0.5057	0.2289	0.3373
Tyva Republic	0.4587	0.3883	0.2385	0.3757	Samara Region	0.5424	0.5133	0.2716	0.3590
Republic of Dagestan	0.4016	0.3942	0.269	0.3383	Orenburg Oblast	0.5151	0.5195	0.2235	0.3387
Belgorod Oblast	0.4190	0.3967	0.2092	0.3546	Kostroma Oblast	0.5393	0.5220	0.1871	0.2996
Omsk Oblast	0.6019	0.4029	0.2653	0.3691	Kirov Oblast	0.5453	0.5236	0.2526	0.3851
Chukotka Autonomous Okrug	0.5185	0.4063	0.2151	0.2769	Primorsky Krai	0.4892	0.5236	0.2734	0.3383
North Ossetia-Alania	0.4268	0.4078	0.2589	0.3845	Lipetsk Oblast	0.5368	0.5239	0.2590	0.3499
Kabardino-Balkaria	0.4274	0.4185	0.3326	0.3755	Vologda Oblast	0.5615	0.5270	0.2951	0.3185
Magadan Oblast	0.5538	0.4188	0.2766	0.3609	Smolensk Oblast	0.5612	0.5290	0.2847	0.3759
Republic of Adygea	0.4611	0.4203	0.2663	0.3861	Yaroslavl Oblast	0.5354	0.5313	0.3174	0.3811
Kurgansk Oblast	0.5571	0.4290	0.2202	0.2781	Nizhny Novgorod Oblast	0.5375	0.5340	0.2013	0.3084
Kemerevo Oblast	0.4970	0.4295	0.2140	0.3149	Astrakhan Oblast	0.5815	0.5342	0.3197	0.3975
Zabaykalsky Krai	0.4701	0.4309	0.2591	0.3003	Ryazan Oblast	0.5668	0.5354	0.2226	0.3493
Mari El Republic	0.4418	0.4320	0.2390	0.3491	Murmansk Oblast	0.5417	0.5359	0.3001	0.3761
Arkhangelsk Oblast	0.5216	0.4344	0.2757	0.3854	Rostov Oblast	0.5670	0.5371	0.3053	0.3151
Altai Republic	0.5221	0.4347	0.3132	0.3543	Republic of Ingushetia	0.5410	0.5378	0.3096	0.3998
Voronezh Oblast	0.4911	0.4380	0.2244	0.3450	Tomsk Oblast	0.4206	0.5380	0.2635	0.3624
Karachay-Cherkess Republic	0.4321	0.4436	0.2359	0.3014	Krasnoyarsk Krai	0.3755	0.5382	0.2478	0.3281
Republic of Sakha (Yakutia)	0.4963	0.4486	0.2718	0.3897	Republic of Buryatia	0.5550	0.5393	0.2301	0.3347
Komi Republic	0.4740	0.4510	0.2104	0.2826	Republic of Khakassia	0.5263	0.5439	0.3138	0.4132
Irkutsk Oblast	0.4897	0.4519	0.3043	0.3900	Leningrad Oblast	0.5482	0.5469	0.2903	0.3744
Jewish Autonomous Oblast	0.5711	0.4532	0.2525	0.3181	Kaluga Oblast	0.6099	0.5530	0.2573	0.3451
Republic of Mordovia	0.5005	0.4648	0.2454	0.3837	Stavropol Krai	0.6282	0.5547	0.2420	0.3623
Novgorod Oblast	0.5108	0.4653	0.2413	0.3517	Vladimir Oblast	0.5690	0.5553	0.2219	0.3506
Pskov Oblast	0.5113	0.4671	0.2494	0.3726	Republic of Kalmykia	0.5617	0.5563	0.2582	0.3385
Kursk Oblast	0.4750	0.4676	0.2036	0.3543	Volgograd Oblast	0.5773	0.5572	0.2519	0.3185
Perm Krai	0.4972	0.4686	0.2161	0.2921	Tula Oblast	0.5857	0.5591	0.2925	0.3773
Republic of Bashkortostan	0.5023	0.4689	0.2468	0.3212	Chuvash Republic	0.5557	0.5599	0.1998	0.293
Tambov Oblast	0.5253	0.4703	0.2967	0.4351	Khabarovsk Krai	0.5849	0.5646	0.348	0.4017
Amur Oblast	0.5669	0.4828	0.3298	0.3609	Chelyabinsk Oblast	0.5490	0.5646	0.2203	0.3323
Saratov Oblast	0.5867	0.4891	0.2896	0.3703	Kaliningrad Oblast	0.5529	0.5681	0.2249	0.3259
Sakhalinsk Oblast	0.5677	0.4906	0.2676	0.418	Republic of Tatarstan	0.5616	0.5703	0.3157	0.3300
Sverdlov Oblast	0.5184	0.4908	0.2861	0.3335	Moscow Oblast	0.5816	0.5754	0.1942	0.2831
Ivanovo Oblast	0.5467	0.4910	0.2738	0.3797	Udmurt Republic	0.6033	0.5770	0.2850	0.4010
Republic of Karelia	0.4786	0.4929	0.3004	0.3965	Chechen Republic	0.5547	0.5777	0.1503	0.3074
Ulyanovsk Oblast	0.5310	0.4933	0.2323	0.3172	St. Petersburg	0.6251	0.5877	0.2227	0.3198
Tver Oblast	0.5491	0.4948	0.2108	0.3105	Penza Oblast	0.5963	0.5903	0.2913	0.3896
Novosibirsk Oblast	0.5373	0.4998	0.2779	0.2818	Moscow	0.6629	0.5990	0.2922	0.3727
Altai Krai	0.5123	0.5004	0.2930	0.3657	Bryansk Oblast	0.6113	0.6116	0.2455	0.3621
					Average by region	0.529419	0.497161	0.25964	0.350573

due to sanctions and anti-sanctions in 2013–2015 and a sharp increase in restrictions.

Table 3 shows that in the first time period (2000–2009), the values of the Hurst coefficient in 37 regions are within the interval that indicates a potentially persistent type of economic development (the value is within the interval when the deviation of the time series from the previous growth trajectory is characterized by trend tolerance or the effect of long memory). Non-persistence was observed in 9 regions characterized by a return to the average and the effect of short memory. A random series was revealed only in 34 regions (a random process, for which the determination of the impact of an external shock is impossible).

The assessment of the period of 2000–2012 revealed the following facts: the Hurst coefficient in 42 constituent entities of Russia was within the interval of the non-persistent type of development, 19 regions demonstrated a random range, and 19 were characterized by persistence. This means that the liberalization of institutional rules and the reduction of import trade restrictions turned out to be ‘unsafe’ for 19 regions in terms of sustainability (a potential for persistent development was observed). The additional analysis of the period of 2000–2011 showed that in 11 out of 19 regions, the Hurst coefficient was not within the persistent interval, while the calculation that included the year of 2012 (the authors believe that this was triggered by a shock) revealed a drag of the Hurst coefficient in these regions into a zone that has the potential for long-term shock effects.

Tab 4 The Hurst exponent in the regions with a potential for persistent development (2009, 2011, 2012).

	2000–2009	2000–2011	2000–2012
Leningrad Oblast	0.5482	0.4382	0.5469
Kaluga Oblast	0.6099	0.5625	0.5530
Republic of Tatarstan	0.5616	0.5298	0.5703
Moscow	0.5816	0.5368	0.5754
St. Petersburg	0.6251	0.4916	0.5877
Moscow	0.6629	0.6379	0.5990
Stavropol Krai	0.6282	0.5912	0.5547
Vladimir Oblast	0.5690	0.5084	0.5553
Volgograd Oblast	0.5773	0.5502	0.5572
Tula Oblast	0.5857	0.5278	0.5591
Chuvash Republic	0.5557	0.5006	0.5599
Chelyabinsk Oblast	0.5490	0.5907	0.5646
Udmurt Republic	0.6033	0.6358	0.577
Penza Oblast	0.5963	0.5761	0.5903
Bryansk Oblast	0.6113	0.5951	0.6116
Kaliningrad Oblast	0.5529	0.5335	0.5681
Khabarovsk Krai	0.5849	0.5393	0.5646
Republic of Kalmykia	0.5617	0.4947	0.5563
Chechen Republic	0.5547	0.2702	0.5777

In respect of eight regions, the authors of the study introduced a hypothesis about the stable maintenance of the situation with a high concentration of vulnerabilities. This is explained by the fact that in the initial analysis period of 2000–2009, these regions already belonged to the zone with the potential for persistence (highlighted in a grey background in Table 4).

During the estimation of the Hurst coefficient for the time interval of 2000–2014 and 2000–2015, no regions demonstrated a value typical of the persistent type of economic development. The decrease in the coefficient in the third of the periods under analysis (the period of foreign trade and economic restriction) in all constituent entities of Russia cannot be viewed as a transition of 19 regions susceptible to shocks to a fundamentally new state, i.e. as a shift of their status to susceptible. It is necessary to take into account the following arguments, which allowed attributing these regions to the zone of instability in the economy of Russia and defining them as ‘partially susceptible’:

- 1) the shock impulses under examination (from 2009 to 2012 and from 2012 to 2015) are multidirectional. The effect of liberalization (due to the accession to the WTO and the commencement of the transition period) is nearly neutralized by sanctions/anti-sanctions; restriction came to replace liberalization, which could provoke a counter-turnabout of regional parameters (Table 5 shows the trade and economic parameters of the regions; multidirectionality is highlighted in a grey background);
- 2) the multidirectional dynamics of regional economic development in this period: the recovery growth of 2010–2011 was replaced by stagnant dynamics till 2013 and a drop in production in 2014. Changes in institutional rules ‘knocked out’ the regions of Russia from the path of progressive development, reduced economic activity, and led to a ‘downshift’ of the national production;
- 3) the ‘break-up’ in the development trajectory was manifested in the increase in the deviation of the GRP growth rate from the average value and the decrease in the Hurst coefficient. The high volatility and the sharp recession in 2013–2014 affected the growth of the mean square value deviation, which reduced the values of the Hurst coefficient.

Comparison of the indices for the limited susceptible regions with insensitive and average data for regions of Russia allows the factors identifying the limited susceptible regions to distinguish (Table 5), namely a high level of openness of the economy (for example, 2014. The export specialization coefficient of partially susceptible regions is 3.22%, on average – 1.2%; the import quota value, respectively, was 26.89% and 12.57%; RITR – 5.02% and 7.99% in 2012). The high susceptibility is explained, accordingly, by the fact that the regions are sensitive to the destabilizing effect of changing the rules governing both export and import operations. This should be added to the high level of localization of foreign investment in

Tab. 5 Comparative characteristics of trade-economic and investment parameters of partially susceptible regions.

Regions	RITR, %		Kd				Cex.spec, %				Rex/imp				, %				C _{FDI}		, %					
	2009	2012	2009	2012	2014	2009	2012	2014	2009	2012	2014	2009	2012	2014	2009	2012	2009	2012	2009	2012						
Moscow Oblast	2.67	1.27	0.174	0.196	↑	0.181	↓	0.92	1.06	↑	1.11	↑	0.2	0.17	↓	0.23	↑	29.19	43.08	↑	35.38	↓	13.40	7.40	17.90	8.70
Leningrad Oblast	4.71	3.77	0.285	0.437	↑	0.242	↓	2.36	3.08	↑	3.04	↓	1.96	3.09	↑	3.61	↑	27.02	24.16	↓	23.12	↓	2.11	5.78	5.58	10.16
St. Petersburg	4.52	2.57	0.267	0.278	↑	0.266	↓	4.43	4.46	↑	4.30	↓	0.75	0.64	↓	0.72	↑	38.41	49.54	↑	44.02	↓	7.54	4.77	11.40	7.87
Tatarstan	3.66	1.27	0.262	0.196	↓	0.180	↓	3.64	4.22	↑	3.49	↓	7.01	6.13	↓	4.3	↓	5.66	7.82	↑	9.52	↑	0.71	3.09	1.30	3.86
Kaluga Oblast	3.53	1.46	0.252	0.317	↑	0.256	↓	0.07	0.14	↑	0.12	↓	0.07	0.09	↑	0.11	↑	67.11	91.38	↑	69.09	↓	3.32	3.61	27.84	22.24
Bryansk Oblast	5.64	3.18	0.339	0.256	↓	0.386	↓	0.03	0.08	↑	0.07	↓	0.18	0.25	↑	0.27	↑	14.07	26.59	↑	20.92	↓	0.13	0.07	2.41	0.93
Penza Oblast	5.02	2.12	0.33	0.331	↑	0.288	↓	0.05	0.06	↑	0.04	↓	1.35	1.32	↓	0.85	↓	2.19	3.02	↑	2.84	↓	0.03	0.41	0.32	3.31
Vladimir Oblast	3.62	2.10	0.207	0.197	↓	0.198	↓	0.16	0.15	↓	0.19	↑	0.67	0.54	↓	0.61	↑	12.50	16.22	↑	18.49	↑	1.39	1.13	13.61	10.90
Tula Oblast	3.05	1.72	0.197	0.181	↓	0.218	↓	0.69	0.69	↑	0.72	↑	2.53	2.64	↑	3.08	↑	12.27	13.80	↑	11.22	↓	1.43	0.19	11.79	1.37
Volgograd Oblast	3.97	1.70	0.272	0.285	↑	0.265	↓	0.77	0.84	↑	0.82	↓	5.69	7.17	↑	2.43	↓	5.85	7.65	↑	9.32	↑	0.02	0.01	0.14	5.16
Chelyabinsk Oblast	3.41	1.16	0.237	0.22	↓	0.210	↑	1.63	1.12	↓	1.01	↓	1.90	1.53	↓	1.90	↑	14.89	14.10	↓	10.52	↓	0.14	0.16	0.48	0.51
Stavropol Krai	5.20	3.58	0.338	0.463	↑	0.557	↑	0.30	0.21	↓	0.22	↑	2.17	1.34	↓	1.27	↓	4.81	5.84	↑	6.18	↑	0.30	0.20	2.00	0.98
Chuvash Republic	3.92	1.35	0.286	0.311	↑	0.286	↓	0.07	0.04	↓	0.03	↓	1.48	0.55	↓	0.64	↑	3.09	5.24	↑	4.53	↓	0.29	0.04	4.07	0.39
Udmurt Republic	4.42	1.26	0.303	0.280	↓	0.283	↓	0.06	0.41	↑	0.25	↓	0.96	5.34	↑	1.57	↓	2.62	3.34	↑	4.06	↑	0.36	0.03	4.46	0.27
Average for partially susceptible regions	8.45	5.02	0.540	0.692	↑	0.686	↓	3.37	3.58	↑	3.22	↓	1.52	1.89	↑	1.34	↓	20.12	26.64	↑	26.89	↑	3.57	2.75	6.91	5.08
Average for in-susceptible regions	17.82	13.70	1.067	1.775	↑	1.717	↑	0.35	0.34	↓	0.33	↓	3.24	2.30	↓	2.83	↓	4.59	7.00	↑	6.13	↓	0.86	0.82	2.55	7.37
Average by regions (80 regions)	11.57	7.99	0.608	0.925	↑	0.931	↓	1.17	0.76	↓	1.20	↑	2.84	3.10	↑	3.50	↑	10.04	12.47	↑	12.57	↑	2.69	1.39	4.52	4.78

Tab. 6 The Vulnerability Index of partially susceptible and insusceptible regions to external institutional shocks.

Factors and Vulnerability Index	Partially susceptible regions (19)			Insusceptible regions (19)		
	cor_{jH}	\bar{k}	w	cor_{jH}	\bar{k}	w
Cex.spec.	0.379	3.027	0.485	-0.073	0.337	0.646
d_{GRP}^{IM}	0.072	26.524	0.092	0.039	6.998	0.345
C_{FDI}	0.330	3.199	0.423	-0.001	0.927	0.009
I	I = 5.261			I = 2.640		

the economy of partially susceptible regions: the indicator “regional share in the country’s foreign direct investment” is 2.75%, while the regional average is 1.39%; the indicator “the share of foreign investments in the aggregate investments of the region” – 5.08% and 4.78%, respectively. High rates of foreign trade and foreign investment are good conductors of institutional shocks, especially with their simultaneous effects (as was observed in Russia), multiplying destabilizing effects and increase the likelihood of a change in the trend of regional development.

The implementation of a particular type of susceptibility in a region depends on the peculiarities of the economic environment in which the shock impulse occurs. Partially susceptible regions have a more vulnerable economy due to the concentration of factors of trade-economic and investment channels. The vulnerability index is 5.261 and higher than that of insusceptible regions (Table 6).

The high vulnerability of partially susceptible regions to the trade liberalization shock was due to a number of factors, such as the high trade openness manifested in the regions’ export specialization (the coefficient of export specialization exceeds the average value of all regions five times) and the significant share of import in the GRP (the import quota is twice higher compared with other subjects of Russia), as well as in the high intensity of investment ties with the foreign sector due to the localization of the FDI in most partially susceptible regions (the coefficient of FDI is higher than the average for all regions).

5. Discussion

In the context of the impulse response approach, the authors of the article studied the effects of institutional shocks on 80 regions of Russia. To prove the hypothesis put forward, they relied on the concept of ‘persistence’ introduced by Pesaran et al. (2003) and Vorontsovsky et al. (2013). The research results are basically consistent with the analysis of the above-mentioned authors. Nevertheless, the parameters that are assessed and the instruments for our analysis are quite different from theirs. Analyzing the effect of an external shock on the national economy, Vorontsovsky et al. (2013) uses short-term statistics and builds a vector autoregression model based on it. In this article, we use the GPR annual values to

estimate the Hurst exponent since no short-term statistics is available for the regions under analysis. As a matter of fact, the instruments used by the authors of this study are better adapted for assessing consequences at the regional level (simultaneously ensuring comparability at the country level) and allow proving the first part of the hypothesis concerning the differences in the level of susceptibility among regions.

We agree with the position of Masik (2014), who argues that each region is unique in terms of the factors whose concentration allows determining the final vulnerability or sustainability of the economy. Narrowing the range of vulnerability factors (Briguglio et al. 2009) in terms of trade-economic and investment channels, we proved the second part of the hypothesis, which implies that the differences in the consequences of an external influence among regions are due to a different set of economic factors. A susceptible environment is related to the concentration of vulnerability factors, such as the high level of foreign trade openness, as well as the high intensity of investment ties with the foreign sector. We propose a set of instruments for assessing the differential response of regions to institutional shocks. Compared to the results of studies on regional asymmetries of shock influences on the example of the United States (Crone 2005; Beckworth 2010), Australia (Owyang and Wall 2009; Fraser, MacDonald, Mullineux 2012), Norway (Salamonsen 2015), Greece (Petraikos and Sycharis 2016), and Great Britain (Bristow and Healy 2015), our approach not only records differences in the response of regional economic systems but also has a predictive potential. The quality of persistence/non-persistence allows filtering out the resonant factors of a region’s susceptibility to a shock and formulating a prolonged view of the vulnerability or sustainability of a region. The study confirms the second part of the hypothesis about the impact of the specifics of a regional economic system on the scale of shock consequences and the susceptibility of a region. For comparison, Vorontsovsky et al. (2016) propose to predict the response of a regional economic system to shocks by determining the time point when the development trend and ‘turning points’, while Bakhtizin, Buchwald, Kulchugin (2017) suggest to assess the perspectives of regional differentiation in terms of cyclical development. Conceptually, our approach does not contradict the above-mentioned studies.

In addition, this study contributes three provisions to the scientific literature. First, the review of the theory of shocks and the analysis of current facts of economic development in Russia allows expanding the understanding of the spatial impact of external institutional shocks in the context of the socio-economic heterogeneity of federal countries and the economic openness. In particular, we have identified the institutional component of a shock, as well as the types of possible consequences of the expansion of external institutional shocks. Secondly, the main difference of our methodological approach includes the proposed index of the 'input' indicator of shock strikes – the regional index of trade restrictions (RITR), which accumulates the specific impact of shock changes in standard and non-standard measures on the regions (there is no such indicator for regions). Thirdly, the results allowed identifying 19 regions whose economies are very sensitive to shocks (partially susceptible). About 45% of the total GRP from all regions falls on the partially susceptible regions, i.e. they form an important territorial zone that is unstable to shocks. Consequently, there is an increase in the overall susceptibility of the country's economy to any institutional shocks in the sphere of foreign economic cooperation. Another contribution of the study is related to the identification of the institutional type of shocks.

6. Conclusion

We have proposed a methodological approach to assessing the impact of external institutional shocks and tested it relying on the 2009–2015 data. The results of the analysis allowed singling out 19 regions with limited susceptibility to external institutional shocks out of the analyzed 80 regions, which means that 23.8% of regions are potentially predisposed to an unstable state and a distraction of the development direction. Among these regions, the authors single out regions with a steady concentration of vulnerability factors (for example, the Chelyabinsk Oblast) and those that are distinguished by high openness to trade and/or investment channels. A highly important territorial zone of increased susceptibility and vulnerability can lead to significant economic and social consequences for the entire country. The proposed approach to assessing the susceptibility of regions has practical importance for public authorities since it provides a basis for choosing priority areas for improving sustainability, creating a system of diagnostics and stress testing of the regional economy in the context of identifying vulnerabilities to shock impulses.

The consistent implementation of the proposed methodological approach in the future will allow generating a sufficient database for a comparative assessment of the dynamics of the development of regions with non-persistent and persistent types of economic

development, as well as assessing the cyclical nature of the response of a regional economic system to institutional shocks. Further studies may be related to the situation of the counter-turnabout of regional parameters. In addition, it is of scientific interest to study the mechanisms of the expansion and responsiveness of regional economic systems to institutional shocks.

Acknowledgements

The work was supported by Act 211 Government of the Russian Federation, contract No. 02.A03.21.0011.

References

- Allegret, J. P., Couharde, C., Guillaumin, C. (2012): The impact of external shocks in East Asia: Lessons from a structural VAR model with block exogeneity. *Economie International* 4(132), 35–89, [https://doi.org/10.1016/S2110-7017\(13\)60058-X](https://doi.org/10.1016/S2110-7017(13)60058-X).
- Bakhtizin, A. R., Buchwald, E. M., Kolchugina, A. V. (2017): Economic differentiation of Russian regions: new assessments and patterns. *ETAP*, 1. Retrieved from <https://cyberleninka.ru/article/n/ekonomicheskaya-differentsiatsiya-regionov-rossii-novye-otsenki-i-zakonomernosti> (Accessed on September 16, 2018).
- Beckworth, D. (2010): One nation under the FED? The asymmetric effects of US monetary policy and its implications for the United States. *Journal of Macroeconomics* 32(3), 732–746, <https://doi.org/10.1016/j.jmacro.2009.12.001>.
- Blanchard, O. J., Quah, D. (1989): The Dynamics Effects of Aggregate Demand and Supply disturbances. *American Economic Review* 79(4), 655–673.
- Briguglio, L., Cordina, G., Farrugia, N., Vella, S. (2009): Economic Vulnerability and Resilience Concepts and Measurements. *Oxford Development Studies* 37(3), 229–247, <https://doi.org/10.1080/13600810903089893>.
- Bristow, G., Healy, A. (2015): Crisis response, choice and resilience: Insights from complexity thinking. *Cambridge Journal of Regions, Economy and Society* 8(2), 241–256, <https://doi.org/10.1093/cjres/rsv002>.
- Burlachkov, V. K., Golovnin, M. Yu. (2014): External shocks to the economy and monetary system of Russia and Belarus: consequences and ways to overcome. Moscow, IE RAS.
- Černíková, P. (2010): The analysis of supply and demand shocks adjustment dynamics of the EU-15 countries. *Ekonomická revue – Central European Review of Economic Issues* 13, 219–229, <https://doi.org/10.7327/cerei.2010.12.04>.
- Crescenzi, R., Luca, D., Milio, S. (2016): The geography of the economic crisis in Europe: national macroeconomic conditions, regional structural factors and short-term economic performance. *Cambridge Journal of Regions, Economy and Society* 9(1), 13–32, <https://doi.org/10.1093/cjres/rsw001>.
- Crone, T. (2005): An Alternative Definition of Economic Regions in the United States Based on Similarities in State Business Cycles. *Review of Economics and*

- Statistics 87(4), 617–626, <https://doi.org/10.1162/003465305775098224>.
- Danilova, I. V., Zimmermann, O. A. (2014): Adaptive costs of regions in the conditions of Russia's accession to the WTO. Newsletter of the South Ural State University. Series: Economics and Management 3(8), 15–23.
- Dominte, L. (2006): Determinants and effects of economic openness. *Analele Stiintifice ale Universitatii "Alexandru Ioan Cuza" din Iasi (Alexandru Ioan Cuza University)* 52, 243–245.
- Engemann, K. M., Owyang, M. T., Wall, H. J. (2014): Where is an oil shock? *Journal of Regional Science* 54(2), 169–185, <https://doi.org/10.1111/jors.12071>.
- Eraydin, A. (2016): The role of regional policies along with the external and endogenous factors in the resilience of regions. *Cambridge Journal of Regions, Economy and Society* 9(1), 217–234, <https://doi.org/10.1093/cjres/rsv026>.
- Fraser, P., MacDonald, G. A., Mullineux, A. W. (2012): Regional monetary policy: an Australian perspective. *Regional Studies* 48(8), 1419–1433, <https://doi.org/10.1080/00343404.2012.714897>.
- Frisch, R. (1933): *Propagation Problems and Impulse Problems in Dynamic Economics (Economic Essays in Honour of Gustav Cassel, Allen and Unwin, London)*. The Foundations of Econometric Analysis, 333–346, <https://doi.org/10.1017/CBO9781139170116.032>.
- Hurst, H. E., Black, R. P., Simaika, Y. M. (1965): *Long-Term Storage: An Experimental Study*. Constable and Co. Ltd., London.
- Masik, G. (2014): Economic resilience. The case study of Pomorskie Region. *Economy and Business Journal* 8(1), 72–83.
- Masik, G. (2016): Economic resilience: the case of Poland and certain European regions. *Geographia Polonica* 89(4), 457–471, <https://doi.org/10.7163/GPol.0068>.
- Norrbin, S. C., Schlagenhauf, D. E. (1996): The role of international factors in the business cycle: A multi-country study. *Journal of International Economics* 40(1–2), 85–104, [https://doi.org/10.1016/0022-1996\(95\)01385-7](https://doi.org/10.1016/0022-1996(95)01385-7).
- Ochkin, R. O. (2018): Theoretical and methodological aspects of studying external shocks as a determining factor of national and state economic interests. *Theoretical Economics* 2(44), 161–167.
- Owyang, M. T., Wall, H. J. (2009): Regional VARs and the channel of monetary policy. *Applied Economics Letters* 16, 1191–1194, <https://doi.org/10.1080/13504850701367247>.
- Pesaran, M. H., Pierse, R. G., Lee K. C. (1993): Persistence, cointegration, and aggregation: a disaggregated analysis of output fluctuations in the U.S. economy. *Journal of Econometrics* 56, 57–88, [https://doi.org/10.1016/0304-4076\(93\)90101-A](https://doi.org/10.1016/0304-4076(93)90101-A).
- Petrakos, G., Psacharis, Y. (2016): The spatial aspects of economic crisis in Greece. *Cambridge Journal of Regions, Economy and Society* 9(1), 137–152, <https://doi.org/10.1093/cjres/rsv028>.
- Pilipenko, Z. A. (2011): Shocks and national economic systems: a mechanism for breaking down structural ties. *Questions of Economics and Law* 10, 55–60.
- Pilipenko, O. I. (2015): Economic shocks and cyclical development of national financial systems. Newsletter of the RUDN University. Series: Economics 1, 103–111.
- Regions of Russia (2017): Socio-economic parameters. Statistical collection. Retrieved from http://www.gks.ru/free_doc/doc_2017/region/reg-pok17.pdf.
- Rutherford, T., Tarr, D. (2006): Regional Impacts of Russia's Accession to the WTO. Policy Research Working Paper. Retrieved from <http://documents.worldbank.org/curated/en/675751468095997989/pdf/wps40150BOX031113B01tell0JS0when0done1.pdf>. <https://doi.org/10.1596/1813-9450-4015>.
- Salamonsen, K. (2015): Exogenous Shocks as Drivers of Growth in Peripheral Regions. – A Multilevel Approach to Regional Development. The Business School at University of Nordland, Oslo.
- Serkov, L. A. (2018): Analysis of the impact of structural shocks on endogenous variables of a compact regional dynamic model. Newsletter of the Ural Federation University. Economics and Management Series 17(3), 445–470.
- Shen, X., Tsai, K. S. (2016): Institutional adaptability in China: local developmental models under changing economic conditions. *World Development* 87, 107–127, <https://doi.org/10.1016/j.worlddev.2016.06.010>.
- Slutsky, E. E. (1937): The Summation of Random Causes as the Source of Cyclic Processes. *Econometrica* 5(2), 105–146, <https://doi.org/10.2307/1907241>.
- Tamegawa, K. (2012): Two-region DSGE analysis of regionally targeted fiscal policy. *The Review of Regional Studies* 42, 249–263.
- Vorontsovsky, A. V., Gilenko, E. V., Petrova, E. V. (2013): Problems of forecasting economic growth under external shocks. *Finance and Business* 1, 23–38.
- Vorontsovsky, A. V., Dmitriev, A. L. (2014): Modeling of economic growth taking into account the uncertainty of macroeconomic factors: a historical overview, problems and development perspectives. Newsletter of St. Petersburg State University. Series 5: Economy 2, 5–31.
- Vorontsovsky, A. V., Vyunenkov, L. F. (2016): Forecasting the development of the economy based on the stochastic model of economic growth with a consideration of the turning point. Newsletter of St. Petersburg State University. Series 5: Economics 4, 4–32, <https://doi.org/10.21638/11701/spbu05.2016.401>.
- World Bank (2006): IDA Countries and Exogenous shocks. International Development Association. Resource Mobilization (FRM) October 2006. Retrieved from <http://documents.worldbank.org/curated/en/688251468045233773/pdf/37909.pdf>.
- World Bank (2013): Trade policy barriers. An obstacle to export diversification in Eurasia. The World Bank, Poverty Reduction and Economic Management Network, International Trade Department May 2013. Policy Research Working Paper 6434. Retrieved from <http://documents.worldbank.org/curated/en/193891467993726441/pdf/wps6434.pdf>.

Quantum and tempo effects of changes during the demographic transition: classification of world sub-regions and selected countries

Marta Mustafina*

Charles University, Faculty of Science, Department of Demography and Geodemography, Prague, Czechia

* Corresponding author: marta_mustafina@yahoo.com

ABSTRACT

The development patterns of both historical and contemporary demographic transitions are essential in understanding the outcomes of age structure changes among the countries. Existing literature analyzing demographic transition as a precursor to population ageing does not classify countries or regions worldwide by the scale and dynamics of those processes. The aim of this paper is to identify and describe the differentiation of quantum and tempo effects of changes taking place during the demographic transition through classification of sub-regions and selected countries worldwide. The results of this research, based on the historical vital statistics starting from as far as 1736 and future projections until 2100, feature how sub-regions and selected countries in the world are differentiated in terms of the scale and dynamics of the demographic transition process. The analysis reveals the fact that majority of sub-regions in the world tend(ed) to undergo long transitions lasting over 70 years, though contemporary demographic transitions demonstrate higher intensity and higher maximal rates of natural increase. African sub-regions are expected to experience relatively long processes of declining birth and death rates and estimated to complete their demographic transition in 90 years on average. The fastest processes, however, are observed in South America and Eastern Asia where some countries like China, for instance, completed their transitions in just 50 years. The scale and dynamics of demographic transition processes can serve as the ground for further research of challenges and development opportunities resulting from ageing societies during consequent post-transitional stages.

KEYWORDS

demographic transition; tempo; quantum; world; sub-regions

Received: 9 October 2019

Accepted: 29 January 2020

Published: 27 March 2020

Mustafina, M. (2020): Quantum and tempo effects of changes during the demographic transition: classification of world sub-regions and selected countries. *AUC Geographica* 55(1), 15–26

<https://doi.org/10.14712/23361980.2020.3>

© 2020 The Author. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

Demographic transition is perhaps one of the most prominent events of population development in the modern history of mankind. Before the demographic transition that started in Europe during the end of the 18th century the length of human life was short with high fertility and mortality resulting in slow growth and young population (Dyson 2010). The first real explosion of population growth occurred during the Industrial Revolution and cultural advancement of the human society. That was the force that encouraged a remarkable population growth which spread around the world as a result of migration. It was for the very first time in history when it became possible to refer to the world's population as a single entity reacting to one dynamic process but with a different extent (Davis 1945).

Every country in the world at some point is affected by the demographic transition. It is a process of transformation of demographic patterns manifested by the changes in the levels of mortality, fertility and the age structure of individual populations (Pavlik 1980). The demographic transition has distinctive onsets and developments in different countries resulting in the process of population ageing. Existing literature analyzing demographic transition as a precursor to population ageing does not classify countries or regions worldwide by the scale and dynamics of those processes. Most of the literature examines current stages of the demographic transition in certain countries or the transition processes in some countries that have been completed. This research attempts to identify and classify sub-regions and selected countries worldwide by quantum and tempo of their demographic transition processes. Population ageing will eventually knock at the door of each society and the demographic transition being the forerunner of the ageing process is a very important subject for analysis. It is essential to study the development patterns of both historical and contemporary demographic transitions which could shed light to the outcomes of age structure changes among the countries. The scope and dynamics of transition processes can serve as the ground for further studies of challenges and development opportunities resulting from ageing societies.

2. Background

Also called as “demographic revolution”, it is referred to as “demographic transition” by most of the authors. In classic literature, Frank Notestein is considered to be the one who first coined the term “demographic transition” (Rowland 2003). Rowland, referring to Notestein as the originator of the demographic transition theory distinguishes the classical pattern of the transition process through four main stages as follows: pre-transitional stage characterized by high

birth and death rates; second stage of early transition when the death rates start to decline while birth rates remain high resulting in a rapid population growth; third stage of late transition when birth rates start to fall as well; and the post-transitional stage characterized by already low birth and death rates.

Pavlik (1980: 135), in his article “The Theory of Demographic Revolution”, describes the demographic transition as “revolutionary and in the entire history of mankind unique quantitative-qualitative transformation of the nature of the demographic pattern, which in its outcome is most marked in changes in the levels of fertility, mortality and the age structure of individual populations”. The onset of Industrial Revolution resulted in the first real explosion of population growth along with cultural advancement of the society. That was the force that initiated a remarkable population growth in Europe.

The main elements characterizing the demographic transition process including declining fertility and mortality are common across all countries worldwide, albeit the scope and dynamics are not. Dyson (2010) in his book “Population and Development: The Demographic Transition” provides comprehensive narration of the transition supported by empirical precision indicating the fact that the main processes of transition are influenced by the geographical, historical, socio-economic, cultural, institutional and other circumstances resulting in different timing and speed of their (processes) development in one country or another.

The first prerequisites of demographic transition emerged with mortality decline in Northern and Western Europe. Mortality started to drop towards the end of the 18th century but with a slower pace compared to more prominent decline that followed during the 19th as well as 20th century (Caldwell 2006; Dyson 2010). There exists some extent of difference in opinions regarding the causes of mortality declines at early stages. Davis (1945), for instance, put improved food supply at the forefront of the causes for mortality declines in Northern and Western Europe. He argued that more advanced agricultural techniques together with transportation and invention of machinery were part of the enhancing technological system which resulted in reduction of famine, undernourishment and susceptibility to deceases. Kirk (1996) gives credit to improved infrastructure along with rising incomes and development of the modern state which, on his opinion, were the most important grounds for alleviation of famine and also epidemics that led to decreasing mortality at early periods of transition. Later stages of declining mortality, however, were induced by medical revolution according to Kirk. Dyson (2010), on his turn, also emphasizes on the improvement in mortality as a result of “gradual emergence of the modern nation-state” and progress in reducing deaths from infectious diseases while arguing that the role of nutritional improvement in

mortality alleviation at early stages of transition has been overestimated. According to Caldwell (2006), the Industrial Revolution was not only motivated by changes in production ways but the great advances in technical and scientific spheres together with the levels of education. All of the aforementioned causes resulted in the mortality decline to their own extent as the Age of Enlightenment was symbolized by the changes in all spheres including economic, social, political, and health aspects. A meaningful remark in this regard was made by Kingsley Davis stating that: "The decline in mortality was itself a cause as well as a result of the social transformation, because it made possible a longer and more efficient use of human energies" (Davis 1945: 5).

Reduction in marriage through its postponement or rise in the proportion of single women stand to be the causes of fertility decline while in the long run the main context lies in birth control (Dyson 2010). Landry (1987) argues that birth control use in France at the early stage of demographic transition was the result of people's strivings to retain the already achieved living standards. More children started to survive as a result of declines in child and, further on, infant mortality what lead to conscious control of fertility.

Back in 1986, Ron Lesthaege and Dirk van de Kaa have suggested the new concept of the second demographic transition (van de Kaa 2008). The new era of "individualistic family model" emerged in exchange for existing "bourgeois family model". Lesthaege (2010) noted that the first signs of the second demographic transition made appearance in the 1950s. The family that was considered to strengthen its positions as a social institution during the first transition started dissolving with manifestation of rising rates of divorce, abortion and cohabitation (van de Kaa 2008). The notion of the second demographic transition has been, however, criticized by some of the authors. Massimo Livi Bacci, for instance, stated that there is only one "demographic transition in world history" whose opinion was shared by Robert Cliquet and David Coleman according to whom it is merely a continuation or a "secondary feature", while Zdenek Pavlik and Alexander Vishnevsky favor a single "demographic revolution" (van de Kaa 2008; Lesthaege 2010).

3. Data and methods

Vital statistics prior 1950 used for the analysis of demographic transitions by sub-regions and selected countries was obtained mostly from Chesnais (1992). Crude birth and death rates along with rate of natural increase were the main indicators used in the analysis of vital statistics. The author analyzed 67 countries, 38 of which were less developed. Additional sources of vital series included the 2017 Revision of the World Population Prospects, Human Mortality Database and

Statistical Offices of Czechia, Japan and Sweden. Medium fertility projections have been used in the analysis of this paper.

The presented data from Chesnais (1992) for developed countries is of high quality unlike the data for developing countries. Inaccuracy of crude rates, however, differs by country where countries in advanced stages of transition – "on the point of returning to an equilibrium of feeble growth" – are less problematic in this regard (Chesnais 1992: 50). Among African countries more reliable and complete data is available for Northern Africa. Tunisia and Egypt are the two countries of the sub-region with the most reliable data according to Chesnais. Latin America presents comparatively accurate data that covers a larger period and is available for a substantial number of countries. The extent of availability and quality of data in Asia is somewhere between Africa and Latin America. Sri Lanka is one of the few Asian countries which has more or less complete civil registration for a relatively long period of time. On that account, the quality of historical vital series for developing countries used in this study may not be classified as completely precise.

It would have been more appropriate to use moving averages to smooth out vital series data but since the data post 1950 was mostly obtained from the World Population Prospects of the United Nations (UN) 2017 Revision, which is available only in averages over the five-year periods (from mid-year (t) to mid-year ($t + 5$) centered on 1 January year ($t + 3$)), it was not possible. As a result, moving averages method was not used in the analysis in order to avoid inconsistency.

There are different criteria for identifying the beginning and end points of demographic transition proposed by different authors. Criteria for delimiting the length of demographic transitions in this paper have been adopted from the methods proposed by Chesnais (1992). The beginning of the demographic transition ($T\alpha$) is marked by the starting-point of a continuous decline in mortality rates (a decline which is not followed by a return to higher rates than those preceding the point from continuous decline). The end of the demographic transition ($T\omega$) is indicated by the point where natural increase returns (a period of at least five years) to the rate equal to or less than that of the period preceding the onset of the transition. Two additional points are also considered with regards to mortality: firstly, "mortality is not yet very low, which enables us to discount subsequent improvements and to recognize that the equilibrium at a given level is only provisional (as in certain European countries at the time of the 1930s depression)" and secondly, "mortality is very low, less than the level just cited; only then do we have the point at which the previous trend has been overcome" (Chesnais 1992: 14).

Classification of sub-regions and selected countries by the scale and dynamics of their demographic transitions was developed by the author based on

the methods offered by Chesnais (1992). The countries were classified according to the maximal natural increase rate (NIR) and divided into three groups: less than 2% per year, 2–3% per year and over 3% per year. Countries and sub-regions were assigned to a particular NIR category based on the maximal rate of natural increase per year observed over at least a decade. The length of the transition exceeding 70 years was considered to be “long” and the duration of less than 70 years as “short”.

4. Demographic transition profiles around the world

Historical and contemporary transitions differences are very important when it comes to comparing the phenomenon’s tempo and quantum effects. The earlier transitions which have mostly been completed by today were rather gradual while the more recent transitions have faster processes.

The countries with vital rates illustrations below were chosen based on the pioneering stance in terms of the demographic transition process in the sub-regions they belong to. Countries of Western and Northern Europe being among the first to have undergone unprecedented declines of death and later on birth rates are considered to be the avant-garde of the demographic transition. One of the best examples of early transitions in Northern Europe is Sweden (Fig. 1). It is one of the few countries that has the

luxury of continuous historical data availability and the transition model of Sweden almost exactly matches the classical demographic transition model (DTM).

Sweden’s crude birth and death rates were fluctuating in the range of 25–35 per 1000 people during pre-transitional stage. Death rates started declining steadily in the beginning of the 19th century (around 1810–1815) while birth rates underwent continued fall starting from circa 1875. The demographic transition in Sweden ended circa 1955–1960 when NIR fell to approximately 5 per 1000 which marked the starting point of its lasting return to the level less than that of the period preceding the onset date of the transition.

France was among the pioneers of demographic transition in Western Europe as well, though it has atypical model as NIR here was rather flat (Fig. 2). Birth and death rates fluctuated around 35–40 per 1000 persons at pre-transitional stage. Fertility decline originated very early compared to other countries of Western Europe. The onset of the transition process was marked around 1790–1795, which was an apparent starting point of a continuous mortality decline. France completed its demographic transition around 1970–1975 when fertility and mortality rates accounted for 17 births and 11 deaths per 1000, respectively.

In Central Europe, Czechia has the longest historical vital rates series available. That gives the possibility to trace the onset of the transition process. The beginning of the continuous decline in mortality was marked during 1865–1870 when the rate was registered at an average of 31.3 per 1000 and

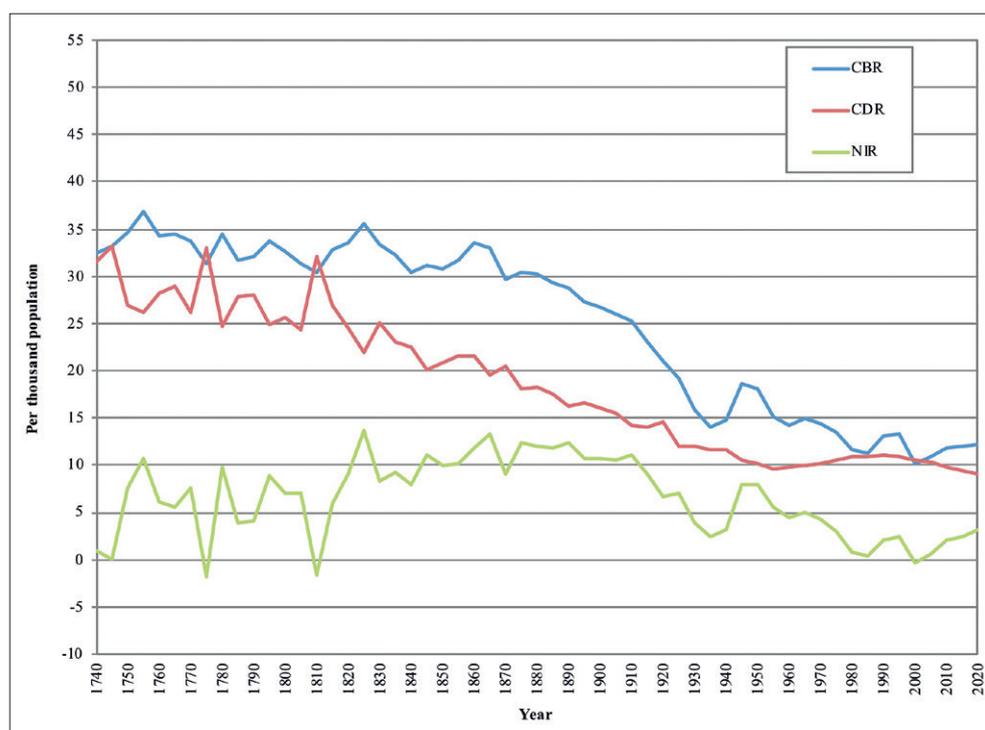


Fig. 1 Vital rates in Sweden, five-year periods, 1735–2100.

Sources: Statistics Sweden 2015, Chesnais 1992, United Nations 2017, and own calculations.

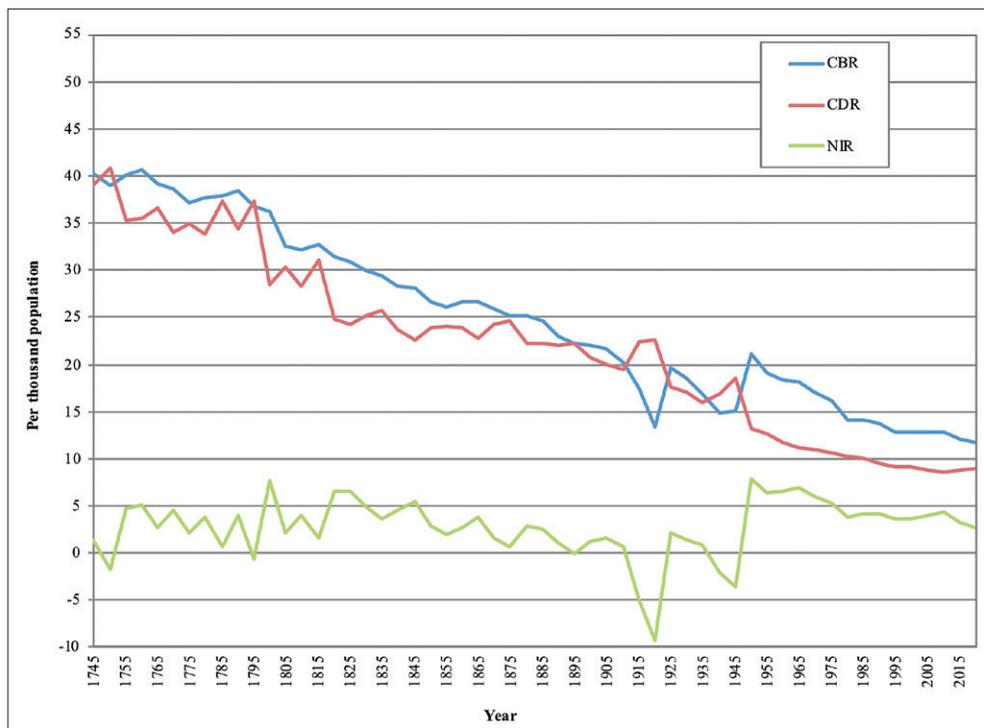


Fig. 2 Vital rates in France, five-year periods, 1740–2100. Sources: Human Mortality Database, Chesnais 1992, United Nations 2017, and own calculations.

never returned to that level again (Fig. 3). Continuous decline in fertility started around 1870–1875 onwards when the last peak was registered at 39.6 births per 1000 people. The demographic transition here ended circa 1930–1935.

If we take a look at Japan, continuous fertility and mortality decline occurred around 1920–1925 here (Fig. 4). Very rapid fertility decline (from 30.1 to 18.0 births per 1000) took place during the period of 1950–1960 which was the outcome of the

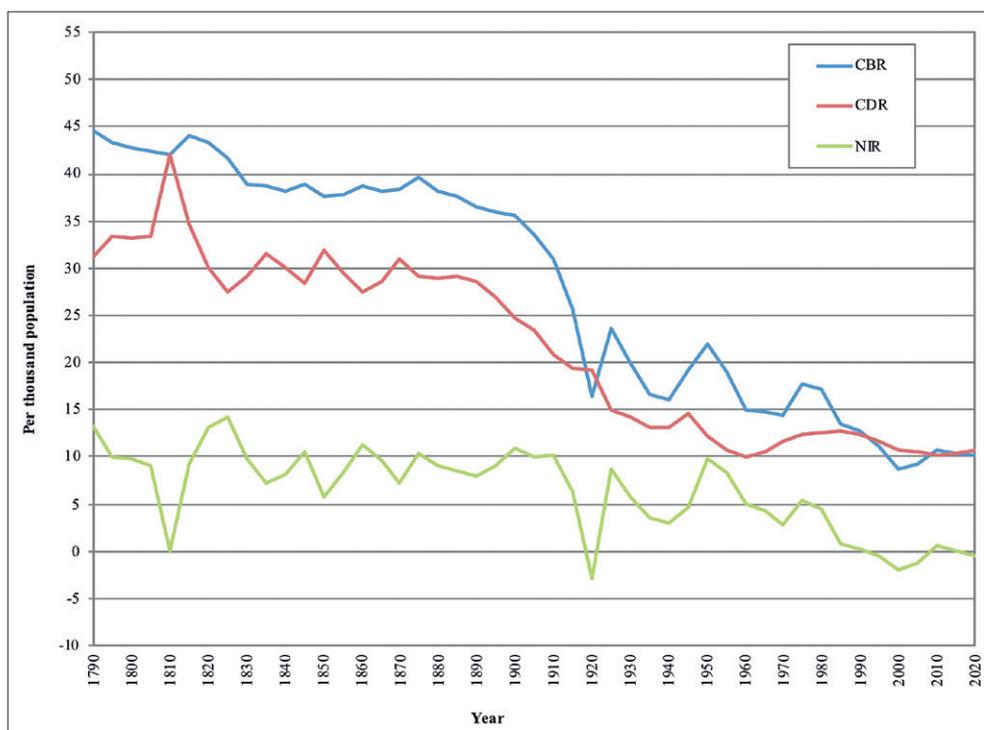


Fig. 3 Vital rates in Czechia, five-year periods, 1785–2100. Sources: Czech Statistical Office 2015, United Nations 2017, and own calculations.

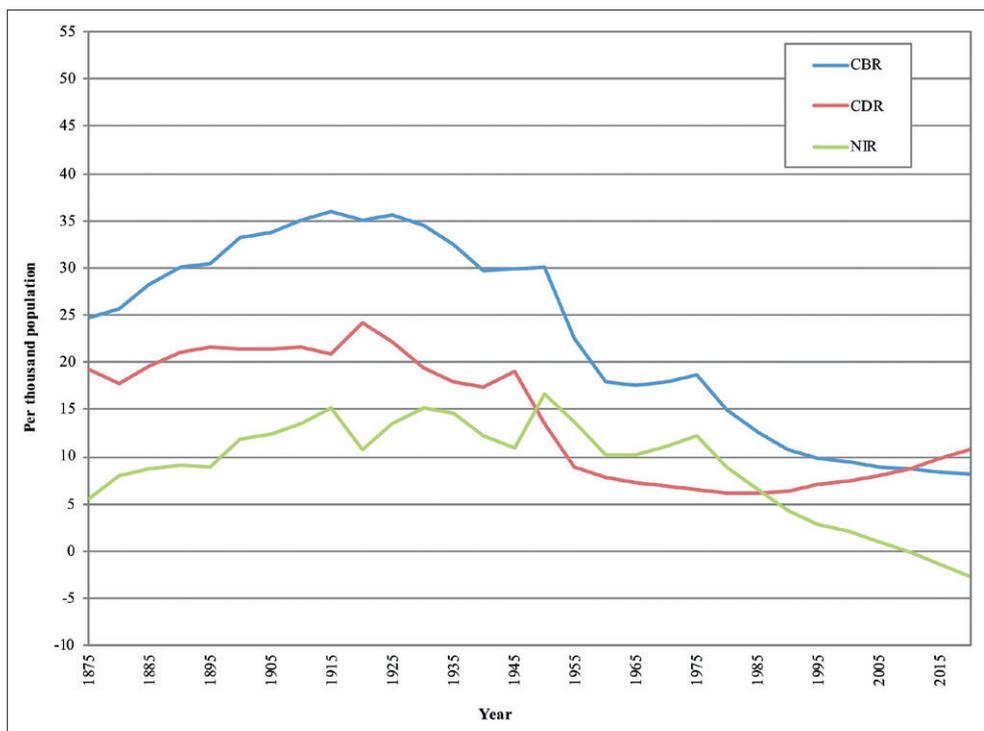


Fig. 4 Vital rates in Japan, five-year periods, 1870–2100. Sources: Statistics Japan 1996, United Nations 2017, and own calculations.

eugenic population policy established in 1948 (Chesnais 1992). Adopted in 1948, “Eugenic Protection Law” aimed, as stated in the first Article, “to prevent birth of inferior descendants from the eugenic

point of view, and to protect life and health of mother, as well” (Tsuchiya 1997). According to the law, sterilization was permitted with his/her and partner’s consent. As noted by Tsuchiya, along with voluntary

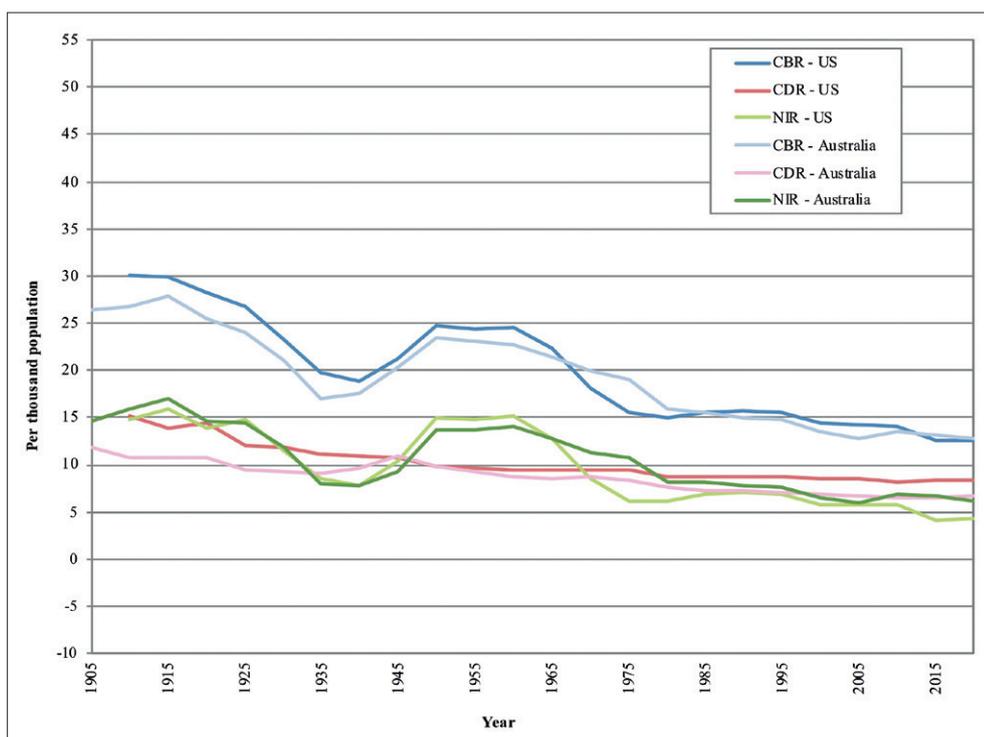


Fig. 5 Vital rates in the United States and Australia, five-year periods, 1900–2100. Sources: Chesnais 1992, United Nations 2017, and own calculations.

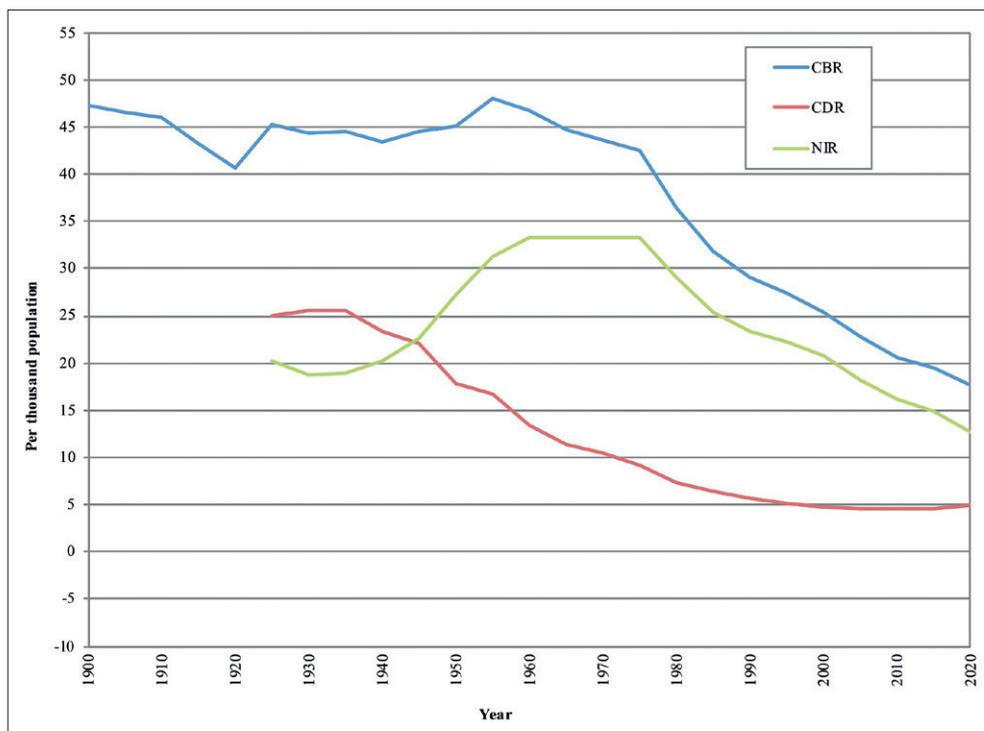


Fig. 6 Vital rates in Mexico, five-year periods, 1895–2100. Sources: Chesnais 1992, United Nations 2017, and own calculations.

sterilization, the law also permitted involuntary sterilization of population with intellectual or mental disabilities during 1948–1996. The demographic transition ended around 1975–1980 in Japan.

Australia and the United States have been showing somewhat similar trend of vital rates since the beginning of the 20th century (Fig. 5). Historical vital series prior 1900 are not available which makes it difficult

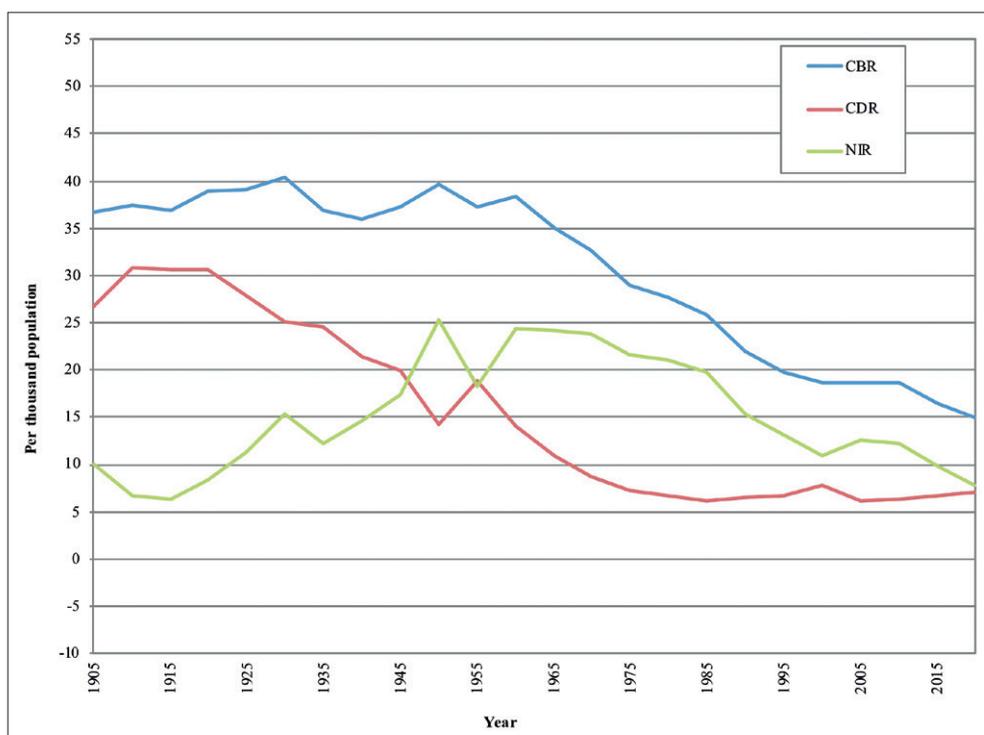


Fig. 7 Vital rates in Sri Lanka, five-year periods, 1900–2100. Sources: Chesnais 1992, United Nations 2017, and own calculations.

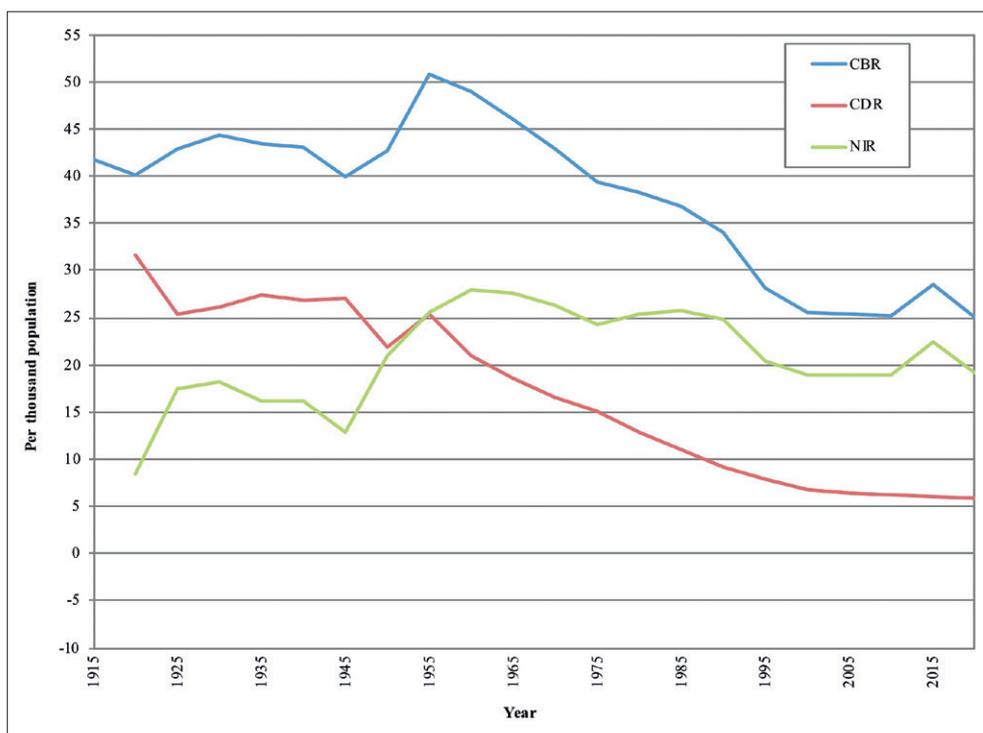


Fig. 8 Vital rates in Egypt, five-year periods, 1910–2100.
Sources: Chesnais 1992, United Nations 2017, and own calculations.

to determine the start of the demographic transition as mortality at that point is already low and fertility is decreasing.

As for the developing countries, vital rates in Mexico more or less follow the pattern of the classic DTM during the first stages (Fig. 6). The start of the continuous decline in mortality is observed during 1935–1940 followed by a decline in fertility around 1950–1955. Rapid decline of fertility starting from 1975–1980 resulted in a continuous slowdown of natural increase (United Nations 2017). Mexico has completed its demographic transition process during 2000–2005.

In Southern Asia, Sri Lanka was among the first countries to undergo the process of demographic transition. Death rate started to continuously decline as early as 1920–1925 when it decreased to 27.8 per 1000 without returning to that level again (Fig. 7). Uninterrupted and very steep decline in birth rates has been observed since 1960. The demographic transition process in Sri Lanka has just come to end during 2010–2015.

Egypt in Northern Africa has started its demographic transition right after the mid-20th century when mortality started to decrease followed by a fertility decline just a decade later (Fig. 8). Demographic transition in Egypt is expected to come to an end during 2015–2020 according to United Nations (2017) medium variant projections.

The demographic transition profiles of the developing countries as opposed to the developed ones

have demonstrated two distinctive features including later decline in mortality and fertility and a more rapid progress with higher intensity.

5. Results

Being an inescapable phenomenon, demographic transition is going to eventually affect all of the countries worldwide. Vital processes around the world develop under different circumstances including various historical, social, cultural and economic conditions. As a result, there exists no single uniform model of demographic transition, though, all of the countries follow a particular pattern of transition stages where mortality decline precedes fertility decline.

To our knowledge, none of the existing literature analyzing demographic transition classifies countries or regions worldwide by the scale and dynamics of those processes. Most of the literature analyzes current stages of certain developing nations or completed transitions of few developed countries. Population projections provided by the UN within the 2017 Revision of the World Population Prospects present an opportunity to analyze the scale and dynamics of the demographic transition for developing countries.

Countries of Europe, Americas, Australia/New Zealand, and some Asian countries including China (inclusive of Hong Kong), Japan, Malaysia, Singapore, South Korea, North Korea and Cyprus have completed their demographic transition as of today. The

other countries are still undergoing the demographic transition most of which are expected to terminate by mid-century apart from many African countries where the transition process will not be completed until a few decades later. (Chesnais 1992; United Nations 2017)

The analysis of the scale and dynamics of the demographic transitions in the world was based on identification and examination of the duration of those transitions by sub-regions as well as the weighted averages of maximal NIR per year observed during those periods. Lack of historical data series however hinders the analysis of some transitions within sub-regions. Apart from Africa, most of the sub-regions were analyzed mainly based on data provided in Chesnais (1992) which covers 67 countries worldwide. Hence, only countries with available data were grouped into sub-regions they are part of. Lists of included countries are indicated under the Tables.

European sub-regions along with Northern America and Australia/New Zealand are characterized by intermediary rates of natural increase not exceeding 2% with long transitions lasting on average from 70 years up to as long as over a century and a half. The oldest and longest demographic transitions have been observed in Europe, Northern America and Australia/New Zealand. Albania and France represent atypical cases (Tab. 1). Albania in comparison to Southern Europe has started its transition much later having the highest rates of natural increase of about 3.3% and shortest duration of the transition. France,

in its turn, demonstrates the lowest rates of natural increase below 1% and the longest transition in the world.

Asian countries are substantially diverse in the aspects of maximal NIR and the duration of transitions (Tab. 2). Eastern Asia and South-Eastern Asia are the most heterogeneous in that sense. Therefore, countries from those sub-regions have been analyzed separately since grouped analysis would not produce adequate results. Japan, for instance, has the lowest maximal NIR of around 1.7%. Hong Kong represents probably the shortest transition of around 40 years while having very high rates of natural increase above 3%. China followed a similar pattern in terms of the beginning and duration of the demographic transition but with lower maximal NIR of approximately 2.7%. Singapore also completed its transition process in 50 years like China but 20 years earlier and with much higher NIR. Mongolia, unlike other countries of Eastern Asia is undergoing relatively long transition which is expected to end around the year 2040. Southern Asia has been divided into two groups based on the differences in maximal rates of natural increase. Central Asian sub-region is characterized by very high NIR with the beginning of the demographic transition in the 1950s that is projected to last until circa 2030. Western Asia has been the last sub-region in Asia to commence with the transition process around the

Tab. 1. Length and dynamics of demographic transitions in Europe, Northern America, and Australia/New Zealand.

Sub-region/Country	Duration	Maximal rate of natural increase per year (%)
Northern Europe	over 70 years	1–2
Western Europe	over 70 years	1–2
France	over 70 years	<1
Central Europe	over 70 years	1–2
Southern Europe	over 70 years	1–2
Albania	less than 70 years	>3
Eastern Europe	over 70 years	1–2
Northern America*	over 70 years	1–2
Australia/New Zealand*	over 70 years	1–2

Notes: Northern Europe: Denmark, Finland, Norway, Sweden, and United Kingdom. Western Europe: Belgium, France, Netherlands, and Switzerland. Central Europe: Austria, Czechia, Germany, Hungary, and Poland. Southern Europe: Albania, Bosnia and Herzegovina, Croatia, TFYR Macedonia, Montenegro, Serbia, Slovenia, Greece, Italy, Portugal, and Spain. Eastern Europe: Belarus, Bulgaria, Romania, Russia, and Ukraine. Northern America: Canada and United States.

* It is not possible to trace the onset of demographic transition in countries historically populated by immigrants due to data unavailability. The proposed lengths are approximate, based on calculations of Chesnais (1992) who used the estimations for life expectancy or infant mortality.

Sources: Chesnais 1992, United Nations 2017, and own calculations.

Tab. 2. Length and dynamics of demographic transitions in Asian sub-regions and selected countries.

Sub-region/Country	Duration	Maximal rate of natural increase per year (%)
China	less than 70 years	2–3
Japan	less than 70 years	1–2
South and North Korea	over 70 years	2–3
Hong Kong	less than 70 years	>3
Mongolia	over 70 years	2–3
Central Asia	over 70 years	>3
Southern Asia I	over 70 years	2–3
Southern Asia II	over 70 years	>3
Sri Lanka	over 70 years	2–3
Afghanistan	over 70 years	>3
Singapore	less than 70 years	>3
Malaysia	over 70 years	>3
Philippines	over 70 years	2–3
Cyprus	over 70 years	2–3
Western Asia	over 70 years	>3
Yemen	over 70 years	>3

Notes: Central Asia: Uzbekistan, Turkmenistan, Kazakhstan, and Kyrgyzstan. Southern Asia I: India, Bhutan, Nepal, Pakistan, and Sri Lanka. Southern Asia II: Afghanistan, Bangladesh, Iran, and Maldives. Western Asia: Bahrain, Cyprus, Oman, Saudi Arabia, Palestine, Syria, and Yemen.

Sources: Bolormaa 2011, Chesnais 1992, Kim 1994, United Nations 2017, and own calculations.

1960s with a projected end around the 2030s. Yemen being an extreme case with maximal NIR above 4% started undergoing the process only around the year 1980. Sri Lanka, as mentioned above, has an atypical model for its region where the process initiated much earlier around 1920 with relatively high NIR.

American sub-regions (excluding Northern America) experienced much higher NIR and shorter durations of transitions lasting on average 60 to 70 years (Tab. 3). Despite the fact that American sub-regions started to undergo declining mortality and fertility rates much later than the European ones, they have already reached the culmination of the process by today. To distinguish relatively homogenous groups of countries, South America has been split into two groups because of rather substantial differences in maximal NIR. Argentina is one of the exceptions in the region that underwent a century long transition having followed the trait of the European transition model. Caribbean countries experienced the shortest transitions in the region, lasting around 60 years on average with an exception of Jamaica, for instance, which had longer transition process and higher maximal NIR.

Tab. 3 Length and dynamics of demographic transitions in American sub-regions and selected countries.

Sub-region/Country	Duration	Maximal rate of natural increase per year (%)
Central America	over 70 years	>3
South America I	less than 70 years	2–3
South America II	less than 70 years	>3
Argentina*	over 70 years	1–2
Caribbean	less than 70 years	2–3
Jamaica	over 70 years	>3

Notes: Central America: Costa Rica, Mexico, Panama, and El Salvador.
 South America I: Argentina, Brazil, Chile, Ecuador, Peru, and Uruguay.
 South America II: Colombia, Venezuela, and Suriname.
 Caribbean: Cuba, Jamaica, Puerto Rico, and Trinidad and Tobago.
 * Ibid.

Sources: Chesnais 1992, United Nations 2017, and own calculations.

Africa is the last region to undergo the demographic transition process with relatively high maximal NIR (Tab. 4). Eastern and Middle Africa are expected to likely end their transition process by around 2060 having started circa 1970. Western Africa illustrates the latest transition in the region that has started only around 1980 and is projected to end by approximately 2070 while Northern Africa should be the first African sub-region to complete its transition around the year 2030.

Six main types of demographic transitions have been identified according to their duration (long transitions lasting over 70 years and short transitions less than 70 years respectively) and the maximal rate of natural increase (below 2%, 2–3% and over 3%) (Tab. 5).

Tab. 4 Length and dynamics of demographic transitions in African sub-regions.

Sub-region/Country	Duration	Maximal rate of natural increase per year (%)
Northern Africa	over 70 years	2–3
Eastern Africa	over 70 years	>3
Middle Africa	over 70 years	2–3
Southern Africa	over 70 years	2–3
Western Africa	over 70 years	2–3

Notes: African sub-regions are represented by all of the countries belonging to those areas based on UN classification.

Sources: United Nations 2017 and own calculations.

Tab. 5 Classification of the scale and dynamics of the demographic transitions in the world by sub-regions and selected countries.

Type I – Long low transition Duration: longer than 70 years Rate of natural increase (%): <2	Type II – Short low transition Duration: shorter than 70 years Rate of natural increase (%): <2
Northern Europe Western Europe Central Europe Southern Europe Eastern Europe Northern America Argentina (South America) Australia/New Zealand	Japan (Eastern Asia)
Type III – Long intermediate transition Duration: longer than 70 years Rate of natural increase (%): 2–3	Type IV – Short intermediate transition Duration: shorter than 70 years Rate of natural increase (%): 2–3
South and North Korea (Eastern Asia) Mongolia (Eastern Asia) Southern Asia I Sri Lanka (Southern Asia) Philippines (South-Eastern Asia) Cyprus (Western Asia) Northern Africa Middle Africa Southern Africa Western Africa	South America I Caribbean China (Eastern Asia)
Type V – Long high transition Duration: longer than 70 years Rate of natural increase (%): >3	Type VI – Short high transition Duration: shorter than 70 years Rate of natural increase (%): >3
Central America Jamaica and Trinidad and Tobago (Caribbean) Central Asia Southern Asia II Afghanistan (Southern Asia) Malaysia (South-Eastern Asia) Western Asia Eastern Africa	Albania (Southern Europe) South America II Hong Kong (Eastern Asia) Singapore (South-Eastern Asia)

Sources: Author's own study based on data from Bolormaa 2011, Chesnais 1992, Kim 1994, and United Nations 2017.

The classification of sub-regions and selected countries by the scale and dynamics of transitions clearly depicts their homogeneity as well as heterogeneity based on vital rates development. Table 5

shows that European sub-regions are quite homogeneous in terms of the period it took them to transition from high birth and death rates to low birth and death rates. Japan is perhaps the most unique case being the only country falling under the second type of short low transition as the process there lasted only around 65 years with considerably low NIR not exceeding 1.7%. It is interesting to see that some countries of Central America, Central Asia, Western Asia and Eastern Africa belong to the same type of long and high transition. There are just a few countries that underwent short transition with intermediate and high maximal rates of natural increase around 2–3% and above 3% respectively.

The results of the analysis reveal the fact that majority of the sub-regions around the world tend to undergo long transitions lasting over 70 years. Even African contemporary transitions are expected to have relatively long processes of declining birth and death rates according to medium variant projections of United Nations (2017). The fastest processes are observed in Eastern Asia and South America.

6. Conclusions

This research paper has identified the demographic changes taking place during the transition process and classified the sub-regions and selected countries worldwide by quantum and tempo of the process. First, the demographic transitions by selected countries which were the pioneers of the process in the regions they belong to have been analyzed in detail. Then, the sub-regions and selected countries with atypical cases have been classified based on the quantum and tempo of their demographic transitions. The results show that the countries that have already completed their transition process until today include those of Europe, Americas, Australia/New Zealand, and some countries from Asia including China (inclusive of Hong Kong), Japan, Malaysia, Singapore, South Korea, North Korea and Cyprus. The rest of the countries are still in the process most of which are expected to complete it by mid-century or even later. The analysis has also revealed the fact that the majority of the sub-regions in the world tend to undergo long transitions lasting over 70 years, but contemporary demographic transition processes have higher intensity with higher maximal rates of natural increase. France along with countries of Northern Europe experienced the longest historical transitions stretched over the period of approximately 150 years and over, which started as early as the end of the 18th and the very beginning of the 19th century respectively. Even contemporary transitions in Africa are expected to have relatively long processes of declining birth and death rates according to UN medium variant projections where transitions are estimated to last for an average of 90 years.

The fastest processes are observed in Eastern Asia and South America. Suchwise, China and Singapore completed their transitions in just 50 years.

Demographic transition brings along inescapable changes in the age structures that lead to the ageing of population. The growth of the number and proportion of older persons started to accelerate towards the end of the 20th century as a result of a rapid increase that started in the developing world. The phenomenon of demographic transition followed by population ageing has to be perceived as an inevitable outcome of the progress our societies are going through.

Acknowledgements

This research was supported by the SVV project No. 260425 of the Grant Agency of Charles University.

References

- Bolormaa, T. (2011): The Impact of Demographic Changes in the Development Policy of Mongolia. Paper presented at UNFPA Symposium on the Impact of Demographic Change in Thailand, Bangkok, 27–28 April.
- Caldwell, J. C. (2006): *Demographic Transition Theory*. Dordrecht: Springer.
- Chesnais, J. C. (1992): *The Demographic Transition – Stages, Patterns, and Economic Implications*. Oxford: Clarendon Press.
- Czech Statistical Office (2015): Population – annual time series. [electronic resource]. Czech Statistical Office. https://www.czso.cz/csu/czso/population_hd
- Davis, K. (1945): The World Demographic Transition. *Annals of the American Academy of Political and Social Science* 237, 1–11, <https://doi.org/10.1177/000271624523700102>.
- Human Mortality Database. France. [electronic resource]. Berkeley: University of California and Rostock: Max Planck Institute for Demographic Research. <http://www.mortality.org/cgi-bin/hmd/country.php?cntr=FRA&level=2>
- Kim, D. S. (1994): The Demographic Transition in the Korean Peninsula, 1910–1990: South and North Korea Compared. *Korea Journal of Population and Development* 23(2), 131–155.
- Kirk, D. (1996). *Demographic Transition Theory*. *Population Studies* 50(3), 361–387, <https://doi.org/10.1080/0032472031000149536>.
- Lesthaeghe, R. J. (2010): *The Unfolding Story of the Second Demographic Transition*. Michigan: University of Michigan (PSC Research Report No. 10–696).
- Pavlik, Z. (1980): The Theory of Demographic Revolution. *European Demographic Information Bulletin* 11(4), 130–139, <https://doi.org/10.1007/BF02917743>.
- Reher, D. S. (2004): The Demographic Transition Revisited as a Global Process. *Population, Space and Place* 10, 19–41, <https://doi.org/10.1002/psp.313>.
- Rowland, D. T. (2003): *Demographic Methods and Concepts*. New York: Oxford University Press.

- Statistics Japan (1996): Population and Households. [electronic resource]. Tokyo: Statistics Bureau. <http://www.stat.go.jp/english/data/chouki/02.htm>
- Statistics Sweden (2015): Population Statistics. [electronic resource]. Stockholm: Statistics Sweden. http://www.scb.se/BE0101-EN/#c_undefined
- Tsuchiya, T. (1997): Eugenic Sterilizations in Japan and Recent Demands for Apology: A Report. [electronic resource]. Newsletter of the Network on Ethics and Intellectual Disability 3(1), 1–4. http://www.lit.osaka-cu.ac.jp/user/tsuchiya/gyoseki/paper/JPN_Eugenics.html
- United Nations (2017): World Population Prospects: The 2017 Revision. [electronic resource]. New York: Department of Economic and Social Affairs, Population Division. <https://population.un.org/wpp/>
- United Nations (2015): World Population Ageing 2015. New York: Department of Economic and Social Affairs, Population Division. http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf
- van de Kaa, D. J. (2008): Demographic Transitions. Netherlands Interdisciplinary Demographic Institute (NIDI Working Paper No. 1).

Attitudes of young Czechs towards immigration: comparison of 2011 and 2016

Lenka Pavelková*, Martin Hanus, Jiří Hasman

Charles University, Faculty of Science, Department of Social Geography and Regional Development, Czechia

* Corresponding author: lenka.pavelkova@natur.cuni.cz

ABSTRACT

The paper aims to analyse the attitudes towards immigration among Czech youth and their changes on two distinct surveys of young Czechs (aged 14–19) held in 2011 and 2016, the years before and after a period of a greatly increased inflow of migrants to the European Union. In these surveys, special focus was given to changes in attitudes and factors influencing attitudes in each year. The results show that there was not a big difference in attitudes between both samples. Nevertheless, looking closely at the results, we found two main differences. The first was higher polarisation of answers in survey from 2016 than from the one held in 2011. The second one was in factors influencing answers, mainly in the statement on having an immigrant among close friends.

KEYWORDS

attitudes towards immigration; Czechia; immigration; secondary schools

Received: 21 October 2019

Accepted: 11 March 2020

Published online: 10 April 2020

Pavelková, L., Hanus, M., Hasman, J. (2020): Attitudes of young Czechs towards immigration: comparison of 2011 and 2016. *AUC Geographica* 55(1), 27–37

<https://doi.org/10.14712/23361980.2020.5>

© 2020 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

In the years 2015 and 2016, the European Union (EU) experienced a highly increased inflow of migrants, mainly refugees from the Middle East and Africa. The increase in the number of asylum applications in the EU had clearly already started in 2013 (431,095 applications compared to 335,290 in 2012), but the years 2015 and 2016 presented an unprecedented number of asylum applications, with the peak in 2015 (1,322,845 applications).¹ In 2017, the number of applications dropped again. Most of the applicants were from Syria and Iraq. The increased migration flow towards Europe was a result of more long-term problems in the source regions – mainly the rise of ISIS, but also changing environmental conditions combined with relatively poor economic conditions² (Ionesco et al. 2017; UNHCR 2014).

The period quickly became known as a “migration crisis” or “refugee crisis”. The term was widely used in the media around Europe, despite being challenged by many scientists. Admittedly, it was definitely a crisis for the people fleeing their homes (see for instance Goodman et al. 2017). The term has influenced overall perception of migrants and migration in many countries and that is also the reason why we use the term in the present paper.

Currently, Czechia is among the EU countries with the worst attitudes towards migration, together with Hungary (Čermáková and Leontiyeva 2017). This is an important change compared to some years ago when public opinion on migration was more positive (for example Chaloupková and Šalamounová (2006) analysed the European Social Survey from 2002 where Czechia scored around the average of twenty European countries included). In particular, the attitude towards refugees changed dramatically between 2013 and 2015. In 2013, 77% of Czechs were willing to accept people fleeing war and natural disasters. In 2015, this number dropped to only 2% (Jelínková 2019). The attitudes towards people with different religion, namely Muslims, have also changed over last years (e.g. People in Need 2015). This switch is quite possibly linked to the negative tone of the Czech media when referring to migration and the mostly negative portrayal of migrants and migration by Czech political leaders. At the same time, there were important initiatives of solidarity in the period of the “migration crisis” – for example Czech volunteers working in the Balkans (Jelínková 2019).

In the paper, it is examined whether the change in attitudes towards immigration is reflected in the opinions of young Czechs. Two surveys, conducted

in 2011 and 2016 respectively, among Czechs aged between 14 and 19 were used. This age group is particularly interesting as adolescence is the time when attitudes are being formed, then staying fairly stable throughout the individual’s life (Kudrnáč 2017). Adolescents’ views can also be different from the views of adults – which is proved for example in People in Need (2015). At the same time, school attendance means young people at this age are usually exposed more to information about history, geography, etc. than adults out of school, and their factual knowledge of the world can therefore be somewhat better or more active and it can influence their world views (factual knowledge as determinant of attitudes was used for example by Strabac et al. 2014). As Kudrnáč (2017) argues, this age group is also understudied and therefore deserves more attention.

To assess the potential changes of young Czechs’ attitudes towards migration, three main questions are discussed:

1. Were respondents’ overall attitudes different in two surveys held before and after the “migration crisis”?
2. Were some specific aspects of respondents’ attitudes different in two surveys held before and after the “migration crisis”?
3. What factors influenced respondents’ attitudes?

The surveys were based on the concept of world-mindedness. The concept is used as a tool to test values of respondents, in particular if they are oriented towards own social/national group or towards the whole world (Sampson and Smith 1957).

1.1 World-mindedness

Measuring attitudes towards immigration is rather complicated as there are many factors influencing such attitudes and the perception might differ between the general process of immigration and immigrants themselves, or between different distinct groups of immigrants (Ceobanu and Escandell 2010; Čermáková and Leontiyeva 2017; Hasman and Divínová 2020; Chaloupková and Šalamounová 2006). Therefore, the present surveys used (for the assessment of attitudes internationally well-established) world-mindedness scale as a research tool, especially for its close relation to the migration related attitudes. The scale was primarily formulated by Sampson and Smith (1957) and further developed by other authors (e.g. Hett). More recent studies (Beneker et al. 2013) compiled the original scale with the one by Hett (Hett in Hanus et al. 2017) into a new questionnaire consisting of personal items and 20 statements divided into four different thematic dimensions: patriotism a human rights, economy and migration, education and learning, and culture and attitudes to others (each containing five statements). In this study, the statements from the dimensions of economy and migration and culture and attitudes to others (together

1 Numbers of applications are total for EU-28 (Eurostat Database).

2 Poor economic conditions are often interrelated with environmental conditions – desertification, for instance, has an impact on agricultural production.

with the personal items) were used to address the research questions.

1.2 The “migration crisis” and Czechia

Since the 1990s, Czechia has gradually transformed from a country of prevailing emigration to a net immigration country (Drbohlav 2011). There are multiple reasons behind this switch, mainly relative political stability and economic growth, supported by the membership in the EU. Nevertheless, the numbers of immigrants living in Czechia and their percentage of total population are still fairly modest in the European context (Czech Statistical Office 2019). We can observe a tendency towards growth in the number of immigrants, with only a slowdown due to the economic crisis in 2007 and 2008. At the end of the year 2016, there were 496,413 immigrants in Czechia, which makes 4.5% of the country’s total population – a fairly low percentage compared to Western European countries, such as Austria (14.4%), Germany (10.5%), United Kingdom (8.6%) or France (6.6%), albeit this share is still higher than that of Eastern European countries (1.2% in Slovakia, 1.6% in Hungary, 0.4% in Poland) (Czech Statistical Office 2017). If we focus on refugees, the Czech numbers are very low in the EU context. In 2016, there were only 2,972 people with international protection³ (Czech Statistical Office 2017), i.e. people who obtained asylum or subsidiary protection in past years. Starting in 2014, as the migration flow to Europe intensified, there was only a modest increase in the number of new applications compared to previous years (1,478 new applications in 2016 with only 450 people granted international protection).

As for the composition of new applicants for asylum protection in 2016, the picture is also quite different from other European countries. In the EU, the main countries of origin of asylum applicants were Syria, Afghanistan and Iraq (Eurostat). In Czechia, the media and many politicians have kept informing the public about influx of refugees from Syria (or Muslim migrants), but the most numerous group of new applicants were Ukrainians fleeing the ongoing conflict in the Eastern part of their country, followed by Iraqis, Cubans and then Syrians (Czech Statistical Office 2016).

Overall, Czechia had above-average experiences with immigration in the Eastern-European context in 2015 and it was influenced by the so called migration crisis in 2015 and 2016 much less than other countries, especially when compared to its neighbour Germany. Yet an atmosphere of fear or even panic has

been created, persuading many inhabitants that there are masses of dangerous migrants from Africa and the Middle East who are coming to ruin the country (Jelínková 2019). The topic of immigration came to be considered one of the top issues faced by Czechia and the EU (Eurobarometer 2011 and 2016). The topic has been raised by some political actors, including the president, to the top place in public debate. The manner of such debates was often manipulative. As a result, questions about immigration have had a decisive influence on political elections in the last years (Jelínková 2019). This seems to make little sense: why would migration and refugees become such a hot topic in a state that experiences moderate levels of immigration and very low numbers of asylum applications?

To look at this closer, three theoretical approaches to the perception of migrants were used: two theories on the group level and one on the individual level.

1.3 Perception of immigration

There are different concepts of perception of immigration; some focus more on the individual level, some focus more on the group level. For the analysis, three concepts were chosen, of which one focuses on the individual level (contact theory) and two on the group level (group threat, labour market competition).

The group threat theory says that a dominant group feels threatened by a minority group and fear they might lose their power and limited resources in competition with another (actually or apparently) growing group of people.⁴ The sense of threat is then expressed via negative sentiment and speech against that competing group (Berg 2009; Kudrnáč 2017). The key here is the perception of threat even by individuals who are doing well, but who fear that their position might be undermined by the changing situation. Mostly, the threat is perceived as economic, but some authors include also other aspects such as norms and moral values that different groups hold and that can be then perceived as in threat (Borgonovi and Pokropek 2019). This explains why it makes sense to build on the group threat theory even in the case of students, who naturally may not be affected by perceived economic threat as much as adult population.

The labour market competition theory focuses more (but not exclusively) on individuals of lower socioeconomic status who are more likely to believe that members of another group, particularly incoming immigrants, might take their jobs and therefore cause their unemployment (Chaloupková and Šalamounová 2006). Berg (2009) also points to regional differences and the fact that more negative attitudes toward immigrants are most likely to be found in regions that

³ International protection includes asylum and subsidiary protection. Subsidiary protection is a temporary status introduced to protect people in cases where it is likely that the situation in their country of origin will change. Asylum is more similar to a permanent residence permit.

⁴ The literature shows that often it is more the imagined size of the competing group than the real size that creates the sense of danger (Pottie-Sherman and Wilkes 2017).

are in a worse economic situation. The participants of the surveys presented in this paper were students and as such probably not active (or only to a limited extent) in the labour market. Nevertheless, the labour market competition is still relevant, mainly because young people are prone to adapt to their parents' opinions and views (Borgonovi and Pokropek 2019; Miklikowska 2017). Therefore, young people can adapt their parents' views on the labour market and immigrants as competitors. This issue was addressed by questions A1, A2 and A3 (see Table 1).

However, the interpersonal environment can help to lower anti-immigrant sentiments. The first and probably best known concept here is the contact theory (sometimes called the contact hypothesis or intergroup contact) (Allport 1954). The theory suggests that prejudice between groups decreases with more face-to-face interaction; simply put, if you meet a person from a different group face to face, you are able to see him or her as a normal human being, just like you (Allport 1954; Pettigrew and Tropp 2006; Berg 2009). The study of Miklikowska (2017) provides evidence that such intergroup contact may even lower prejudice young people adapt from their parents.

2. Materials and methods

The theoretical approaches mentioned above were the basis for the analysis of the attitudes towards immigration among Czechs aged 14 to 19 in 2011 and 2016, respectively. The study is based on two questionnaire surveys held in Czechia with the same set of questions. The participants were contacted via their lower (aged 11 to 15) and upper (15 to 19) secondary schools.

The questionnaire contained 10 statements and 9 personal questions (see Table 1). The respondents marked their agreement or disagreement with each statement using the Likert scale of six possible answers: strongly disagree, disagree, somewhat disagree, somewhat agree, agree, and strongly agree. The possible answers were assigned points from 1 (strongly disagree) to 6 (strongly agree). Four of the statements were reversed to control for possible automatic answering without understanding the content. In the analysis, the scores for these reversed statements (A3, A5, B4 and B5 in Table 1) were subsequently reversed to enable comparison of scores throughout the whole questionnaire.

From these variables, a score of openness (= more positive attitudes) to immigration was counted. The range of the score is from 10 to 60; students who showed least openness therefore scored 10, while those with maximum openness scored 60.

To see what is behind positive attitudes towards immigration, i.e. what things influence it, regression analyses were run. In the regression models, openness to immigration was the dependent variable and

Tab. 1 Questionnaire – statements and personal information.

A. Economics and migration
A1. People from my country have a moral obligation to share their wealth with the less fortunate people of the world.
A2. In the long run, my country will probably benefit from the fact that the world is becoming more interconnected.
A3. Immigrants should not be permitted to come into our country if they compete with our own workers. (<i>Reversed</i>)
A4. Our country should allow immigration even if it lowers our standard of living.
A5. Our country should not cooperate in any international trade agreements which attempt to improve world economic conditions at our expense. (<i>Reversed</i>)
B. Cultural diversity
B1. People in our country can learn something of values from all different cultures.
B2. I enjoy trying to understand people's behaviour in the context of their culture.
B3. I generally find it stimulating to spend an evening talking with people from another culture.
B4. I have very little in common with people in developing countries. (<i>Reversed</i>)
B5. Foreigners are particularly obnoxious because of their religious beliefs. (<i>Reversed</i>)
C. Personal questions
1. Age
2. Gender
3. I have visited another continent.
4. I have visited another country.
5. I have lived in a different country than that of my citizenship.
6. I plan a stay abroad longer than 6 months before I turn 25.
7. I am in touch with a person abroad (letters, e-mails, chat, etc.).
8. At least one of my close friends is an immigrant or a refugee.
9. I am interested in current affairs abroad.

the personal information (Table 1⁵), together with factors from factor analysis, were used as independent variables. In total, six different regression analyses were run: one for the total score of openness, three using factors created by factor analysis, and finally one apiece for the two years, to see whether there was any change in the influence of personal factors between 2011 and 2016. The first four models include a binary independent variable for the years to see whether there was any difference between the two surveys.

5 We excluded from the analysis the answer to the statement "I have visited another country," as almost all respondents marked 'Yes' (see Table 2), so it would have not brought any additional information.

Tab. 2 Background information.

	2011	2016
Total number of questionnaires*	856	1,074
Average age	16.4	15.6
Female respondents (%)	61.2	56.4
Respondents who have visited another continent (%)	45.4	56.0
Respondents who have visited another country (%)	97.9	98.6
Respondents who have lived in a different country than that of their citizenship (%)	10.3	12.9
Respondents who plan a stay abroad longer than 6 months before turning 25 (%)	56.2	59.2
Respondents who are in touch with a person abroad (letters, e-mails, chat, etc.) (%)	54.3	54.7
Respondents who have at least one close friend who is an immigrant or a refugee (%)	61.8	65.0
Respondents who are interested in current affairs abroad (%)	97.7	88.5

* We included only questionnaires with all questions filled in.

2.1 Sample

The respondents were students aged between 14 and 19. The surveys were conducted in cooperation with their schools. The schools were contacted primarily through geography teachers cooperating with Charles University's Faculty of Science.⁶ The selection was therefore not random and so we do not use significance level in our models. As for the geographical dispersion of the sample, around 50% of questionnaires were collected in Prague and the rest in other locations in Czechia, including smaller towns. Most schools were grammar schools, which are schools for talented students – a fact that might influence the results (Hasman and Divínová 2020; Straková and Simonová 2013). Different towns were included in each of the two years (with only Prague included in both years), which might affect comparability of results between the two years. Thus, we cannot certainly assess, whether potential differences in results between both years are given by real change of attitudes caused, for instance, by the “migration crisis”, or whether they are rather given by different sample.

For the analysis, only questionnaires with all questions completed were included – in 2011 this was 88.4%, in 2016 89.5% of all questionnaires collected. Despite different schools being included from

6 The research sample was recruited in accordance with the ethical recommendations for the research with non-adult participants. Data collection took place at schools during geography lessons. The research was approved by the participating school management having general approval to such activities from the parents of students. Schools without such approval were eliminated. However, most of the schools asked data collectors to anonymize results (or not to collect detailed information about their students). Therefore, the personal questions were reduced.

one survey to the next, the basic characteristics of the students were similar (Table 2). The exception is the number of students who had visited another continent, which rose between 2011 and 2017 by 10.6%. The second change occurred in the question on students' interest in current affairs abroad, which dropped by 9.2%. Nevertheless, even in 2016 more than 88% of the students were interested in foreign affairs – a fairly high number. A possible explanation may be a change of the type of media coverage of world affairs including many quite emotional and sensational contributions by the Czech media during the “migration crisis” (Jelínková 2019) but the available data does not allow to state a clear causality.

3. Results

Looking at overall results for both years, clear similarities can be found. The overall scores of openness did not differ much between the 2011 and 2016 samples (Table 3). The inner distribution of the samples was controlled to find whether the latter sample was more polarised than the former one. As shown in Table 4,

Tab. 3 Openness to immigration in the years 2011 and 2016 (scores from 10 to 60).

	2011	2016
Minimum	13	10
Maximum	54	59
Mean	37.68	37.55
Standard deviation	5.59	6.36

Tab. 4 Factor Analysis Results

Factor number	1	2	3
A4 – Immigration despite lower standards of living	0.721		
A3 – Immigrant workers are allowed (<i>Reversed</i>)	0.702		
B5 – Religion (<i>Reversed</i>)	0.460	0.420	
A1 – Moral obligation to share own wealth	0.459		
B2 – Enjoying understanding others' behaviour		0.710	
B3 – Talking to people from different cultures		0.682	
B1 – Learning from different cultures	–0.323	0.536	0.319
A2 – Benefit from the world's interconnectedness		0.447	
A5 – International trade agreements (<i>reversed</i>)			0.811
B4 – A lot in common	0.345		0.560

Note: Table shows correlation coefficients between original statements and new derived factors. Values < 0.3 have been suppressed. The rotation varimax was used.

Tab. 5 Results for all ten statements and factors.

Variable/Factor	2011		2016	
	Mean	Standard deviation	Mean	Standard deviation
A1 – Moral obligation to share own wealth	2.91	1.248	2.96	1.240
A2 – Benefit from the world's interconnectedness	3.87	1.063	3.81	1.083
A3 – Immigrant workers are allowed (<i>Reversed</i>)	3.58	1.400	3.49	1.521
A4 – Immigration despite lower standards of living	2.48	1.146	2.49	1.293
A5 – International trade agreements (<i>Reversed</i>)	3.67	1.291	3.74	1.321
B1 – Learning from different cultures	4.37	1.097	4.48	1.113
B2 – Enjoying understanding others' behaviour	4.52	1.236	4.49	1.301
B3 – Talking to people from different cultures	4.16	1.298	4.15	1.312
B4 – A lot in common	3.34	1.315	3.49	1.242
B5 – Religion (<i>Reversed</i>)	4.77	1.317	4.46	1.457
Factor 1	13.74	3.238	13.39	3.759
Factor 2	16.91	2.856	16.93	3.057
Factor 3	7.02	1.953	7.22	1.922

Note: The reversed statements were recalculated in order to make them comparable with the other statements. In all cases, higher values mean higher openness.

standard deviation in 2016 was larger by almost 10%, which could be a sign of higher polarisation as the mean was almost the same in both years.

The responses to the individual statements were also very similar in both years. A detailed summary of the responses is presented in Table 5. The table shows the means for all ten statements; the higher the mean is the more positive attitudes towards migration are. At first sight, the responses for all ten answers are very similar in both years. There is also a clear division between the answers for the statements on economy and migration (A1 to A5) and for those on cultural diversity (B1 to B5). This seems logical in that it might be natural to be more open to different cultures but careful about economic issues. Principal component analysis was run to examine in which statements our respondents answered similarly. Results confirmed that the division into two components is not straightforward and instead three factors (based on Eigenvalue larger than 1) should be extracted (Table 4). All three factors include both A and B statements. The subsequent closer examination of the three factors brought some logical explanation for this.

FACTOR 1: A1, A3, A4, B5. Statement B5 is "Foreigners are particularly obnoxious because of their religious beliefs." (*Reversed*). Thinking of media work on migration and some parts of public discourse, discussion of economic factors was commonly accompanied by discussion of migrants' religion (Islam in particular). Therefore, it is not surprising that these statements cluster together: respondents who view migrants as an economic threat might also see different religions as undesirable (and vice versa). The connection between these statements might be also related to their wording as they explicitly talk about foreigners and immigrants on the individual level

rather than about general phenomena of migration, cultural diversity etc. This difference between attitudes towards immigration and attitudes towards immigrants (i.e. a general process vs. individual people) has been already documented in literature, for example in Pettigrew and Tropp (2006) and in Čermáková and Leontiyeva (2017).

FACTOR 2: B1, B2, B3, A2.⁷ Statement A2 is "In the long run, my country will probably benefit from the fact that the world is becoming more interconnected." This was included with the statements on economy and migration, but it does not mention economy directly – therefore it might be that respondents interpreted the statement in a wider sense and see other, non-economic, benefits of global interconnectedness. In that case, it makes sense that it is in the same component as statements on cultural diversity rather than statements on the economy. All the statements in this group point to benefits related to global issues and different cultures (see Table 1).

FACTOR 3: A5, B4. In the third component, the link might not be that clear, but we can see behind it an idea of not sharing with people in different countries because we have very little in common.

These three factors were used in the second set of regression models (see below) to see what personal characteristics influence the outcomes of these factors.

⁷ Table 4 shows that Factor 2 loadings of Statement B5 are nearly similar to those for Factor 1, so we also tried to include Statement B5 in Factor 2. Results of following regression analysis were, however, very similar regardless of B5 being or not being included in Factor 2.

3.1 What factors influence students' attitudes?

To answer the research questions, six different regression analyses were run. Model 1 was built for the whole dataset and its aim was to investigate a general pattern of factors influencing students' attitudes. In Models 2–4, we examined factor scores, obtained from the factor analysis above, individually. The last two models, Model 5 and Model 6, were run to examine the two survey years (2011 and 2016) separately to examine whether the overall pattern differed between the two surveys. The first four models included a binary independent variable for the years to see whether there was any influence in the time change. These six models enabled us to observe the patterns in data more closely and to avoid hasty conclusions that could be reached if only the overall scores (shown in Table 5) were discussed.

Tab. 6 Model 1: Determinants of students' attitudes.

Dependent variable	Openness to migration and cultural diversity
R ² (%)	10.7
Independent variables	Standardised regression coefficients
2016	0.052
Age	0.040
Female	0.188
Visited another continent.	-0.014
Lived in a different country than that of their citizenship.	0.106
Plans a stay abroad longer than 6 months before the age of 25.	0.091
In touch with a person abroad.	0.043
One of close friends is an immigrant.	0.098
Interested in current affairs abroad.	0.143

In this model (described in Table 6), three variables stand out as most influential for the openness of the respondents: gender, previous experience with living in a different country and following current affairs abroad. The strongest role is that of gender – female respondents were more likely to score higher openness, i.e. more positive attitudes, to migration and cultural diversity. Apart from gender, a somewhat important role of interest in current affairs abroad can be observed. Other factors with some effect on the scores are: (1) respondent lived in a different country, (2) respondent plans a longer stay abroad, and (3) respondent has a close friend who is an immigrant. In all cases, the influence was positive, e.g. respondents who lived in a different country had more open attitudes. On the other hand, the difference between 2011 and 2016 is very limited. This model points to the contact and social network theories, as living abroad and being interested in current international affairs means respondents are more likely to be in an environment where other people migrate temporarily or permanently abroad. Therefore, their anti-immigrant sentiments may be lower as they have either experienced a migrant-like situation themselves or know other people who have, and they are also more likely to have people from different countries among their friends.

In Models 2, 3, and 4, we used the results of the factor analysis (see above) and counted the points for the answers included in each factor (e.g. Factor 1 was counted by adding up the answers to statements A1, A3, A4 and B5). Table 7 shows that the independent variables have different impact on the three factors. As described above, Factor 1 includes statements that explicitly talk about individual migrants and therefore can obtain different answers than the statements on migration as a general phenomenon. The strongest

Tab. 7 Models 2, 3, and 4: Factor analysis.

Dependent variable	Factor 1	Factor 2	Factor 3
Model	2	3	4
Statements included	A1+A3+A4+B5	B1+B2+B3+A2	A5+B4
R ² (%)	6.3	11.8	1.4
Independent variables	Standardised regression coefficients		
2016	-0.016	0.093	0.050
Age	0.014	0.081	-0.023
Gender	0.154	0.167	0.047
Visited another continent.	-0.009	-0.006	-0.018
Lived in a different country than that of my citizenship.	0.112	0.031	0.075
Plans a stay abroad longer than 6 months before the age of 25.	0.048	0.125	0.004
In touch with a person abroad.	0.001	0.077	0.015
One of close friends is an immigrant.	0.090	0.065	0.039
Interested in the current affairs abroad.	0.085	0.181	0.012

influences on this factor are gender, having lived in a different continent and having an immigrant among friends. Such results again point to the contact theory: having lived abroad provides one with personal experience of being a migrant and having immigrants as friends provides contact with individual migrants and their specific situations, and as a result, these respondents have more positive attitudes towards migrants as individuals.

Statements on cultural issues and interconnectedness of the world are clustered in Factor 2. Gender plays an important role again, together with planning a stay abroad and following the news. This might be because people who think more outside the borders of their own state appreciate other cultures and are interested in them. Consequently, they are also interested in current affairs abroad and plan to stay abroad for some time. The connection between these issues seems logical, though the causality might be blurred.

Factor 3 includes two statements that are loosely connected through economic development of specific countries. As the connection is rather loose, the regression coefficients do not show any particular variable that would influence the outcomes of this factor.

Tab. 8 Models 5 and 6: Differences in attitudes' determinants between 2011 and 2016.

Dependent variable	Openness to migration and cultural diversity	
	5	6
Model		
Year	2011	2016
R ²	0.093	0.121
Independent variables	Standardised regression coefficients	
Gender	0.204	0.174
Age	0.011	0.055
Visited another continent.	-0.026	-0.005
Lived in a different country than that of my citizenship.	0.116	0.097
Plans a stay abroad longer than 6 months before the age of 25.	0.084	0.097
In touch with a person abroad.	0.008	0.063
One of my close friends is an immigrant.	0.068	0.117
Interested in the current affairs abroad.	0.130	0.137

Models 5 and 6 are presented in Table 8 and show results for the two years of the survey separately. This step was aimed at revealing particular changes in the effects of particular determinants between the two surveys. Looking more closely at the results of Models 5 and 6, it can be observed that the role of gender was particularly high in both years, with female respondents demonstrating more positive attitudes. The differences in the regression coefficients are quite small,

with the one exception of having an immigrant or a refugee among friends. This could be related to the extensive media coverage, whose depiction of immigration was quite scandalously biased, which may have made it hard for respondents to find their own position on the topic. Therefore, personally knowing an immigrant could prove to be the key to being more open to migration despite all the negative messages received from the media and politicians. If this is the case, it would be a proof of the contact theory (see also Hasman and Divínová 2020).

4. Discussion

In a situation where Czech immigration levels are still quite modest compared to Western Europe and where the country's economic situation has been good over the last years, the growing negative attitudes towards immigration may seem a little contradictory.

On the other hand, considering the theoretical concepts described above, the situation becomes clearer. Within the concept of group threat, there is a part of the population that can, despite the overall low unemployment levels, perceive immigrants as competitors in the labour market and in terms of values and norms, especially in some regions with higher unemployment levels and more remote regions that tend to be more homogeneous. In the sample, some of these tendencies can be observed. As indicated at Table 5, the scores for economic statements (A1 to A5) were on average lower in both years than the scores for cultural diversity (B1 to B5). This shows us that the respondents were more careful about sharing their own resources with immigrants – even in 2016 when the situation in labour market was already very good, with the unemployment level at 3.6% (Czech Statistical Office). This would suggest that there is indeed a tendency to perceive immigration as an economic threat even among students who themselves do not participate in the labour market (or to a limited extent).

In support of the contact theory, we can observe the growing role of having an immigrant among one's friends: in 2016, it was more likely that respondents with immigrants among their friends were more open to immigration and cultural diversity. Therefore, having direct contact with an immigrant positively influenced their openness. In Models 2, 3, and 4, the influence of having an immigrant among one's friends proved to be more important for Factor 1 than for Factor 2, i.e. it was more important for a factor that mostly dealt with individual immigrants and their presence in Czechia. This further proves the importance of actually knowing some immigrants personally to having more positive attitudes towards immigrants/immigration, in accordance with People in Need (2015), which also focused on students at secondary schools. Moreover, we can observe the importance of

experience with living abroad – indirectly, this can be also considered a proof of the contact theory as it gives respondents experience of the migrant situation and meeting other migrants and people of different cultures, religions, etc. generally.

In all the models, it can be observed that the role of gender is important for the level of openness to immigration and cultural diversity, and that women are more likely to have more positive attitudes towards immigration. Such conclusions have already been shown in previous studies (for example Strabac et al. 2014; Hanus et al. 2017; Beneker et al. 2013), but on the other hand other studies did not prove the role of gender in attitudes towards immigration (Hasman and Divínová 2020; Chandler and Tsai 2001; Novotný and Polonský 2011), and others show only a partial or none tendency for men to have more negative attitudes towards immigrants or other types of minorities (Gorodzeisky and Semyonov 2009; Kudrnáč 2017).

Following current affairs and having lived in a different country proved to be generally the strongest predictors in our models. In the last model (for the year 2016) the growing importance for openness toward immigration of having an immigrant among friends was observed. Such growth of importance of this variable might be caused by the different context after the “migration crisis” – in the flood of media coverage, speeches and online posts on immigration, the existence of a friend who is an immigrant might have become a key determinant of respondents’ attitude towards immigration. This is in accordance with the contact theory that highlights the importance of personal contact for a person’s attitudes (Miklikowska 2017).

It is also worth noting that age did not have any influence on the openness of the respondents, though this might be an artefact of the fairly small age range of the respondents and their belonging among teenagers, i.e. same age group (similarly also Straková and Simonová 2013).

4.1 Limitations of the survey

Some limitation should be considered when dealing with the results of the survey. First of all, limits result from the method of contacting respondents – most of them were from grammar schools with a selective admission procedure, and at the same time, half of respondents came from Prague. These facts raise questions about the influence of the specific educational environment of grammar schools or distinctive social context of Prague compared to other parts of Czechia (Hasman and Divínová 2020).

Moreover, the described method of participants’ recruitment resulted in the fact that the research samples were not randomly selected and, therefore, were not representative for the whole population of young Czechs. Given that, it should be kept in mind that the

study present results of two surveys (conducted in two different years) and indicate possible linkages between them. The exact influence of the media, time, education, etc. on the openness to migration should be confirmed by the subsequent studies using the initial finding of this study.

As for the questions themselves, there might be an issue concerning the specific relationship between Czechia and Slovakia (due to their common history) and the subsequent question of possible confusion as to whether a Slovak friend is an immigrant or not – many people in Czechia do not perceive Slovaks as immigrants. However, this is likely to be different for younger people who are less used to being around Slovaks – therefore the issue may not apply to the sample. Nonetheless, it could be useful to include a question about who respondents perceive as an immigrant. Such perceptions can be based on knowledge of the actual situation (where immigrants in Czechia typically come from), personal experience (who are the immigrants the respondents personally know) or the media, fake news etc. (in which case the picture of an immigrant can be distorted far from reality). Such issues are discussed for example in Hasman and Divínová (2020), Strabac et al. (2014) and Hayes and Dowds (2006). Both of the latter two papers also discuss the question of who the respondents actually think of when thinking of an immigrant, but such an issue is difficult to handle in a survey – interviews would probably be more appropriate to go into such details.

Another issue could be posed by question five, “I have lived in a different country than that of my citizenship.”, primarily for respondents who have non-Czech citizenship (including dual citizenship) yet live in Czechia. The use of citizenship as a defining category is probably not ideal,⁸ especially with young people for whom all the consequences and legal issues related to citizenship might not be clear. However, the number of immigrants at Czech secondary schools is still modest, so this problem should not cause problems for the overall interpretation of the results.

The last issue to be considered is the reliability of the answers themselves – as in other surveys, respondents may reply as they think is expected rather than as they actually think. This might be particularly true of the age group 14–19, who may tend to reply in accordance to the overall climate at school or in class rather than expressing their real opinions. Conversely, in this age group, we may expect cases of rebellion, i.e. respondents marking more extreme opinions on purpose (Kudrnáč 2017).

8 Citizenship is the main distinguishing characteristic used by the Czech Statistical Office and other state institutions, which influences how migration is studied in Czechia.

5. Conclusion

In this paper, attitudes towards immigration and immigrants before and after the “migration crisis” among Czech youth were examined. The research was based on two surveys, conducted in 2011 and 2016 respectively. The results show that there was not a tremendous difference in the attitudes. Nevertheless, looking closely at the results, two main differences can be observed.

First, higher polarisation of answers in 2016 than in 2011, i.e. in 2016 there were more answers at each end of the spectrum rather than in the middle.

Second, factors influencing answers, mainly in the statement on having an immigrant among one’s close friends. It seems that in the extensive and often emotional media coverage of the “migration crisis”, having an immigrant as a friend became even more decisive, demonstrating the validity of the contact theory (Miklikowska 2017). The contribution of such finding is the fact that in the present study, the theory was tested in the context of a Central European post-socialist country, i.e. in a different context than most studies working with the contact theory. Therefore, it can be said that providing evidence for the contact theory in such a different context moves its validity even further and makes it more robust.

The group threat theory was not persuasively supported by our data. However, there were some indications in this direction, mainly the fact that the scores on economic statements were consistently lower than those on more general cultural issues. The respondents seemed to be more careful about the economy and sharing their own wealth while being comparatively more open towards cultural diversity. The findings of this study can contribute not only to the knowledge in the field of attitudes towards migration but (considering the “school age” of participants) also to the development of attitudes towards migration at lower and upper secondary schools – in terms of developing and planning the curriculum in such a way that it would enhance students’ attitudes. Especially, the paper points out the need to pay attention to the development of students’ attitudes (in parallel to their knowledge and skills) and can help teachers to advocate the implementation of such development into the school curriculum. Moreover, the paper provides an easy-to-replicate tool for assessment of attitudes that can be used in classes (of geography). Additionally, the paper results serve as a comparative framework for such in-class experiments. Finally, teachers could benefit from the knowledge of the factors influencing the openness of young people towards migration (or influencing the general development of attitudes) when planning, performing and assessing educational activities – they can highlight factors supporting the openness (e.g. related to the contact theory) and/or be aware of factors that hamper the

development of such attitudes (e.g. factors related to the group theory).

Acknowledgements

This study was supported by Charles University under Charles University Research Centre program no. UNCE/HUM/024 and program no. UNCE/HUM/018.

References

- Allport, G. W. (1954): *The Nature of Prejudice*. Oxford: Addison-Wesley.
- Béneker, T., Sirpa, T., Uphues, R., van der Vaart, R. (2013): Young People’s World-Mindedness and the Global Dimension in their Geography Education: A Comparative Study of Upper Secondary School Students’ Ideas in Finland, Germany and the Netherlands. *International Research in Geographical and Environmental Education* 22(4), 322–336, <https://doi.org/10.1080/10382046.2013.826544>.
- Berg, J. A. (2009): White Public Opinion toward Undocumented Immigrants: Threat and Interpersonal Environment. *Sociological Perspectives* 52(1), 39–58. <https://doi.org/10.1525/sop.2009.52.1.39>.
- Borgonovi, F., Prokopek, A. (2019): Education and Attitudes towards Migration in a Cross Country Perspective. *Frontiers in Psychology*, 1–17, <https://doi.org/10.3389/fpsyg.2019.02224>.
- Bořil, V. (2018): Politická makrogeografie současného veřejného mínění o imigraci a uprchlické krizi v Evropské unii: víceúrovňové analýzy. Master Thesis, Charles University.
- Ceobanu, A. M., Escandell, X. (2010): Comparative Analyses of Public Attitudes Toward Immigrants and Immigration Using Multinational Survey Data: A Review of Theories and Research. *Annual Review of Sociology* 36, 309–328, <https://doi.org/10.1146/annurev.soc.012809.102651>.
- Chaloupková, J., Šalamounová, P. (2006): Postoje k imigrantům a dopadům migrace v evropských zemích. *Sociologický časopis/Czech Sociological Review* 42(1), 57–80.
- Chandler, C. R., Tsai, Y. (2001): Social Factors influencing Immigration Attitudes: An Analysis of Data from the General Social Survey. *The Social Science Journal* 38(2), 177–188, [https://doi.org/10.1016/S0362-3319\(01\)00106-9](https://doi.org/10.1016/S0362-3319(01)00106-9).
- Czech Statistical Office: Online Database (accessed April 14, 2019).
- Čermáková, D., Leontiyeva, Y. (2017): ‘I do not Mind Immigrants; it is Immigration that Bothers me.’ The Inconsistency of Immigration Attitudes in Europe. *Geografie* 122(4), 500–525, <https://doi.org/10.37040/geografie2017122040500>.
- Dalakoglou, D. (2016): Europe’s Last Frontier: The Spatialities of the Refugee Crisis. *City* 20(2), 180–185, <https://doi.org/10.1080/13604813.2016.1170467>.
- de Haas, H., Czaika, M., Flahaux, M. L., Mahendra, E., Natter, K., Vezzoli, S., Villares-Varela, M. (2018): *International Migration: Trends, Determinants and*

- Policy Effects. IMIn Working Paper Series, 142. International Migration Institute Network.
- Drbohlav, D. (ed.) (2011): *Migrace a (i)migranti v Česku – Kdo jsme, odkud přicházíme, kam jdeme?* Prague: Sociologické nakladatelství SLON.
- Eurostat: Online Database (accessed April 13, 2019).
- Foreigners in the Czech Republic 2016. Prague: Czech Statistical Office.
- Foreigners in the Czech Republic 2017. Prague: Czech Statistical Office.
- Foreigners in the Czech Republic 2018. Prague: Czech Statistical Office.
- Foreigners in the Czech Republic 2019. Prague: Czech Statistical Office.
- Goodman, S., Sirryeh, A., McMahon, S. (2017): The Evolving (Re)Categorisations of Refugees Throughout the “Refugee/Migrant Crisis”. *Journal of Community and Applied Social Psychology* 27(2), 105–11, <https://doi.org/10.1002/casp.2302>.
- Gorodzeisky, A., Semyonov, M. (2009): Terms of Exclusion: Public Views towards Admission and Allocation of Rights to Immigrants in European Countries. *Ethnic and Racial Studies* 32(3), 401–423, <https://doi.org/10.1080/01419870802245851>.
- Hanus, M., Řezníčková, D., Marada, M., Benéker, T. (2017): Globální myšlení žáků: srovnání vybraných evropských zemí. *Geografie* 122(3), 359–381, <https://doi.org/10.1080/01419870802245851>.
- Hasman, J., Divínová, P. (2020): Regionální rozdíly ve vnímání mezinárodní migrace studenty středních škol a jejich podmiňující faktory. *Sociologický časopis*. In print.
- Hasman, J., Novotný, J. (2017): Kdo, odkud, kam a s kým: prostorová příbuznost migračních skupin na globální i lokální úrovni. Prague: Nadace Nadání Josefa, Marie a Zdeňky Hlávkových.
- Hayes, B. C., Dowds, L. (2006): Social Contact, Cultural Marginality or Economic Self-Interest? Attitudes towards Immigrants in Northern Ireland. *Journal of Ethnic and Migration Studies*, 32(3), 455–476, <https://doi.org/10.1080/13691830600554890>.
- Ionesco, D., Mokhnacheva, D., Gemenne, F. (2017): *The Atlas of Environmental Migration*. Abingdon: Routledge.
- Jelínková, M., (2019): A Refugee Crisis without Refugees: Policy and Media Discourse on Refugees in the Czech Republic and its Implications. *Central European Journal of Politics* 13(1), 33–45, <https://doi.org/10.2478/cejpp-2019-0003>.
- Kudrnáč, A. (2017): Gender Differences among Czech Youth in Prejudice towards Minorities. *Journal of Youth Studies* 20(5), 583–604, <https://doi.org/10.1080/13676261.2016.1254166>.
- Menéndez, A. J. (2016): The Refugee Crisis: Between Human Tragedy and Symptom of the Structural Crisis of European Integration. *European Law Journal* 22(4), 388–416, <https://doi.org/10.1111/eulj.12192>.
- Merryfield, M.M., Lo, T-Y, PO, S. C., Masataka, K. (2008): Worldmindedness: Taking Off the Blinders. *Journal of Curriculum and Instruction* 2(1), 6–20, <http://www.joci.ecu.edu/index.php/JoCI/article/view/9>.
- Miklikowska, M. (2017): Development of Anti-Immigrant Attitudes in Adolescence: The Role of Parents, Peers, Intergroup Friendships, and Empathy. *British Journal of Psychology* 108, 626–648, <https://doi.org/10.1111/bjop.12236>.
- Novotný, J., Polonský, F. (2011): The Level of Knowledge about Islam and Perception of Islam among Czech and Slovak University Students: Does Ignorance Determine Subjective Attitudes? *Sociológia* 43(6), 674–696.
- Pettigrew, T. F., Tropp, L. R. (2006): A Meta-Analytic Test of Intergroup Contact Theory. *Journal of Personality and Social Psychology* 90(5), 751–783, <https://doi.org/10.1037/0022-3514.90.5.751>.
- Pottie-Sherman, Y., Wilkes, R. (2017): Does Size Really Matter? On the Relationship between Immigrant Group Size and Anti-Immigrant Prejudice. *International Migration Review* 51(1), 218–250, <https://doi.org/10.1111/imre.12191>.
- People in Need (2015): *Rovnost a menšiny očima středoškoláků*. Prague: Člověk v tísní/People in Need.
- Sampson, D. L., Smith, H. P. (1957): A Scale to Measure World-Minded Attitudes. *Journal of Social Psychology* 45, 99–106, <https://doi.org/10.1080/00224545.1957.9714290>.
- Strabac, Z., Aalberg, T., Valenta, M. (2014): Attitudes towards Muslim Immigrants: Evidence from Survey Experiments across Four Countries. *Journal of Ethnic and Migration Studies* 40(1), 100–118, <https://doi.org/10.1080/1369183X.2013.831542>.
- Straková, J., Simonová, J. (2013): Vliv navštěvované střední školy na občanské postoje středoškoláků v ČR. *Orbis Scholae* 27(3), 27–47, <https://doi.org/10.14712/23363177.2015.12>.
- UNHCR (2014): Sharp increase in Iraqi refugees fleeing ISIS into Jordan and Turkey, <https://www.unhcr.org/news/briefing/2014/9/54214cfe9/sharp-increase-iraqi-refugees-fleeing-isis-jordan-turkey.html?query=ISIS>, accessed March 9, 2019.
- Visser, P. S., Mirabile, R. R. (2004): The Impact of Social Network Composition on Individual-Level Attitude Strength.” *Journal of Personality and Social Psychology*, 87(6), 779–795, <https://doi.org/10.1037/0022-3514.87.6.779>.
- World Bank: Online Database (accessed March 9, 2019).

An analysis of potential adopter attitudes regarding electric vehicles: the case of university students in the United Arab Emirates

Robert M. Bridi*, Naeema Al Hosani

United Arab Emirates University, Geography and Urban Sustainability Department, United Arab Emirates

* Corresponding Author: rmbриди@uaeu.ac.ae

ABSTRACT

The authors investigate the perceptions, preferences, and valuation of university students in the United Arab Emirates (UAE) regarding the potential to adopt electric vehicles (EVs) for personal transport by surveying a diverse sample of 664 students from the seven emirates (the capital Abu Dhabi, Ajman, Dubai, Fujairah, Ras Al Khaimah, Sharjah and Umm Al Quwain). Details were elicited about social, economic, and environmental factors that influence the potential to adopt EVs for personal transport, perceived advantages of EVs over gasoline automobiles, and knowledge about EVs. The authors employed the SPSS software platform to categorize various factors according to age and gender. Respondents reported a wide variety of perspectives about EVs including environmental benefits and functional drawbacks. Findings show that participant perceptions, preferences, and valuation about EVs are influenced by a multiplicity of social, economic, and environmental factors. Neglect of these factors will undermine the potential to shift preferences toward greater adoption of emerging sustainable transport technologies.

KEYWORDS

electric vehicles; attitudes; perceptions; sustainable transport; United Arab Emirates

Received: 19 September 2019

Accepted: 9 February 2020

Published online: 9 April 2020

Bridi, R. M., Al Hosani, N. (2020): An analysis of potential adopter attitudes regarding electric vehicles: the case of university students in the United Arab Emirates. *AUC Geographica* 55(1), 38–48

<https://doi.org/10.14712/23361980.2020.4>

© 2020 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

According to the International Energy Agency (2018), global CO₂ emissions from fuel combustion more than doubled between 1971 and 2016. Such trends have garnered global attention and prompted then Secretary-General of the United Nations, Ban Ki-moon, to declare 2014–2024 the decade of Sustainable Energy for All. One of the objectives of this effort is doubling the global share of renewable energy by 2030 (United Nations 2011). As the steward of this objective, the International Renewable Energy Agency (IRENA), which is headquartered in the United Arab Emirates (UAE), envisioned Renewable Energy Maps as an effort to catalyze renewable energy adoption globally. This effort assesses the costs and impacts of globally doubling renewable energy consumption by investigating the role that the largest energy consuming countries could play in achieving this goal. IRENA's (2018) most recent analysis shows, renewable energy and energy efficiency can, in combination, provide over 90% of the necessary energy-related CO₂ emission reductions. As low-carbon electricity becomes the main energy carrier, the share of electricity consumed in the end-use sectors (buildings, heat, and transport) would need to double, from approximately 20% in 2015 to 40% in 2050. More specifically, in the transport industry, the number of electric vehicles (EVs) on the road would have to increase from approximately 3 million in 2017 to 1 billion in 2050. To achieve this, most of the passenger vehicles sold from 2040 to 2050 would have to be electric and approximately 75% of passenger car activity would have to be provided by EVs.

The UAE is the sixth largest producer of oil globally (approximately 2.8 million barrels per day) and the world's third largest net exporter. Initial efforts to diversify the UAE economy capitalized on energy availability and focused on energy intensive industries (aluminum, steel, cement, and construction). This has led to the UAE's per capita primary energy use to be 7th in the world at 346 gigajoule (GJ) per person per year compared to, for example, the United States which ranks 11th at 300 GJ and Saudi Arabia which ranks 15th at 258 GJ (Sgouridis et al. 2016). The majority (99%) of domestic transportation in the UAE is road-based using gasoline automobiles and diesel trucks and buses. Road transportation accounts for a large share of gasoline and diesel consumption. With gasoline fuel subsidies, average fuel efficiencies are low and public transportation alternatives are not developed sufficiently. Urban and transportation planning to date have created an automobile-centric transportation system and a car-oriented infrastructure along with a 'car culture' that promotes powerful cars and sport utility vehicles. In 2016, there were approximately 3.4 million or 278 vehicles/1000 people registered in the UAE (World Health Organization 2018). The transport sector accounts for 22%

of the UAE's domestic energy consumption and is a major contributor of CO₂ emissions. Given the expected growth in the UAE's economy and population, the transport sector's CO₂ emissions will increase. For example, the number of vehicles in Abu Dhabi alone is projected to increase from approximately 600,000 in 2010 to between 1.5 and 2 million in 2030. This translates to an increase in vehicle ownership from 264 vehicles/1000 people in 2010 to 642 vehicles/1000 people in 2030 (Sgouridis et al. 2016). To reduce the UAE's CO₂ emissions and meet its pre-allotted quota of the Kyoto protocol and COP21 targets, alternative sustainable solutions are required.

A sustainable transport system is a clearly articulated objective of the Department of Transport in the UAE (DOTAD 2009), which demonstrates the potential for replacing CO₂ emitting gasoline vehicles with zero emission EVs. Electricity in the UAE is generated almost exclusively by natural gas combined cycle power plants, which implies a low carbon footprint that has the potential to be further reduced with the deployment of solar energy and the planned nuclear power plant expansion (Sgouridis et al. 2016; WBGU 2012). UAE is characterized by a hot arid climate with harsh summer temperatures and mild to warm winters. EVs have demonstrated their ability to operate in the UAE's climate through a sustainable-oriented development effort at Masdar City (Mueller and Sgouridis 2011). Sustainable domestic economic development requires a reliable domestic transport sector that decouples from fossil fuels to meet the need for a long-term sustainable energy supply.

2. Research Questions, Objectives, and Hypotheses

The main research question of this study is to what extent do the perceptions, preferences, and valuation of university students in the UAE influence the potential to adopt EVs for personal transport? The sub-questions are to what extent does age group and gender affect university students' decisions? What are the barriers that influence the potential to adopt EVs? What issues related to sustainable transport influence the potential to adopt EVs?

The primary objective of this study is to investigate the perceptions, preferences, and valuation of university students in the UAE regarding the potential to adopt EVs for personal transport. The sub-objectives are to analyze university students' decisions across age and gender; to identify potential barriers to adopting EVs; and to determine if issues related to sustainable transport influence the potential to adopt EVs.

Two hypotheses follow: first, it is the contention of the researchers that perceptions, preferences, and valuation have a determining effect on the potential to adopt emerging pro-environmental technologies,

such as EVs, for personal transport. Moreover, consumer decisions regarding pro-environmental technologies, such as EVs, are not only based on ethical, technical, or economic factors, but also a host of social factors (e.g., public perception about one product over another, perceived advantage of one product over another, and so on). Second, the success of adopting EVs for personal transport depends on the effectiveness of addressing the issues that potential adopters (e.g., university students) have about them. Sustainable transport strategies have often been directed towards already existing consumers, however, the authors contend that a focus on sustainable transport strategies directed at potential adopters will yield greater results in terms of achieving a more sustainable transport sector.

3. Previous Studies and Contribution of the Current Research

Research examining the attitudes of consumers regarding the adoption of EVs may be divided into three intersecting categories: studies that examine consumer perception, driver experience, and societal symbolic meaning. An important caveat to note is the tendency for such studies to quickly become dated and to be country- and region-specific, given local demographic groups, transport policies, and the availability of incentives (Lane 2011). Recent reviews of the research on attitudes of consumers regarding the adoption of EVs provide a comprehensive overview of the academic literature (see, for example, Adnan et al. 2017; Hardman 2019; Liao et al. 2017, 2019; Neves et al. 2019; Qian et al. 2019; Rezvani et al. 2015). These studies examine a variety of related topics including: the methodological approaches that researchers employ, the heterogeneity of the attributes that consumers prefer, and the implications this has for policy-makers and researchers. Among the significant findings is the continued importance that consumers place on economic, technological, environmental, and policy attributes. Issues such as cost, driving range and duration, performance, brand availability, and tax reduction incentives remain on the top of consumer concerns. Moreover, increasing carbon dioxide emissions and associated environmental outcomes, consumer awareness about issues related to sustainability, and informative promotion and understanding of novel technologies such as EVs are key factors that affect the decision-making processes of consumers. In addition, socio-psychological factors have been highlighted by some researchers. These studies reveal the complexities of adopting novel technologies that go beyond utilitarian issues. Some of the topics that are explored include: semiotics and identity, processes through which novel technologies are diffused and adopted, and emotions such as the pleasure associated with driving.

Some authors argue that perceptions have an impact on consumers' potential to purchase EVs. Zhang et al. (2018: 72) claim, "Consumers' perception of incentive policies is intertwined with the perceptions of environmental benefits and risks inherent in the immature technology associated with EVs". This demonstrates that economic incentives alone are not sufficient for making consumers consider adopting EVs. Axsen et al. (2017: 172) point to the ways confusion and misperceptions influence adoption. The authors found "that there is widespread ignorance or misunderstanding" regarding EVs and "Providing information to consumers may be an important step in efforts to support the adoption" of EVs. The authors highlight the importance of information dissemination and adoption in adopting novel technologies. In addition, perceptions about the 'strangeness' and 'trustworthiness' of the technology were identified by potential adopters as barriers pointing to the importance of 'normalizing' emergent technologies. Researchers have also identified misconceptions about other attributes such as driving range, safety, reliability, and recharge time as influencing adoption (e.g., Carley et al. 2019; Coffman et al. 2017; Graham-Rowe et al. 2012; Krause et al. 2016; Schneidreit et al. 2015; Sgouridis et al. 2018; She et al. 2017).

Authors have also examined the impact of real world driver experience on the adoption of EVs. Some authors claim, "individual preferences change significantly after a real experience with an electric vehicle" and concerns regarding commonly held misconceptions such as "driving range, top speed, fuel cost, battery life and charging in city centres and train stations" (Jensen et al. 2013: 24) are subsided. Similarly, in another study, 79 participants drove EVs in the Berlin, Germany metropolitan area for a 6-month field trial. Although participants reported advantages as well as barriers, the authors claim, "Experience can significantly change the perception of EVs" (Bühler et al. 2014: 177). In both studies, however, the positive effects on the general perception of EVs did not necessarily translate into purchase intentions. Other authors found, in general, driver experience was positive with some drawbacks. Drivers reported advantages of recharging over fueling including the convenience of doing so at home or at a public charging station and the financial savings of recharging compared to fueling. Drawbacks included the lack of infrastructure for recharging, the recharging time, and the limited driving range (Figenbaum and Kolbenstvedt 2016; Franke et al. 2017; Graham-Rowe et al. 2012).

While driver experience proved to be an effective method for changing perceptions about EVs, some authors have pointed to the impact that symbolic meanings have on the adoption of EVs. Semiotics are important in two ways: first, cars do not simply provide mobility, but symbolize certain ideas. Second, the ideas that cars symbolize relate to a consumer's identity. Accordingly, cars are not simply about moving

from one point to another, but about beliefs, values, social status, and so on (Heffner et al. 2006). Skippon et al. (2016) tested the effect of direct experience in a randomised controlled trial with 393 drivers. The drivers in the experimental group drove an EV and the drivers in the control group drove an equivalent gasoline vehicle. Despite the fact that drivers rated the performance of the EVs more highly than the gasoline vehicles, willingness to adopt an EV declined after the experience. The authors claim that consumers prefer products whose symbolic meanings are congruent with personal identity. Symbolic meanings can override the 'rational' calculations evidenced from the experience of driving an EV. In a similar vein, Schuitema et al. (2013: 39), found "that instrumental attributes are important largely because they are associated with other attributes derived from owning and using EVs, including pleasure of driving (hedonic attributes) and identity derived from owning and using EVs (symbolic attributes)". Here the authors show that in situations where a consumer has a 'pro-environment' self-image, he or she is more likely to adopt an EV. Studies such as these as well as others raise the importance of psychological factors relevant for determining behavioural intention (e.g., Axsen et al. 2018; Hausteijn and Jensen 2018; Noppers et al. 2015; White and Sintov 2017)

Given the limited number of studies in the UAE on the attitudes of consumers regarding EVs, the current research contributes to the advancement of knowledge on sustainable transport by gaining an understanding of the factors that influence university students' perceptions, preferences, and valuation regarding the adoption of EVs in the UAE. The authors employ an on-line survey to determine the social, economic, and environmental factors that influence the perceptions, preferences, and valuation of consumers. In addition, the chi-square test is used to investigate the differences in perceptions, preferences, and valuation among the sample population. A framework is developed and applied that accounts for the social, economic, and environmental factors by categorizing various indicators that influence potential adopters.

4. Research Design and Methodology

An online survey was formulated using a predetermined set of questions. The questions addressed issues related to the social (e.g., age, gender), economic (e.g., cost of operating an EV, governmental incentives), and environmental (e.g., sustainable transport, concern for the environment) factors that influence the perceptions, preferences, and valuation of consumers. Perception refers to the way individuals identify, organize, and interpret information to understand their environment. This includes physiological processes involving signals from the human senses to

the central nervous system. These are in turn sifted through an individual's memory, learning, and expectations. While such processes are complex, enabling individuals to see and make sense of the world around them, they are unconscious, incomplete, and varying. In this sense perceptions are selective and may be influenced by experience, motives, and emotions (Goldstein 2009). The term preference refers to the decision-making process in the selection of one product over another. Here individuals make a choice to accept or reject one product over another based on their subjective judgement. Preference is not stable over time. Individuals make choices based on a host of factors such as their socio-economic position, cultural background, religious beliefs, education, and so forth. In this sense preference is malleable and depends on the individual's particular circumstances during a particular time. The ultimate goal, however, is the 'best choice' (real or imagined) based on the degree of contentment or utility that the product provides (Slovic 1995). Valuation denotes the degree of importance that an individual places on an object with the intent of determining a particular course of action. For example, an individual may place a high valuation on an EV because it fulfills the ultimate goal of reducing the individual's carbon footprint. In this sense, valuation affects the behavior of a person and is the basis for that person's action. Moreover, valuation is a reflection of the individual's sense of 'right' and 'wrong'. Simply stated, an individual may place a high valuation on an EV because driving an environmentally friendly vehicle is the 'right' thing to do. One's valuation tends to affect one's attitude and behavior (Bhattacharya and Constantinides 2005).

The survey was used to collect data from a sample population at the United Arab Emirates University (UAEU) in Al Ain, Abu Dhabi, which currently enrolls approximately 14,000 Emirati and international students. A convenience sampling method was used. Convenience sampling is a non-probability sampling method that relies on data collection from population members who are conveniently available to participate in a study. This method was chosen for three reasons: first, it allowed the researchers convenient access to a diverse group of students; second, it is useful for documenting a quality of a phenomenon that occurs in a given sample; third, it is useful for detecting relationships among different phenomena. The use of convenience sampling, however, has been criticized due to the inability to generalise research findings, the relevance of bias, and high sampling error; however, for this study the sample may be representative since it is drawn from a population at the UAEU that is comprised of a diverse group of students from the seven emirates.

Students at the UAEU were sent a link to the online survey. Respondents were mainly engineering, business, and science undergraduate students. The intention was to capture the perceptions, preferences, and

valuation of individuals who are prospective owners of EVs. In terms of knowledge considerations, the authors consider most of the sample population to be 'technologically savvy'. Technologically savvy individuals have a high level of quantitative skills, and are more equipped to sort out the technical, economic, and environmental differences between EVs and gasoline vehicles. The authors consider these individuals to be likely early adopters only if they perceive EVs to have advantages over gasoline vehicles.

Over 650 responses were received, but some were rejected due to incompleteness. The main objective of the survey was to characterize potential adopters of EVs by elucidating knowledge, preferences, perceptions, attitudes, valuation, and barriers pertaining to the adoption of EVs as part of a plan for sustainable transport. A secondary purpose of the survey was to relate certain socio-economic characteristics including age, gender, and economic incentives to individual perceptions, preferences, and valuation towards EVs. The survey included three sections. The first section of the survey asked for respondents' gender, age, and field of study. Respondents' perceptions, preferences, and valuation towards EV attributes were examined in the second section. In the third section, respondents were questioned about environmental and sustainability issues.

Data was entered in the SPSS software to categorize and establish relationships among a variety of indicators regarding the potential to adopt EVs. A chi-square test was used to investigate the differences in perceptions, preferences, and valuation among the sample population. A chi-square test for independence compares two variables in a contingency table to see if they are related. This is done primarily by testing the null hypothesis of no association between a set of groups and outcomes for a response. The researchers used the standard 5% or 0.05 cut-off for defining what is a statistically significant difference. Therefore, an associated p -value < 0.05 , means that there is significant evidence of an association between variables.

5. Results and Discussion

The data from the survey and the analysis of the results are organized in the following way: first, the composition of the respondents including age, gender, and field of study; second, factors such as concern for the environment, trendiness, and drivability that influence the potential to adopt EVs according to age and gender. In addition, the effectiveness of incentives such as government subsidies, transportation requirements, knowledge about EVs, and public opinion that influence the potential to adopt EVs according to age and gender; and third, factors such as price, driving range, and recharge time that discourage the potential to adopt EVs according to age and gender.

5.1 Composition of the respondents

The sample indicated that 67% of the respondents were female and 33% were male. The discrepancy between female and male respondents reflects the student population at the UAEU where females account for 82% and males 18%. In addition, most of the respondents were 19 years and below (55%) and 20–24 years (36%) with the remaining 9% in the 25–29 years and 30 years or over categories. The age of the respondents reflects the mostly undergraduate student population at the UAEU. In terms of the field of study, Figure 1 shows that the largest group of respondents were from Engineering (25%), followed by Humanities (20%), Business (14%), and Science (14%). This indicates that many of the respondents are 'technologically savvy'; they have a high level of quantitative skills, and are equipped to sort out the technical, economic, and environmental differences between EVs and gasoline vehicles.

5.2 Factors that influence the potential to adopt EVs

There were many factors that respondents identified as influencing their potential to adopt EVs. The results in Table 1 indicate that 64% identified "good for the environment", followed by "new trend" (28%), and "test drive" (28%) influencing their potential to adopt EVs. When the data is disaggregated according to age, 59% of the respondents in the 19 years and below age group identified "good for the environment" influencing their potential to adopt EVs compared to 34% in the 20–24 age group, and the remainder in the other age categories; 63% of the respondents in the 19 years and below age group identified "new trend" influencing their potential to adopt EVs compared to 33% in

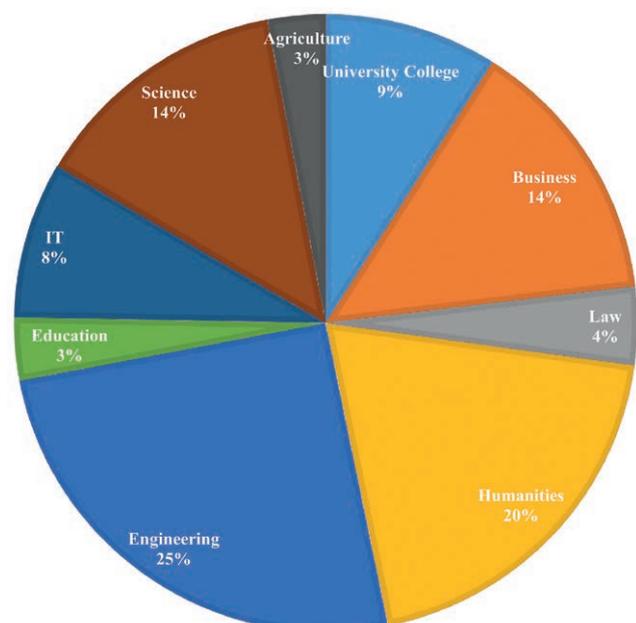


Fig. 1 Number of students from different colleges at the UAEU.

the 20–24 age group; and 63% of the respondents in the 19 years and below identified “test drive” influencing their potential to adopt EVs compared to 33% in the 20–24 age group. Chi-square tests show statistically significant association between the 19 years and below age group and “good for the environment” (chi-square = 355.04; $DF = 3$; $p \leq 0.00001$), “new trend” (chi-square = 185.09; $DF = 3$; $p \leq 0.00001$), and “test drive” (chi-square = 148.52; $DF = 3$; $p \leq 0.00001$). This shows that the 19 years and below age group is more likely to be influenced by “good for the environment”, “new trend”, and “test drive” factors than the 20–24 age group.

In addition, although “other people’s opinions” (20%), “cheaper to operate” (24%), and “low noise level” (22%) did not rank as high in importance in terms of influencing the potential to adopt EVs, such factors cannot be neglected. When the data is disaggregated according to age, 60% of the respondents in the 19 years and below age group identified “other people’s opinions” influencing their decision to buy an EV compared to 33% in the 20–24 age group; 52% of the respondents in the 19 years and below age group identified “cheaper to operate” influencing their decision to buy an EV compared to 39% in the 20–24 age group; and 62% of the respondents in the 19 years and below identified “low noise level” influencing their decision to buy an EV compared to 32% in the 20–24 age group. Chi-square tests show statistically significant associations between the 19 and below age group and “other people’s opinions” (chi-square = 118.24; $DF = 3$; $p \leq 0.00001$), “cheaper to operate” (chi-square = 107.94; $DF = 3$; $p \leq 0.00001$), and “low noise level” (chi-square = 136.61; $DF = 3$; $p \leq 0.00001$). This demonstrates that the 19 years and below age group’s potential to adopt EVs is more likely to be influenced by “other people’s opinions”, “cheaper to operate”, and “low noise” factors than the 20–24 age group.

Tab. 1 Factors that influence the decision to buy an electric vehicle

Factors that influence the decision to buy an electric vehicle	Frequency	Percentage
Good for the environment	424	63.7
Other people’s opinions	135	20.3
Cheaper to operate	158	23.7
Low noise level	144	21.6
New trend	187	28.1
Test drive	186	27.9

Note: Respondents were given a list of six factors (Good for the environment; Other people’s opinions; Cheaper to operate; Low noise level; New trend; and Test drive) to choose from that would influence their decision to buy an electric vehicle. Respondents chose from one to six factors. For example, 424 or 63.7% of the respondents chose ‘Good for the environment’ compared to only 135 or 20.3% that chose ‘Other people’s opinions’.

When the responses of females were compared to males, 49% of females identified “good for the environment” influencing the potential to adopt EVs compared to 58% of males; 48% of females identified “new trend” compared to 59% of males; 44% of females identified “test drive” compared to 60% of males; 52% of females identified “other people’s opinions” compared to 58% of males; 56% of females identified “cheaper to operate” compared to 54% of males; and 62% of females identified “low noise level” factor compared to 45% of males. A chi-square test shows statistically no significant association based on gender (chi-square = 1.905; $DF = 5$; $p = 0.86213$). This indicates that females’ and males’ potential to adopt EVs are influenced by the same factors.

Respondents were asked to rate the importance of government incentives on the potential to adopt EVs based on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). 67.4% agreed that the government should provide incentives for buying an EV. Chi-square test demonstrates a statistically significant association between the desire for government incentives and age group (chi-square = 17.442; $DF = 3$; $p \leq 0.00001$). The 19 and below age group was more likely than the 20–24 age group to indicate that the government should provide incentives for buying an EV. Also, a chi-square test shows no statistically significant association between the desire for government incentives and gender (chi-square = 3.801; $DF = 3$; $p = 0.1495$).

Respondents were asked to rate if EVs can satisfy consumer needs just as effectively as gasoline vehicles on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). 54% of respondents agreed that EVs can satisfy consumer needs just as effectively as gasoline vehicles. Chi-square tests demonstrate there was no statistically significant association based on age (chi-square = 2.0976; $DF = 3$; $p = 0.1475$) and gender (chi-square = 7.7106; $DF = 3$; $p = 0.0524$). Moreover, respondents were asked to rate how likely their next vehicle will be an EV on a 5-point Likert scale from 1 (very likely) to 5 (very unlikely). 49% of the respondents indicated their next vehicle will likely be an EV. Again, a chi-square test demonstrates there was no statistically significant association based on age (chi-square = 2.0976; $DF = 3$; $p = 0.1475$) and gender (chi-square = 7.7106; $DF = 3$; $p = 0.0524$).

Regarding knowledge about EVs, respondents were asked about their sources of knowledge. In Table 2, the results show 67.6% received knowledge about EVs from internet sources followed by 33.3% from personal communication. Interestingly, no one in the survey selected the newspaper as a source about their knowledge regarding EVs. Chi-square tests demonstrate there is no statistically significant association based on age (chi-square = 11.34; $DF = 9$; $p = 0.25312$) and gender (chi-square = 0.651; $DF = 3$; $p = 0.88466$).

Respondents were also asked to rate their current knowledge about EVs on a 4-point Likert scale from

Tab. 2 Sources of knowledge about electric vehicles.

Sources of knowledge about electric vehicles	Frequency	Percentage
Newspapers	0	0.0
Magazines	91	13.7
Television	196	29.4
Internet sources	450	67.6
Personal communication	222	33.3

Note: Respondents were given a list of five sources (Newspapers; Magazines; Television; Internet; Personal communication) from which they get most of their knowledge about electric vehicles. Respondents chose from one to six sources. For example, 61 or 13.7% of the respondents chose 'Magazines' compared to 450 or 67.6% that chose 'Internet sources'.

1 (no knowledge) to 4 (good knowledge). 45% claimed to have little knowledge about EVs and 27% claimed to have moderate knowledge about EVs. Chi-square tests demonstrate there is no statistically significant association based on age (chi-square = 11.34; $DF = 9$; $p = 0.34212$) and gender (chi-square = 0.756; $DF = 3$; $p = 0.89322$).

Respondents were asked about the importance of advice regarding EVs. 38% said that advice is important, and they rely on the knowledge of their family and friends, while 29% said that advice is important and they rely on the knowledge of professionals. Chi-square tests demonstrated there was no statistically significant association based on age (chi-square = 10.33; $DF = 7$; $p = 0.28741$) and gender (chi-square = 0.638; $DF = 3$; $p = 0.74388$).

5.3 Factors that undermine the potential to adopt EVs

There were many factors that were identified that undermine the potential to adopt EVs. The results in Table 3 indicate that most students identified "price" (58%), followed by "limited driving range" (37%), and "long recharging time" (36%) as undermining the potential to adopt EVs. When the data is disaggregated according to age, 67% of the respondents in the 19 years and below age group identified "price" undermining the potential to adopt EVs compared to 26% in the 20–24 age group; 33% of the respondents in the 19 years and below age group identified "limited driving range" undermining the potential to adopt EVs compared to 43% in the 20–24 age group; and 38% of the respondents in the 19 years and below identified "long recharging time" undermining the potential to adopt EVs compared to 33% in the 20–24 age group. Chi-square tests show statistically significant association between the 19 and below age group and "price" (chi-square = 62.97; $DF = 3$; $p \leq 0.00001$), but no significant association between age and "limited driving range" (chi-square = 0.419; $DF = 3$; $p = 0.93629$), and "long recharging time" (chi-square = 0.358; $DF = 3$; $p = 0.94878$). This shows that the 19 years and below

group's potential to adopt EVs group is more likely to be undermined by "price" than the 20–24 age group.

Moreover, the "lack of recharging stations" (29%), "lack of trust in new technologies" (21%), "lack of consumer choice" (18%), and "unwillingness to change my lifestyle" (9%) did not rank as high in importance in terms of undermining the potential to adopt EVs. When the data is disaggregated according to age, 48% of the respondents in the 19 years and below age group identified "lack of recharging stations" undermining the potential to adopt EVs compared to 43% in the 20–24 age group; 51% of the respondents in the 19 years and below age group identified "lack of trust in new technologies" undermining the potential to adopt EVs compared to 42% in the 20–24 age group; 45% of the respondents in the 19 years and below identified "lack of consumer choice" undermining the potential to adopt EVs compared to 52% in the 20–24 age group; and 41% of the respondents in the 19 years and below identified "unwillingness to change my lifestyle" undermining the potential to adopt EVs compared to 42% in the 20–24 age group. A chi-square test shows statistically no significant association between all age groups and "lack of recharging stations", "lack of trust in new technologies", "lack of consumer choice", and "lack of consumer choice" (chi-square = 5.084; $DF = 9$; $p = 0.82693$) factors. This demonstrates that all age groups' potential to adopt EVs is undermined by "lack of recharging stations", "lack of trust in new technologies", "lack of consumer choice", and "unwillingness to change my lifestyle" factors.

When the responses of females were compared to males, 62% of females identified "price" undermining the potential to adopt EVs compared to 65% of males; 45% of females identified "limited driving range" compared to 55% of males; 45% of females identified "long recharging time" compared to 60% of males; 55% of females identified "lack of recharging stations"

Tab. 3 Factors that discourage students from buying an electric vehicle.

Factors that discourage students from buying an electric vehicle	Frequency	Percentage
Price	386	58.0
Long recharging time	241	36.2
Limited driving range	243	36.5
Lack of consumer choice	118	17.7
Lack of recharging stations	195	29.3
Lack of trust in new technologies	137	20.6
Unwillingness to change my lifestyle	59	8.9

Note: Respondents were given a list of seven factors (Price; Long recharging time; Limited driving range; Lack of consumer choice; Lack of recharging stations; Lack of trust in new technologies; Unwillingness to change my lifestyle) to choose from that would discourage them from buying an electric vehicle. Respondents chose from one to seven factors. For example, 386 or 58% of the respondents chose 'Price' compared to only 241 or 36.2% that chose 'Long recharging time'.

compared to 58% of males; 56% of females identified “lack of trust in new technologies” compared to 54% of males; 56% of females identified “lack of consumer choice” compared to 54% of males; and 32% of females identified “unwillingness to change my lifestyle” compared to 38% of males. A chi-square test shows statistically no significant association based on gender (chi-square = 2.858; $DF = 6$; $p = 0.82645$). This indicates that females’ and males’ potential to adopt EVs are undermined by the same factors.

Respondents were asked to rate the advantage of owning an EV over a gasoline vehicle on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Most of the respondents (65%) agreed that owning an EV has an advantage over owning a gasoline vehicle. Chi-square tests show statistically significant association between the advantages of owning an EV over a gasoline vehicle by age group (chi-square = 15.6035; $DF = 3$; $p = 0.0014$) as well as gender (chi-square = 12.4608; $DF = 3$; $p = 0.006$). The 19 and below age group were more likely than the 20–24 age group to indicate that owning an EV has an advantage over owning a gasoline vehicle. Also, males were more likely than females to indicate that owning an EV has an advantage over owning a gasoline vehicle.

6. Conclusions and Implications for Sustainable Transport

The sample of respondents in this study provides important insights about the perceptions, preferences, and valuation of university students regarding the adoption of EVs as part of a strategy towards sustainable transport. The results show several important findings. The youngest age group’s (19 years and below) potential to adopt EVs is more likely to be influenced by environmental factors. This demonstrates a growing awareness about environmental factors among some of the youngest potential adopters of EVs. The same age group is more likely to consider new trends as well as performance influencing the potential to adopt EVs. This indicates that early potential adopters have similar expectations about EVs as they do about gasoline vehicles; they want trendy and well-performing vehicles. Also, the youngest age group is more likely to consider the opinion of others (word of mouth) about EVs, how cheap they are to operate, and noise level. All these factors play an important role in terms of the potential to adopt EVs.

There were also many factors that were identified that undermined the potential to adopt EVs. Among the most important factors was cost, especially for the youngest age group (19 and below). This indicates that early potential adopters may not be financially stable and may not adopt EVs because of their higher cost. Also, all the age groups that were surveyed in this study pointed to other issues that are potential

barriers to adopting EVs. For example, the lack of charging infrastructure, the novelty of the technology, and the unwillingness for potential adopters to make a lifestyle change. Furthermore, the findings suggest that although environmental benefits of EVs have a major influence on EV adoption they are ranked after cost and performance.

In terms of a comparison between the overall advantages of owning an EV over a gasoline vehicle, the 19 and below age group males indicated that owning an EV has an advantage over owning a gasoline vehicle. Also, nearly half of the respondents indicated their next vehicle will likely be an EV. This shows that overall, a moderate to high interest in EVs exists despite several reservations expressed towards EVs. In general, attitudes towards EVs were neither wholly positive nor wholly negative, however, completely negative attitudes to EV technology should not be ignored.

Evidence from this study emphasizes the need to address socio-technical barriers facing EVs. As previously mentioned, some major challenges faced by EVs include the lack of charging infrastructure, the novelty of the technology, and so on; however, consumer acceptance is important as it is key to the commercial success or failure of EVs, even if the other criteria are met. A major potential barrier to widespread EV adoption detected among our target group is the uncertainty associated with the EV technology and recharging sources. Some of this uncertainty may be attributed to unfamiliarity with EV technology, but may also be attributed to the older age groups (20 and older) females not being convinced that EVs are a better option than gasoline vehicles.

All age groups, especially the 19 and below age group, favoured economic incentives. This, however, may have little effect on EV market penetration if consumers have low confidence in EV technology. Therefore, certain measures need to be taken to increase the market share of EVs. This includes education, increased investments in EV technology, infrastructure, battery swap programs, extensive warranties on the EV batteries, and increased government credits to subsidize the cost of EVs. Moreover, the study demonstrates the importance of acquiring knowledge about EVs from sources on the internet, word of mouth, and family and friends. Since public opinion can be influenced through media and social networks, policy makers can use this medium to influence the public appreciation for financial and non-financial benefits of adopting EVs such as energy security and reduction of ecological footprint.

The current research contributes to the existing academic literature in several ways. Issues such as environmental concerns, trendiness, operation costs, drivability, other people’s opinions and government incentives are among the most important factors that affect potential adopter attitudes with no significant difference between male and female responses. This is in line with other studies that examine the

importance of a variety of incentives that promote the adoption of EVs, 'real world' driver experience, and the symbolic value that vehicles have regarding potential adopter attitudes (see, for example, Heffner et al. 2006; Jensen et al. 2013; Zhang et al. 2018). Among the factors that detract potential adopter attitudes are purchase price, limited driving range, long recharging time, lack of recharging stations, lack of trust in new technologies, lack of consumer choice, and the unwillingness to change one's lifestyle. Other studies in this vein that highlight the uncertainties surrounding EVs point to issues such as ignorance or misunderstanding regarding novel technologies, lack of infrastructure for recharging, the recharging time, and the limited driving range (see, for example, Axsen et al. 2017; Carley et al. 2019; Figenbaum and Kolbenstvedt 2016). Such findings are similar to other research (see, for example, Adnan et al. 2017; Liao et al. 2017; Rezvani et al. 2015) that provides comprehensive reviews of extensive number of studies. This confirms that social, financial, technical, and infrastructure attributes continue to drive decision-making processes.

The study's novel contribution to the academic literature relates to the way age plays an important factor in determining the potential to adopt EVs. The study disaggregates the ages of university students into four categories: (1) 19 years and below; (2) 20–24 years; (3) 25–29 years; and (4) 30 years and over. Since most of the respondents (55%) were 19 years and below, they are lower than the age requirement for obtaining a license in the UAE and most likely do not own a vehicle. Accordingly, most of the respondents fell into the category of 'potential adopters of EVs' (i.e., potential consumers).

Moreover, the chi-square tests show a statistically significant association between the 19 years and below age group and "good for the environment" (chi-square = 355.04; $DF = 3$; $p \leq 0.00001$), "new trend" (chi-square = 185.09; $DF = 3$; $p \leq 0.00001$), "test drive" (chi-square = 148.52; $DF = 3$; $p \leq 0.00001$), "other people's opinions" (chi-square = 118.24; $DF = 3$; $p \leq 0.00001$), "cheaper to operate" (chi-square = 107.94; $DF = 3$; $p \leq 0.00001$), "low noise level" (chi-square = 136.61; $DF = 3$; $p \leq 0.00001$), "the desire for government incentives" (chi-square = 17.442; $DF = 3$; $p \leq 0.00001$), "price" (chi-square = 62.97; $DF = 3$; $p \leq 0.00001$), and "EV has an advantage over owning a gasoline vehicle" (chi-square = 15.6035; $DF = 3$; $p = 0.0014$). This demonstrates that these factors are more likely to influence the 19 years and below group's potential to adopt EVs than any other age group in the study.

Given these findings, a good case can be made to more carefully take into consideration the importance of age, especially younger people, when examining issues related to the adoption of EVs. There are several reasons for this. In the UAE, there has been greater emphasis placed on issues related to environmental

sustainability through several government initiatives based on the sustainable development goals set out by the United Nations for 2030 (see The United Arab Emirates' Government Portal 2020). While unlike many Western countries, where such issues have been at the forefront for many years, in the UAE they are relatively new. The initiatives from different government entities, however, have trickled down into the education system. For example, the UAE curriculums at the primary and secondary levels have been revised to include a more comprehensive examination of issues related to environmental sustainability. Students entering the university system in the UAE today are much more aware of the pressing issues regarding the environment, including the problem of CO₂ emissions from gasoline engines, than previous cohorts. Greater awareness of such issues has a determining effect on young people's (19 years and below) potential to adopt EVs.

The UAE, however, is not alone in this regard. Internationally, young people together with the United Nations Framework Convention on Climate Change (UNFCCC) have been involved in the intergovernmental climate change negotiations. Such initiatives have produced greater awareness of issues related to climate change, such as CO₂ emissions from gasoline vehicles, through the publication of educational resources, UNFCCC conferences, good practices, and partnerships (see United Nations Climate Change 2020). In addition, there has been a variety of protests by young people in what has been referred to as the 'climate change protests'. Thousands of students from the US, UK, Australia, and other countries expressed their dismay with the lack of action by governments and corporations regarding climate change (see, for example, BBC 2020; Brook n/d; The Guardian n/d). The point here is that a qualitative change is occurring mostly in the mindset of younger generations regarding climate change. Young people are increasingly more willing to adopt policies and practices that are environmentally sustainable. Based on these factors, governments seeking more environmentally sustainable policies and industry seeking to increase the sale of EVs would benefit from directing their sustainable transport strategies toward potential adopters of EVs rather than simply attempting to convince already existing consumers. This would be an effective strategy as young potential adopters of EVs are seeking alternative products and practices that are more environmentally sustainable.

References

- Adnan, N., Nordin, S. M., Rahman, I. (2017). Adoption of PHEV/EV in Malaysia: a critical review on predicting consumer behaviour. *Renewable and Sustainable Energy Reviews* 72, 849–862, <https://doi.org/10.1016/j.rser.2017.01.121>.

- Axsen, J., Dusyk, N., Cairns, J., Goldberg, S. (2018): Consumer Lifestyle and Response to Low-Carbon Technologies: Semistructured Interviews with Plug-In Electric Vehicle Owners (No. 18-01065).
- Axsen, J., Langman, B., Goldberg, S. (2017): Confusion of innovations: mainstream consumer perceptions and misperceptions of electric-drive vehicles and charging programs in Canada. *Energy Research and Social Science* 27, 163–173, <https://doi.org/10.1016/j.erss.2017.03.008>.
- BBC (2020): Climate change: Extinction Rebellion end blockade at Shell's Aberdeen HQ. Retrieved from https://www.bbc.com/news/uk-scotland-north-east-orkney-shetland-51132110?intlink_from_url=https://www.bbc.com/news/topics/cjyykdwmw58t/uk-climate-change-protestsandlink_location=live-reporting-story.
- Bhattacharya, S., Constantinides, G. M. (2005): Theory of valuation. World Scientific, <https://doi.org/10.1142/5860>.
- Brook, B. (n/d). 'My teacher doesn't know I'm here': Tens of thousands of teens gather for climate change protests. Retrieved from <https://www.news.com.au/technology/environment/climate-change/my-teacher-doesnt-know-im-here-tens-of-thousands-of-teens-gather-for-climate-change-protests/news-story/77234a1c1f3138d94a860c09e4c70b03>.
- Bühler, F., Cocron, P., Neumann, I., Franke, T., Krems, J. F. (2014): Is EV experience related to EV acceptance? Results from a German field study. *Transportation Research Part F: Traffic Psychology and Behaviour* 25, 34–49, <https://doi.org/10.1016/j.trf.2014.05.002>.
- Carley, S., Siddiki, S., Nicholson-Crotty, S. (2019): Evolution of plug-in electric vehicle demand: Assessing consumer perceptions and intent to purchase over time. *Transportation Research Part D: Transport and Environment* 70, 94–111, <https://doi.org/10.1016/j.trd.2019.04.002>.
- Coffman, M., Bernstein, P., Wee, S. (2017): Electric vehicles revisited: A review of factors that affect adoption. *Transport Reviews* 37(1), 79–93, <https://doi.org/10.1080/01441647.2016.1217282>.
- DOTAD (2009): Surface transport master plan. Department of Transport.
- Figenbaum, E., Kolbenstvedt, M. (2016): Learning from Norwegian Battery Electric and Plug-in Hybrid Vehicle users: Results from a survey of vehicle owners. TØI report, (1492/2016).
- Franke, T., Krems, J. F. (2013): What drives range preferences in electric vehicle users? *Transport Policy* 30, 56–62, <https://doi.org/10.1016/j.tranpol.2013.07.005>.
- Franke, T., Günther, M., Trantow, M., Krems, J. F. (2017): Does this range suit me? Range satisfaction of battery electric vehicle users. *Applied Ergonomics* 65, 191–199, <https://doi.org/10.1016/j.apergo.2017.06.013>.
- Goldstein, E. B. (2009): Sensation and perception. Cengage Learning.
- Graham-Rowe, E., Gardner, B., Abraham, C., Skippon, S., Dittmar, H., Hutchins, R., Stannard, J. (2012): Mainstream consumers driving plug-in battery-electric and plug-in hybrid electric cars: a qualitative analysis of responses and evaluations. *Transportation Research Part A* 46, 140–153, <https://doi.org/10.1016/j.tra.2011.09.008>.
- Hardman, S. (2019): Understanding the impact of reoccurring and non-financial incentives on plug-in electric vehicle adoption – a review. *Transportation Research Part A: Policy and Practice* 119, 1–14, <https://doi.org/10.1016/j.tra.2018.11.002>.
- Haustein, S., Jensen, A. F. (2018): Factors of electric vehicle adoption: A comparison of conventional and electric car users based on an extended theory of planned behavior. *International Journal of Sustainable Transportation* 12(7), 484–496, <https://doi.org/10.1080/15568318.2017.1398790>.
- Heffner, R., Turrentine, Kurani, K. (2006): A Primer on Automobile Semiotics. University of California, Davis: Institute of Transportation Studies.
- International Energy Agency (2018): Key world energy statistics. Paris: International Energy Agency.
- International Renewable Energy Agency (2018): Global energy transformation: A roadmap to 2050. Abu Dhabi: International Renewable Energy Agency.
- Jensen, A. F., Cherchi, E., Mabit, S. L. (2013): On the stability of preferences and attitudes before and after experiencing an electric vehicle. *Transportation Research Part D: Transport and Environment* 25, 24–32, <https://doi.org/10.1016/j.trd.2013.07.006>.
- Krause, R. M., Lane, B. W., Carley, S., Graham, J. D. (2016): Assessing demand by urban consumers for plug-in electric vehicles under future cost and technological scenarios. *International Journal of Sustainable Transportation* 10(8), 742–751, <https://doi.org/10.1080/15568318.2016.1148213>.
- Lane, B. (2011): Market Delivery of Ultra-Low Carbon Vehicles in the UK. RAC Foundation, London.
- Liao, F., Molin, E., Timmermans, H., van Wee, B. (2019): Consumer preferences for business models in electric vehicle adoption. *Transport Policy* 73, 12–24, <https://doi.org/10.1016/j.tranpol.2018.10.006>.
- Liao, F., Molin, E., van Wee, B. (2017): Consumer preferences for electric vehicles: a literature review. *Transport Reviews* 37(3), 252–275, <https://doi.org/10.1080/01441647.2016.1230794>.
- Mueller, K., Sgouridis, S. (2011): Simulation-based analysis of personal rapid transit systems: Service and energy performance assessment of the Masdar City PRT case. *Journal of Advanced Transportation* 45, 252–270, <https://doi.org/10.1002/atr.158>.
- Noppers, E. H., Keizer, K., Bockarjova, M., Steg, L. (2015): The adoption of sustainable innovations: The role of instrumental, environmental, and symbolic attributes for earlier and later adopters. *Journal of Environmental Psychology* 44, 74–84, <https://doi.org/10.1016/j.jenvp.2015.09.002>.
- Qian, L., Grisolia, J. M., Soopramanien, D. (2019): The impact of service and government-policy attributes on consumer preferences for electric vehicles in China. *Transportation Research Part A: Policy and Practice* 122, 70–84, <https://doi.org/10.1016/j.tra.2019.02.008>.
- Rezvani, Z., Jansson, J., Bodin, J. (2015): Advances in consumer electric vehicle adoption research: A review and research agenda. *Transportation Research Part D: Transport and Environment* 34, 122–136, <https://doi.org/10.1016/j.trd.2014.10.010>.
- Schneidereit, T., Franke, T., Guenther, M., Krems, J. F. (2015): Does range matter? Exploring perceptions of electric vehicles with and without a range extender among

- potential early adopters in Germany. *Energy Research and Social Science* 8, 198–206, <https://doi.org/10.1016/j.erss.2015.06.001>.
- Schuitema, G., Anable, J., Skippon, S., Kinnear, N. (2013): The role of instrumental, hedonic and symbolic attributes in the intention to adopt electric vehicles. *Transportation Research Part A: Policy and Practice* 48, 39–49, <https://doi.org/10.1016/j.tra.2012.10.004>.
- Sgouridis, S., Abdullah, A., Griffiths, S., Saygin, D., Wagner, N., Gielen, D., Reinisch, H., McQueen, D. (2016): RE-mapping the UAE's energy transition: An economy-wide assessment of renewable energy options and their policy implications. *Renewable and Sustainable Energy Reviews* 55, 1166–1180, <https://doi.org/10.1016/j.rser.2015.05.039>.
- Sgouridis, S., Helmers, E., Al Hadhrami, M. (2018): Light-duty electric vehicles in the gulf? Techno-economic assessment and policy implications. *International Journal of Sustainable Transportation* 12(2), 92–106, <https://doi.org/10.1080/15568318.2017.1332256>.
- She, Z. Y., Sun, Q., Ma, J. J., Xie, B. C. (2017): What are the barriers to widespread adoption of battery electric vehicles? A survey of public perception in Tianjin, China. *Transport Policy* 56, 29–40, <https://doi.org/10.1016/j.tranpol.2017.03.001>.
- Skippon, S. M., Kinnear, N., Lloyd, L., Stannard, J. (2016): How experience of use influences mass-market drivers' willingness to consider a battery electric vehicle: a randomised controlled trial. *Transportation Research Part A: Policy and Practice* 92, 26–42, <https://doi.org/10.1016/j.tra.2016.06.034>.
- Slovic, P. (1995): The construction of preference. *American Psychologist* 50(5), 364–371, <https://doi.org/10.1037/0003-066X.50.5.364>.
- The United Arab Emirates' Government Portal (2020). Efforts towards Sustainability. Retrieved from <https://government.ae/en/information-and-services/environment-and-energy/environmental-protection/efforts-towards-sustainability>.
- United Nations (2011): 2012 the International Year of Sustainable Energy for All. Retrieved from <http://www.un.org/en/events/sustainableenergyforall/index.shtml>.
- United Nations Climate Change (2020): Youth for Climate Action. Retrieved from <https://unfccc.int/topics/education-and-outreach/workstreams/youth-engagement>.
- WBGU (2012). World in transition. German Advisory Council on Global Change.
- White, L. V., Sintov, N. D. (2017): You are what you drive: Environmentalist and social innovator symbolism drives electric vehicle adoption intentions. *Transportation Research Part A: Policy and Practice* 99, 94–113, <https://doi.org/10.1016/j.tra.2017.03.008>.
- World Health Organization (2018): Global status report on road safety 2018: Summary (No. WHO/NMH/NVI/18.20). World Health Organization.
- Zhang, X., Bai, X., Shang, J. (2018): Is subsidized electric vehicles adoption sustainable: Consumers' perceptions and motivation toward incentive policies, environmental benefits, and risks. *Journal of Cleaner Production* 192, 71–79, <https://doi.org/10.1016/j.jclepro.2018.04.252>.

The role of regional products in preserving traditional farming landscapes in the context of development of peripheral regions – Lubelskie Province, Eastern Poland

Ewa Skowronek¹, Teresa Brzezińska-Wójcik¹, Andrzej Stasiak², Andrzej Tucki^{1,*}

¹ Maria Curie-Skłodowska University, Faculty of Earth Sciences and Spatial Management, Department of Regional Geography and Tourism, Poland

² University of Łódź, Faculty of Geographical Sciences, Department of Geography of Recreation, Poland

* Corresponding author: andrzejtucki1@gmail.com

ABSTRACT

The article presents the functioning of traditional farming landscapes in Eastern Poland, using the example of Lubelskie Province. This peripheral region, situated on the border of the European Union, demonstrates how the development of tourism, food tourism in particular, based on local crops and regional foodstuffs, helps to protect and promote local heritage and, at the same time, gain additional financial resources for its inhabitants. With a view to the aims set in the paper, the authors investigated the perception of the Lublin Region's image as regards the predominant features of the natural and socio-economic environment. Moreover, they analysed the recognisability of the regional products and dishes among people from outside the province, who have visited it for tourism purposes. The research material was collected during international and Polish tourism fairs held in five largest Polish cities. The researchers collected 493 questionnaires, 220 of which underwent a detailed analysis. The study shows that the leading functions of Lubelskie Province include agriculture and tourism. The particular form of tourism that should be developed in the region is food tourism and related products due to the natural features and landscape assets. The conclusions drawn from the respondents' answers as well as the query of strategic documents and promotional campaigns allowed the researchers to outline further directions as regards using traditional farming landscapes with the aim of development of the region. It appears that centuries-old forms of farming and methods of food production, resulting from the region's history and natural conditions, may determine recognisability, build a brand based on the *place of origin* concept, and influence the socio-economic situation of the area, preserving traditional landscapes at the same time.

KEYWORDS

rural areas; peripheral regions; traditional farming landscapes; food tourism; place of origin

Received: 25 February 2019

Accepted: 13 January 2020

Published online: 13 March 2020

Skowronek, E., Brzezińska-Wójcik, T., Stasiak, A., Tucki, A. (2020): The role of regional products in preserving traditional farming landscapes in the context of development of peripheral regions – Lubelskie Province, Eastern Poland. *AUC Geographica* 55(1), 49–65

<https://doi.org/10.14712/23361980.2020.1>

© 2019 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

The subject matter of this paper is the functioning of traditional farming landscapes in Eastern Poland, Lubelskie Province. It is a peripheral region located to region located on the border of the European Union, Ukraine, and Belarus. Centuries-old farming forms and food production methods associated with the natural environment and the history of the area have been maintained here.

As shown by many researchers (e.g. Fischer et al. 2012; Brown, Kothari 2011; Selfa et al. 2010; Skowronek et al. 2005), traditional farming landscapes are typical of many areas where farming and animal breeding practices have not changed significantly over the centuries. These areas can be easily distinguished due to their characteristic socio-economic features: 1) the predominance of small-size fields; 2) extensive farming; 3) orientation of production towards satisfying one's own needs or the needs of local markets; 4) cultivation of traditional crops and farming methods (Fischer et al. 2012).

This type of farming results, among other things, in a unique culinary heritage of the region. Many publications demonstrate that currently support and promotion thereof has a significant influence on the economy and the image of peripheral regions with large tourism potential (Ivanova et al. 2014; Bessi re, Tibere 2013; Borowska 2010; Sims 2009; Hall et al. (eds.) 2003; Bessi re 1998), one of which is the region discussed herein (Bronisz et al. 2017).

Furthermore, regional dishes can become attractive to tourists, since they reflect the "typical features" of a specific area/region (Bessiere 1998; Urry 1990).

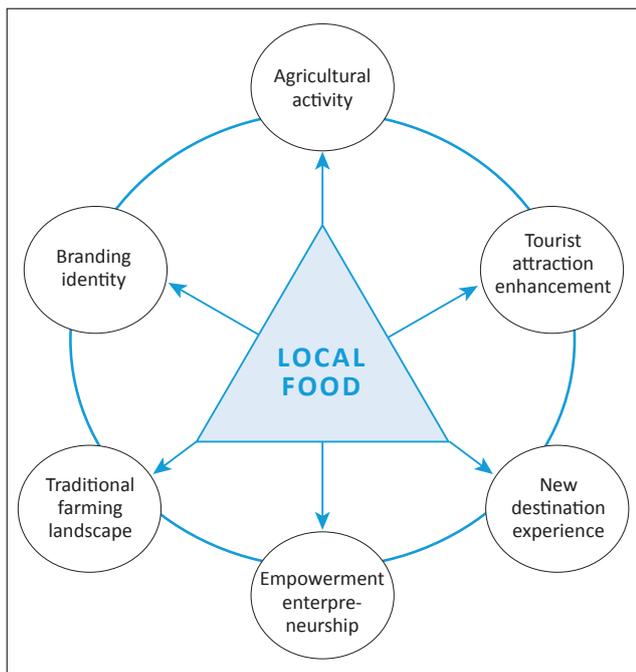


Fig. 1 Contribution of local food to regional development; own analysis based on Gerrie et al. (2003).

Local food is rarely the main reason for visiting a destination and is most often considered part of the overall experience of the destination (Hjalager, Richards 2002). Yet, it may become one of the most important attractions, as tourists are increasingly searching for authentic experiences and alternative forms of tourism (Hall et al. (eds.) 2003; Hjalager, Richards 2002; Crouch, Ritchie 1999).

Therefore, the present article is in line with the research on traditional farming landscapes. Similar to other publications (e.g. Špulerova et al. 2017; Fischer et al. 2012), it touches upon the problem of the exceptional value of such landscapes as well as the ways of their protection and preservation in the future. On the other hand, it concerns the issues of the development of tourism, including culinary aspects (*food tourism, culinary tourism, gastronomic tourism*) in areas with agricultural heritage/traditional farming landscapes. The topic has been discussed before, for instance by Kowalczyk (2016); Richards (2015); Jansen-Verbeke, McKercher (2013); Vafadari (2013).

Moreover, an important aspect discussed in the article is territorial marketing – building the image of the region, creating a place brand (e.g. Lai et al. 2017; Spilkova, Fialova 2013; Lin et al. 2011; Hankinson 2004), and in particular building a region brand based on the *place of origin* concept or authenticity.

As demonstrated by the literature, food is regarded as a reflection of the culture of the country/region and its inhabitants. It is therefore a product - an attraction at the destination that can be simultaneously used as a marketing tool (e.g. Okumus, Cetin 2018; Lin et al. 2011; Cohen, Avieli 2004; Hall et al. (eds.) 2003; Long (ed.) 2003; Hjalager, Richards 2002; Richards 2002; Wolf 2002) (Figure 1).

There are many examples from different countries/regions where practical associations have been created between food, tourism, and regional development with the aim of the development and promotion of regional culinary products (Boniface 2003; Hall et al. (eds.) 2003; Richards 2002; Scarpato 2002; Macdonald 2001). The development of culinary tourism based on local food and wine has been described by Hall et al. (eds.) (2003) in Australia and New Zealand, and by Corigliano (2002) and Bessiere (1998) in regions of France (e.g. Burgundy, Champaign, Bordeaux) and Italy (Tuscany).

This study emphasises an important aspect of territorial marketing targeted at building the region's brand in relation to the *place of origin* concept. It is based on a transfer of the image, connotations, and stereotypes related to a given place (country, region, city) onto a specific product/products, which significantly determines consumer's behaviour and preferences.

The influence of the *place of origin* on increasing the value of the product and on the consumers' motivations and behaviours has been the object of numerous studies and scientific works conducted in

a number of countries. They regard a wide range of products, including drinks and foods, e.g. wine (Bruwer, Lesschaeve 2012), beer (Lentz et al. 2006), cheese (Marcoz et al. 2016), or pork (Lorenz et al. 2015).

To date, the *place of origin* concept has rarely been discussed in the context of tourism development in an area (e.g. Charters et al. 2017). In Poland, it was not until recently that several provinces started to consciously use this conception in promotional activities (Milewska et al. 2017; Stasiak 2015) – e.g. Lubelskie Province (Bekier-Jaworska, Bochenek 2014).

The main aim of the study is to present the relationships between the traditional agricultural landscape of Lublin Province, the current use of its resources, and the possibilities of preservation thereof in the future, with the example of activities related to the development of culinary tourism. This objective is supported by the following detailed research tasks: 1) identification/description of the resources of traditional agricultural landscapes in terms of development of tourism, including the culinary aspect; 2) presentation of actions undertaken for recognisability of the Lublin Province in relation to the *place of origin* concept; 3) recognition of the perception of the Lublin region by tourists from other Provinces; 4) determination of the degree of recognisability of regional products and dishes originating from the Province across Poland; 5) assessment of the potential of the use of traditional agricultural landscapes in the light of strategic documents; 6) indication of activities to be undertaken aimed at the use of the traditional agricultural landscape of the region.

2. Characteristics of the study area

Lubelskie Province, the third largest and the eighth most populated province in Poland, is at the lowest level of economic development in Poland and the European Union (Michoń 2017). Its structure is dominated by the agricultural function, which has been developed over centuries and based on the favourable natural conditions. Arable lands account for 70%, while forests represent approximately 23% of the whole area (Rolnictwo... 2017).

2.1 Natural determinants of the functioning of agricultural landscapes

Lubelskie Province covers a varied and visually attractive area between the Vistula River and the eastern border of the country. It features three natural regions, whose diversity is reflected by landscape variety. The northern and north-eastern part of the province is occupied by lowland areas – it is a land of pastures, marshes, peatbogs, and lakes. It consists of South Podlasie Plain and Western Polesie (Figure 2). The absolute heights in the lowland usually range from 160 to 200 m a.s.l., and the denivelations do not exceed

30 m. In Polesie, these values are 155–165 m a.s.l. and 10 m, respectively (Świeca, Brzezińska-Wójcik 2009). The plains were built from quaternary river sands and lake clays, which transformed into luvisols, podzolic, and alluvial soils, respectively (Turski et al. 2008). Moreover, vast areas are covered by peatbogs. The presence of the only karst lakes in Poland is a characteristic feature of this land. Meadows and pastures prevail in the agricultural use of the area, but there are also fields of rye, barley, corn, and potatoes (Bański 2010). Cattle and horses (including thoroughbreds and Arabian stallions) are also bred in the region.

The central part of the area is occupied by macro-regions – Lublin Upland, Roztocze, Volhynian Polesie, and Volhynian Upland – built from Mesozoic and Cenozoic carbonate-siliceous rocks partly covered with loess. Their characteristic features include large denivelations (differences in height/altitude) of up to 100 m and areas with the greatest number of loess gorges in Europe, near Kazimierz Dolny and Szczepieszyn (11 km per 1 km²) (Świeca, Brzezińska-Wójcik 2009). Rendzic leptosols are typical of carbonate-siliceous rocks, whereas brown earth and luvisols, as well as chernozems are characteristic for of loess-covered rocks (Turski et al. 2008). The nearly woodless upland is covered with a patchwork of arable fields. The whole area is grown with wheat, sugar beet, and rape crops. The plants grown in Lublin Upland also include hops, herbs, roses, some vegetables (e.g. cabbage, garden beets, carrots) and fruit (e.g. apples, raspberries, strawberries). In Volhynian Polesie, there are plantations of potatoes and barley, in Volhynian Upland – edible pulses (broad beans, kidney beans, peas), and in Roztocze – fields of buckwheat, tobacco, onion, and beans (Bański 2010). Animal breeding in the whole upland area is dominated by swine, and by poultry (hens) in Volhynian Polesie.

The southern part of the province is located within the limits of Sandomierz Basin. It is formed by plains and uplands with denivelations of 10–40 m. The typical elevations in the uplands built of quaternary dune sands are 240–250 metres a.s.l., while in the uplands formed from Miocene clays covered with quaternary sands and clays, they range from 195 to 250 m a.s.l. (Świeca, Brzezińska-Wójcik 2009). The majority of soils in this area are podzolic soils and luvisols (Turski et al. 2008), with potatoes, buckwheat, rye and linen crops (Bański 2010). The landscape is dominated by vast forest complexes – Janowskie Forests and Solska Forest, with characteristic natural resources, i.e. mushrooms and fruit (cranberries, crowberries).

2.2 Specific socio-economic traits of the region

In most areas of Lubelskie Province, the traditional agricultural function co-occurs with specific socio-economic conditions, typical of peripheral regions. In the literature, such areas are described

as problematic, marginal, or poorly developed economically and requiring support for development processes (Mazur et al. 2015). Their characteristic features include a low level of socio-economic development, especially as regards its socio-demographic aspect (e.g. weak population density and urbanization rates, depopulation processes), and the cultural and political-administrative aspect. They are characterised by poor prospects for improvement, including enhancement of the living standards. As regards the spatial criteria, the areas in question are difficult to reach by transport and are located far away from major economic and development centres (Miszczyk 2010).

Around 52% of Lubelskie Province population are country dwellers. About 80% of all farms are small,

ranging from 1 to 10 hectares. The fragmentation and small area of the farms do not ensure achievement of satisfactory production results. Thus, most farmers run business activity only to satisfy their own needs. As a result, large numbers of young people leave the province, which leads to the depopulation of rural areas (Flaga 2018). The population density in the rural areas of Lubelskie Province is on average 47 persons/km² (in Poland – 53 persons/km²); the smallest density was recorded in its borderland area and southern part (Powierzchnia... 2018). The dynamics of area development is considerably slowed down by the absence of major industrial centres, peripheral location, and the close proximity of even more poorly developing borderland regions of Ukraine and Belarus.

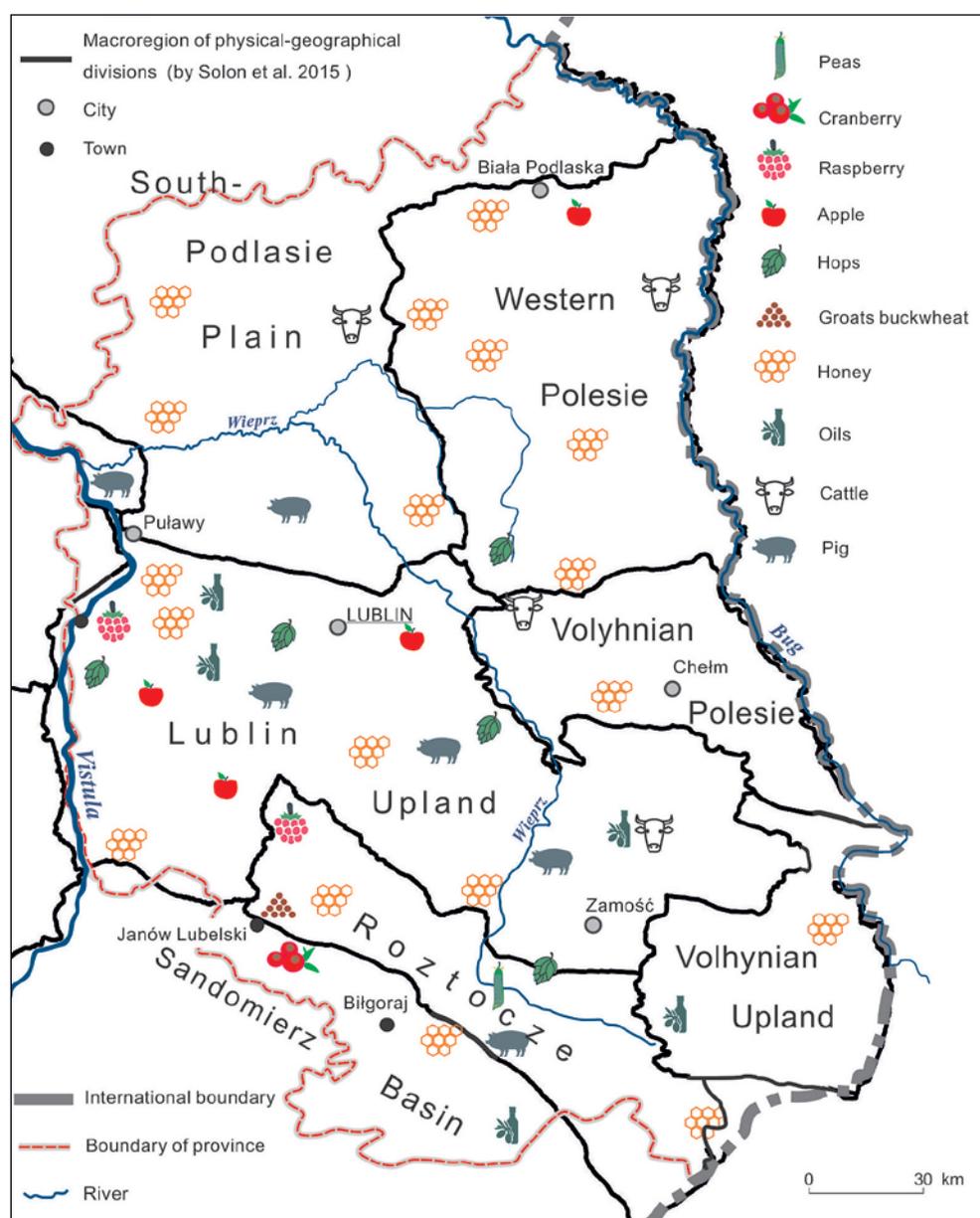


Fig. 2 Major crops and leading trends in animal breeding in Lubelskie Province with respect to physical-geographical regions. Source: Authors.

2.3 Touristic resources in terms of development of tourism

Poorly developed industry and the predominance of extensive agricultural production in Lubelskie Province lead to a situation where, next to the services sector, chances for some improvement of the economic situation are sought in tourism (Bronisz et al. 2017). Its growth is based on the natural and cultural assets of the region.

The most valuable elements of the natural environment in the province are taken under protection in the form two International Biosphere Reserves (MAB) – the “Western Polesie” and “Roztocze”, two national parks – Roztoczański and Poleski, as well as 17 landscape parks, 17 areas of protected landscape,

87 nature reserves, and nearly 1300 monuments of nature (Figure 3).

The province’s rich cultural resources are rooted in its multinational and multi-denominational history. Due to the borderland location at different periods, the area was inhabited by Russians, Jews, Germans, Lithuanians, Italians, Armenians, the Dutch, Scots, Austrians, the French, English, Greeks, and Tatars. Despite the stormy history, many elements of the tangible and intangible cultural heritage have been preserved (Skowronek et al. 2006). The largest group of objects includes historical buildings performing different functions (residential, religious, economic, and industrial) as well as public utility buildings and small architecture structures, e.g. roadside chapels, saints’ figures, crosses, etc. (Figure 4). There are also some interesting

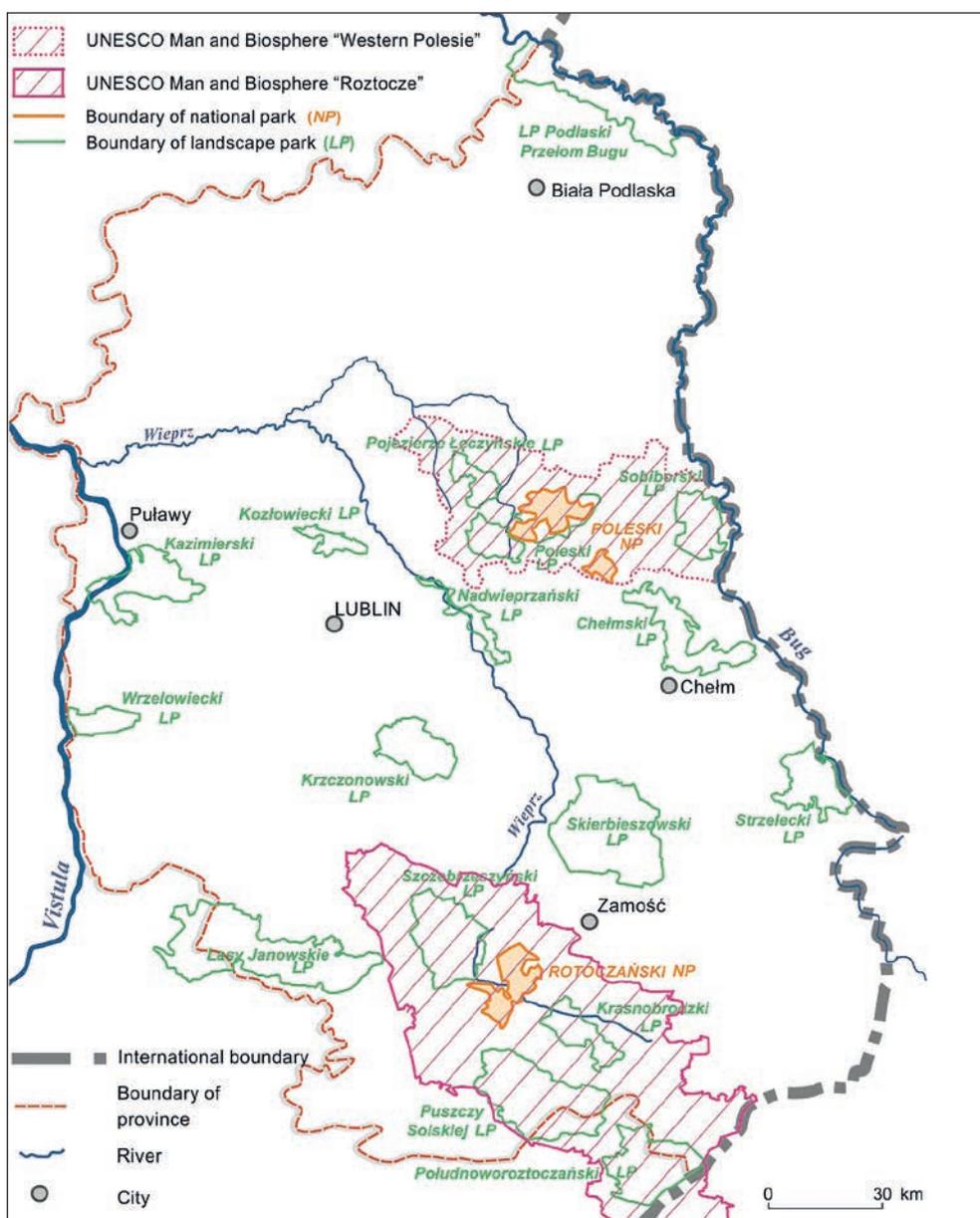


Fig. 3 Most valuable elements of the natural environment in Lubelskie Province. Source: Authors.

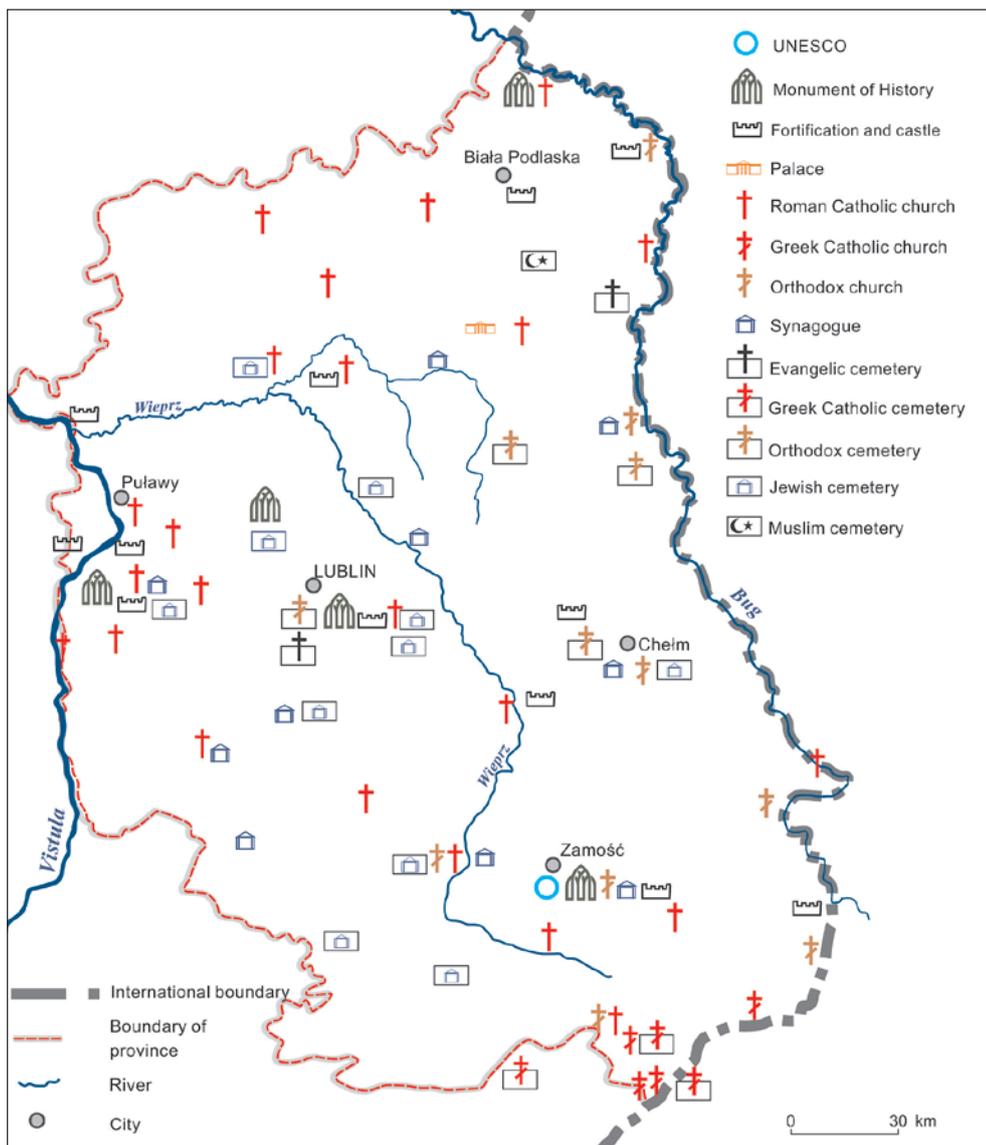


Fig. 4 Most valuable elements of the cultural heritage of Lubelskie Province.

Source: Authors.

old urban and rural spatial layouts (Szczęsna, Gawrysiak 2009). The most precious elements of the cultural heritage in the region have been appreciated and taken under international and national protection. The Old Town in Zamość has been placed on the UNESCO World Heritage List (1992). Moreover, five monuments of history have been established: Kazimierz Dolny, Kozłówka – a palace and park complex, Lublin – a historical architectonic and urban complex, Janów Podlaski – a horse stud, and Zamość – a historical urban complex surrounded by 19th c. fortifications (Figure 4).

Besides some spectacular examples of material culture, the province can boast of noteworthy elements of intangible heritage, such as rich folklore, traditions and customs, as well as local cuisine. The unique features of the latter are strictly connected with the multiculturalism of the inhabitants and the diversity of original recipes, ingredients, and cooking methods (Orłowski 2016).

3. Research methods

In order to achieve their established goals, the authors used primary and secondary materials. The secondary sources included Central Statistical Office data, scientific publications regarding the geographical environment of the area, traditional rural landscapes, and territorial marketing. Moreover, the authors collected and used publications and websites presenting the promotional campaigns of Lubelskie Province. In this aspect, the prospects of tourism development, including culinary tourism with respect to traditional farming landscapes of the region were analysed. Secondary materials were obtained using the preliminary research method.

Primary materials were collected during a field study with the use of participant observation and the diagnostic survey method. The field observations were conducted in the summer seasons of 2017 and



Fig. 5–8 Traditional agricultural landscapes and crops in Lubelskie Province (photo: authors, 2016).

Tab. 1 Respondent profile.

features	characteristics of the sample											
gender [%]	males						females					
	41.8						58.2					
age [%]	under 20	21–30	31–40	41–50	51–60	61–70	over 70					
	6.4	33.2	23.2	13.6	12.7	8.6	1.8					
education [%]	elementary	middle school	vocational	secondary	college	higher vocational	higher MA					
	0.5	1.8	3.2	20.9	9.1	16.8	47.3					
place of residence [%]	country	town with fewer than 20.000 inhabitants	town with 20–50.000 inhabitants	city with 51–100.000 inhabitants	city with 101–200.000 inhabitants	city with 201–500.000 inhabitants	city with over 500.000 inhabitants					
	8.6	2.4	5.6	10.5	7.4	19.6	45.6					
province [%]	Łódź	Masovia	Silesia	West Pomerania	Lower Silesia	Holy Cross	Greater Poland	Lesser Poland	Subcarpathia	Kuyavia-Pomerania	Lubusz	Podlaskie
	38.6	19.5	14.1	9.1	6.4	5.0	1.8	1.6	0.9	0.5	0.5	0.5

Source: Authors based on the own calculations and the questionnaire survey.

2018. The questionnaire-based survey was carried out between November 2017 and June 2018 during international and domestic tourism fairs in Warsaw, Wrocław, Łódź, Katowice, and Szczecin. It included respondents from outside Lubelskie Province, who filled out 493 survey questionnaires. A detailed analysis involved 220 questionnaires (44.6%) selected based on the respondents' presence in the region and the tourism-oriented purpose of travel. Thus, the sample consisted of tourists from outside the province, which fitted the concept followed in the article. The empirical data that was collected was processed by means of statistical and cartographic methods.

3.1 Characteristics of respondents

The group of the respondents consisted of 220 tourists from outside Lubelskie Province, who declared a tourist purpose of their visit and were staying in the Lubelskie Region at that time. A small majority of them (58.2%) were women. As for the age structure, most respondents were aged 21–40 (56.4%). The majority of them had completed higher (47.0%) and secondary (20.6%) education.

Importantly, the respondents came from 12 provinces (except Warmia-Mazuria, Opole, and Pomerania Provinces), despite the fact that the data was collected only in cities that organised tourism fairs. This is connected with the respondents' *place of origin*. The majority of people came from Łódź (38.6%), Masovia (19.5%), Silesia (14.1%), West Pomerania (9.1%), Lower Silesia (6.4%), and Holy Cross (5.0%) Provinces. They were mostly inhabitants of large cities populated by more than 500,000 people (45.6%) and smaller cities, inhabited by 201,000–500,000 residents (19.6%) (Table 1).

4. Traditional farming landscapes of the Lublin region as the potential to build the region's image and recognisability

With reference to secondary resources (publications and internet websites on promotional campaigns of Lublin Province), the activities of Lublin self-government for creation of the image and recognisability of the region through agricultural landscapes and local food products were analysed. Noteworthy, Lublin self-government was the first authority in Poland to recognise this potential of development of the region. Particular attention was paid to the regional products which were defined, after Winawer and Wujec (2010), as those "whose quality is noticeably higher than average and inseparable from their *place of origin* and local methods of production" (Adamczuk 2013). That strategy was possible to implement due to the specific features of local farming and products, considered to be healthy, ecological, and based on the

region's tradition. Thus, the brand that started to be developed was based on the *place of origin*.

4.1 The *place of origin* concept

The *place of origin* concept assumes transferring the image, associations, and stereotypes regarding a given region onto a specific product, thus having an effect on the consumers' behaviours and preferences. The bond between the product and the area may be so strong that products become the region's brand (Andéhn, Berg 2011; Usunier 2006; Peterson, Jolibert 1995; Schooler 1965).

The *place of origin* may be indicated by the name of the product (e.g., if it contains geographical adjectives), information about the product placed on the wrapping or label, the appearance of the product (packaging), marketing communications (advertisements, PR), or certificates. The products most commonly promoted via the *place of origin* effect include foodstuffs, especially regional and traditional. In the European Union, they are protected by a special legal protection system, and registered under one of three schemes: Protected Geographical Indication (PGI), Protected Designation of Origin (PDO), and Traditional Speciality Guaranteed (TSG) products.

The Protected Geographical Indication (PGI) scheme protects products whose names include the proper name of the region where the whole technological process takes place (extracting ingredients, production, preparing the product for sale). Moreover, the quality of the product and its reputation are strictly related to the fact that it comes from a specific area (e.g. Parma ham – *prosciutto de Parma*).

The Protected Designation of Origin (PDO) scheme protects products whose connection with the *place of origin* is weaker, but at least one of the three stages of the production process takes place in this area. Their quality may result from both natural features (climate, vegetation, land relief, type of soil) and anthropogenic factors (inhabitants' skills, methods and traditions of production, local know-how) (e.g. Gouda cheese).

The Traditional Speciality Guaranteed (TSG) scheme protects products that bear special names emphasizing their unique features and are produced from traditional food resources. They may be made from traditional ingredients or produced in a traditional way (e.g. Naples pizza – *pizza napoletana*) (Milewska et al. 2017).

To sum up, marking a product's *place of origin* makes it unique and guarantees its high quality provided by the local tradition. Market-wise, it becomes more attractive, purchased more willingly, and competitive. On the other hand, the high quality of such products, clients' satisfaction, and their positive opinions promote the region from which the products originate. In this way, they create, strengthen, and establish a positive image of the area. Thus, there is mutual reinforcement of two brands: the brand of the product

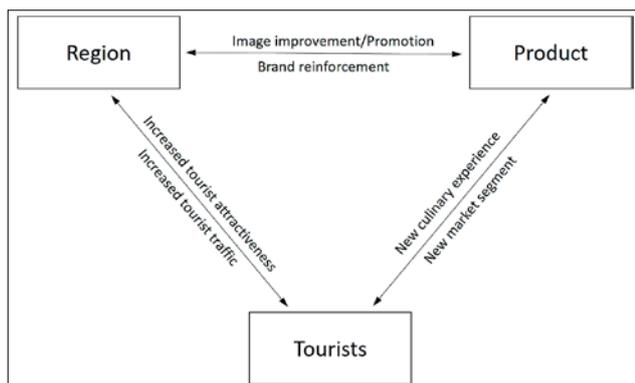


Fig. 9 Place of origin concept – relationships between the region, the product, and the tourists.

Source: A. Stasiak.

through the reputation of the place and the brand of the place through the reputation of the product.

The same relationship occurs between tourist regions and local food products. The customers include tourists who buy regional products while visiting a given area. Local specialties, strongly identified with the visited region and its landscape, provide tourists with new experience. It may be purely culinary (eating products in an attractive landscape) or it may have a wider cultural dimension and involve the possibility of discovering the history and the contemporary life of the region, modern farming methods, and ways of making food. As a result, the visit becomes richer, more exciting, and long remembered.

The offer of traditional products increases the region's attractiveness, improves its image, or increases the number of tourists. Theoretically, we can assume a certain model of relationships between the region, the product, and the tourists (Figure 9).

This article is the first attempt to describe the relationships presented in the model, using the example of Lubelskie Province. This administrative region was the first in Poland to implement consciously and purposefully the *place of origin* strategy in the promotion of food and tourism products.

4.2 Activities increasing the recognisability of Lubelskie Province

Since 2008, several national campaigns have been launched, e.g. "Lubelskie is great for the weekend" (2008), "Lubelskie – turn off the stress, turn on the power!" (2009), "Lubelskie – may the moment last!" (2010), "Lubelskie. Taste life!" (2011), "Lubelskie brand" (2011), "Lubelszczyzna flavours" (2011-2012), "Lubelskie – for a while or longer" (2014), "Lubelskie. The best because it's ours!" (2015), and "The force is in us!" (2016). Through those campaigns, the authorities of the region encouraged people to buy and consume goods produced in Lubelskie Province. Moreover, the activities mentioned above were to help identify the region with the high culture of taste by highlighting the

image of the Lublin Region as a land of ecological food. The campaigns also emphasised that it was not only about tasting a wide variety of foods, but also "tasting" culture, taking advantage of beautiful nature, and indulging in one's passions. The campaigns cost over 2.5 million Euro and in greater part were sponsored by the European Union. They involved distributing billboards all over Poland, broadcasting commercials on national and private TV channels (national and regional), launching on-line campaigns on popular information portals and Facebook, radio campaigns (nation-wide and regional), press campaigns (in nation-wide and regional magazines), and promotion during Polish and international tourism fairs and in selected airlines using Lublin airport (<https://www.lubelskie.pl/kampanie-promocyjne>; Skoczylas 2012).

The commercials broadcast as part of two campaigns won prizes at a number of international CIFFT festivals (International Committee of Tourism Film Festivals). In 2010, the spot entitled "Lubelskie – may the moment last!" won six awards at the CIFFT festivals in Poland, Romania, Slovenia, Russia, the Czech Republic, and Austria (the Grand Prix). In 2014, another spot, entitled "Lubelskie – for a while or longer", was appreciated at the CIFFT festivals in Berlin, Riga, and Warsaw.

The promotional campaigns were run in the media (radio, television, press, Internet) in all the provinces in Poland, and large-format billboards and citylights could be found in the largest Polish cities: Warsaw, Gdansk, Szczecin, Poznań, Krakow, Katowice, Łódź, Wrocław, and Rzeszów.

The promotional activity was also run abroad, e.g. through airlines in cities where passengers can fly directly from Lublin (e.g. Dublin, Stockholm, Glasgow, Brussels). Economic commercials and advertising boards were placed in mass media, e.g. on BBC News, on TV channels in Europe, Asia, and Pacific, and the Middle East; commercials promoting the region were broadcast during international CIFFT festivals; events promoting brand regional products were organised in Brussels (2011 and 2012).

Regional foodstuffs have been successively introduced onto the Polish List of Traditional Products supervised by the Ministry of Agriculture and Rural Development. Currently, with its 208 products, Lubelskie Province comes third on the list (<https://www.gov.pl/rolnictwo/lista-produktow-tradycyjnych12>). In 2014, a regional specialty – Lublin *cebularz* (onion pie) was registered under the Protected Geographical Indication (PGI) scheme.

5. Analysis of the perception of Lubelskie Province

To achieve the goals adopted in the study, the perception of the image of the Lublin Region was investigated

with respect to the predominant features of the natural and socio-economic environment and the recognisability of its regional products and foods was analysed. On this basis, the effectiveness of the promotional campaigns across the country was assessed. This knowledge allowed establishment of the direction of possible activities aimed at taking advantage of the traditional farming landscape of the region.

5.1 Perception of the major features of the socio-economic and natural environments of Lublin Province

The analysis of the region’s image started from a question the tourists were asked about their direct associations with Lubelskie Province. The respondents pointed mainly to its rich history and multicultural heritage (16.6%), well-developed agriculture (14.9%), tourist attractiveness (14.8%), diversified and well-preserved nature (13.6%), and hospitality (11.4%). Less frequently, they mentioned features associated with the peripheral character of the region,

e.g. the peripheral location (9.9%), poorly developed industry (16.9%), backwardness and poverty (1.8%) (Figure 10).

Based on the responses, it can be concluded that the majority of tourists perceive the region positively. It should be emphasised that the respondents indicated resources promoting the development of tourism (rich history and multicultural heritage; tourist attractiveness; diverse, well-preserved nature; hospitality) as the most recognisable; these observations accounted for 56.4% of all responses. Together with the opinions on the well-developed agriculture in the region, they constituted as much as 71.3% of all responses. Therefore, it can be assumed that, besides the agricultural function, the tourist function should be developed in the province.

Next, the opinions were verified. The respondents were asked to evaluate the socio-economic situation of Lubelskie Province on a 1–5 scale. It turned out that most tourists described it as good (53.6%) and average (27.3%), although in fact Lubelskie Province is one of the poorest regions of the European Union as

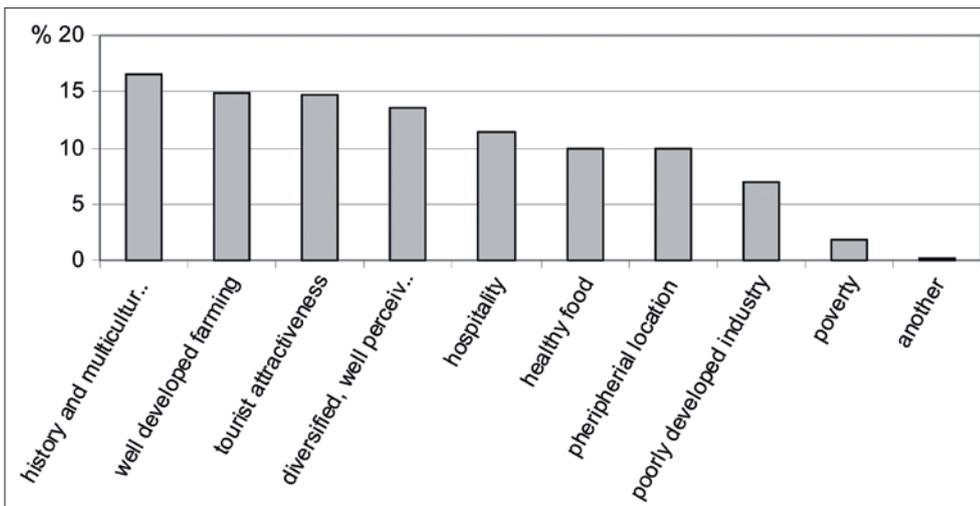


Fig. 10 Respondents’ general connotations with Lubelskie Province. Source: Authors, based on own calculations and the questionnaire survey.

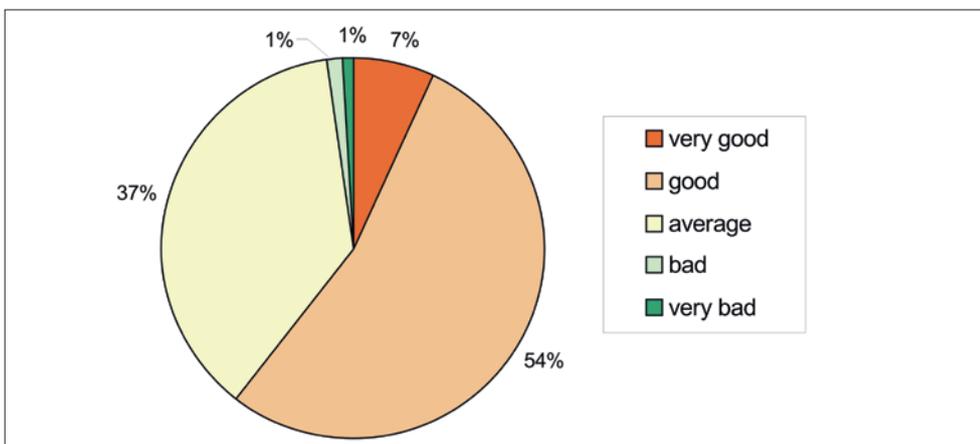


Fig. 11 Respondents’ evaluation of the socio-economic situation of Lubelskie Province. Source: Authors, based on own calculations and the questionnaire survey.

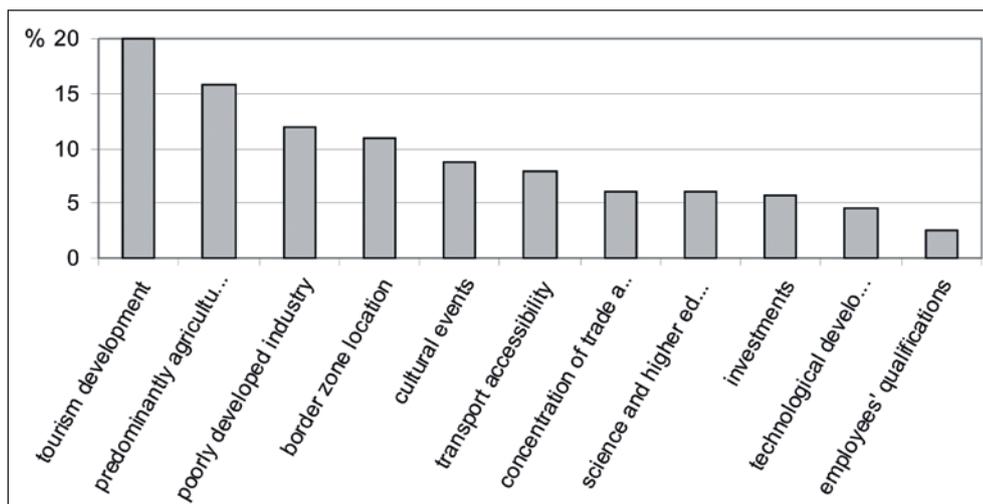


Fig. 12 Causes of the current socio-economic situation of Lubelskie Province perceived by the respondents. Source: Authors, based on own calculations and the questionnaire survey.

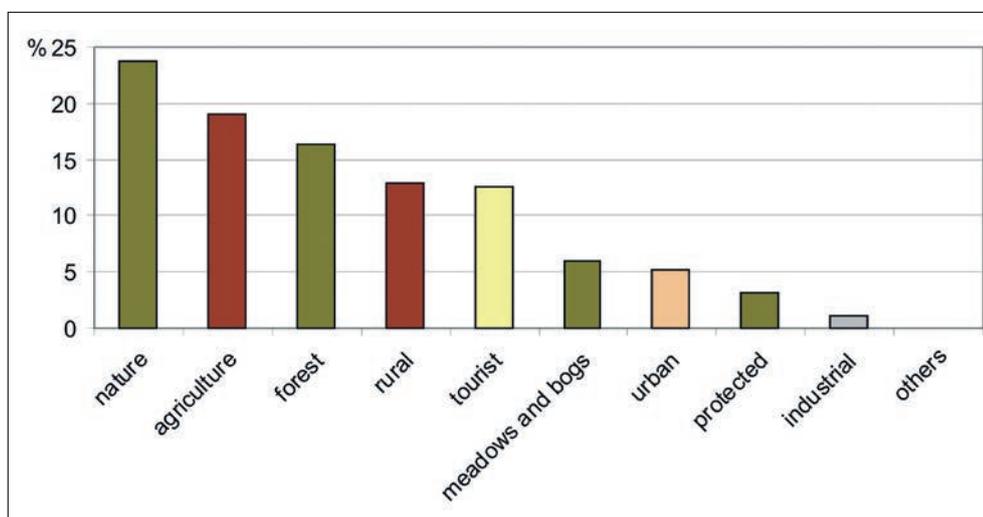


Fig. 13 Landscape types associated by the respondents with Lubelskie Province. Source: Authors, based on own calculations and the questionnaire survey.

regards GNP. Very few respondents said that the situation is bad (1.4%) or very bad (0.9%) (Figure 11).

When asked to indicate the factor which they believed was the cause of the current socio-economic situation of the province, the respondents usually pointed to the development of tourism (20.0% of all indications), the predominantly agricultural function (15.8%), the poorly developed industry (12.0%), and the border zone location (10.9%) (Figure 12).

In the next part of the study, the tourists indicated the types of landscape that they associated with Lubelskie Province. Most respondents associated the area with natural (23.7%) and farming (19.0%) landscapes, woodlands (16.4%) as well as rural (12.9%) and tourist (12.5%) landscapes (Figure 13). As many as 90.5% believed that the anthropogenic transformation of the region's natural environment was insignificant or average.

All the responses presented herein allow us to conclude that although tourists recognize the peripheral character and the economic weaknesses of the region, their evaluation is still positive. In their opinion, the most important factors determining the province's development are tourism and agriculture. Interestingly, the economic shortcomings are viewed as advantages, guaranteeing a high-quality natural environment, only slightly transformed by people (e.g. well-preserved nature, absence of industry, healthy food). Such an approach may have an influence of the respondents' trust in the food products coming from the Lublin Region, which are considered healthy, high quality, and based on tradition that fits into the *place of origin* concept. The high-quality natural environment as a development factor in peripheral regions was emphasised by e.g. Olechnicka (2004).

5.2 Recognisability of regional products and foodstuffs from Lubelskie Province

As mentioned before, products may create, strengthen, and consolidate the positive image of an area. Hence, the knowledge of local products and dishes that Polish tourists staying in Lubelskie Province had was investigated.

First, the respondents were asked whether they were familiar with the regional dishes or products from Lubelskie Province. Over 1/4 of them (26.8%) provided a positive response. Next, they were asked to give examples of regional food. The analysis of the responses shows that the best-known regional products include Lublin onion cake (*cebularz*) (25% of responses), *gryczak*/*Biłgoraj pieróg* (9.4%), vorschmack (a kind of goulash soup), and rape honey (3.1% each). The respondents also mentioned potato dumplings (*kartacz cake*), traditional dumplings, *kulebiak pie* (stuffed pastry), regional breads

and oils, raspberry tincture (*malinówka*), *sękacz pie* (a “branched-tree” cake), drop scones (*racuchy*), Polish potato pie (*kartoflak*), *bałabuchy pie*, and pickled apples (Figure 14).

Except two (*kartacz cake* and *bałabuchy pie*), all the products or dishes mentioned by the respondents can be found on the List of Traditional Products (a register kept by the Ministry of Agriculture and Rural Development). In 2014, Lublin onion cake (*cebularz*) was registered under the Protected Geographical Indication (PGI) scheme.

Next, all the respondents were shown a list of products and dishes and asked to choose those that, in their opinion, were originally from Lubelskie Province. The results point to a relatively good knowledge of the Lublin region food among the respondents. It is confirmed by the average number of indications (over 3) for each of them. Tourists most often pointed to onion cake/*cebularz* (13.6%) honey, (11.9%), traditional dumplings (9.6%), *sękacz* (6.9%), *gryczak*/

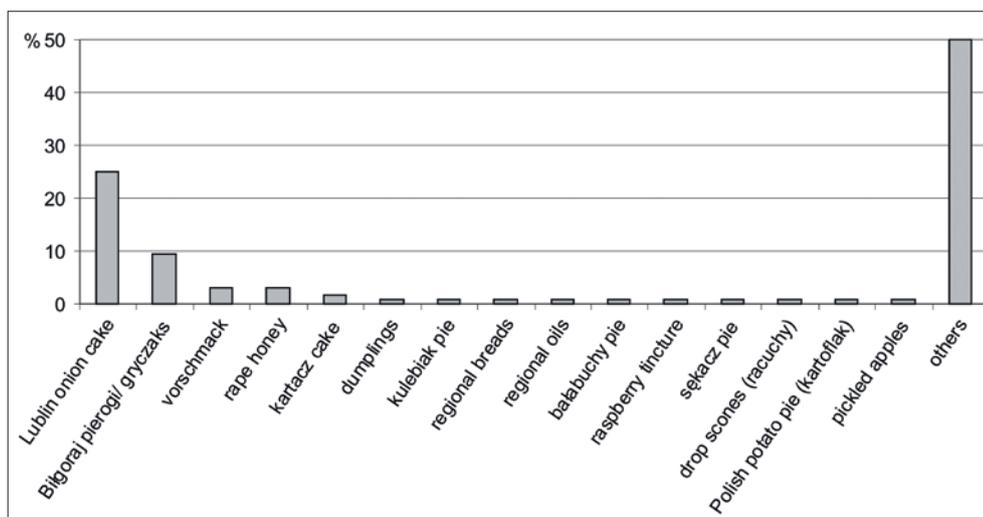


Fig. 14 Regional dishes and products mentioned by the respondents.

Source: Authors, based on own calculations and the questionnaire survey.

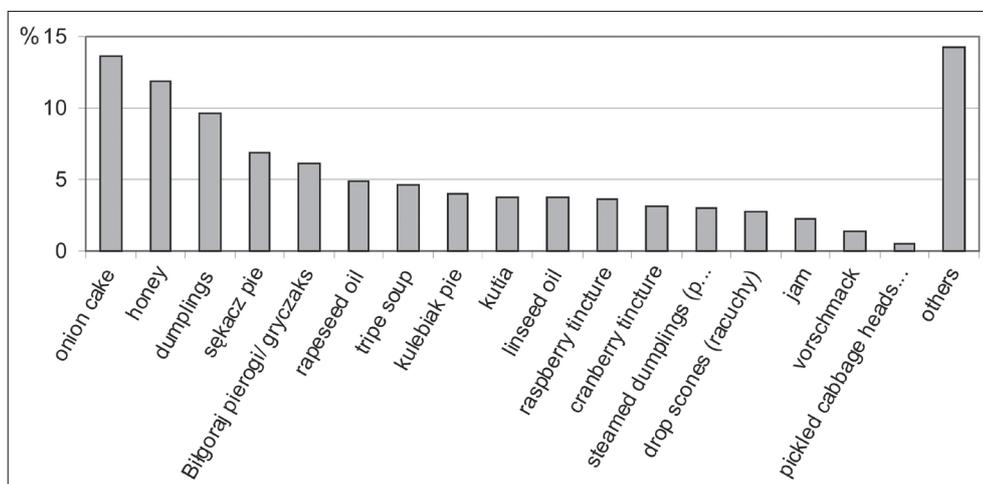


Fig. 15 Regional products and dishes associated by the respondents with Lubelskie Province.

Source: Authors, based on own calculations and the questionnaire survey.

Biłgoraj pieróg (6.1%), and rape or linseed oils (8.7%), as well as tinctures – raspberry (*malinówka*) or cranberry (*żurawinówka*) (6.7%). Other dishes, e.g. tripe soup (*flaki*), *kulebiak pie*, *kutia*, and steamed dumplings (*parowańce*) were less strongly associated with the region (Figure 15).

To sum up, the analysis presented above indicates that Lubelskie Province and the foodstuffs (including regional ones) produced in the region are recognisable in Poland. Similar observations were reported by Czaczelewski et al. (2017).

As shown by the research results, regional products appear to be important for creation of the tourist offer of Lublin Province, including culinary tourism. This is also confirmed by field observations, which demonstrate that there has been an increase in the interest in the offer of regional products expressed by both manufacturers and customers in recent years. Such dishes and products are increasingly being offered in the menu of gastronomic facilities. Additionally, regional food selling facilities are set up, especially in attractive rural areas. New events related to cultural heritage appear, during which dishes and regional products are offered and accompanied by workshops on their preparation. Moreover, traditional recipes are made available on websites.

Further development of tourism in the rural areas of Lubelskie Province should be accompanied by other promotional campaigns and protective activities, e.g. registering other products under the EU regional and traditional products protection scheme (e.g. *gryczak/Biłgoraj pieróg*, honeys, regional oils, and tinctures). Furthermore, besides products that are already offered in the region based on the culinary heritage (e.g. the Museum of Cebularz in Lublin, the Trail of the Tastes of the Land of Loess Gorges, the European Festival of Taste in Lublin, “Gryczaki” Groats Festival in Janów Lubelski), new products should be offered, such as food-producing establishments, gastronomy museums, culinary trails, events) with domestic and foreign tourists in mind.

6. Potential of the use of traditional agricultural landscapes in the development of Lublin Province in relation to strategic documents

Tourism development in peripheral rural areas may improve their economic situation by using the tangible and intangible rural resources, which has been demonstrated by the study results. Tourism has been proven to have an important role to play in this respect. Many researchers have already found sense in developing tourism activity, e.g. Tervo-Kankare, Tuohino (2016); Lane, Kastenholz (2015); Carneiro et al. (2015); Siow et al. (2013); Cawley, Gillmor (2008); Garrod et al. (2006). Tourism as a new function

developed in rural areas has also been recommended in a number of strategic documents, including global and European-scope strategies (e.g. CEC 1996, 2005; OECD 1995, after Cawley, Gillmor 2008).

In Poland, such recommendations can also be found in many documents of national importance (e.g. in the Krajowa Strategia Rozwoju Regionalnego 2010–2020: Regiony, Miasta, Obszary Wiejskie, adopted in 2010; Koncepcja Przestrzennego Zagospodarowania Kraju 2030 (adopted in 2011); Strategia Rozwoju Kraju 2020 (approved in 2012); Strategia Rozwoju Kapitału Społecznego 2020 (since 2013); Program Rozwoju Turystyki na Obszarach Wiejskich (adopted in 2015). They foster tourism development by creating new jobs in the tourism industry and by taking action to improve tourist attractiveness of rural areas. Following the strategic assumptions, tourism development should involve building up infrastructure, protecting and promoting natural and cultural heritage and landscape, as well as increasing the creativity of local communities. This should result in using unique endogenous resources, developing local products and tourist services and, consequently, growing competitiveness of the region. Moreover, the activities should improve the quality of inhabitants’ lives and tourists’ comfort of stay and satisfaction, stemming from the features of the tourism space.

On the regional level (Strategia rozwoju województwa lubelskiego na lata 2014–2020, possibly continued until 2030, adopted in 2014; Plan Zagospodarowania Przestrzennego Województwa Lubelskiego, approved in 2015), it is recommended that tourism should be developed in rural areas, tourism institutions should be supported, and the region’s offer should be promoted. The core of the activity should be tourist products – especially those related to cultural (including culinary) tourism, also in the supra-regional aspect (e.g. theme tourist trails), which should be next promoted in Poland and abroad. One of the ways to do it is applying for EU certificates for regional food products, such as Protected Geographical Indication (PGI), Protected Designation of Origin (PDO), or Traditional Speciality Guaranteed (TSG).

To sum up, as shown in the literature on the subject and the strategic documents presented above, it is possible to use traditional farming landscapes for development of Lubelskie Province by protection and promotion of the natural and cultural heritage, development of tourism in rural areas, maintenance of the high quality of the natural environment as a place to live for inhabitants and to visit for tourists, and building social capital (educating, raising qualifications, triggering creativity, and stimulating the inhabitants).

The observations made in Lubelskie Province seem to fit into the future scenarios for peripheral regions. In certain conditions, they may pass straight from the agrarian to the information technology civilization, omitting the industrial era on the way (Olechnicka

2004; Gilowska et al. 2000). The prerequisite for this change is a high potential of the countryside resources (e.g. good quality of the natural environment, an attractive landscape, unique cultural heritage), which build the image of the region, as well as a high social capital (Siow et al. 2013; Garrod et al. 2006). Tourism developed in such conditions, integrating various actors (e.g. farmers, consumers, institutions) (Ilbery and Kneafsey 1999), may contribute to the improvement of the socio-economic situation of peripheral regions.

7. Conclusions

At present, there are many regions where traditional agricultural landscapes have survived. They are distinguished by specific socio-economic features, e.g. traditional extensive farming and production mainly for own needs or local markets. Frequently, such regions are referred to as peripheral. Due to the lack of other development opportunities, such areas are dominated by agricultural function with traditional crops and lifestyle. On the one hand, these characteristics determine the low income (poverty) of the inhabitants; on the other hand, they are a valuable component of the region's cultural heritage.

As shown by the literature, given the growing demand for authentic sensations and impressions, tourists are increasingly choosing areas/regions where elements of local heritage are preserved in various forms, e.g. local food and cuisine. They are perceived as important components of the overall experience of the destination.

Traditional food is therefore an attractive resource facilitating creation of a variety of tourist products (events, workshops, museums, routes, gastronomic facilities, agritourism farms) and providing the possibility of using the offer as a marketing tool. The level of marketing, entrepreneurship, and investments implemented by local communities and local governments will consequently determine the further development of the region in this respect.

The use of regional products can contribute to stimulation and support for traditional agricultural activity and maintenance of centuries-old food production methods, preservation of the authenticity of the place (*sense of place*), enhancement of the attractiveness of the region; empowering the community (e.g. by creating jobs, development of entrepreneurship); integration of residents by the sense of pride in the common heritage (especially in relation to food), and consequently to strengthening the identity of the region/area brand (see also Telfer, Wall 1996). In the light of the research results, this also seems to be confirmed by the presented *place of origin* concept, as manufactured regional products consolidate the positive image of regions with traditional agricultural landscapes, simultaneously strengthening two brands –

the product through the reputation of the place and the place – through the reputation of the product.

As shown by the present analyses and considerations, it is possible to develop another function, i.e. a touristic function, in the peripheral regions with traditional agricultural landscapes. However, it should be developed in a sustainable way as a supplementation of the basic agricultural function. Only such a way of using the region's resources will not diminish its authenticity, which determines its attractiveness.

Social capital is a very important factor in the activities described above, as the awareness, activity, and creativity of the inhabitants will determine their success in the future.

References

- Adamczuk, F. (2013): Produkty tradycyjne i regionalne i ich wykorzystanie w promocji regionu. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu, Polityka Ekonomiczna*, 307, 15–24.
- Andéhn, M., Berg, P. O. (2011): Place of origin effects – From nations to cities: A conceptual framework based on a literature review, Presented at the 2nd INPOLIS – 2nd International Place Branding Conference, Bogotá, 1–24.
- Bański, J. (2010): *Atlas Rolnictwa Polski*. Warszawa, Instytut Geografii i Przestrzennego Zagospodarowania PAN.
- Bekier-Jaworska, E., Bochenek, M. (2014): Brandt products of regional cuisine in the promotion of tourism in Roztocze. *Polish Journal of Sport and Tourism* 21(4), 263–272, <https://doi.org/10.1515/pjst-2015-0007>.
- Bessiére, J. (1998): Local Development and Heritage: Traditional Food and Cuisine as Tourist Attractions in Rural Areas. *Sociologia Ruralis* 38(1), 21–34, <https://doi.org/10.1111/1467-9523.00061>.
- Bessiére, J., Tibere, L. (2013): Traditional Food and Tourism: French Tourist Experience and Food Heritage in Rural Spaces. *Journal of the Science of Food and Agriculture* 93(14), 3420–3425, <https://doi.org/10.1002/jsfa.6284>.
- Boniface, P. (2003): *Tasting Tourism: Travelling for Food and Drink*. Hampshire: Ashgate.
- Borowska, A. (2010): The role of traditional and regional food products in rural development in Poland. *Social Research* 18 (1), 40–52.
- Bronisz, U., Dymek, Z., Jakubowski, A., Tucki, A. (2017): Potencjał turystyczny województwa lubelskiego w 2015 roku. *Analizy statystyczne*. Lublin, Urząd Statystyczny w Lublinie.
- Brown, J., Kothari, A. (2011): Traditional agricultural landscapes and community conserved areas: an overview. *Management of Environmental Quality: An International Journal* 22(2), 139–153, <https://doi.org/10.1108/14777831111113347>.
- Bruwer, J., Lesschaeve, I. (2012): Wine tourists' destination region brand image perception and antecedents: Conceptualization of a winescape framework. *Journal of Travel and Tourism Marketing* 29, 611–628, <https://doi.org/10.1080/10548408.2012.719819>.
- Carneiro, M. J., Lima, J., Silva, A. L. (2015): Landscape and the rural tourism experience: identifying key elements, addressing potential, and implications for the future.

- Journal of Sustainable Tourism 23(8–9), 1217–1235, <https://doi.org/10.1080/09669582.2015.1037840>.
- Cawley, M., Gillmor, D. A. (2008): Integrated rural tourism: concepts and practice *Annals of Tourism Research* 35(2), 316–337, <https://doi.org/10.1016/j.annals.2007.07.011>.
- Charters, S., Spielmann, N., Babin, B. J. (2017): The nature and value of terroir products. *European Journal of Marketing* 51(4), 748–771, <https://doi.org/10.1108/EJM-06-2015-0330>.
- Cohen, E., Avieli, N. (2004): Food in tourism. *Annals of Tourism Research*, 31, 4, 755–778, <https://doi.org/10.1016/j.annals.2004.02.003>.
- Corigliano, M. A. (2002): The route to quality: Italian gastronomy networks in operation. [In:] A. Hjalager, G. Richards (eds.) *Tourism and Gastronomy*. London: Routledge, 166–185.
- Crouch, G. I., Ritchie, J. R. B. (1999): Tourism, competitiveness and social prosperity. *Journal of Business Research* 44, 137–152, [https://doi.org/10.1016/S0148-2963\(97\)00196-3](https://doi.org/10.1016/S0148-2963(97)00196-3).
- Czeczulewski, J., Tucki, A., Czeczulewska, E. (2017): The use of cluster analysis in the research on shopping preferences regarding regional products from lubelskie voivodeship. *Journal of Agribusiness and Rural Development* 43(1), 57–67, <https://doi.org/10.17306/J.JARD.2017.00319>
- Fischer, J., Hartel, T., Kuemmerle, T. (2012): Conservation policy in traditional farming landscapes. *Conservation Letters* 5(3), 167–175, <https://doi.org/10.1111/j.1755-263X.2012.00227.x>.
- Flaga, M. (2018): Model przemian demograficznych w regionach wyludniających się Polski na przykładzie województwa lubelskiego. Lublin, Wydawnictwo UMCS.
- Garrod, B., Wornell, R., Youell, R. (2006): Re-conceptualising rural resources as countryside capital: The case of rural tourism. *Journal of Rural Studies* 22, 117–128, <https://doi.org/10.1016/j.jrurstud.2005.08.001>.
- Gilowska, Z., Gorzelak, G., Jałowiecki, B., Sobczak, K. (2000): *Kierunki polityki regionalnej Polski*. Warszawa, EUROREG.
- Hall, C. M., Sharples, L., Mitchell, R., Macionis, N., Cambourne, B. (eds.) (2003): *Food Tourism Around the World*. Oxford: Butterworth Heinemann.
- Hankinson, G. (2004): Relational network brands: Towards a conceptual model of place brands. *Journal of Vacation Marketing* 10(2), 109–121, <https://doi.org/10.1177/135676670401000202>.
- Hjalager, A., Richards, G. (eds.) (2002): *Tourism and Gastronomy*. London: Routledge, <https://doi.org/10.4324/9780203218617>.
- Ilbery, B., Kneafsey, M. (1999): Niche markets and regional speciality food products in Europe: Towards a research agenda. *Environment and Planning A* 31, 2207–2222, <https://doi.org/10.1068/a312207>.
- Ivanova, L., Terziyska, I., Trifonova, J. (2014): Characteristics of traditional food – the viewpoint of the tourism business. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Scientific Journal. Service Management* 14, 123–130.
- Jansen-Verbeke, M., Mckercher, B. (2013): Reflections on the Myth of Tourism Preserving “Traditional” Agricultural Landscapes, *Journal of Resources and Ecology* 4 (3), 242–249, <https://doi.org/10.5814/j.issn.1674-764x.2013.03.007>.
- Konsepca Przemianowego Zagospodarowania Kraju 2030. Załącznik do uchwały nr 239 Rady Ministrów z dnia 13 grudnia 2011 r. (poz. 252). *Monitor Polski, Dziennik Urzędowy Rzeczypospolitej Polskiej*, Warszawa, dnia 27 kwietnia 2012 r., <http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WMP20120000252/O/M20120252-1.pdf>.
- Kowalczyk, A. (2016): Turystyka kulinarna – podejścia ‘geograficzne’ i ‘niegeograficzne’. *Turystyka Kulturowa*, www.turystykakulturowa.org, 5, 29–59.
- Krajowa Strategia Rozwoju Regionalnego 2010–2020: Regiony, Miasta, Obszary Wiejskie. Dokument Przyjęty Przez Radę Ministrów dnia 13 lipca 2010 r. Ministerstwo Rozwoju Regionalnego, Warszawa.
- Lai, M. Y., Khoo-Lattimore, C., Wang, Y. (2017): Food and cuisine image in destination branding: Toward a conceptual model, *Tourism and Hospitality Research* 19(2), 238–251, <https://doi.org/10.1177/1467358417740763>.
- Lane, B., Kastenholtz, E. (2015): Rural tourism: the evolution of practice and research approaches: towards a new generation concept? *Journal of Sustainable Tourism* 23(8–9), 1133–1156, <https://doi.org/10.1080/09669582.2015.1083997>.
- Lentz, P., Holzmüller, H. H., Schirrmann, E. (2006): City-of-origin effects in the German beer market: transferring an international construct to a local context. *Advances in International Marketing* 17, 251–274, [https://doi.org/10.1016/S1474-7979\(06\)17009-X](https://doi.org/10.1016/S1474-7979(06)17009-X).
- Lin, Y. C., Pearson, T. E., Cai, L. A. (2011): Food as a form of destination identity: A tourism destination brand perspective. *Tourism and Hospitality Research* 11(1), 30–48, <https://doi.org/10.1057/thr.2010.22>.
- Long, L. (ed.) (2003): *Culinary Tourism: Food, Eating and Otherness*. Lexington: University of Kentucky Press.
- Lorenz, B. A., Hartmann, M., Simons, J. (2015): Impacts from region-of-origin labeling on consumer product perception and purchasing intention – Causal relationships in a TPB based model. *Food Quality and Preference* 45, 149–157, <https://doi.org/10.1016/j.foodqual.2015.06.002>.
- Macdonald, H. S. (2001): National tourism and cuisine forum: ‘Recipes for Success’. *Canadian Tourism Commission*.
- Marcoz, E. M., Melewar, T. C., Dennis, C. (2016): The value of region of origin, producer and protected designation of origin label for visitors and locals: The case of Fontina cheese in Italy. *International Journal of Tourism Research* 18(3), 236–250, <https://doi.org/10.1002/jtr.2000>.
- Mazur, M., Bański, J., Czapiewski, K., Śleszyński, P. (2015): Przemiany struktury przestrzennej i funkcjonalnej obszarów wiejskich w Polsce. *Studia obszarów wiejskich* 37, 7–36, <https://doi.org/10.7163/SOW.37.1>.
- Michoń, D., 2017. Zróżnicowanie rozwoju społeczno-gospodarczego województwa ze względu na realizację celów polityki spójności. *Wiadomości Statystyczne* 12(679), 80–94.
- Milewska, M., Prączko, A., Stasiak, A. (2017): *Podstawy gastronomii. Od żywności do turystyki kulinarnej*, Warszawa, PWE.
- Miszczuk, A. (2010): Peryferyjność regionów. [In:] A. Tucholska (ed.), *Europejskie wyzwania dla Polski i jej regionów*, Warszawa, MRR, 236–250.

- Okumus, B., Cetin, G. (2018): Marketing Istanbul as a culinary destination, *Journal of Destination Marketing & Management* 9, 340–346, <https://doi.org/10.1016/j.jdmm.2018.03.008>
- Olechnicka, A. (2004): Regiony peryferyjne w gospodarce informacyjnej. Warszawa Wydawnictwo Naukowe Scholar.
- Orłowski, D. (2016): Kuchnia regionalna i jej wykorzystanie w rozwoju turystyki kulinarnej na Lubelszczyźnie. [In:] G. Godlewski, J. Roszak (eds.), *Niematerialne i materialne dziedzictwo Lubelszczyzny jako podstawa rozwoju turystyki kulturowej*. Warszawa, Instytut Sławiastyki Polskiej Akademii Nauk, 83–95.
- Peterson, R. A., Jolibert, A. J. P. (1995): A Meta-Analysis of Country-of-Origin Effects. *Journal of International Business Studies* 26(4), 883–900, <https://doi.org/10.1057/palgrave.jibs.8490824>.
- Plan Zagospodarowania Przestrzennego Województwa Lubelskiego. Zał. nr 1 do Uchwały Nr XI/162/2015 Sejmiku Województwa Lubelskiego z dnia 30 października 2015 r. https://umwl.bip.lubelskie.pl/upload/pliki//2Zal.1_tekst_PZPWL.pdf.
- Powierzchnia i ludność w przekroju terytorialnym w 2018 r. Area and population in the territorial profile in 2018. Statistics Poland, Warsaw. Online: <https://stat.gov.pl/obszary-tematyczne/ludnosc/ludnosc/powierzchnia-i-ludnosc-w-przekroju-terytorialnym-w-2018-roku,7,15.html> (accessed 10 July 2018).
- Program Rozwoju Turystyki na Obszarach Wiejskich w Polsce. Polska Federacja Turystyki Wiejskiej „Gospodarstwa Gościnne”. Warszawa, 2015.
- Richards, G. (2002): Gastronomy: An essential ingredient in tourism production and consumption? [In:] A. Hjalager, G. Richards (eds.) *Tourism and Gastronomy*. London: Routledge, 2–20.
- Richards, G. (2015): Evolving gastronomic experiences: From food to foodies to foodscapes. *Journal of Gastronomy and Tourism* 1(1), 5–17, <https://doi.org/10.3727/216929715X14298190828796>.
- Rolnictwo w województwie lubelskim w 2016 r. Informacje i Opracowania Statystyczne. Urząd Statystyczny w Lublinie, Lublin, 2017.
- Scarpato, R. (2002): Gastronomy as a tourist product: the perspective of gastronomy studies. [In:] A. Hjalager, G. Richards (eds.) *Tourism and Gastronomy*. London: Routledge, 51–70.
- Schooler, R. D. (1965): Product bias in the Central American Common Market. *Journal of Marketing Research* 2, 394–397, <https://doi.org/10.1177/002224376500200407>.
- Selfa, T., Fish, R., Winter, M. (2010): Farming livelihoods and landscapes: Tensions in rural development and environmental regulation. *Landscape Research* 35(6), 595–612. <https://doi.org/10.1080/01426397.2010.514043>.
- Sims, R. (2009): Food, place and authenticity: local food and the sustainable tourism experience. *Journal of Sustainable Tourism* 17(3), 321–336, <https://doi.org/10.1080/09669580802359293>.
- Siow, M. L., Ramachandran, S., Shuib, A., Nair, M., Afandi, S. H. M., Sudesh, P. (2013): Rural resources as tourism capital: the case of Setiu Wetlands, Terengganu, Malaysia. *The Malaysian Forester* 76(1), 27–39.
- Skoczylas, K. (2012): Promocja i kreowanie wizerunku regionu na podstawie kampanii promocyjnych województwa lubelskiego. [In:] R. Krukowska (ed.), *Turystyczne, rekreacyjne i geograficzne aspekty kształtowania przestrzeni*. Lublin, Karpol s.c.
- Skowronek, E., Krukowska, R., Świeca, A., Tucki, A. (2005): The evolution of rural landscapes in mid-eastern Poland as exemplified by selected villages. *Landscape and Urban Planning* 70, 45–56, <https://doi.org/10.1016/j.landurbplan.2003.10.004>.
- Skowronek, E., Wojciechowski, K. H., Świeca, A. (2006): The history of the ethnic transformations of the Lublin Region. [In:] E. Skowronek, W. Wołoszyn, T. Speck, K. M. Born (eds.), *Cultural Landscapes of the Lublin Upland and Roztocze*. Lublin, Kartpol s.c., 33–47.
- Solon, J., Borzyszkowski, J., Bidłasik, M., Richling, A., Badora, K., Balon, J., Brzezińska-Wójcik, T., Chabudziński, Ł., Dobrowolski, R., Grzegorzczak, I., Jodłowski, M., Kistowski, M., Kot, R., Krąż, P., Lechnio, J., Macias, A., Majchrowska, A., Malinowska, E., Migoń, P., Myga-Piątek, U., Nita, J., Papińska, E., Rodzik, J., Terpiłowski, S., Ziąja, W. (2018): Physico-geographical mesoregions of Poland – verification and adjustment of boundaries on the basis of contemporary spatial data. *Geographia Polonica* 91(2), 143–170, <https://doi.org/10.7163/GPol.0115>.
- Spilková, J., Fialová, D. (2013): Culinary tourism packages and regional brands in Czechia. *Tourism Geographies* 15(2), 177–197, <https://doi.org/10.1080/14616688.2012.726268>.
- Špulerová, J., Bezák, P., Dobrovodská, M., Lieskovský, J., Štefunková, D. (2017): Traditional agricultural landscapes in Slovakia: why should we preserve them? *Landscape Research* 48(2), 891–903, <https://doi.org/10.1080/01426397.2017.1385749>.
- Stasiak, A. (2015): Rozwój turystyki kulinarnej w Polsce. [In:] B. Krakowiak, A. Stasiak (eds.), *Kultura i turystyka – wokół wspólnego stołu*. Łódź, Regionalna Organizacja Turystyczna Województwa Łódzkiego, 119–150.
- Strategia Rozwoju Kapitału Społecznego 2020. Załącznik do uchwały nr 61 Rady Ministrów z dnia 26 marca 2013 r. (poz. 378). *Monitor Polski, Dziennik Urzędowy Rzeczypospolitej Polskiej*, Warszawa, dnia 16 maja 2013 r.
- Strategia Rozwoju Kraju. 2020. Dokument przyjęty uchwałą Rady Ministrów w dniu 25 września 2012 roku. Ministerstwo Rozwoju Regionalnego, Warszawa.
- Strategia rozwoju województwa lubelskiego na lata 2014–2020 (z perspektywą do 2030 r.). Urząd Marszałkowski Województwa Lubelskiego w Lublinie. Lublin, 2014.
- Szczęsna, J., Gawrysiak, L. (2009): Wielokulturowe dziedzictwo Lubelszczyzny elementem potencjału turystycznego regionu. *Annales UMCS, sec. B* 64(1), 37–52, <https://doi.org/10.2478/v10066-008-0017-6>.
- Świeca, A., Brzezińska-Wójcik, T. (2009): Regional diversity of river basin geosystems of mid-eastern Poland in the light of solute flow studies. *Prace i Studia Geograficzne* 41, 205–218.
- Telfer, D., Wall, G. (1996): Linkages between tourism and food production. *Annals of Tourism Research* 23, 635–653, [https://doi.org/10.1016/0160-7383\(95\)00087-9](https://doi.org/10.1016/0160-7383(95)00087-9).

- Tervo-Kankare, K., Tuohino, A. (2016): Defining 'rurality' for rural wellbeing tourism – Halfacree's conceptual triad of the production of rural space in practical-level tourism development in Northern Europe. *Nordia Geographical Publications* 45(2), 37–52.
- Turski, R., Uziak, S., Zawadzki, S. (2008): Gleby. [In:] S. Uziak, R. Turski (eds.), *Środowisko przyrodnicze Lubelszczyzny*. Lublin, Lubelskie Towarzystwo Naukowe, 211–315.
- Urry, J. (1990): *The tourist gaze: Leisure and travel in contemporary societies*. London: Sage.
- Usunier, J. C. (2006): Relevance in business research: the case of country-of-origin research in marketing. *European Management Review* 3(2006), 60–73, <https://doi.org/10.1057/palgrave.emr.1500049>.
- Winawer, Z., Wujec, H. (2010): *Tradycyjne i regionalne produkty wysokiej jakości we wspólnej polityce rolnej. Poradnik dla producentów*. Warszawa, Fundacja dla Polski.
- Wolf, E. (2002): *Culinary tourism: A tasty economic proposition*. Portland, International Culinary Tourism Task Force.
- Vafadari, K. (2013): Planning sustainable tourism for agricultural heritage landscapes. *Ritsumeikan Journal of Asia Pacific Studies* 32, 75–89.
- <https://www.lubelskie.pl/kampanie-promocyjne> (accessed 10 October 2018)
- <https://www.gov.pl/rolnictwo/lista-produktow-tradycyjnych12> (accessed 12 January 2019)

Mapping military landscape as a cultural heritage: case study of the Austerlitz/Slavkov battlefield site

Markéta Šantrůčková^{1,*}, Alena Salašová², Klára Sokolová², Jozef Sedláček²

¹ Silva Tarouca Research Institute for Landscape and Ornamental Gardening, Czechia

² Mendel University in Brno, Faculty of Horticulture, Czechia

* Corresponding author: Marketa.Santruckova@vukoz.cz

ABSTRACT

Military landscapes and battlefields are important part of cultural heritage and identity of society. As a part of common social memory, military landscape could be assessed as an associative landscape according UNESCO World Heritage Convention. Before nature and culture heritage could be treasured, it first had to be recognised. Therefore, the paper focuses on identification of historical and cultural values of military landscapes, especially battlefields. Different types of values are discussed and demonstrated on the model area of battlefield Austerlitz/Slavkov near Brno. The battle was held in 1805 and several cultural values are identified there. Identification of cultural historical values is based on detailed analysis of the old and present maps and land cover assessment, study and analysis of archival sources and grey literature and detailed terrain research. Generally, we distinguished several types of values: elements forming the setting of the battlefield; elements tied with the battle (i.e. features and objects that served for purposes of the battle during the fights and are preserved until today); elements created after the battle. Once the associative landscapes are allocated together with their associative patterns, certain values should be given to particular elements in order to secure their protection. Then each planning activity within the site should be given a level of effect on the associative element. This simple matrix implemented in local planning development plans and policies could be a source for rational decision within the associative landscapes.

KEYWORDS

military landscape; battlefield; cultural and historical values; assessment; Austerlitz/Slavkov

Received: 29 October 2020

Accepted: 13 February 2020

Published online: 27 March 2020

Šantrůčková, M., Salašová, A., Sokolová, K., Sedláček, J. (2020): Mapping military landscape as a cultural heritage: Case study of the Austerlitz/Slavkov battlefield site. *AUC Geographica* 55(1), 66–76

<https://doi.org/10.14712/23361980.2020.2>

© 2020 The Authors. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

Military landscapes could be studied from many perspectives, e.g. social economic conditions and specifics of local and regional identity in military landscapes (Seidl, Chromý 2010), ecological values of (post)military areas (Kopecký, Vojta 2009; Lepková et al. 2018; Bušek, Reif 2017; Lindenmayer et al. 2016), or land use/land cover changes (Havlíček et al. 2018; Skokanová et al. 2017; Gibbes et al. 2017). Military landscapes, especially battlefields, are important part of cultural heritage and identity of society. Battlefield could be regarded as places of memory by state authorities as well as by general public; when it became a place of memory it is usually designed by memorials, museums, etc. As a place of memory, battlefields are joined to (dark) tourism that could initiate the deep investigation of the public sense of the place as well as conservation of the tangible heritage in situ. On the other hand, (dark) tourism industry could endangered the place and its tangible and intangible features by press to development the touristic infrastructure that caused landscape and terrain changes and increase of the built-up areas (Graham, Howard, eds. 2008; Lennon, Foley 2002; Assmannová 2018).

As a part of common social memory, military landscape could be assessed as an associative landscape. The associative cultural landscape is an expression used for categorization of cultural landscapes in terms of World Heritage Convention. In 1992, the World Heritage Convention became the international instrument to recognise and protect cultural landscapes. Cultural landscape is specified there as combined works of nature and humankind, expressing a long and intimate relationship between peoples and their natural environment. Associative cultural landscapes are characteristic by powerful religious, artistic or cultural associations of the natural element rather than material cultural evidence (Fig. 1), which may be insignificant or even absent (Rössler 2006). However, the dark heritage of military landscapes and battlefields often do not fit the scope and purpose of the World Heritage Convention (ICOMOS 2018).

Before nature and culture heritage could be treasured, it first had to be recognised (Lowenthal 2005). Therefore, identification of landscape values is the first step for not only military landscape protection. A complex method of identification and assessment of characteristic landscape appearance was presented by Slámová et al. (2013). Capelo et al. (2011) presented a seventeenth criterion for definition and heritage valuation of landscape study cases which combined cultural and natural values (built heritage, natural biotic heritage, natural abiotic heritage, rarity of the heritage landscape type, antiquity, scientific potential, recreational potential, pedagogic potential, historic record, conservation statue, symbolic importance, coherence degree, conservation degree, aesthetical quality, monumentality, range, craft related value). Methods of identifying historical landscape structures on old maps and aerial photographs occur as frequently as does the assessment of their change in time (Sklenička et al. 2009; Black et al. 1998; Eetvelde, Antrop 2009). Šantrůčková and Weber (2016) focus primary on designed landscapes but the proposed typology of landscape values is universal and could be adapted to military landscapes.

Specifically for military landscapes and battlefields, identification of values composes from several partial features: identification of land cover, land use and terrain in the time of battle, identification of direct traces of the battle, commemorative features and monuments. Land cover for battles from the end of the 18th century till nowadays is documented by old maps, especially, but not only by maps of the First, Second, and Third Military Survey that were made for military reasons (Skaloš et al. 2011; for maps from 20th century see Mackovčín, Jurek 2015), land use for that time is documented in statistical evidence (Šantrůčková, Bendíková 2014; Bendíková et al. 2018). Configuration of relief in battlefield was very important for military purposes; on the other hand, relief could be changed by fortification and artillery fire. For that reasons, studying of relief conditions and identification of human changes in terrain that is possible due to airborne scanning became important source

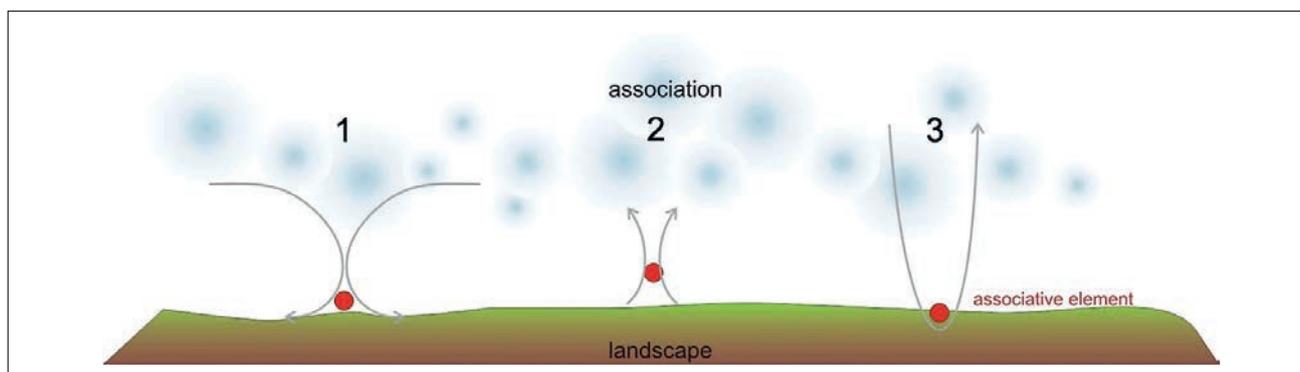


Fig. 1 Schematic diagram showing the process of creation an associative landscape: 1. landscape is influenced/formed by culture; 2. culture is influenced by landscape; 3. combination of both previous approaches.

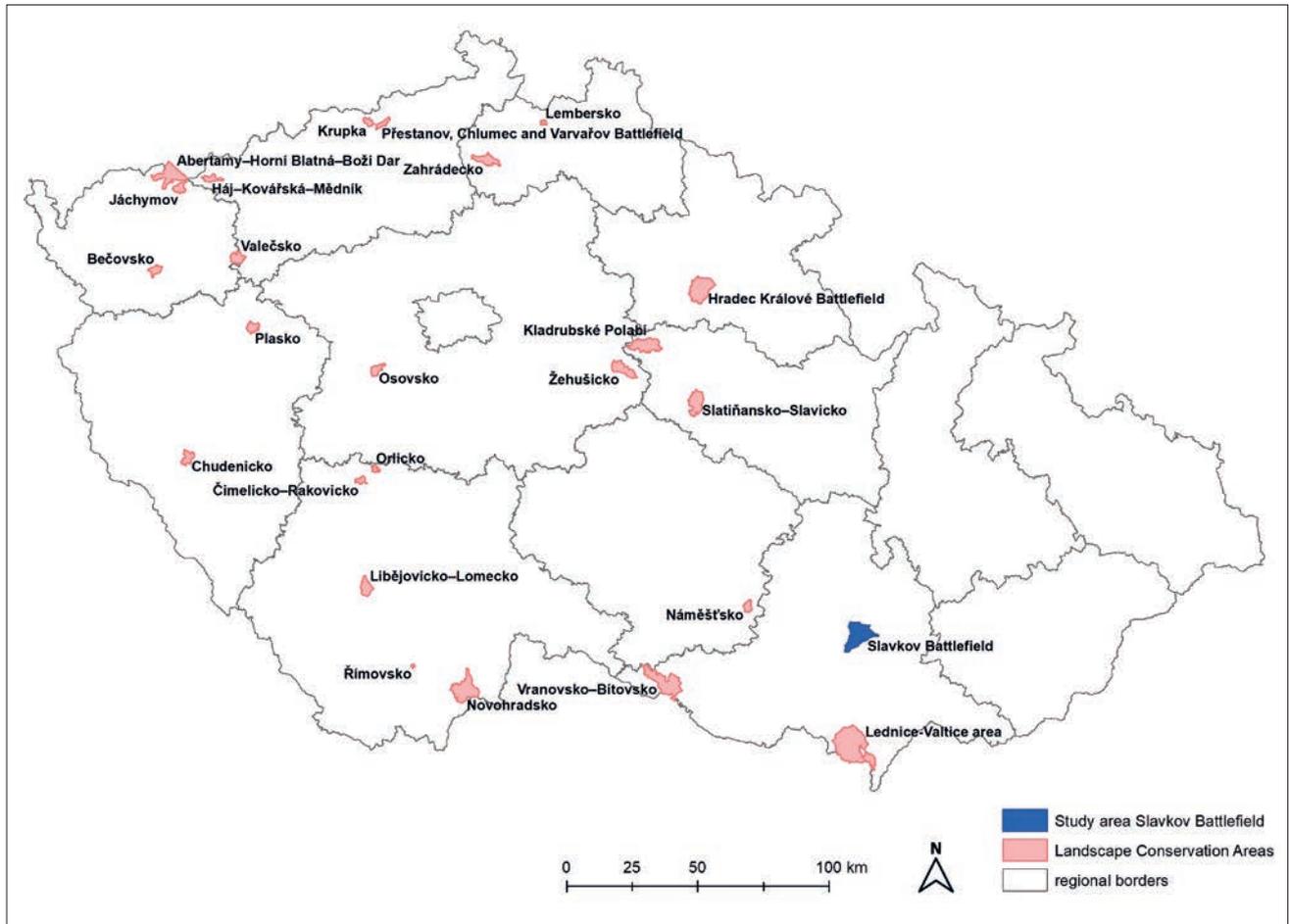


Fig. 2 Landscape Conservation Areas in the Czech Republic.

of information about military landscapes (Maio et al. 2013; Matoušek et al. 2017).

Not only old maps but also other iconographic sources (e.g. engravings) that documented the battle and their landscape are analysed by GIS tool for gain information about landscape values (Janata, Zimová 2016). The informative sources useable for historic landscape assessment are correspondence of the battle's actors, their memories and comments. Other important source of information and part of landscape values themselves are archaeological traces that could be investigated by traditional or distant archaeological methods (Matoušek et al. 2017).

Identification of the cultural historical values of the military landscape could serve as a basis for protection of these landscapes. The complete and participatory protection of areas of historical value including cultural landscapes contrasts with the segregated protection of individual sites used in the past, and is based on the European Landscape Convention (COE 2000), the Convention on Protecting Architectural Heritage (COE 1985) and especially the Convention on Protecting the World Cultural and Natural Heritage (UN 1973) including the related outputs of international expert teams (Mitchell et al. 2009).

Many complete or fragmented historic cultural landscapes have been preserved in the Czech Republic, which require responsible and systematic care. This primarily involves areas protected under the Heritage Act. Selected parts of a cultural landscape may be declared a Conservation Area. A Conservation Area is a settlement formation area or parts of it with fewer cultural monuments, a historical environment or part of the landscape with significant cultural value. The term Landscape Conservation Area is used for protected parts of the landscape. Conservation Areas are declared by the Ministry of Culture of the Czech Republic after consultation with the appropriate regional office. Today, twenty-five Landscape Conservation Areas have been declared in the Czech Republic and three of them are battlefields (Fig. 2), all of them from the 19th century (Austerlitz/Slavkov battlefield – 1805, Napoleonic Wars, Chlumeck, Přestanov and Varvažov battlefield – 1813, Napoleonic Wars, Hradec Králové battlefield, 1866, Austrian – Prussian War).

The main aim of the papers is to propose a set of cultural and historical landscape features that could be identify in military landscapes, especially in battlefields. The proposed elements should be identifiable in landscape in present and/or in past and are/were tangible cultural heritage of battlefields.

2. Material and methods

2.1 Study area: Austerlitz/Slavkov battlefield

The Battlefield of Austerlitz was designated as a Landscape Conservation Area in 1992. The purpose of conservation is tied with a particular event of the Battle of the Three Emperors that took place on December 2, 1805. The value of the site is represented by physical objects, places and visual connections related to this event. The whole site is a significant commemorative place for the numerous mass graves; some of them have not been even recognised yet (Salašová 2014).

The Battle of Austerlitz (December 2, 1805), also known as the Battle of the Three Emperors, was one

of the most important and decisive engagements of the Napoleonic Wars. Widely regarded as the greatest victory achieved by Napoleon, the Grande Armée of France annihilated a larger Russian and Austrian army led by Tsar Alexander I and Emperor Francis II. Because of the near-perfect execution of a calibrated but dangerous plan, the battle is often seen as a tactical masterpiece. Area of the Napoleon's critical manoeuvre called the "Lion's Leap" runs north south across the whole site and extends over several villages (Jiříkovice, Ponětovice, Prace, Hostěrádky – Rešov, Blažovice, Zbýšov, Holubice, Křenovice). Napoleon stroke the Allied troops with an unexpected tactic attack here and predetermined his overall victory in this battle (Fig. 3). Napoleon's victory in Austerlitz

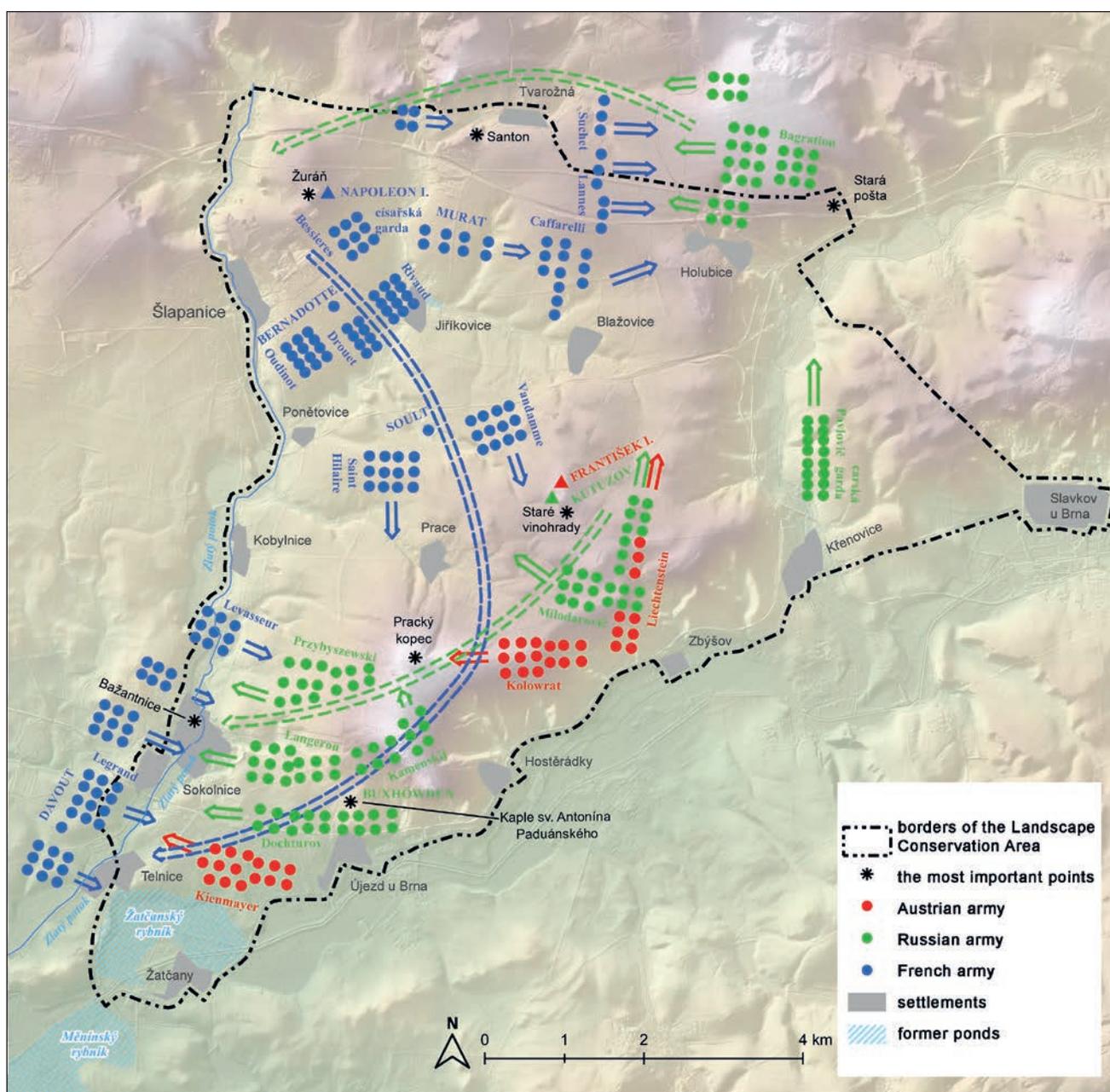


Fig. 3 Layout of the battlefield and positions of the armies before a start of the battle in the morning on December 2, 1805.

brought the War of the Third Coalition to a rapid end, with the Treaty of Pressburg (Bratislava) signed by the exhausted Austrians later in the month (Kuča et al. 2015; Adams 2005).

The area spreads across 70 square kilometres near a town Slavkov/Austerlitz in the district Brno, Czech Republic. The landscape and especially the topography of the site was a crucial factor for the run of the battle and the eventual victory of French armies led by Napoleon Bonaparte. The landform can be described as relatively flat, slightly undulating (Fig. 4) with four dominant peaks which are Žuráň (287 m a.s.l., a command post of Napoleon), Santon (306 m a.s.l., a strategic point of French troops), Pracký kopec (325 m a.s.l., a point of the final French overturn over Russian and

Austrian armies), Staré Vinohrady near Blažovice (297 m a.s.l., a command post of a Russian general Kutuzov). From these strategic points, the whole battle was commanded.

At the time of the battle (1805), the land was used predominantly for agricultural purposes as arable fields with scarcer high vegetation. The land use pattern was formed by specific long rectangular plots (Salašová et al. 2014). Today, the topography is not changed and the land use is mainly similar – with prevailing agricultural use. The land use pattern though is different as it has been changed and simplified since the beginning of 19th century. There is also more high vegetation in form of mature trees.

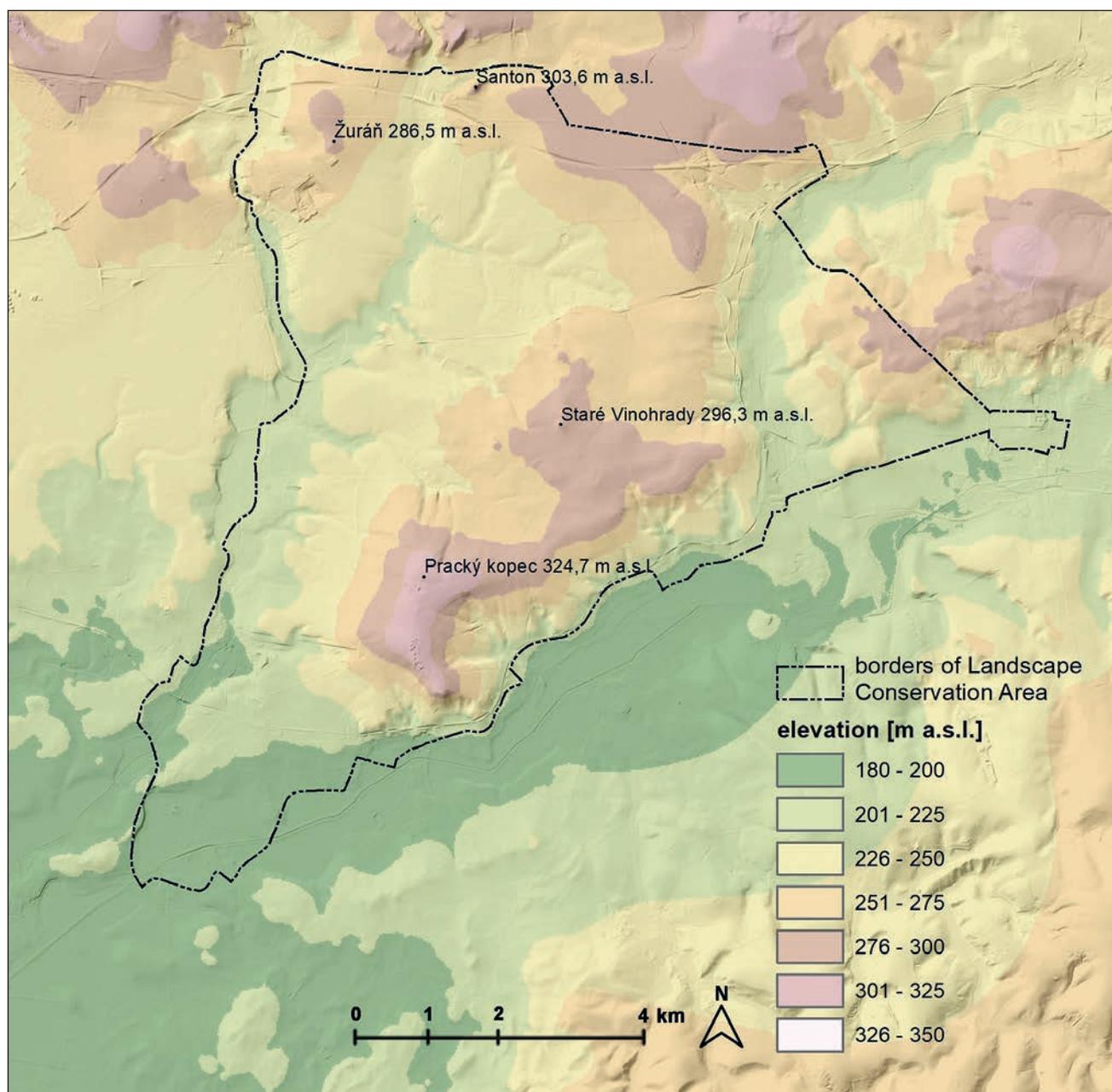


Fig. 4 Local topography of the battlefield at Austerlitz.

2.2 Land cover assessment

The first step, we made, was land cover assessment. The aims of land cover assessment were to investigate land cover in the period of the battle and differences between the past and present state. Cadastral maps of the stable cadastre were used for past state assessment and setting up the former land cover categories of the historical cultural landscape. Stable cadastre maps are very detailed (1 : 2,880) and relatively time appropriate (they were made in 1826), so they are the most suitable old maps. Old maps were georeferenced and vectorised manually for all area, twelve land cover categories were identified (Tab. 1).

The present land cover was assessed by the geographic base data of the Czech Republic (ZABAGED) correlated with present orthophoto. ZABAGED consists of 122 types of geographic objects that were modified according the vectorised data of the stable cadastre maps. Lines, namely roads were modified to area objects by the tool “buffer” and widths of new area objects were set up to 6.5 m for paths, 8.5 m for roads and 12.5 m for main roads. The area objects of land cover categories were joined by the tool “union” to one .shp file and correlated according the present orthophoto. Then, land cover categories were modified according the situation identified on the stable cadastre maps (Tab. 1). All operations were made in software ArcGIS 10.

2.3 Mapping of the tangible landscape values in the battlefield

To fulfil the main aim, we elaborated detailed set of criterions of the landscape features that is aimed to the military landscapes and battlefields (see Tab. 2). Detailed terrain research was carried out for

Tab. 1 Land cover categories on stable cadastre maps and ZABAGED.

No.	Land cover on stable cadastre maps	Land cover on ZABAGED
1	high woods	forests
2	arable land	arable land and other non-specified areas
3	permanent grasslands	permanent grasslands
4	vineyards	vineyards
5	rocks	open quarries, rocks
6	low woods	forests with shrubs
7	water areas	water areas
8	built-up areas	all types of buildings
9	orchards	orchards, gardens
10	roads and paved areas	transport network
11	ornamental gardens	ornamental gardens and parks
12	other areas	dump sites, ruins, airports surroundings

Tab. 2 Proposed cultural and historical landscape features for battlefields.

Type	Subtype	Landscape feature
Settlement	Inner structure of settlements	Valuable built-up area
		Real built-up area
Potential built-up area		
	Former settlement	Hillfort
Valuable buildings	Manor houses and farms	Castle/chateau
		Manor farm
		Fortress
	Church buildings	Church
		Chapel
		Bell tower
	Small religious monuments	Wayside shrine
		Cross
		Conciliation Cross
		Memorial
		Statue
	Town buildings	Town hall
		Town house
		Public house
	Village buildings	Tavern
		Blacksmith's workshop
	Industrial buildings	Water mill
		Wind mill
	Jewish buildings	Synagogue
	Other	Other building
Mass grave		
Historical cultural landscape	Designed landscape areas	Game park, pheasantry
		Ornamental garden
	Former land cover	Arable land
		Meadows and pastures
		Family garden
		Vineyard
		Forest and scattered vegetation
Water area		
Historical cultural lines	Historical vegetation lines	Two lines alley
		Tree line fruit alley
	Historical artificial lines	Historical line construction
Historical pathway		
Historical point vegetation	Tree	Solitaire tree
Spatial relations	View point	View point
	Skyline	Local skyline
	Landmarks	Landscape landmark
	Place of important event	Place of important event
		Battlefield
		Place of the most intensive fights
	Compositional axes	Main compositional axe
		Side compositional axe
Scenic roads	Scenic road	

assessment the present state of identified landscape features. The identified features were drawn to the detailed map of cultural and historical values. The map was produced by software ArcGIS 10 on the geographic base data of the Czech Republic (ZABAGED) in scale 1 : 10,000.

3. Results

Two detailed land cover maps were elaborated; one of the historical state in the first half of the 19th century based on the stable cadastre maps (Fig. 5) and second of the present state (Fig. 6). These maps were used for setting up the former land cover categories of the historical cultural landscape. One of the predefined categories in tab. 1 (open quarries, rocks) is not presented in the model area. All identified historical and cultural

landscape features in battlefield at Austerlitz were recorded and a detailed analytical map was elaborated (Salašová et al. 2014). The event itself has become an intangible association over the years, however, it is remained by footprints that the battle left behind and which can still be visible or can be experienced. Fig. 7 presents a generalized overview map of tangible cultural landscapes values of the model area.

There are many significant and valuable features on the site, which include historical buildings, historic gardens and castles, tree alleys, skylines, key viewpoints and visual connections. These features are mediums through the story of the battle lives in memories of a current generation.

The features could be categorised as:

1. Features forming the setting of the battlefield – primarily physical topographical features as the main 4 hills, streams and ponds.

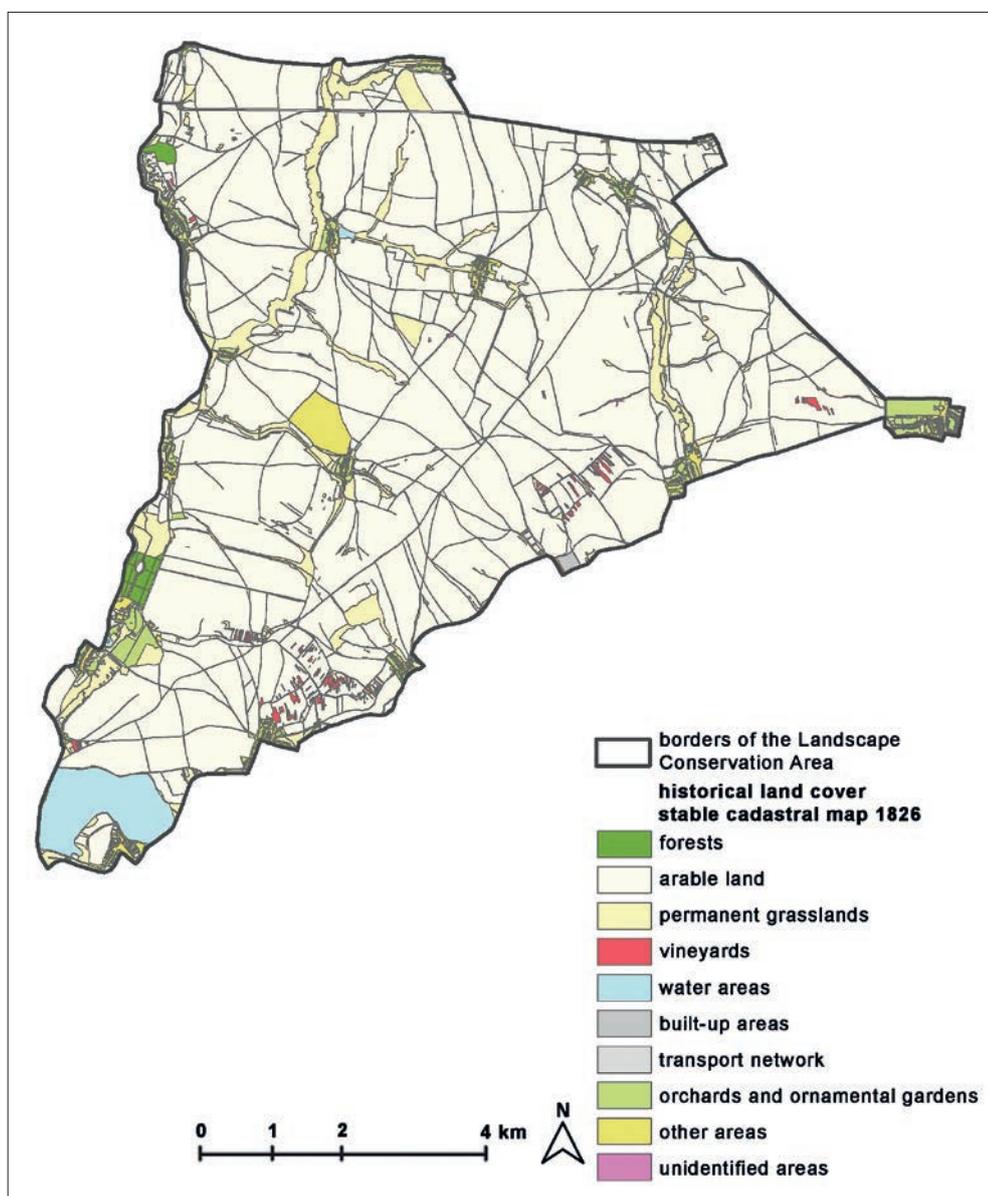


Fig. 5 Historical land cover according the stable cadastral map 1826.

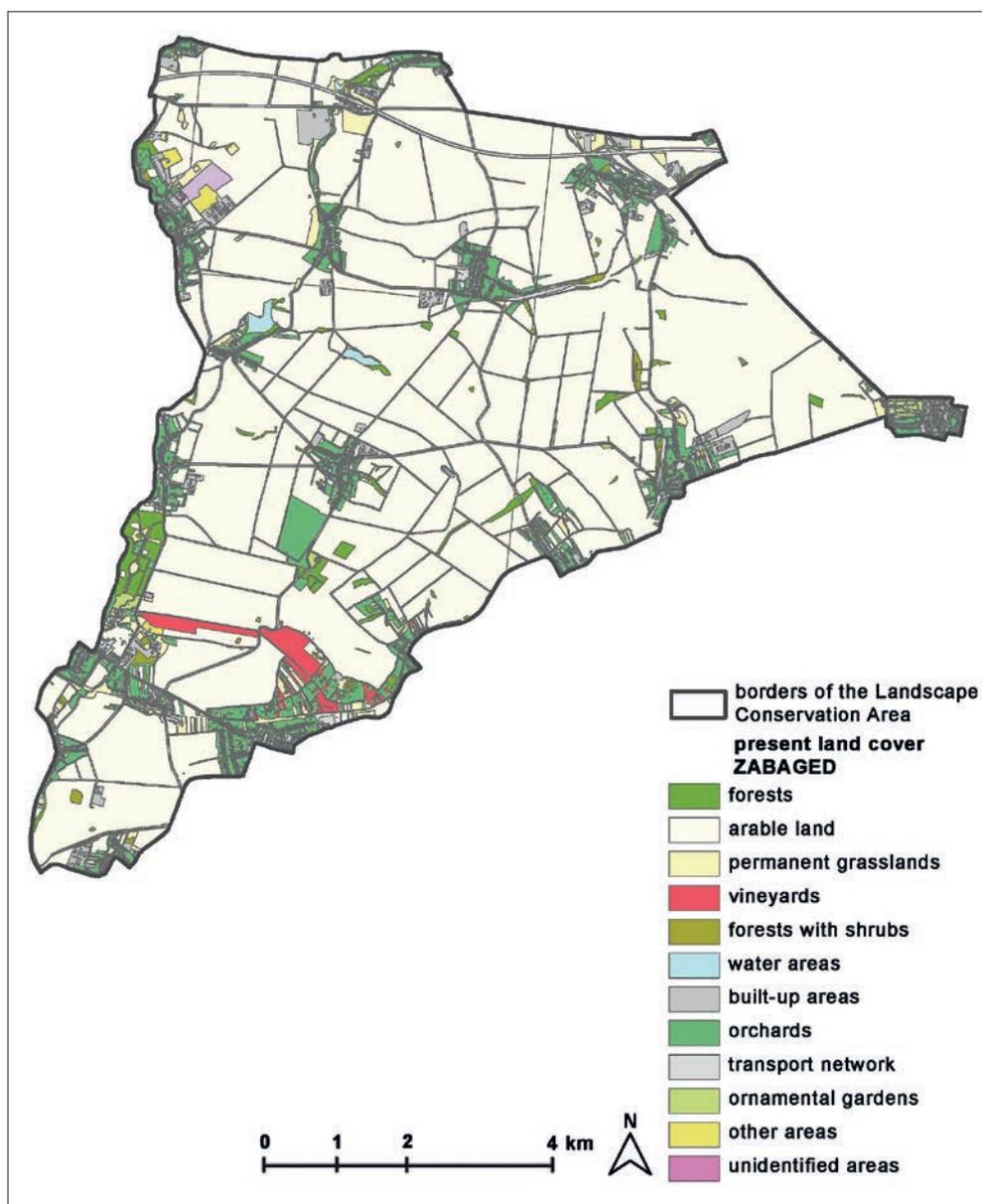


Fig. 6 Present land cover according ZABAGED.

2. Features tied with the battle, i.e. features and objects that served for purposes of the battle during the fights and are preserved until today. They are especially buildings and some minor relicts of groundworks on a side of Santon hill (Stará Pošta, hospitals, churches used as the field hospitals etc.). The sunken field paths are very specific landscape elements commemorate the battle for a long time. They are very often described after a battle as the places fulfil of the killed soldiers and horses' bodies; they are the symbolic elements generally of the war misery.
3. Features created after the battle – especially monuments and memorial objects (Peace Monument – Mohyla Míru, numerous other monuments), religious buildings. This includes a whole number of mass graves, which give the site a commemorative

sense. Many of the graves have not been discovered or their location might have been forgotten through a span of the years.

These categories could be applied to any associative site or could be used as a guide to prove if the site is of any associative value.

4. Discussion

Mapping and evaluating the tangible landscape features that form associative landscape values of the battlefield is essential for landscape protection in the Czech Republic according the Heritage Act (Salašová et al. 2014; Kuča et al. 2015; Šantrůčková, Weber 2016). The Austerlitz/Slavkov battlefield was declared as Landscape Conservation Area in 1992

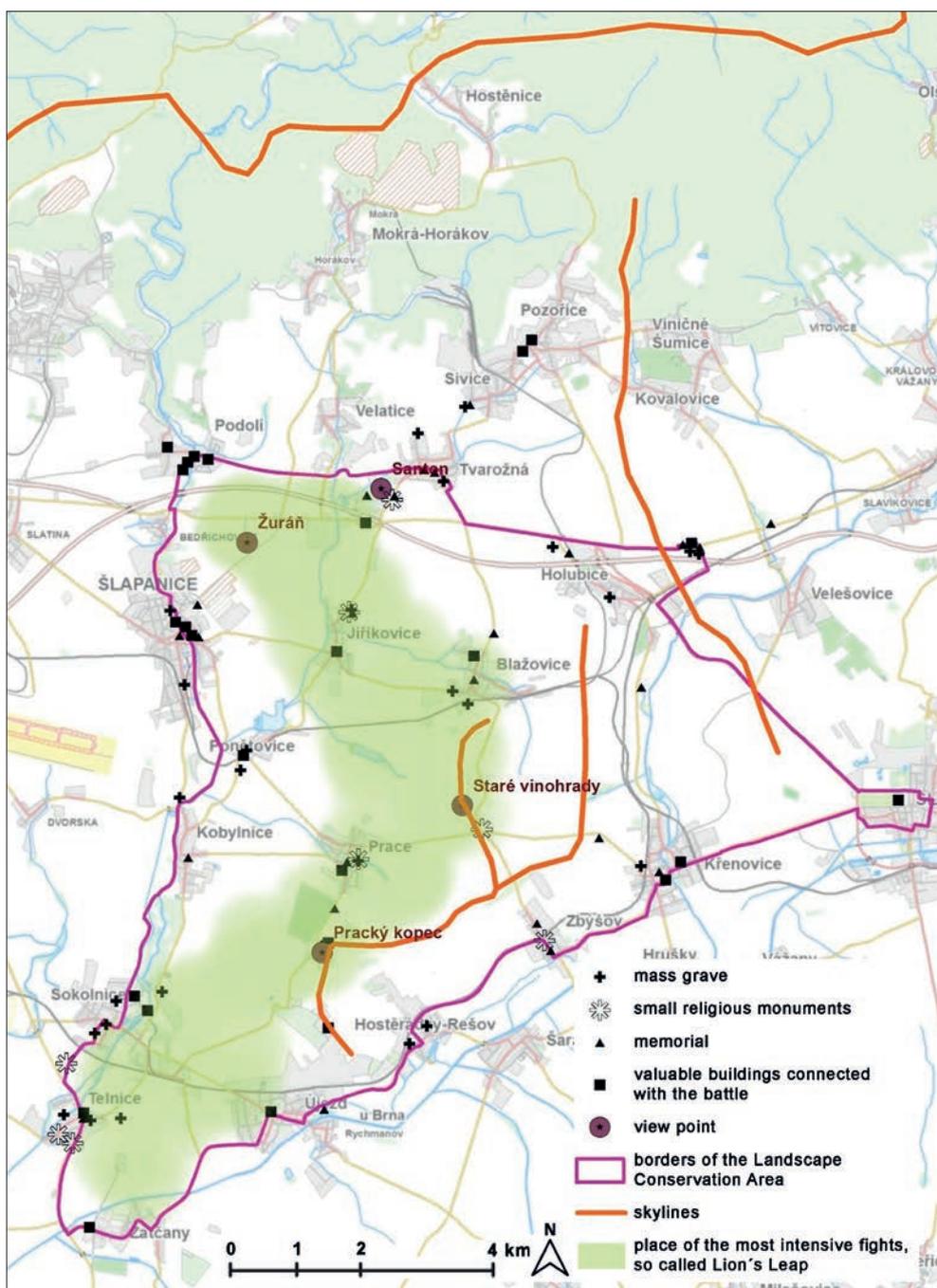


Fig. 7 Map of identified cultural and historical valuable landscape features in battlefield Austerlitz/Slavkov.

for its historical importance, landscape features and composition and landscape quality so the battlefield is legally acknowledge like valuable site.

An intensity of the association tends to fade away with time. There is no doubt that the eye witnesses of the battle of Austerlitz had different memories and feelings about the battle than a generation of people born and living there later. It is not always possible to keep the same level of memories/experience when it is not even necessary. The wounds of the war injuries have been healed and nations participated then in the battle do not continue in the fighting until today. However, there should be some consistent level of

knowledge determining creation the right associations in minds of the inhabitants that they may know the value of the site and its protection is their interest (Graham, Howard, eds. 2008; Lennon, Foley 2002; Assmannová 2018).

Different views and opinions on the same associative event may also occur (Graham, Howard, eds. 2008; Assmannová 2018). This may not apply to associative landscapes listed above within the UNESCO list as they usually form a part of national identity and are widely recognised as highly valuable (Rössler 2006). For that reasons, only few sites were listed on the UNESCO list as associative landscape of conflicts

and death (ICOMOS 2018). With an event as controversial as a war or a battle, different people may keep different attitudes for many decades. Therefore, some local people may be fans of Napoleonic wars and may find the story of the battle thrilling; the others see it as a blood shed which should have been avoided at any cost.

The associative landscapes were not left alone once the event was over. People continue to live in those areas and bring along all that is related to their lifestyle. This includes also local planning for growth of settlements located in the sites. The values of such landscapes may be improved or lowered or even damaged not by another disastrous event such as a war or a battle but by simple planning activities, which minimise effect of appointed associative elements. The different views can affect decision-making processes on the site largely (Graham, Howard, eds. 2008; Lennon, Foley 2002). Moreover, this may be a reason why the Battlefield of Austerlitz does not have any management plan that would unify all the 21 settlements on the site in one systematic approach to the site protection, conservation, and development but only individual management plans for each settlement. The identification of landscape features could be a basis for a management plan for whole Landscape Conservation Area that would be initiated by the National Heritage Institute.

There are also visitors coming to see the places where the battle took place and with increasing popularity of the site, the pressure and demand of the visiting people on available leisure facilities, accommodation, information centres, parking places or entertainment may cause damage to the values of the site. Many of the cultural historical landscapes deal with this issue and try to find a balance between a strict preservation and making the site attractive for people keen to learn more about its values. Whatever features or attractions they may be, there is always a risk that the supplementary features overshadow the associative elements and overturn the value of the site to an opposite meaning (Lennon, Foley 2002).

Associative values may also be seen as restrictions to a local planning. Local authorities may feel bound within strict barriers that do not allow them to put forward any planning decision that would harm the local associative values (Salašová et al. 2014). This may be a real issue especially when the land is suitable for certain sorts of developments that could bring a great profit to the area, mainly increasing of built-up areas for housing, technical and road infrastructure and tourism industry.

5. Conclusion

There is an evident importance of associative landscapes within a human society. They allow to link tangible values, events and ideas with something as

specific and unique as a particular piece of landscape and create a valuable connection living in people's minds. They can form a part of national or local identity and be important for many cultural products of the society. Apart from a few associative (and especially military) landscapes inscribed on the World Heritage list there are many local associative landscapes whose value has not been recognised yet.

The recognising process also requires a set of features for identification of associative landscapes. Once the associative landscapes are allocated together with their patterns, certain features should be given to particular elements in order to secure their protection. Then each planning activity within the site should be given a level of effect on the landscape element. This simple matrix implemented in local planning development plans and policies could be a source for rational decision within the associative landscapes.

Acknowledgements

This research was funded by the Ministry of Culture of the Czech Republic, Programme NAKI II DG16P02M034 Identification and presentation of heritage potential of historic cultural landscapes in the Czech Republic.

References

- Adams, M. (2005): Austerlitz: The battle of the two emperors. *History Today* 55(12), 30–36.
- Assmannová, A. (2018): *Prostory vzpomínání. Podoby a proměny kulturní paměti*. Praha, Karolinum.
- Bendíková, L., Šantrůčková, M., Lipský, Z. (2018): Evaluation of land cover / land use development in selected landscape conservation areas in comparison to non-protected areas. *Geografie* 123(3), 295–316, <https://doi.org/10.37040/geografie2018123030295>.
- Black, A. E., Strand, E., Wright, R. G., Scott, J. M., Morgan, P., Watson, C. (1998): Land use history at multiple scales: implications for conservation planning. *Landscape and Urban Planning* 43(1–3), 49–63, [https://doi.org/10.1016/S0169-2046\(98\)00096-6](https://doi.org/10.1016/S0169-2046(98)00096-6).
- Bušek, O., Reif, J. (2017): The potential of military training areas for bird conservation in a central European landscape. *Acta Oecologica* 84, 34–40, <http://dx.doi.org/10.1016/j.actao.2017.08.005>.
- Capelo, S., Barata, F. T., Mascarenhas, J. M. (2011): Why are cultural landscapes of various values? Thinking about heritage landscape evaluation and monitoring tools. *Journal of Landscape Ecology* 4(1), 5–17, <https://doi.org/10.2478/v10285-012-0030-3>.
- COE (1985): Convention for the Protection of the Architectural Heritage of Europe, Granada, ETS No. 121. Strasbourg, Council of Europe.
- COE (2000): European Landscape Convention, Florence, CETS No. 176. Strasbourg, Council of Europe.
- Eetevelde, V. Van, Antrop, M. (2009): Indicators for assessing changing landscape character of cultural

- landscapes in Flanders (Belgium). *Land Use Policy* 26(4), 901–910, <https://doi.org/10.1016/j.landusepol.2008.11.001>.
- Gibbes, C., Havlick, D. G., Robb, J. R. (2017): Land use and land cover in a transitioning militarized landscape. *Journal of Land Use Science* 12(2–3), 182–196, <https://doi.org/10.1080/1747423X.2017.1313325>.
- Graham, B., Howard, P. (eds.) (2008): *The Ashgate research companion to heritage and identity*. Aldershot – Burlington, Ashgate Publishing.
- Havlíček, M., Skokanová, H., Dostál, I., Vymazalová, M., Pavelková, R., Petrovič, F. (2018): The consequences of establishing military training areas for land use development—A case study of Libavá, Czech Republic. *Land Use Policy* 73, 84–94, <https://doi.org/10.1016/j.landusepol.2018.01.039>.
- Icomos (2018): *ICOMOS Discussion paper. Evaluations of World Heritage Nominations related to Sites Associated with Memories of Recent Conflicts*. Paris, ICOMOS.
- Janata, T., Zimová, R. (2016): Using GIS and methods of digital cartography for analysing battlefield engravings of 17th century. *Geoinformatics FCE CTU* 15(1), 47–59, <https://doi.org/10.14311/gi.15.1.4>.
- Kopecký, M., Vojta, J. (2009): Land use legacies in post-agricultural forests in the Doupovské Mountains, Czech Republic. *Applied Vegetation Science* 12(2), 251–260, <https://doi.org/10.1111/j.1654-109X.2009.01023.x>.
- Kuča, K. et al. (2015): *Krajinné památkové zóny České republiky*. Praha, Národní památkový ústav.
- Lennon, J., Foley, M. (2002): *Dark tourism. The attraction of death and disaster*. London – New York, Continuum.
- Lepková, B., Horčíčková, E., Vojta, J. (2018): Endozoochorous seed dispersal by free-ranging herbivores in an abandoned landscape. *Plant Ecology* 219(9), 1127–1138, <https://doi.org/10.1007/s11258-018-0864-9>.
- Lindenmayer, D. B., MacGregor, C., Wood, J., Westgate, M. J., Ikin, K., Foster, C., Ford, F., Zentelis, R. (2016): Bombs, fire and biodiversity: Vertebrate fauna occurrence in areas subject to military training. *Biological Conservation* 204, 276–283, <https://doi.org/10.1016/j.biocon.2016.10.030>.
- Lowenthal, D. (2005): Natural and Cultural Heritage. *International Journal of Heritage Studies* 11(1), 81–92, <https://doi.org/10.1080/13527250500037088>.
- Mackovčín, P., Jurek, M. (2015): New facts about old maps of the territory of the former Czechoslovakia. *Geografie* 120(4), 489–506, <https://doi.org/10.1016/j.culher.2012.08.002>.
- Maio, C. V., Tenenbaum, D. E., Brown, C. J., Mastone, V. T., Gontz, A. M. (2013): Application of geographic information technologies to historical landscape reconstruction and military terrain analysis of an American Revolution Battlefield: Preservation potential of historic lands in urbanized settings, Boston, Massachusetts, USA. *Journal of Cultural Heritage* 14(4), 317–331, <https://doi.org/10.1016/j.culher.2012.08.002>.
- Matoušek, V., Janata, T., Chlábek, J., Urbani, R., Zimová, R. (2017): *Třebel 1647. A battlefield of the Thirty years' war from the perspective of history, archeology, art-history, geoinformatics, and ethnology*. Praha, Agentura Krigl.
- Mitchell, N., Rössler, M., Tricaud, P. M. (2009): *World Heritage Cultural Landscapes. A Handbook for Conservation and Management*. Paris, World Heritage Centre UNESCO.
- Rössler, M. (2006): *World Heritage cultural landscapes: A UNESCO flagship programme 1992–2006*. *Landscape Research* 31(4), 333–353, <https://doi.org/10.1080/01426390601004210>.
- Salašová, A., Sedláček, J., Sokolová, K., Trpáková, L., Pacáková, B. (2014): *Kulturně historické hodnoty a kompoziční jevy krajinné památkové zóny Území bojiště bitvy u Slavkova – krajinářsko-analytický výkres*. A. Lednice, Mendelova univerzita v Brně. Zahradnická fakulta.
- Seidl, T., Chromý, P. (2010): Problémy integrace marginálního území do regionálního systému. Příklad Vojenského újezdu Boletice. *Geografie* 110(1), 44–63.
- Skaloš, J., Weber, M., Lipský, Z., Trpáková, I., Šantrůčková, M., Uhlířová, L., Kukla, P. (2011): Using old military survey maps and orthophotograph maps to analyse long-term land cover changes – case study (Czech Republic). *Applied Geography* 31(2), 426–438, <https://doi.org/10.1016/j.apgeog.2010.10.004>.
- Sklenička, P., Molnářová, K., Brabec, E., Kumble, P., Pittnerová, B., Pixová, K., Šálek, M. (2009): Remnants of medieval field patterns in the Czech Republic: Analysis of driving forces behind their disappearance with special attention to the role of hedgerows. *Agriculture, Ecosystems and Environment* 129(4), 465–473, <https://doi.org/10.1016/j.agee.2008.10.026>.
- Skokanová, H., Havlíček, M., Klusáček, P., Martinát, S. (2017): Five military training areas – five different trajectories of land cover development? Case studies from the Czech Republic. *Geographia Cassoviensis* XI (2), 201–213.
- Slámová, M., Jančura, P., Daniš, D. (2013): Methods of historical landscape structures identification and implementation into landscape studies. *Ekologia (Bratislava)* 32(3), 267–276, <https://doi.org/10.2478/eko-2013-0023>.
- Šantrůčková, M., Bendíková, L. (2014): Assessment of land use changes in landscape conservation areas based on LUCC database. In: Bičík, I. et al. (eds.). *Land Use/Cover Changes in Selected Regions in the World. Volume IX*. Asahikawa – Prague, IGU-LUCC, 83–93.
- Šantrůčková, M., Weber, M. (2016): Identification of Values of the Designed Landscapes: Two Case Studies from the Czech Republic. In: Agnoletti, M., Emanuelli, F. (eds.). *Biocultural Diversity in Europe*. Switzerland, Springer, 487–510, https://doi.org/10.1007/978-3-319-26315-1_26.
- UN (1973): *Convention Concerning the Protection of the World Cultural and Natural Heritage*. Paris, November 16, 1972. 1037 U.N.T.S. 151, 27 U.S.T. 37, 11 I.L.M. 1358.

Field fortifications from the Second World War: possibilities of archaeological research on post-military landscapes in South Moravia (Czech Republic)

Jiří Zubalík*

Institute for Archaeological Heritage Brno, Czech Republic

* Corresponding author: zubalik.jiri@gmail.com

ABSTRACT

Field fortifications from the end of World War 2 which were located in South Moravia are almost forgotten nowadays. This paper presents first results of archaeological research of their remains.

Recently, relics of field fortifications have been registered during rescue excavations on 13 construction sites. In the vicinity of the town of Brno, parts of Wehrmacht trench systems, which defended whole town, have been excavated and documented on several sites. Several dozen small infantry entrenchments have been recorded near Pasohlávky and Mušov, where serious fights lasted for two weeks.

Also, the use of aerial archaeology will be outlined. On five sites, field fortifications have been identified with the help of digital aerial orthophotos (especially historical) and digital elevation model (derived from airborne laser scanning). Results of both excavations and aerial archaeology suggests that archaeology can enhance our knowledge of this kind of relics.

Received: 9 January 2019

Accepted: 22 May 2019

Published online: 15 August 2019

Zubalík, J. (2019): Field fortifications from the Second World War: Possibilities of archaeological research on post-military landscapes in South Moravia (Czech Republic). *AUC Geographica* 55(1), 77–92

<https://doi.org/10.14712/23361980.2019.11>

© 2019 The Author. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

There is already a history of archaeological research of modern battlefields of 20th century, especially in Western Europe. Many scientists could be mentioned here such as Nicholas Saunders and his work concerning World War 1 (Saunders 2004; 2005; 2010), Alfred Gonzales-Ruibal and his excavations of Spanish Civil War battlefields (2011; 2012), or the work of David G. Passmore and his colleagues on the Western front of World War 2 (Passmore, Harrison 2008; Passmore et al. 2013; 2014), to name but a few. On the other hand, the battlefield archaeology is still rather neglected in the Czech Republic. The situation is better in Bohemia; here archaeologists seriously started to survey the World War 2 sites after 2010. Michal Rak concerned with field fortifications of Czechoslovak army from 1938, shot down aircrafts and victims of war (Rak 2011; 2013; 2014). Petr Čech leads an extensive excavation of positions of German anti-aircraft battery in north-west Bohemia (Čech et al. 2014). In recent years, there was an excavation of the concentration camp in Lety in South Bohemia (Vařeka 2018). Also, The Association of Recent Archaeology survey an anti-aircraft defence of Pilsen; its map can be

accessed online on the site <http://protivzduشناobrana.plzne.cz>.

In South Moravia (Fig. 1), there is almost no interest in research of World War 2 among archaeologists. The only exception occurs during excavations on construction sites; if a wartime relic is unearthed, it is properly documented and often excavated. Thanks to this fact, we know graves of fallen soldiers (e. g. Bartík, Chrástek 2018; Kala 2015; 2016; 2018), air-raid shelters (e. g. Holub et al. 2009) and trenches (e. g. Geislerová, Parma 2013). Besides, only amateurs are interested in World War 2 relics. Especially sites of crashed aircrafts are documented (for example <http://www.leteckabadatelna.cz>) and to a lesser extent field fortifications too (<http://www.polni-opevneni.websnadno.cz>).

The topic of the Second World War field fortifications in South Moravia, despite serious fights that took place there, is almost forgotten nowadays. However, there are several examples from Western Europe, which show us, that archaeology can well document trenches and foxholes of a modern conflict. Large areas fortified with trenches are known in the Netherlands and Germany; these trench systems have been identified by LiDAR surveys (Hesse 2014;

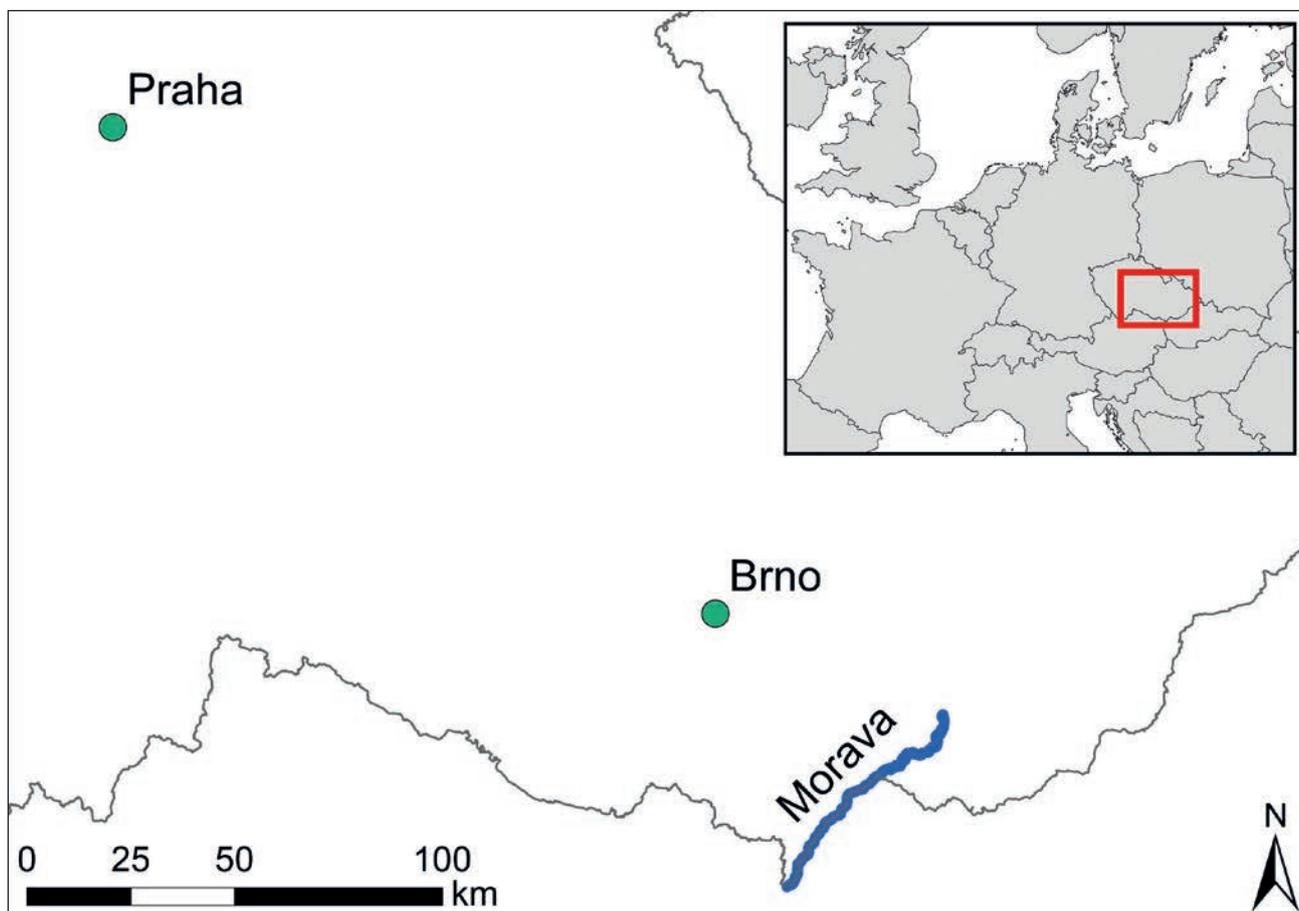


Fig. 1 Map of South Moravia.

Source: <http://geoportal.cuzk.cz>; <https://ec.europa.eu/eurostat/web/gisco>.

van den Schriek, Beex 2018; Wegener 2014a; 2014b). Small-scale fortifications (like foxholes) have been documented during field walking surveys in Germany and Belgium (Müller-Kissing 2015; Passmore, Harrison 2008; Wegener 2014c). The aim of this paper is to illustrate the potential of the archaeological research of WW2 field fortifications in South Moravia. It will be also briefly compared with sites known from the Western front. First, it will mention relics of field fortifications registered during rescue excavations, then it will present the first results of survey of aerial images and LiDAR data.

2. Military operations in South Moravia

Combat operations that took place in South Moravia are connected to the very end of the Second World War. The Wehrmacht prepared one of last points of defence here. It consisted mostly of fortifications on the western bank of the Morava River and a fortified edge of the town of Brno, supposed to become the unconquerable "*Festung Brünn*" (the Brno Fortress). Both defence zones were fortified by field fortifications, therefore trench systems and emplacements for various heavy weapons. These positions were held by "*Heeresgruppe Mitte*" (the Army Group Centre), led by Field Marshal Ferdinand Schörner.

The operation that was planned to drive the German troops back to west was called the Bratislava-Brno Offensive. It was carried out by the 2nd Ukrainian Front commanded by Marshal Rodion Malinovskij. According to the plan of this operation, Brno should be conquered on 8 April 1945; however the Soviet army reached the Morava River as late as 7 April. The Soviet soldiers managed to cross the river and capture the first town (Lanžhot) after serious fights on 11 April. By 15 April, the Soviets seized a large part of the bank of the Morava River, and then they launched an attack towards Brno. The assault was successful at first, but the Germans managed to stop it on 18 and 19 April. There were heavy fights on several places during next several days, especially around the village of Ořechov. The Soviet troops launched the final attack on 23 April; Brno was conquered three days later. Then the Red Army moved in a northeast direction towards the town of Vyškov, which was seized on 30 April 1945 (Břečka 2015; Žampach 2006).

The western part of South Moravia was liberated in a connection with the Prague Offensive. The Soviets reached the Dyje River on 23 April. Serious fights with no results took place around the villages of Pasohlávky and Mušov until 30 April. The final attack was launched here on 7 May; the Red Army managed to conquer Pasohlávky and rest of Moravia quickly; Prague was reached on 9 May (Holečková 2014; Žampach 2006).

3. Field fortifications of Wehrmacht

Because of defending its positions, almost all trenches in South Moravia belong to the German army. Thus, German field fortifications will be presented in this part of paper in the same manner as they were described in historical sources, namely manuals. The best source for recognizing trenches is the manual "*Bildheft Neuzeitlicher Stellungsbau*" (The Picture Manual of Fortifications) which is available in two releases. The older one was first printed in September 1942 and appended in March 1943. This edition is known from a version that was re-printed in December 1969 by Bellona Publications Limited in the United Kingdom. The other version is dated June 1944 (Oberkommando des Heeres 1944). There are small differences between both versions, especially in the representation of various types of small infantry fortifications. Other source used in this paper is "German Tactical Manual" by Harry Töpfer (undated), which describes a couple of smallest infantry fortifications. Harry Töpfer has used several historical sources in his work; the "*Heeres-Dienstvorschrift 130/2a*" (The Military Regulations), which was issued in 1942, was his primary source. This manual describes everything a German soldier needed to know about his role in a combat. As a reference for English terminology, the American manual "FM 5-15 Field Fortifications", which was published in February 1944, was used (War Department 1944).

We may distinguish three main types of infantry field fortifications according to their scale, time needed for digging and function.

Smallest fortifications are represented by "*Schützenlöcher*" (in the American manual they are referred as "infantry entrenchments for hasty fortifications"). These fortifications were designed for one or two soldiers. They had to be dug very quickly (in several hours), because they were used almost in a contact with an enemy. The easiest variation is a "*Schützenmulde*" ("an individual prone shelter"), which was used by one lying soldier. It's depth was about 0.4–0.5 metres and it provided only a little protection, mostly against small firearms (Fig. 2A). Another small type of fortification is a "*Schützenloch für 1 Gewehrscützen*" ("a one-man foxhole"), which had two sub-variants: for a kneeling and for a standing soldier. They were square-shaped and their depth ranged from 60 to 160 centimetres (Fig. 2B). A "*Schützenloch für 2 Gewehrscützen*" ("a two-man foxhole") is a similar type for two standing soldiers (Harry Töpfer mentions even a variation for three soldiers). It had a rectangular shape and a depth either 160 or 200 centimetres (Fig. 2C). A foxhole with a depth 160 cm was intended for a direct fire from it, the latter one accentuated a protection and had to have fire steps on both sides. Positions for heavy machineguns, so called "*Schützenlöcher für s. M. G. mit Gewehrführer u. 2 Schützen*",

belongs also to the group of smallest fortifications (Fig. 2D). They had similar shape like a horseshoe and a depth ranging from 140 to 200 cm (Bellona Publications Limited 1969; Töpfer undated; Oberkommando des Heeres 1944; War Department 1944).

Standard trenches are the second main type of field fortifications. In the German manuals, these are referred as “*Verbindungs- (Kampf-) und Annäherungsgräben*” (communications- (fire-) and approach trenches). They covered large areas (compared to foxholes); in some cases, their length reached many hundred meters. A typical trench should have a zig-zagged shape (Fig. 2E). Its depth varied from 60 centimetres (a “*Kriechgraben*” – a crawl trench) to 180 or 200 centimetres (a “*Schützengraben*” – a crawl trench) to 180 or 200 centimetres for standing soldiers. Small fire positions with fire steps for one soldier (“*Schützennische*”) were dug into a frontal trench wall (Fig. 2F). These fire positions were approximately square-shaped, with a length of an each side about 60 centimetres, their depth was 140 centimetres. Also, positions for heavy machineguns and two-man foxholes could be connected to a trench as well. This type of field fortification took the longest time to prepare; four men were supposed to dig 10 metres of standard trench during a whole day. Due to this reason, these trenches were dug a long time before a front got closer, mainly by civilians. In a case of Moravia, 40 000 civilians (men from Bohemia) were ordered to prepare trenches at the end of December 1944 (Bellona Publications

Limited 1969; Oberkommando des Heeres 1944; War Department 1944; Žampach 2006).

A last type of field fortifications consists of emplacements for various types of heavy weapons like mortars, anti-tank or infantry guns and anti-aircraft artillery. For a purpose of this paper, only emplacements for 81 mm mortars (a “*Feuerstellung für mittleren (8 cm) Granatwerfer*”) will be mentioned. A shape of these structures is very characteristic – they were circular with a diameter of 160 centimetres and with the same depth; a mortar was placed here. Additionally, two narrow and short hallways with a depth and width of a regular trench were attached to the circular position; here, crewmen of weapon were hiding in a case of enemy artillery fire (Fig. 2G). Five men should prepare an emplacement in 3 hours, 3 more hours were appointed for digging attached covers (Oberkommando des Heeres 1944; War Department 1944).

4. Methodology

South Moravia is mostly a rural land, so many sites lie on a chernozem. Due to this reason, a large number of field fortifications started to disappear soon after the war, hence especially excavations on construction sites could discover them. In a case of favourable conditions, some of these trenches could be seen from above thanks to crop marks. Crop marks appears

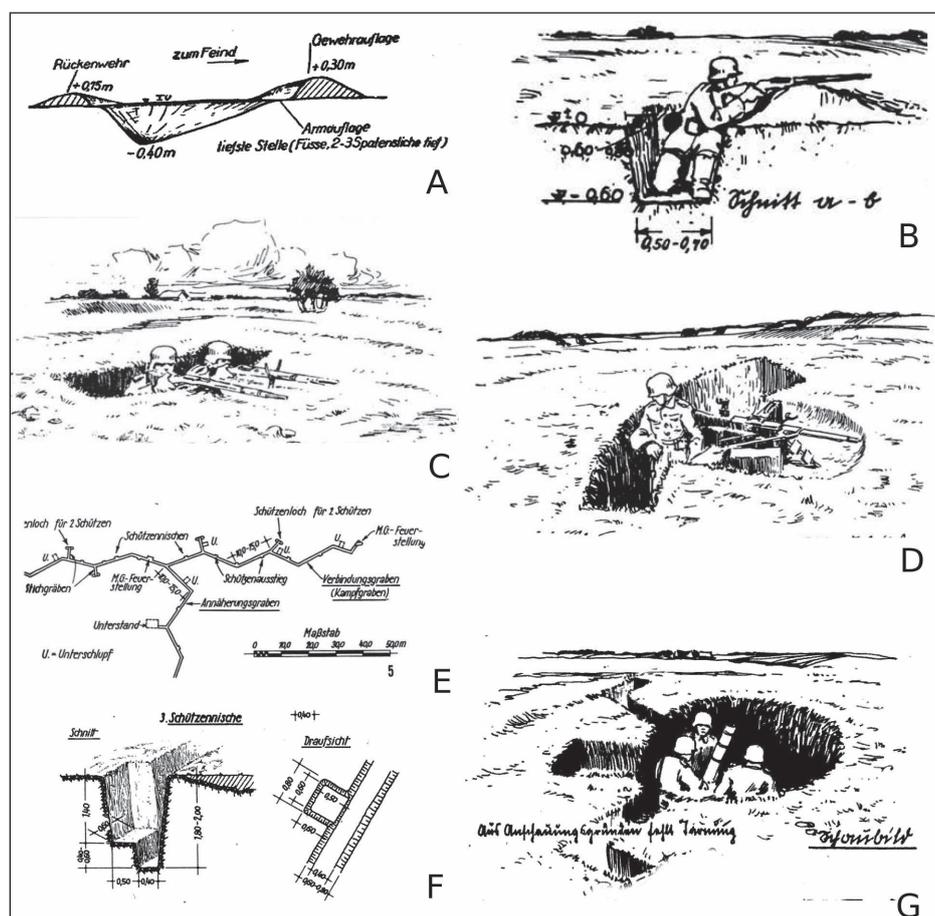


Fig. 2 Field fortifications according to the manuals of the Wehrmacht. Sources: Töpfer (undated): 2A; Bellona Publications Limited (1969): B, C, D; Oberkommando des Heeres (1944): E, F, G.

above buried ditches, stake-holes, pit-houses etc. because fill of these features consists of a more fertile soil than a surrounding ground. Because of this reason, crop grows better there and has a different colour and height than a surrounding crop. This colour changes are best recognizable from air, therefore they can be identified on aerial images (Gojda 2004).

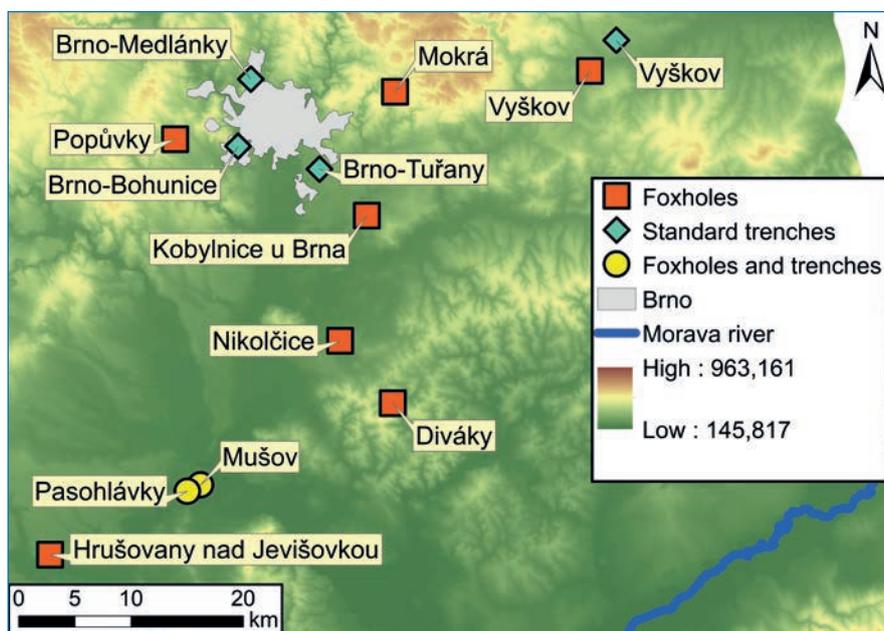
In this work, aerial images, that were photogrammetrically processed, have been used. They can be divided into two groups – contemporary and historical. Although contemporary orthophotos could be useful, historical ones are more important, despite their lower resolution. The highest number of visible trenches can be found on photographs taken two years after the war, in the year 1947. Unfortunately, the region of South Moravia was not photographed complete, so for example a large area of Brno is missing in this set of images. Orthophotographs from the year 1947 are located in an internet application on the site https://lms.cuzk.cz/lms/lms_prehl_05.html (thanks to Survey and Cadastral Inspectorates of Czech Office for Surveying, Mapping and Cadastre). Another source of historical orthoimages is accessible on the site <https://kontaminace.cenia.cz>. Photographs of South Moravia from the year 1953 can be found here. Even though these images were taken eight years after the war, several trenches and dug-outs are still visible in some places. Contemporary aerial orthophotographs are useful especially if we observe a development on sites; however, already mentioned crop marks of trenches or even their relics can be identified on these images occasionally. They can be found on the well-known map portals <https://mapy.cz> and <https://www.google.cz/maps>. The first one offers orthophotomaps from the years 2001–2003, 2004–2006, 2010–2012 and 2014–2015, which is especially suitable for monitoring changes of

a built-up area. Google has actual aerial and satellite images only; on the other hand, it provides a plastic 3D model of Brno and its surrounding, which can well visualize preserved trenches.

Several sites lies in hilly and forested regions around the city of Brno (Fig. 3). In this case, an airborne laser scanning, also known as Light Detection and Ranging (LiDAR), can be exploited. LiDAR is a laser scanning device (usually mounted on aircrafts), which is used for creating a virtual 3D model of an earth's surface, so-called Digital Elevation Model (DEM). On this precise model, ancient relics like ramparts or ditches can be identified. A great advantage of LiDAR is a capability of penetrating vegetation, so it can register relics even in a forest (Gojda 2005). LiDAR was already used to detect trenches from World War 2. For example, German trenches of the “Westwall” were recognized by Ralf Hesse near Hügelsheim in Germany (Hesse 2014); Max van der Schriek and Willem Beex have identified field fortifications and other wartime relics on several sites in the Netherlands (van den Schriek, Beex 2018). Also, American artillery positions and German trenches were detected by Wolfgang Wegener near Kranenburg or in Hürtgenwald (Wegener 2014a; 2014b).

For the Czech Republic, there is the Digital Terrain Model of the 5th generation created by Czech Office for Surveying, Mapping and Cadastre. This Digital Terrain Model represents a visualization of an earth's surface in the Czech Republic by using an irregular triangular network ([http://geoportal.cuzk.cz/\(S\(ykyv2ywjmte5tohopcehj0ym\)\)/Default.aspx?lng=CZ&mode=TextMeta&side=vyskopis&metadataID=CZ-CUZK-DMR5G-V&mapid=8&menu=302](http://geoportal.cuzk.cz/(S(ykyv2ywjmte5tohopcehj0ym))/Default.aspx?lng=CZ&mode=TextMeta&side=vyskopis&metadataID=CZ-CUZK-DMR5G-V&mapid=8&menu=302)). This model is accessible via a web-based interface on the site <http://geoportal.cuzk.cz/geoprohlizec/?wmcid=22517>; it uses several ways of visualisations

Fig. 3 Map of unearthed field fortifications.
Source: Author;
<http://geoportal.cuzk.cz>.



of data – a colour shaded relief, a shaded relief, a slope and an aspect of slope. Though wartime relics can be detected on each type of these visualisations, it was realized that shaded relief or colour shaded relief visualisations depict trenches best. This method of visualisation is quite useful for searching of ditches (Mlekuž 2013); it has been also successfully tested on several sites in Germany and Netherlands, where remains of trenches dated into the Second World War are still preserved (Hesse 2014; van den Schriek, Beex 2018).

The survey of all mentioned data has focused on the surroundings of sites known thanks for excavations. If relics (or cropmarks) of field fortifications were identified on orthophotographs or DEM, these data were further processed in ArcGIS; here, available data have been uploaded. In addition, a shapefile polyline feature has been created. With this polyline, all visible relics have been digitized.

5. Field fortifications in South Moravia

5.1 Examples of excavated fortifications

In recent years, field fortifications have been documented on 13 sites in South Moravia (Fig. 3). Infantry entrenchments for hasty fortifications have been



Fig. 4 Excavated infantry entrenchments for hasty fortifications in the exercise ground in Hrušovany nad Jevišovkou. Source: Čižmář (2002).

identified in seven cases; standard trenches have been registered four times. On last two sites, there have been discovered both infantry entrenchments for hasty fortifications and trenches. All these examples have been uncovered in excavations on construction sites; no survey was intended to excavate this kind of relic. Only some of the foxholes and trenches have been excavated, others have been at least sectioned. Further, the most representative examples will be mentioned.

All nine sites where foxholes have been found are located in the area between Brno and the Morava River, in closer proximity to Brno (up to 30 kilometres, Fig. 3). It can be assumed that almost all these positions were a part of last defence line of the Wehrmacht ahead of Brno; therefore they were dug around 20 April 1945. The site that lies near the town of Vyškov was related to the situation after the capture of Brno and the following attempt of the 2nd Ukrainian Front to connect with the 4th Ukrainian Front (advancing from Northern Moravia). An interesting area lies close to Hrušovany nad Jevišovkou (Fig. 4). Several infantry entrenchments for hasty fortifications, mostly two-man foxholes, have been unearthed here; they belonged to an exercise ground of the German army (Čižmář 2002). The perfect example of a "*Schützenloch für 2 Gewehrschützen*" has been documented near Nikolčice (Fig. 5). The structure has a length of 160 cm and a depth less than 100 cm. Either agriculture have destroyed an upper parts of the foxhole or it was designed for kneeling soldiers. A layer of fired ammunition cases laid on the ground (Kos 2000). Unusual one-man foxholes with fire steps

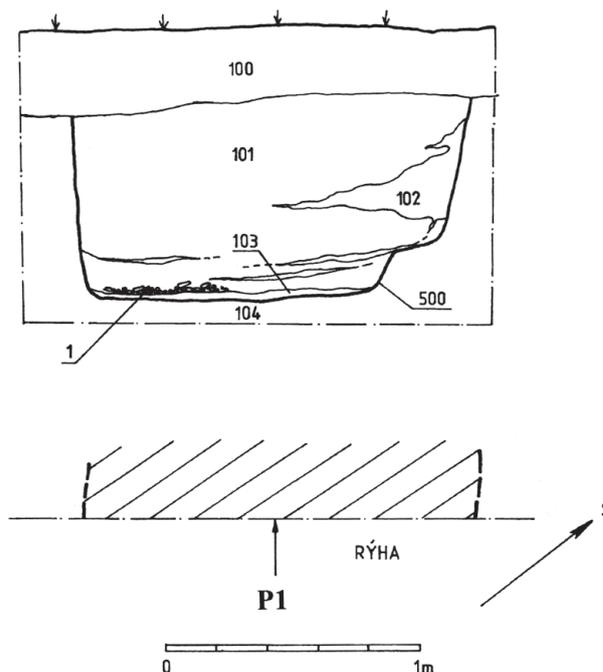


Fig. 5 Cut of two-man foxhole near Nikolčice. The number 1 indicates fired ammunition. Source: Kos (2000).



Fig. 6 One-man foxhole with fire step near Popůvky.
Source: Hájek (2017).

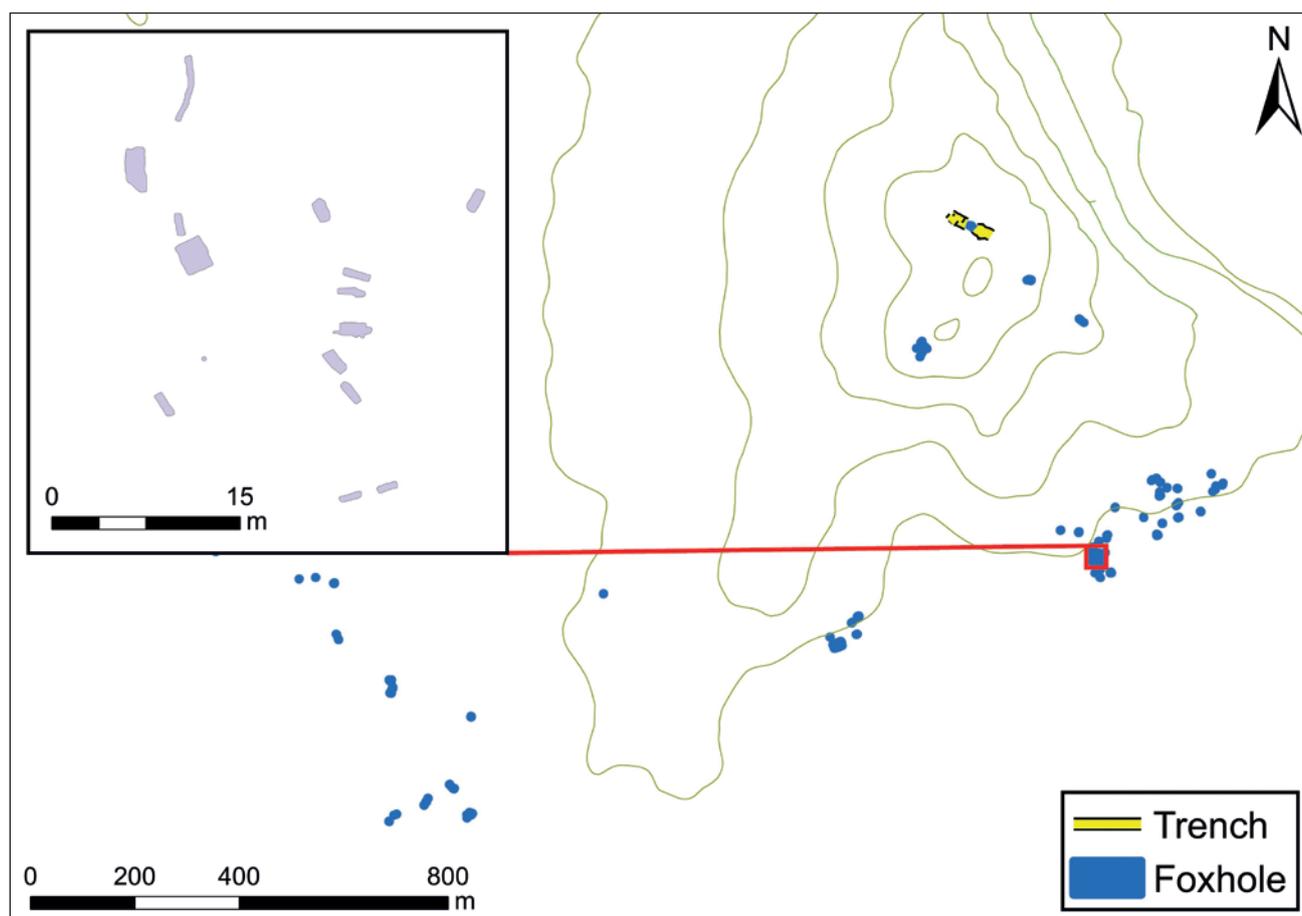


Fig. 7 Layout of excavated infantry entrenchments for hasty fortifications and trenches in Mušov and Pasohlávky. Burgstall Hill is situated in the upper right corner; Pasohlávky lies behind the left edge of image.
Source: Institute of Archaeology of the CAS, Brno; <http://geoportal.cuzk.cz>.

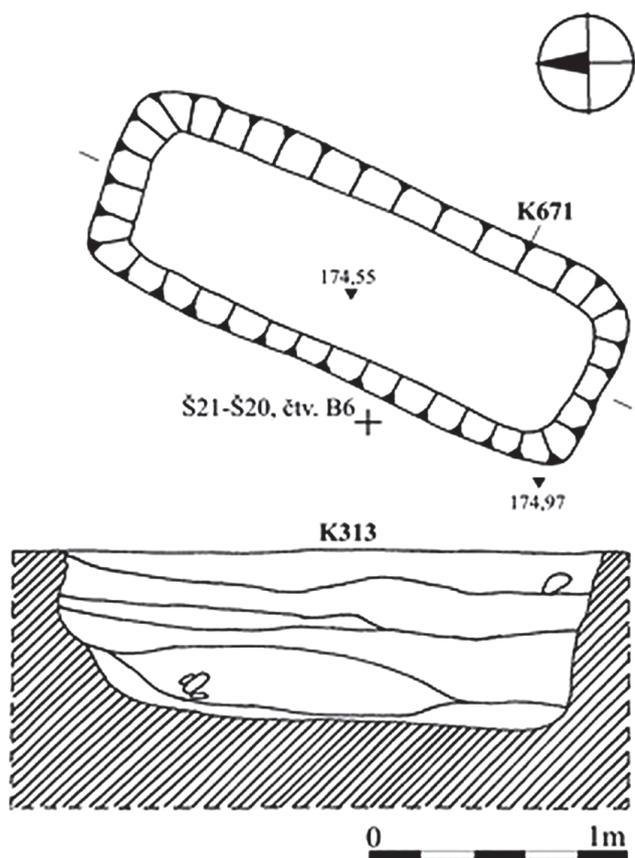


Fig. 8 Two-man foxhole near Pasohlávky.
Source: Institute of Archaeology of the CAS, Brno.

have been registered in Popůvky (Fig. 6). They were around 160 cm long, one half of pit was approximately one meter deep whilst the other half was only 50 cm deep (Hájek 2017).

The biggest number of infantry entrenchments for hasty fortifications has been discovered on two neighbouring sites – Mušov and Pasohlávky. The area

between these villages saw heavy fights from 23 April to 7 May 1945, when the frontline was moving from Burgstall Hill to the village of Pasohlávky (1.5 km far away) and back again several times. Several dozen structures have been documented here (Fig. 7); a two-man foxhole was the most common type (as many as 47 structures, Fig. 8), but individual prone shelters, one-man foxholes, positions for heavy machine-guns or emplacements for mortars (Fig. 9) have been registered as well. Even standard trenches were situated on Burgstall Hill. It can be assumed that a part of these structures belonged to the Red army (Musil 1995; Komoróczy 2000; Zubalík et al. 2017).

Unlike the sites with infantry entrenchments for hasty fortifications, almost all sites where standard trenches were unearthed lie around the city of Brno (Fig. 3). Two of them were prepared as a part of the “*Festung Brünn*” fortification system before the front had reached South Moravia. The third one was dug on the northern outskirts of Brno during the last days of the while; the Soviets had already captured almost whole Brno and continued their attack towards Vyškov. The fourth site was situated in Vyškov and defended a local airfield. The best example of a relatively extensive trench system has been revealed during an excavation on a site in Brno-Bohunice. A recorded length of the standard trenches amounts 322 meters; the trench line was bifurcated on two places (Fig. 10). Also fire positions have been registered on several places; some of them were sectioned during the survey (Fig. 11). This position defended an approach to Brno from the southwest. Another small part of a larger trench system has been unearthed in Brno-Tuřany. The most interesting structure documented here is a position for heavy machine-gun which was connected to the trench system via a communication trench (Fig. 12). This fortification was situated to the southeast of



Fig. 9 Emplacement for 81 mm mortar near Pasohlávky.
Source: Institute of Archaeology of the CAS, Brno.

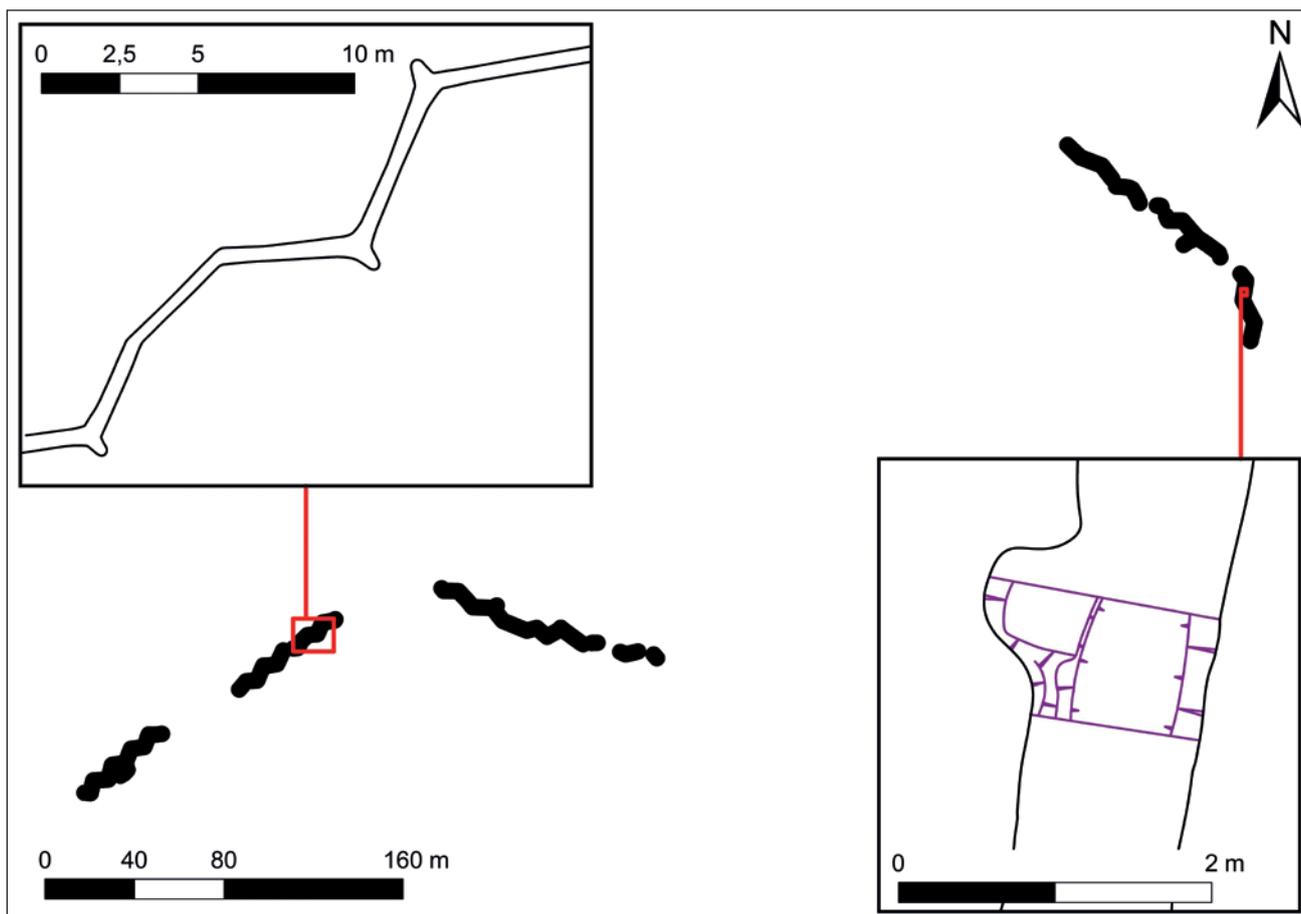


Fig. 10 Layout of documented trench line in Brno-Bohunice. Figure on the bottom right corner displays the section of a fire step.
Source: Institute for Archaeological Heritage, Brno.



Fig. 11 Fire position in trench on site of Brno-Bohunice.
Source: Institute for Archaeological Heritage, Brno.

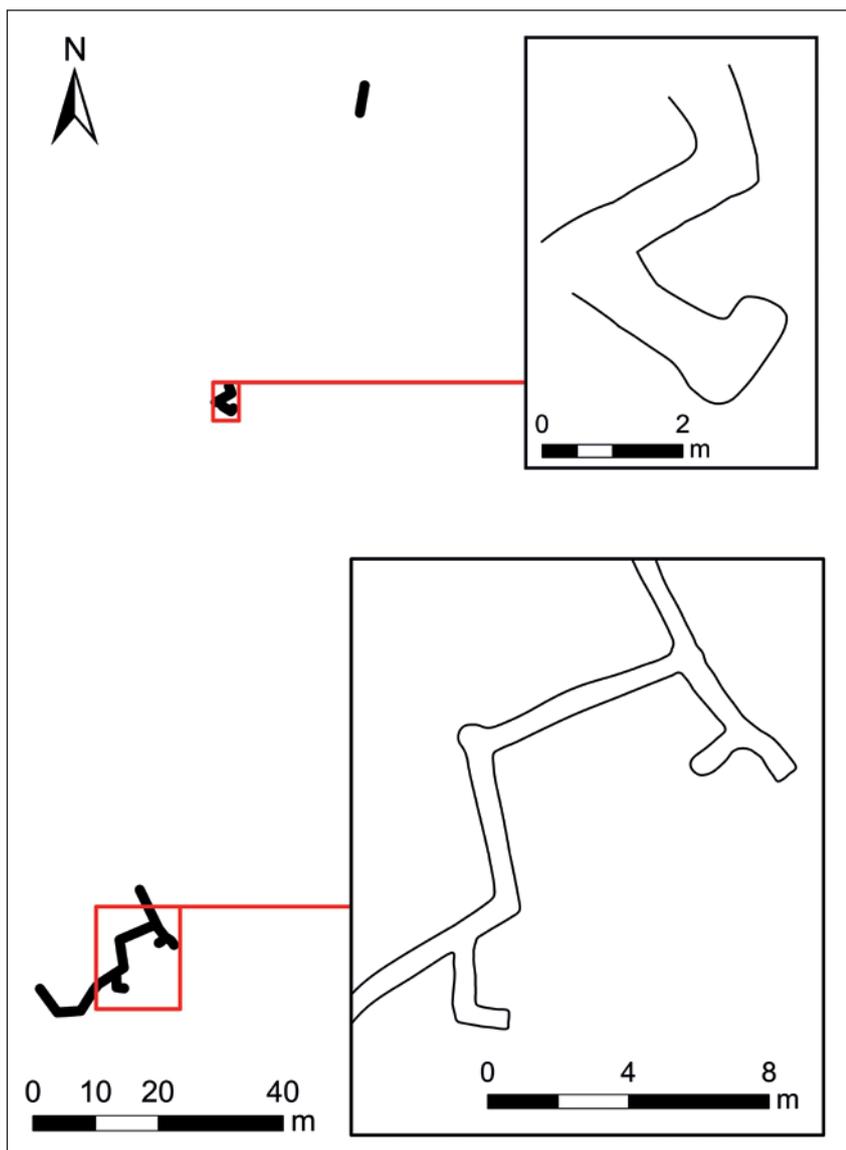


Fig. 12 Layout of documented trench line in Brno-Tuřany. Figure on the upper right corner displays the position for heavy machine-gun. Source: Institute for Archaeological Heritage, Brno.

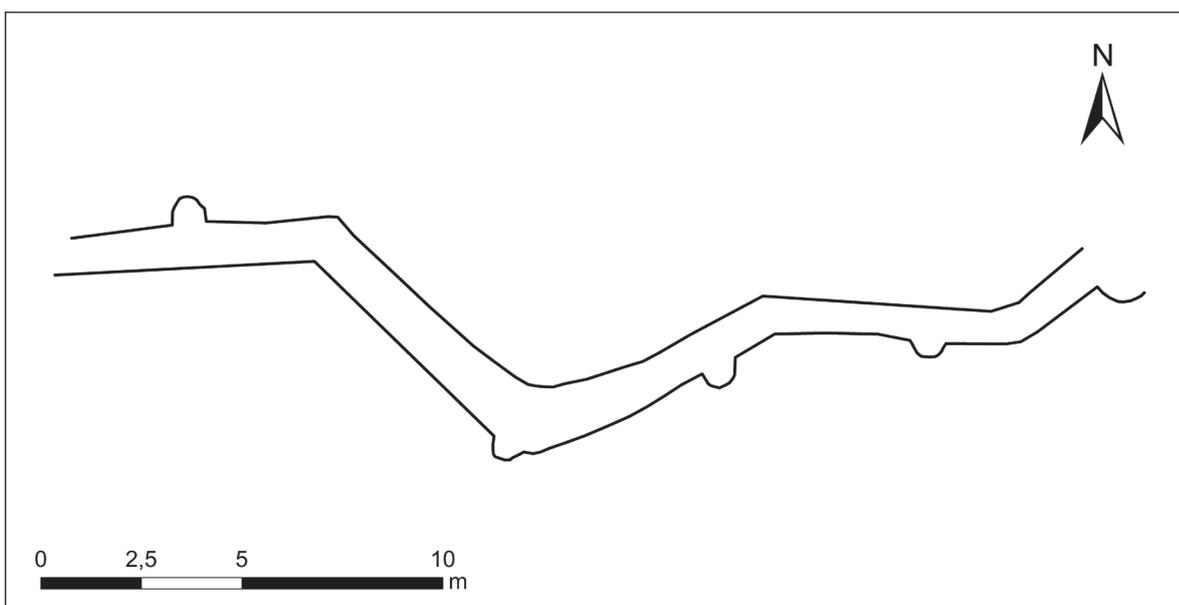


Fig. 13 Layout of documented trench line in Brno-Medlánky. Source: Institute for Archaeological Heritage, Brno.

contemporary Brno; it protected a local airfield. The last site where standard trenches have been recorded during an excavation lies in Brno-Medlánky. It is the aforementioned position on the northern outskirts of Brno, which consisted of one trench line; also several fire positions have been documented here (Fig. 13).

5.2 Examples of fortifications detected on aerial photogrammetry and remote sensing data

The validity of the aerial photogrammetry and LiDAR survey will be shown on five sites (Fig. 14). Three of them have been mentioned above; they are known from excavations (Brno-Bohunice, Brno-Medlánky, Mušov). An additional two sites were not excavated; the first one was destroyed after the war, the last one is still preserved today. An important observation resulted from an analysis of the available data of the rest of mentioned sites: a visibility of infantry entrenchments for hasty fortifications is really poor – almost no one is recognizable on both orthophotographs and LiDAR data; however, there is one exception. Quite many infantry entrenchments for hasty fortifications are visible on the aerial images taken above Mušov in 1947 and 1953. Especially the older orthophotos show a large number of these entrenchments and larger weapon emplacements on Burgstall hill and its close proximity (Fig. 15). Only a few of them were unearthed during excavations mentioned above, many others are still waiting for their discovery. These images also show a really large extent of a fieldwork that took place here. On the other hand, the orthoimages from the year 1953 show an extensive destruction of these field fortifications. Only few emplacements and trenches were still preserved at that time, rest of them was destroyed by agriculture. Modern orthophotographs and LiDAR shows no structures, not even crop marks.

An importance of the images from the year 1953 consists in the fact that they were taken above the whole territory of South Moravia. Thus a fortified area in Brno-Maloměřice, which was not photographed before, is visible on these orthophotographs. It is possible to identify several trench lines, which were probably defending positions of a nearby anti-aircraft artillery (Fig. 16). These images are also the only one that captures this fortification, because a construction of a cargo railway station started here in that year; this construction has destroyed the whole fortified area.

Another site recognizable on the orthophotos from 1953 is situated in Brno-Bohunice. One part of this site is known thanks to the aforementioned excavation. The aerial images show us that this trench continues additional 321 meters towards Brno. On top of that, 140 metres of this trench is visible on the DEM; this data partially coincide with the aerial orthophotograph. It's interesting that the unearthed part of fortification is not visible on the historical images (Fig. 17).

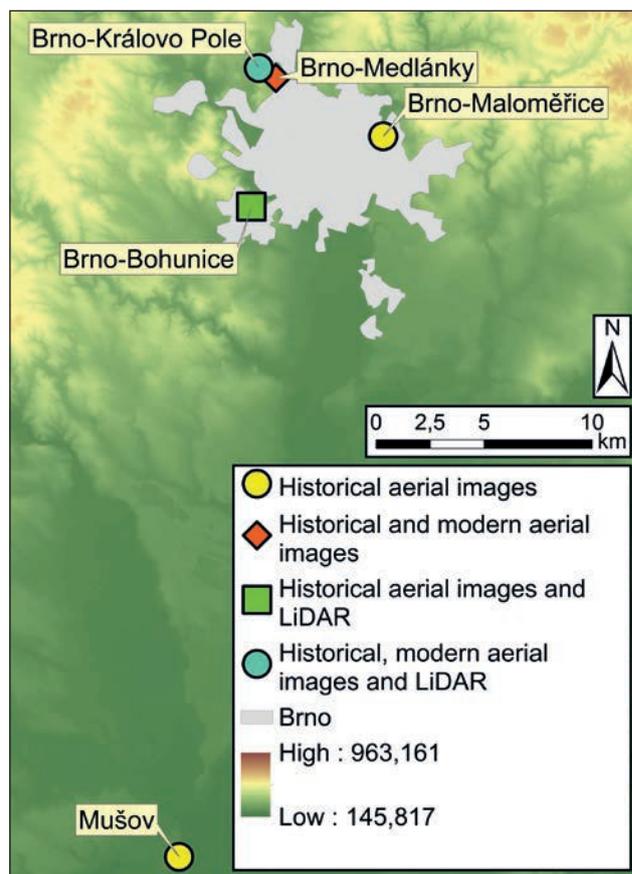


Fig. 14 Map of field fortifications recognizable on orthophotographs. Source: Author; <http://geoportal.cuzk.cz>.

Usage of modern aerial images will be shown on a site located on Střelecký hill in Brno-Královo Pole which lies in close proximity to the site of Brno-Medlánky. It consists of two separate zigzagged trench lines, which are preserved up to this day. They were detected on the plastic 3D model of landscape available in Google Maps or Google Earth. Both trenches are visible on the historical aerial orthophotos too. However, only the northern trench can be found on the DEM (Fig. 18). Perhaps a low vegetation covered up the southern trench when the area was scanned.

Aerial photogrammetry is also suitable for following a destruction of fortified areas after the war. Several cases were already mentioned – for example a rather slow disappearance of the infantry entrenchments for hasty fortifications and trenches in Mušov and Pásohlávky due to agriculture; even recently, some of them have been destroyed through a building of an aqua park. A special case showing a destruction of a field fortification represents a site in Brno-Medlánky. The trench line which was located there was filled up soon after the war. The aerial orthophotographs from the year 1953 show nothing more than crop marks above it. Almost the same crop marks are still visible on the images from 2006. These orthoimages indicate that the trench was still preserved underground (Fig. 19). The later images from 2012 capture a beginning of

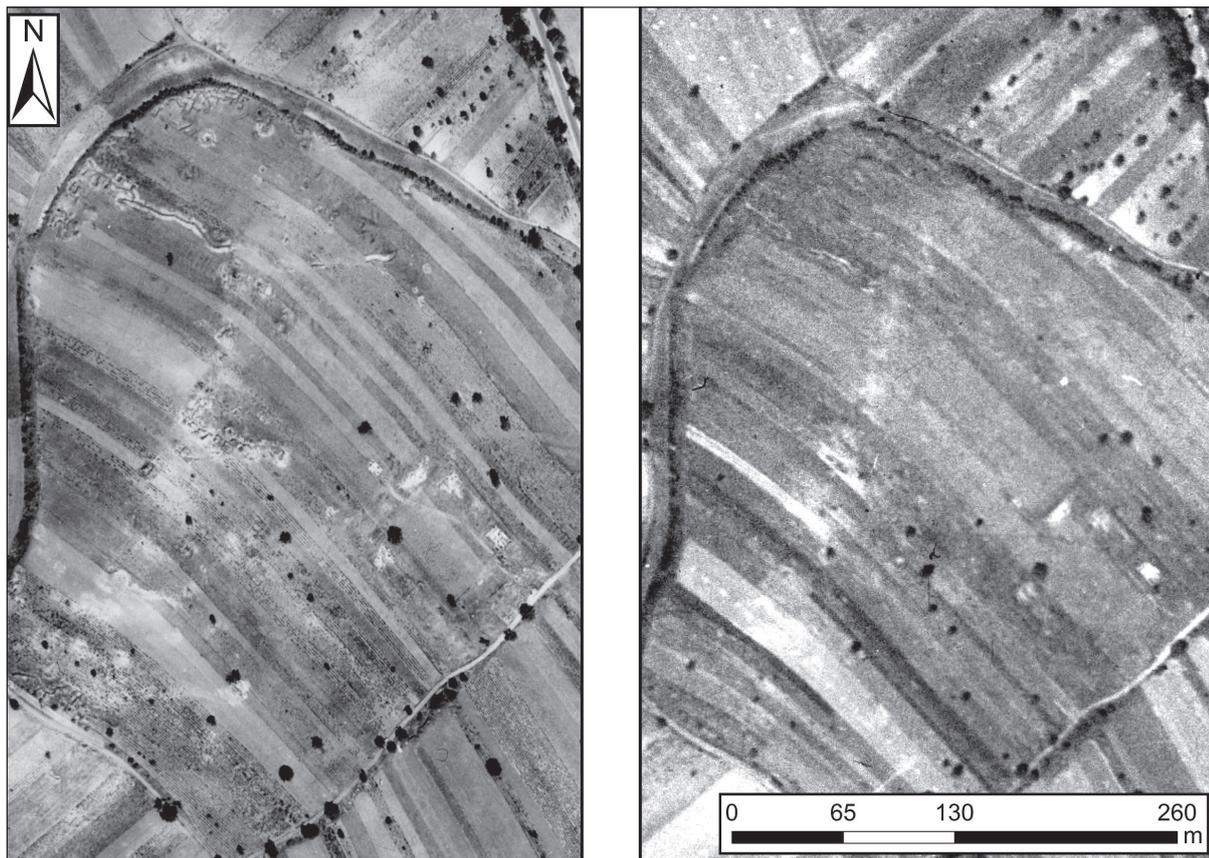


Fig. 15 Orthophotographs from 1947 (on the left) and 1953 (on the right) of Mušov-Burgstall hill. Only part of one trench and relics of a few foxholes and emplacements survived till 1953.

Source: https://lms.cuzk.cz/lms/lms_prehl_05.html; <https://kontaminace.cenia.cz>.



Fig. 16 Orthophotograph from 1953 of Brno-Maloměřice.

Anti-aircraft battery is displayed in the upper right corner; one trench is visible at the bottom of the image, another one is on the right side.

Data: <https://kontaminace.cenia.cz/>.

a construction of new buildings in this area. These buildings are finished on the orthophotographs taken in 2015, whereas the trenches were destroyed without a proper documentation (Fig. 20).

6. Discussion and Conclusion

This study gathers all known sites, where were at least partially excavated fortifications; it presents the very first results of analysis of aerial orthophotographs in South Moravia. Overall 15 sites have been mentioned, but we might assume that the quantity of sites related to the World War 2 fieldworks (or even a combat) will grow in the future.

At first sight, it looks like the fortified areas had a lesser extent than those known on Western front. LiDAR surveys have shown really extensive trench systems on sites like Herkenbosch-Rothenbach, Stokkum, Hügelsheim or Kranenburg (Hesse 2014: Fig. 3;

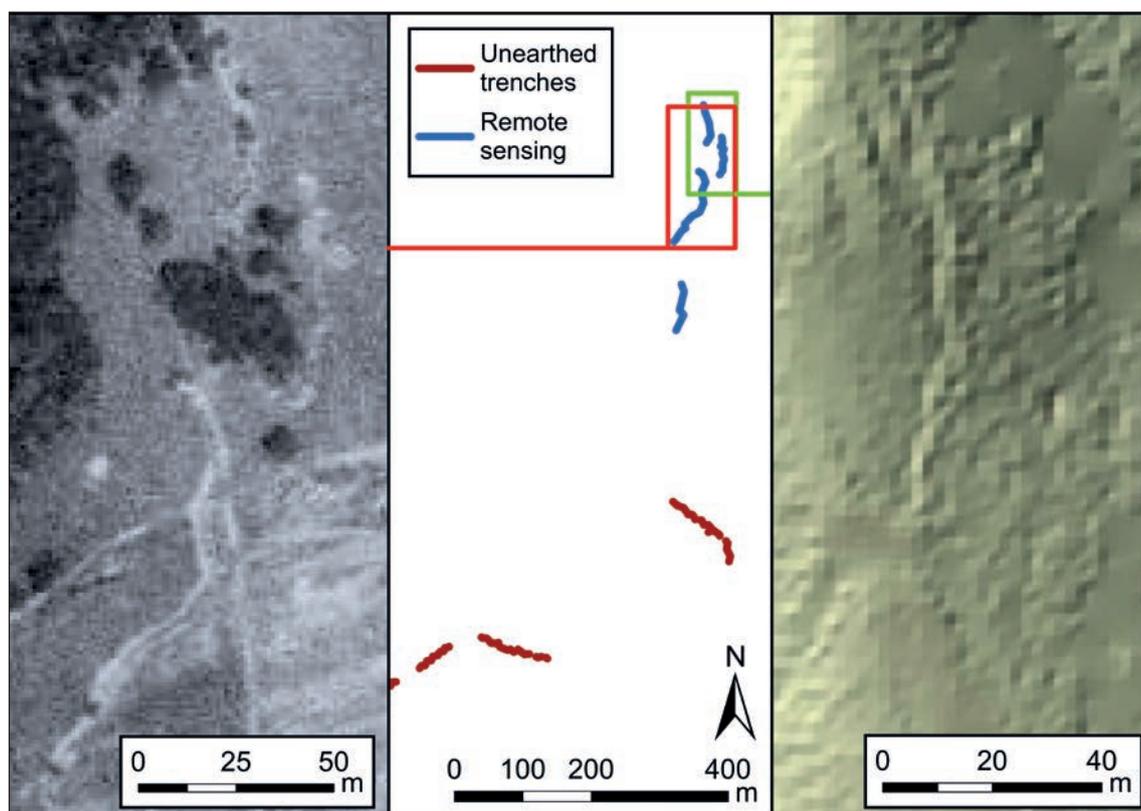


Fig. 17 Orthophotograph from 1953 (on the right) and DEM (on the left) of Brno-Bohunice. The aerial photograph well depicts the trench line. A part of this trench is visible in the middle of LiDAR image.

Data: Author; Institute for Archaeological Heritage, Brno; <https://kontaminace.cenia.cz/>; <http://ags.cuzk.cz/dmr/>.

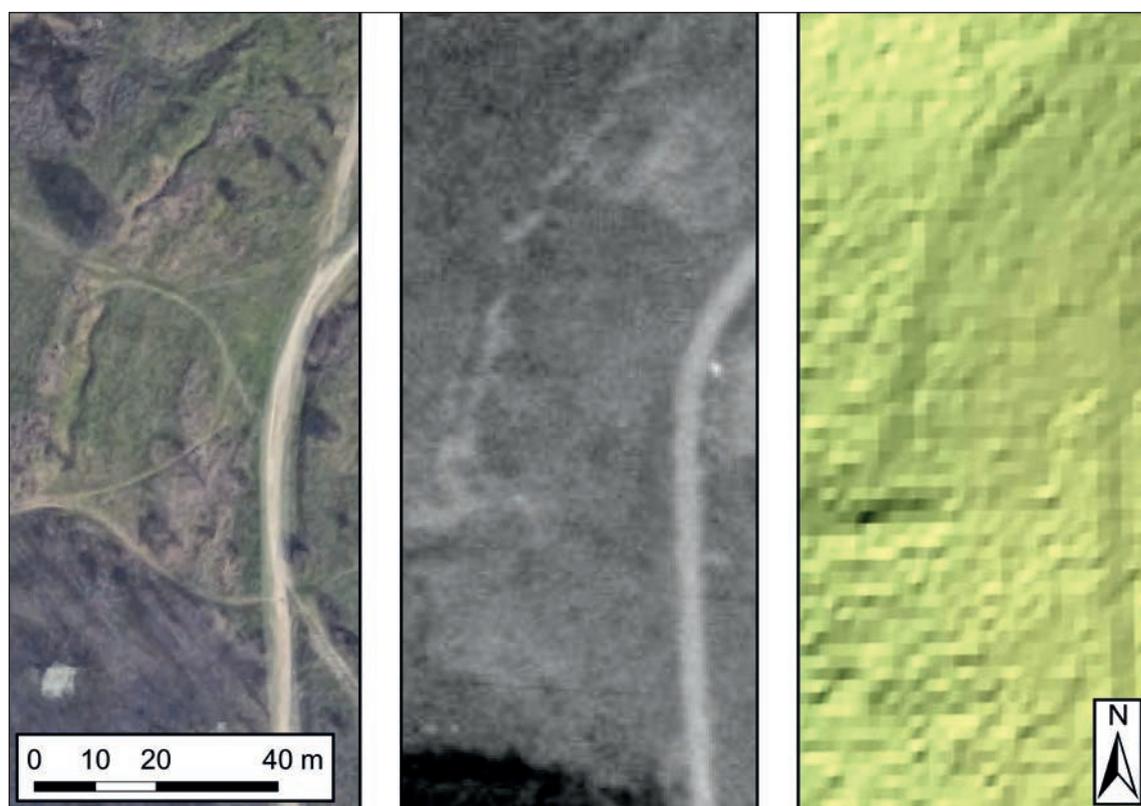


Fig. 18 Contemporary orthophotograph from Google (on the right), orthophotograph from 1953 (in the middle) and DEM (on the left) of Brno-Královo Pole. The trench line is situated in the upper left corner of all images.

Data: <https://www.google.cz/maps>; <https://kontaminace.cenia.cz/>; <http://ags.cuzk.cz/dmr/>.

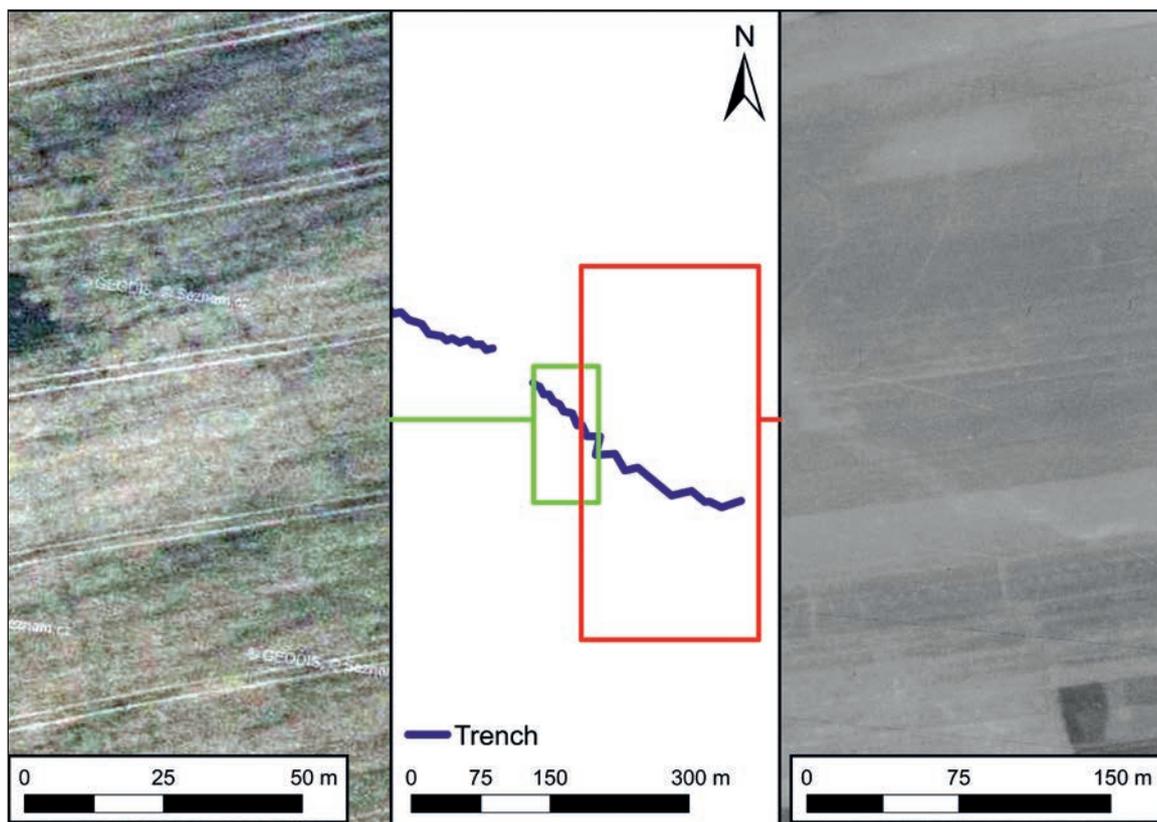


Fig. 19 Orthophotographs from 1953 (on the right) and 2006 (on the left) of Brno-Medlánky depict crop marks of a buried trench line.

Data: Author; <https://kontaminace.cenia.cz/>; <https://mapy.cz>.

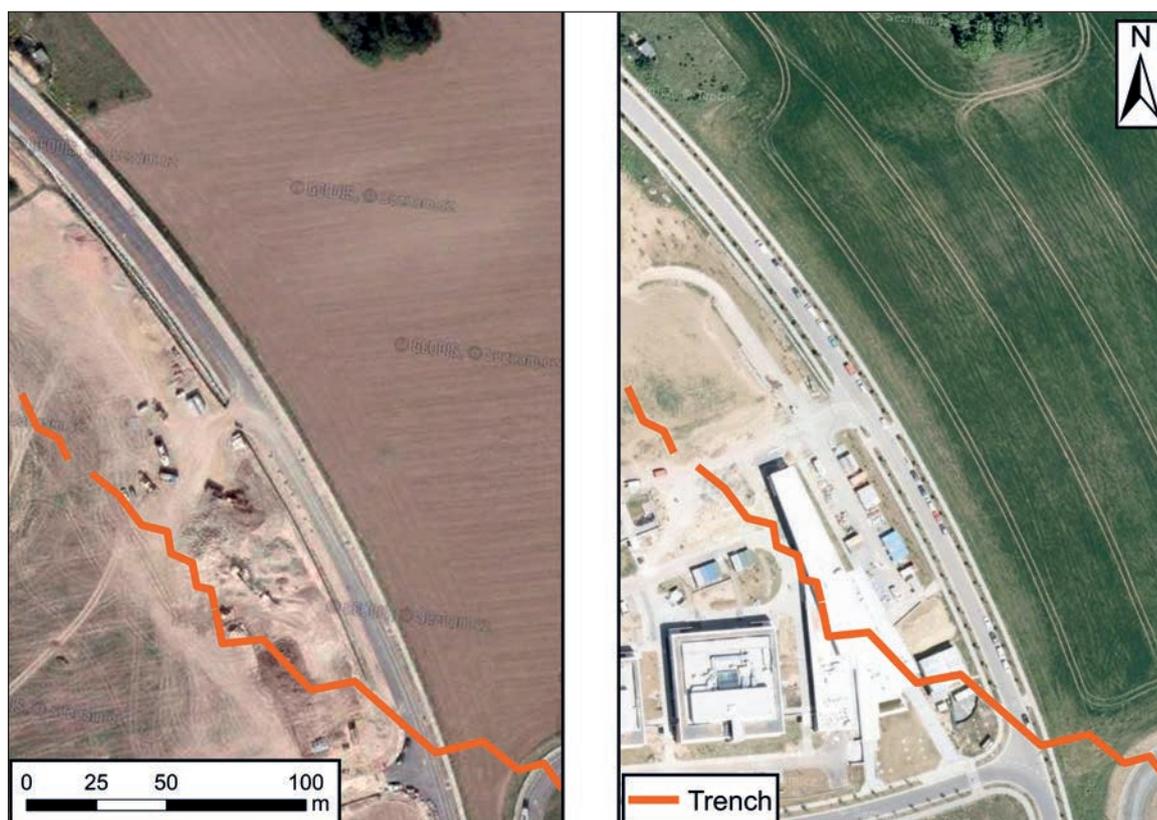


Fig. 20 Orthophotographs from 2012 (on the left) and 2015 (on the right) of Brno-Medlánky capture an area about the same part of trench line as the previous figure.

Data: Author; <https://mapy.cz>.

van den Schriek, Beex 2018: Fig. 7, Fig. 8; Wegener 2014a: Abb. 1). However, we know only small parts of fortified areas in South Moravia. The finest examples represent the trenches in Brno-Bohunice and Brno-Tuřany. On both sites, there are several dozen metres of an empty space between the unearthed relics of trenches. Also historical orthophotos suggests that the actual extent of the field fortification in Brno-Bohunice was probably much bigger; therefore it might be similar to the ones on the Western front.

On the other hand, excavations well document small-scale fortifications, which are almost undetectable on aerial photogrammetry or DEM. The most numerous type of entrenchment in South Moravia is a two-man foxhole; they are known thanks to field walking in Belgium and Germany too. In first case, there is several dozen of these foxholes (and prone shelters) on sites in Prumerberg and Lindscheid; however, they belong to the US Army (Passmore, Harrison 2008). Another American foxholes have been registered by Wolfgang Wegener in Hürtgenwald; they could be clearly distinguished from German standard trenches (Wegener 2014c). German two-man foxholes have been documented at Hohe Warte near Paderborn; on top of that, positions for heavy machine-guns have been recognised here too (Müller-Kissing 2015).

The mentioned sites show that they could have a great potential to study an archaeological impact of the WW2 combat from the Eastern front; thus the region of South Moravia could be an interesting counterpart to the forests of north-west Europe (Passmore et al. 2013). The next step of research will be focused on an exhaustive survey of aerial orthophotographs and LiDAR data, which shall lead to an expansion of the number of sites.

The archaeology of Second World War is at its beginning in the region of South Moravia. However, the first results illustrate that archaeological methods of survey can contribute to the knowledge about the wartime field fortifications in this region. Excavations, aerial photogrammetry and LiDAR survey could find forgotten fortified sites and give us insight into an extent of a German defensive field work. On top of that, a proper combination of orthophotographs shows us a development of studied sites after the war. Despite the fact that South Moravia played only a minor part in the Red Army's operation (the main target was Berlin), archaeology shows us that the Germans put a special effort to fortify large areas of South Moravia. However, this kind of heritage is still rather neglected and endangered by a destruction.

Acknowledgements

The author would like to thank Balázs Komoróczy, Zdeněk Hájek, Petr Kos and Michal Přichystal for providing data of their excavations.

References

- Bartík, J., Chrástek, T. (2018): Archeologie bojišť z II. světové války v Bílých Karpatech. Příklad výzkumu hrobu německého vojáka padlého u Horního Němčí v dubnu 1945. *Acta musealia Muzea jihovýchodní Moravy ve Zlíně a Muzea regionu Valašsko, Vsetín*, 2017, 1–2, 116–133.
- Bellona Publications Limited (1969): Merkblatt 57/5 (Anhang 2 zur H. Dv. 1a, Seite 57, lfd. Nr. 5). Bildheft Neuzeitlicher Stellungsbau. Vom 15. 9. 42. Nachdruck einschl. eingearb. Berichtungen nach dem Stande vom 11. 3. 43. German Field Works of World War II. Hawthorn Hill, Bellona Publications Limited.
- Břečka, J. (2015): Před sedmdesáti lety skončila válka...: Průběh osvobozovacích bojů na brněnském směru v dubnu – květnu 1945 = Vor siebzig Jahren ging der Krieg zu Ende...: Verlauf der Befreiungskämpfe in Richtung Brünn im April–Mai 1945. Brno, Moravské zemské museum.
- Čech, P., Křivánek, R., Soukup, M. (2014): Archeologie a druhá světová válka. Výzkum palebného postavení z roku 1944 v předpolí hnědohelného lomu (k. ú. Libovice u Mostu) a poválečné postdepoziciční procesy. *Zprávy České archeologické společnosti*, Supp. 93, 42–44.
- Čížmář, Z. (2002): Hrušovany nad Jevišovkou 2001. "Sever" – výstavba komunikace+inž. sítí+RD. Final Report on an Archaeological Excavation deposited in Institute for Archaeological Heritage Brno.
- Geislerová, K., Parma, D. (eds.) 2013: Výzkumy 2005–2010. Ausgrabungen 2005–2010. Brno, Ústav archeologické památkové péče Brno.
- Gojda, M. (2004): Letecká archeologie a dálkový průzkum. In: Kuna, M. (ed.): *Nedestruktivní archeologie. Teorie, metody a cíle = Non-destructive archaeology*, 49–115. Prague, Akademie věd České republiky.
- Gojda, M. (2005): Lidar a jeho možnosti ve výzkumu historické krajiny. *Archeologické Rozhledy* 58(4), 806–810.
- González-Ruibal, A. (2011): Digging Franco's Trenches: An Archaeological Investigation on a Nationalist Position from the Spanish Civil War. *Journal of Conflict Archaeology* 6(2), 97–123, <https://doi.org/10.1179/157407811X13027741134102>.
- González-Ruibal, A. (2012): From the Battlefield to the Labour Camp: Archaeology of Civil War and Dictatorship in Spain. *Antiquity* 86(332), 456–473, <https://doi.org/10.1017/S0003598X00062876>.
- Hájek, Z. (2017): Popůvky – P. Z. východ, odvedení splaškových vod. Final Report on an Archaeological Excavation deposited in Moravian Museum.
- Hesse, R. (2014): Geomorphological traces of conflict in high-resolution elevation models. *Applied Geography* 46, 11–20, <https://doi.org/10.1016/j.apgeog.2013.10.004>.
- Holečková, S. (2014): Ztráty 7. gardové armády v bojích o Brod nad Dyjí, Ivaň, Mušov a Pasohlávky – Verluste der 7. Gardarmee in den Kämpfen um Goldenfurth (Brod nad Dyjí), Eibes (Ivaň), Muschau (Mušov) und Weißstätten (Pasohlávky). *Jižní Morava* 50, 310–341.
- Holub, P., Merta, D., Zúbek, A. (2009): Protiletectké kryty v Brně (Dům umění a areál fakultní nemocnice u sv. Anny). *Archeologia technica* 21, 129–136.

- Kala, J. (2015): Válečné úspěchy ÚAPP Brno. Brno, Zákopy.cz. Available from: <http://www.zakopy.cz/valecne-uspechy-uapp-brno>.
- Kala, J. (2016): Válečné úspěchy ÚAPP Brno, rok 2015. Brno, Zákopy.cz. Available from: <http://www.zakopy.cz/valecne-uspechy-uapp-brno-rok-2015>.
- Kala, J. (2018): Válečné úspěchy ÚAPP Brno, rok 2017. Brno, Zákopy.cz. Available from: <http://www.zakopy.cz/valecne-uspechy-uapp-brno-rok-2017>.
- Komoróczy, B. (2000): Mušov (k. ú. Pasohlávky, okr. Břeclav). Přehled výzkumů 41, 145–147.
- Kos, P. (2000): Nikolčice 1999. Vodovod. Final Report on an Archaeological Excavation deposited in Institute for Archaeological Heritage Brno.
- Mlekuž, D. (2013): Skin deep: LiDAR and the Good Practice of Landscape. In: Corsi, C., Slapšak, B., Vermeulen, F. (eds.): Good Practice in Archaeological Diagnostics: Non-invasive Survey of Complex Archaeological Sites, 113–129. Cham – Heidelberg – New York – Dordrecht – London, Springer International Publishing, <https://www.doi.org/10.1007/978-3-319-01784-6>.
- Musil, J. (1995): Mušov (k. ú. Pasohlávky, okr. Břeclav). Přehled výzkumů 38 (1993–1994), 162–166.
- Müller-Kissing, J. (2015): Durch diese hohle Gasse muss er kommen. Deutsche und amerikanische Feldbefestigungen von 1945 bei Detmold-Berlebeck am Teutoburger Wald. Mitteilungen der Deutschen Gesellschaft für Archäologie des Mittelalters und der Neuzeit 28, 187–194, <https://doi.org/10.11588/dgamn.2015.0.21766>.
- Oberkommando des Heeres (1944): Merkblatt 57/5. Bildheft Neuzeitlicher Stellungsbau. Vom 1. Juni 1944.
- Passmore, D. G., Harrison, S. (2008): Landscapes of the Battle of the Bulge: WW2 Field Fortifications in the Ardennes Forests of Belgium. *Journal of Conflict Archaeology* 4, 87–107, <https://doi.org/10.1163/157407808X382773>.
- Passmore, D. G., Tunwell, D. C., Harrison, S. (2013): Landscapes of Logistics: The Archeology and Geography of WWII German Military Supply Depots in Central Normandy, North-West France. *Journal of Conflict Archaeology* 8(3), 165–192, <https://doi.org/10.1017/S0003598X00115455>.
- Passmore, D. G., Harrison, S., Tunwell, D. C. (2014): Second World War conflict archaeology in the forests of north-west Europe. *Antiquity* 88, 1275–1290, <https://doi.org/10.1017/S0003598X00115455>.
- Rak, M. (2011): Možnosti archeologického poznání novodobých polních fortifikací na příkladu lokality z 30. let 20. století. *Archaeologia historica* 36(1), 279–288.
- Rak, M. (2013): Archeologie konfliktů 20. století. In: Vařeka, P. (ed.): Archeologie 19. a 20. století. Přístupy – metody – témata, 115–136. Plzeň, Západočeská univerzita v Plzni.
- Rak, M. (2014): Archeologie konfliktů 20. století: Aeroarcheologie: historie – témata – metody – příklady. Plzeň, Západočeská univerzita v Plzni.
- Saunders, N. J. (ed.) (2004): *Matters of Conflict. Material culture, memory and the First World War*. Abingdon, Routledge, <https://doi.org/10.4324/9780203502549>.
- Saunders, N. J. (2005): Culture, conflict and materiality: the social lives of Great War objects. In: Finn, B. – Hacker, B. C. (eds.): *Materializing the Military*, 77–94. London, Science Museum.
- Saunders, N. J. (2010): *Killing time. Archaeology and the first world war* (2nd edition). Brimscombe, The History Press.
- Töpfer, H. (undated): German Tactical Manual. Electronic Publication. <http://www.gr916.co.uk/assets/pdfs/GermanTacticalManual.pdf>.
- Van der Schriek, M., Beex, W. (2018): The application of LiDAR-based DEMs on WWII conflict sites in the Netherlands. *Journal of Conflict Archaeology* 12(2), 94–114. <https://doi.org/10.1080/15740773.2017.1440960>.
- Vařeka, P. (2018): Archeologický výzkum tábora v Letech. Archeologie modernity a výzkum táborů z druhé světové války. *Dějiny a současnost* 40(4), 10–14.
- War Department (1944): *War Department Field Manual FM 5-15 Field Fortifications*. Washington, United States Government Printing Office.
- Wegener, W. (2014a): Feldstellungen des Zweiten Weltkrieges im Reichswald, Kreis Kleve. In: Hoppe, W. – Wegener, W. (eds.): *Archäologische Kriegsrelikte im Rheinland*, 89–91. Essen, Klartext Verlag.
- Wegener, W. (2014b): Amerikanische Artilleriestellungen im Hürtgenwald, Kreis Düren. In: Hoppe, W. – Wegener, W. (eds.): *Archäologische Kriegsrelikte im Rheinland*, 212–215. Essen, Klartext Verlag.
- Wegener, W. (2014c): Amerikanische und deutsche Feldstellungen im Hürtgenwald, Kreis Düren. In: Hoppe, W. – Wegener, W. (eds.): *Archäologische Kriegsrelikte im Rheinland*, 216–222. Essen, Klartext Verlag.
- Zubalík, J., Komoróczy, B., Lukáš, M., Vlach, M. (2017): Předběžná interpretace objektů polního opevnění německého Wehrmachtu u Pasohlávek (okr. Brno-venkov). *Archaeologia Historica* 42(1), 319–333, <https://www.doi.org/10.5817/AH2017-1-17>.
- Žampach, V. (2006): *Od Hronu k Vltavě: podíl 2. ukrajinského frontu Rudé armády na osvobození Československa*. Praha, Futura.

Training the eye: production and reception of aerial photography during the World Wars

Noemi Quagliati*

Ludwig-Maximilians-Universität München, Rachel Carson Center for Environment and Society,
Department of Art History, Germany

* Corresponding author: noemi.quagliati@campus.lmu.de

ABSTRACT

This paper explores the entanglement between photography and aerial military operations during the World Wars, showing how, in warfare, the camera became a technology of power serving a dual purpose: 1) It was a weapon used to map the territory as well as to detect and bomb specific targets, and 2) it constituted a powerful propagandistic medium employed to circulate persuading and aesthetically innovative aerial vistas among civilians. The technological and industrial sophistication that was adapted to the modern aerial battlefield required optical and photo-developments. These technical improvements challenged military activity while also reshaping civilians' perception and conception of the landscape as well as determining new aesthetic canons. At the core of this article there is the notion of *training of the eye* – understood as the process, which involved both experts and the general public, of assimilating new photographic vistas from the sky.

Using mostly the North American and German frames of reference, and interweaving military technology, visual culture, and landscape studies, this paper analyzes production and reception of “the view from above” mainly through mass-market illustrated magazines, such as the American *Life* and the German *Berliner Illustrirte Zeitung*.

Developed within the military context, the peculiarity of aerial photography became embroiled with the idea of a cold, hunting, distanced and simultaneously penetrating gaze. However, recent scholarship understands the aerial view differently, due to the latest use of aerial photography for environmental science, and with the purpose of raising public awareness on the devastating ecological impact of industrialization and militarization. The contemporary progression from aerial photography to satellite imagery can in fact be interpreted along two directions: the God's-eye view of surveillance and/or the bird's-eye view of environmental care.

KEYWORDS

World Wars; aerial photography; God's-eye view and bird's-eye view; photographed landscape; German and American illustrated magazines

Received: 6 November 2019

Accepted: 12 March 2020

Published online: 15 April 2020

Quagliati, N. (2020): Training the Eye: Production and Reception of Aerial Photography during the World Wars.

AUC Geographica 55(1), 93–111

<https://doi.org/10.14712/23361980.2020.6>

© 2020 The Author. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

This paper traces the origin of the systematic use of military photo reconnaissance in the First World War; it then explores the adaptation of aerial photo-technology for commercial use in the interwar period, and, lastly, introduces later developments at the outbreak of WWII. This article, however, does not only analyze the production of aerial photographs, but it also investigates the circulation of this material through the printed media: systematically examining some of the most popular illustrated newspapers in the U.S. and Germany in the first half of the twentieth century (particularly the German *Berliner Illustrirte Zeitung* and the American *Life*). This methodology allows a comparison of two Western countries that, in both war and peacetime, played leading roles in producing optical systems, photographic devices, imaging products, and specific photographic trends. Such visual innovations, alongside the evolution of aviation, became relevant tools in developing reconnaissance and mapping. Part of this photographic military-documentary material also became a propaganda instrument, which created effective new ways of representing and conceptualizing the landscape to civilian audiences. Moreover, Germany and the U.S. were often mutually influenced by visual communication strategies when publishing aerial photographs. Therefore, the present study demonstrates how new militarized visualities changed the way of making war by transforming the act of observing and interpreting territories, while also creating new aesthetic canons to represent the landscape that impacted society at large.

Studying aerial photography in warfare considers aspects of at least three disciplines: military technology history, media and visual communication studies, and landscape studies. The broad concept of landscape itself, as argued by the geographer Denis Cosgrove, emerged as a “way of seeing,” imagining, constructing, and representing “the external world.” As a “visual term” and mode to conceive and organize space, the idea of landscape has been explored by art and architecture as well as survey, map-making, and artillery science (Cosgrove 1985: 46). Although ‘non-representational theory’ within cultural geography have criticized the ocular-centric approach to landscape, other geographical researches have also highlighted the power of photographic media to shape human understandings of the world: supporting exploration, topographic mapping, and public geographical imagination (Ryan 2013; Dyce 2013). In this perspective, this article clarifies how landscape as a visual concept (from a morphological and iconographical point of view) was transformed by the industrial photo-optical technology developed within the military context of the World Wars.

Training the eye is a useful term to explain the collective effort that soldiers, pilots, and photo-

interpreters made to learn new photographic techniques through imaging and surveillance technology manuals and programs. This concept can be also applied to civilians’ assimilation of pictures showing environments that were unimagined before the perfect combination of photography, airplane, and photomechanical printing. The widespread training of the eye in the first half of the twentieth century compelled every single layer of the society and completely transformed people’s way of observing and absorbing the world.

Furthermore, dealing with aerial photography inevitably means recognizing the ambivalent essence of the view from above. On the one hand, the distant perspective determines a fascination with an overall view that may drive a constructive and critical analysis of territories. On the other hand, its abstraction can also be interpreted as a form of detachment, control, and power. This ambiguous quality of aerial photography – as technology of power deeply rooted in the military context and, simultaneously, mass medium proposing astonishing point of views on the world – that emerged in the first half of the last century, preludes some concerns the spread of aerial views captured by drones originates today. Experimental drones were invented for military reconnaissance and surveillance in the early twentieth century. During WWII, they started to be armed with bombs and missiles – when Americans had to compete with Japanese kamikazes. They were then used in battlegrounds of Vietnam, Yugoslavia, Israeli-occupied territories, and more recently to fight al-Qaeda and the Islamic State in the Middle East (Parks et al. 2017). Despite the military origin of drones, since 2010s, magazines devoted to geography, science, and nature, like National Geographic and GEO, have been consistently publishing articles about the most diverse applications of unmanned aerial vehicles (UAVs) in civilian sectors, including holding annual contests dedicated to the best drone photography (Handwerk 2013; Smith 2017).

The example of drones shows how aerial photography as a “technology of power” (Foucault 1977) can be applied to an entirely different array of purposes, including a rapid expansion to scientific, commercial, recreational, conservational, and agricultural applications. Produced for warfare, the drone is not certainly a unique case of an artefact that extends and diversifies its functions. Generally, new technologies ensure greater effectiveness the more they demonstrate chameleon-like ability to adapt to different sectors. In the modern wars the entire technological apparatus is enhanced, and technologies of vision are not excluded from a continuous boost of performance.

If it is widely recognized that the nature of visual perception is historically and culturally constructed (Kleinberg-Levin 1997), investigating the evolving interdependence of war and imaging allows us to understand how this relationship has influenced

many aspects of the visual culture of specific societies. In other words, how has the “militarized vision” – discussed here as innovative aerial visual technologies developed during conflicts – created new ways of perceiving and understanding reality during and after the World Wars?

This paper focuses on the origin of photographic aerial view formalization, analyzing the interdependence of aerial photography and military strategy during the World Wars, and showing how aerial photographs were presented to the German and American audiences. In fact, despite some civilian uses of aerial photography before the First World War – particularly interesting is Sebastian Finsterwalder’s 1889 survey of glaciers in the Tyrolean Alps from balloons – geographers and photogrammetry experts agree that WWI is the source of the systematic coverage of the earth’s surface by means of photography (Cosgrove 2010; Konecny 2012; Ryan 2013). For quantity and heterogeneity, aerial pictures produced and published during the Great War transformed the way the space is perceived, which led to a number of applications that continued in the interwar period. Many personalities involved in aerial operations during WWI became active promoters of “the view from above” in the post-war period: The German balloonist Robert Petschow showed his aerial photos both in international art exhibitions and in geographical publications, the British wartime pilot Osbert Guy Crawford became a key figure of aerial archeology, while the realist photographic style (straight photography) of the American fine artist Edward Steichen was influenced by his war experience as chief of the Photographic Section of the American Expeditionary Forces, in charge for aerial reconnaissance photography. Therefore, starting from WWI, the surprising photographic environments advertised in the news inaugurated a new geography from the air, which directly affected people’s way of seeing and experiencing the landscape below and the space above.

Although this article mainly addresses the topic of aerial photography from a historical perspective, it intends also to contribute to the contemporary theoretical debate which classifies aerial vista in two distinct categories, namely as a manifestation of either empathy or detachment. The supremacy of seeing from an elevated perspective, while practically invisible, recalls the notion of objective and penetrating “God’s-eye view” that many authors, primarily Denis Cosgrove (1994), have identified as a dominant feature in Western society. However, recent interpretations of aerial photography (McCormack 2010; Amad 2012; Kaplan 2018) argue for a more complex and ambivalent understanding of photo-observation in warfare, rejecting the idea that it (and its progeny remote sensing) is exclusively a symptom of omniscient power. New philosophies of photography, such as the one Joanna Zylińska (2017) proposes in the book *Nonhuman Photography*, link camera’s potentiality

with the creation of non-human viewpoints and “new modes of seeing and imagining” the environment, which would challenge prevailing anthropocentric models. This kind of attitudes will be named “bird’s-eye view” in the present article.

The next sections are organized in the following order: part 2 describes the production of photographic material for military purposes, part 3 shows the mediatization of war through circulation of photographs in the commercial press, while part 4 tackles the practice of aerial photography from a theoretical point of view. Problematizing the type of gaze developed in warfare and considering the consequent turning point in understanding the landscape will also be discussed in the 4th part.

2. Photography and War: An Indivisible History

2.1 WWI as an “Incubator” of the Military Techniques of Vision

“There is no war without photography” observed Susan Sontag in the book *Regarding the Pain of Others* (2003: 53), referring to a concept Ernst Jünger expressed in the thirties.

Since the daguerreotype was introduced worldwide in 1839, military and political interests in photography’s potentialities increased, leading to experiment rudimental devices on the battlefields of the nineteenth century: The first attempt was made by the British government during the Crimean War, and a more systematic involvement of photographic techniques in an armed conflict occurred in the American Civil War. In these two cases, politics intended to take advantages of “objective” recordings either propagandistically sustaining or condemning military actions. However, armies also aspired to employ accurate aerial images in strategic operations. After the acclamation of pioneering aerial views of cities from balloons or kites – the first was Félix Nadar’s image of Paris in 1858, followed by J.W. Black’s iconic shot of Boston two years later – the armed forces of various nations tried, unsuccessfully, to integrate reconnaissance techniques in their campaigns. The inadequacy of kites and aerostats was ascribed to their inaccurate navigation and targeting, as well as the risk of being easily shot down by the enemy. This second problem also affected rigid dirigibles powered by propellers, such as the famous Zeppelins, which from the beginning of the twentieth century carried cameras, and during the first world conflict were occasionally used by Germany to bombard Allied Powers. *Baby-killers* – as long-range Zeppelin bombers started to be called in England in WWI – were then substituted by airplanes. By means of the latter, the ability of flying, which for centuries had maintained the fascinating aura of a dream, was completely accomplished. At the

beginning of the First World War, the armies took over the latest discoveries in the sectors of flying machines and photography and, accelerating the successful combination of photo device and airplane, exploited photoreconnaissance for intelligence and mapping.

Footage taken by soldiers for private purposes, photographs produced as official documentary and propaganda, and photography used as a military tool contributed to make WWI the first war to be defined in German context as a “Medienkrieg:” Namely a conflict that has been photographed, reported, and narrated in detail by all its participants with any possible available media (cf. Paul 2004). Through the army postal service, when not censored, soldiers sent postcards to their families, including a high number of snapshots picturing devastated landscapes that totally differed from previous pictorial canons. Completely transformed by unprecedented destructive technologies, the landscape remained only barren land, a *no man’s land*.

The territory between and around opposing trench lines was also a main subject of military aerial photography. Although at the outbreak of the First World War the use of aerial photoreconnaissance encountered the resistance of traditionalist senior leaderships, by the end of the conflict it played a significant role in tactical planning, in surveying as well as in reconnaissance. Pilots started to take pictures with conventional hand-held cameras during their visual aerial surveys, noticing that photography could acquire more detailed information to integrate into their reports (Figure 1).

When commanding officers understood the value of this material in revealing changing patterns on the battleground, by measuring and anticipating enemy’s actions, specialized automatic cameras were developed to be mounted on the external side of the aircrafts or within the fuselage. It has been estimated that Germany, who had a leading role in the employment of aerial reconnaissance photography, took around 4000 photos a day, covering the entire



Fig. 1 German observer with a handheld camera taking pictures from an airplane in spring 1917 (Bundesarchiv, Bild 183-R27851).

Western Front twice a month in the last year of the war (Stanley 1981: 26). This huge amount of images is still available today consulting the Bavarian War Archive in Munich, which, despite being one of the largest World War One aerial reconnaissance collections, only represents a small portion of the overall German aerial imagery that survived WWII.

Since artillery, the dominant weapon of WWI combat, depended on accurate topographic control, aerial photography also supported mapping operations, which covered all battlefields including territories in the Middle East (Kaplan 2018: 138–179). Cameras used in a military context could provide both oblique and vertical images. The oblique perspective emphasizes the shape of three-dimensional elements (vegetation, buildings, etc.), while vertical views, used at a higher altitude, included greater areas and allowed to recognize the changing of patterns on the grounds. New methods to derive an accurate planimetry from panoramic photography and to interpret ground features were experimented: the *Reihenbildner*, for instance, was a German camera able to take a rapid sequence of photographs (10 per second) that once printed needed to be rearranged in line to obtain an overall map of an area (Jäger 2007: 292–293). Through this technology, in the course of a single flight pilots filmed a land surface that measured 60-by-2.4-kilometer at the scale of conventional topographic maps (Wohl 1994, Figure 2).

Aerial reconnaissance was an essential factor for the evolution of aviation itself: aerial photographs had become so valuable that both Allied and Central Powers built pursuit planes to prevent violations of their respective airspace. Modern fighter aircraft developed directly from the consequences of integrating cameras and planes. To avoid interception, reconnaissance aircrafts needed to fly at higher altitudes, causing several problems to the mechanisms of cameras: lower temperature generated moisture in the devices and froze lubricants. In order to prevent this malfunction, Germans provided their cameras with an electrical heating system. The Rumpler CIV was a typical two-seat fighter/reconnaissance airplane, mass produced in 1917; it could reach high altitudes of up to 7000 meters, thereby avoiding anti-aircraft artillery. Its camera lens was positioned in a hole in the fuselage under the observer’s position. On these types of aircraft the *Maschinengewehrkamera* (machine gun camera) operated, exemplifying the fusion of camera and gun. Invented by the film tycoon Oskar Messter, and constructed by the Ernemann company in Dresden, this camera fully resembled the German-made MG08 machine gun, with the only difference that the trigger button shot films instead of ammunitions and was utilized by pilots on fighter planes to simulate dogfight (Figure 3).

German optics, such as Carl Zeiss lenses, were more advanced than any other combative countries’ technology in WWI. When the U.S. entered the war,

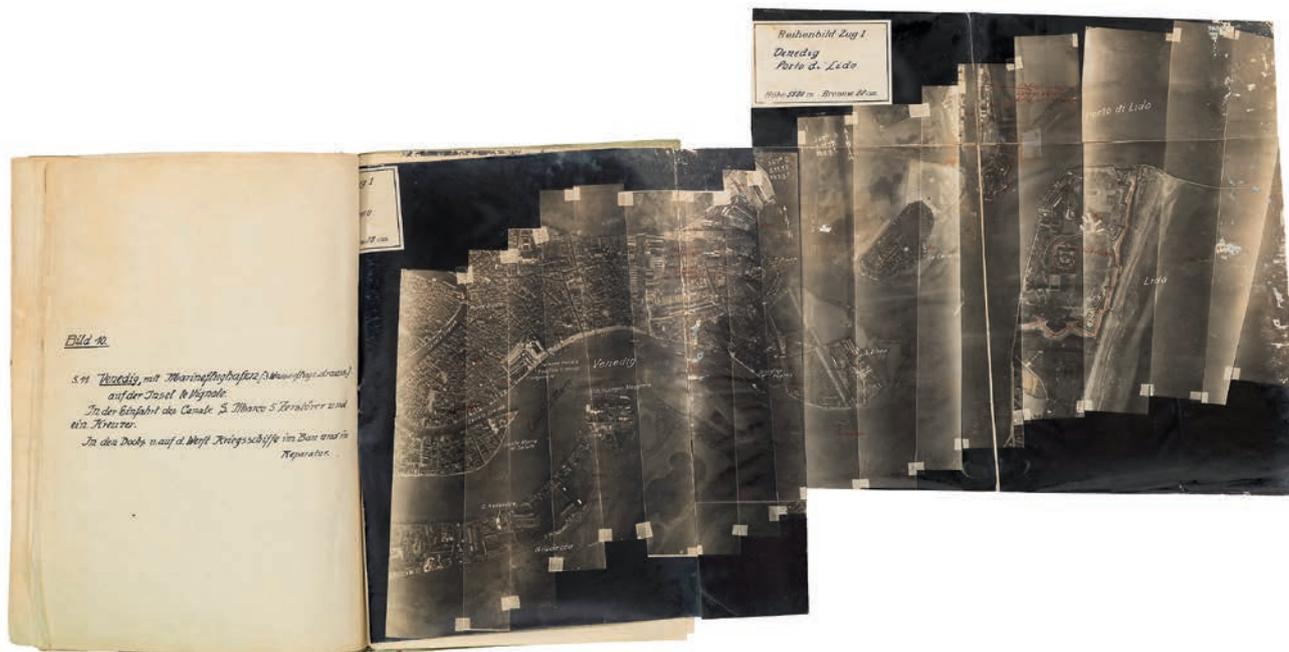


Fig. 2 German photographic map (Reihenbild) of Venice contained in the aerial reconnaissance weekly report *Wochenbericht Nr. 7, Über die Tätigkeit der Fliegerverbände, Kommandeur der Flieger 14*, dated November 4–10, 1917. Deutsches Museum, Munich, Archive, CD 80907.

the Army urgently requested American civilians for their optical gears, including lenses, telescopes and binoculars, specifically naming several German manufactures. Although U.S. aviation units initially relied on European photographic equipment, due to their late arrival in the theater of war, they soon established a

Photographic Section attached to the American Expeditionary Forces (AEF).

Using James B. Campbell’s terminology (2008: 77), the First World War was the “incubator” for aerial photographic techniques and photointerpretation systems that were largely employed in WWII. During this experimental stage, the human eye needed to be trained in order to be able to interpret new geography from the air. Pilots, aerial observers, and photo-interpreters learned to see the landscape below according to taxonomies. They acquired skills in photo recording and interpretation by means of imaging and surveillance technology manuals and programs; in Germany part of the training took place in the *Flieger-Beobachtungs-Schulen* through manuals like *Lehrbehelf für Photographie aus dem Flugzeuge für Beobachter-Offiziere* (Teaching Aid for Photography from Aircraft for Observer Officers) (1916) written by Alfred Thiel or *Die Erkundung aus Fliegerbildern* (Reconnaissance through Aerial Photographs) (ca. 1916) by Leutnant Wecker.



Fig. 3 A photographic strip (Bundesarchiv N 1275 Bild-305) taken by the *Maschinengewehrkamera* (machine gun camera) invented by Oskar Messter in 1915 and fabricated by the Ernemann company in Dresden (Deutsches Museum, Munich, Archive, CD 68040).

2.2 WWII: Imagery Intelligence as a Systematic Discipline

After WWI, military interest in photo intelligence diminished and, although nations maintained their technical capabilities, there was no significant application and organization of photoreconnaissance in peacetime. However, commercial air travel and photography as a mass medium kept on evolving. After the passenger-carrying dirigible Hindenburg exploded in New York in 1937, the airplane started to dominate commercial fleets. The German state company

Lufthansa became the largest European carrier, and with the onset of the Second World War the civilian airline was militarized by the Nazis. WWII was indeed in large measure fought with manned aircrafts, and the logistical planning based on aerial reconnaissance was fundamental in determining its outcome. In *Photography and Flight*, Denis Cosgrove traces the evolution of imaging products from commercial context to military scenery. He highlights how mobilization and constant innovation of the technological apparatus during the conflict determined the level of progress in specific countries once the war was over: “Virtually every film and camera producer in America, Germany and Japan was recruited to meet wartime need, giving professionals in those countries the pre-eminence as innovators and manufacturers of photographic equipment and supplies that continues to these days” (2010: 55).

Dark-yellow filters to reduce the effect of light reflecting on the sandy surface of the desert, methods to prevent the film coating from melting in North Africa, infrared devices to detect troop movements at night, more precise gun cameras to record the shooting down of enemy aircrafts, multiple lens systems for mapping: these were some innovations belligerents developed to obtain the most detailed possible image on finest-grain film employable. Maintaining quality images was a necessary requirement to overcome camouflage techniques applied by competitors once technological observation of the enemy became increasingly sophisticated. The figure of



Fig. 4 The photo interpreter Constance Babington Smith with a stereoscopic viewer analyzes reconnaissance photos of the German Peenemünde Army Research Center. In 1943, working at RAF Medmenham, she was the first interpreter to detect V-1 flying bombs in the Peenemünde Airfield (UK CROWN COPYRIGHT, provided courtesy of the Medmenham Collection).

the specialized photo interpreter, intent on minutely scrutinizing two photographic prints through a stereoscope in order to gain a 3D image easier to discern, originated from this war context and was later well described by war memoirs of flight officers, such as Constance Babington Smith’s *Evidence in Camera* (Figure 4).

The technical improvements of photo devices evolved simultaneously to engineering solutions in constructing the most effective airplane for aerial photography. To not be detected and shoot down, recon aircrafts had to meet three essential elements: exceptional speed, elevated range, and high-altitude capability (Stanley 1981: 77). The perfect balance of the three attributes was achieved in models like the De Havilland 98 Mosquito (known also as “Mosie”), which was the main British photo collector, and according to many military historians also the best photoreconnaissance aircraft in the war.

As an expert in imaginary intelligence heritage, Colonel Roy M. Stanley explains that aerial photography in WWII was regularly applied for selecting bombing targets, determining bombing accuracy, pinpointing defense positions, analyzing equipment capabilities, serving as a basis for maps, and searching for indications of enemy intentions (1981: 3). This impressive broad scope of use, developed from the experience gained in WWI, demonstrates that imagery intelligence was formalized as a systematic discipline within WWII national air forces. However, unlike the WWI system where different military sections performed their own photo-interpretation and information were coordinated at a later time, in the Second World War nations established central photo reconnaissance units, allowing faster reactions to critical situations. Moreover, employing aircrafts optimized for aerial photo operations, flight requirements evolved differently in mapping missions than in intelligence missions. In the last case, specific protocols imposed that an object was nominated, photographed, exploited, and the intelligence put into an operational framework. Therefore, WWII photo intelligence involved a high degree of expertise and a specialization in every phase of the process.

Colonel Stanley also clarifies: “Each camera on an aerial mission used rolls of film that were up to several hundred feet long and from three to twelve inches wide. The photos were overlapping still pictures taken at intervals of from one to ten seconds. [...] it was work photography, often having little apparent value to the layman until its secrets were unlocked by skilled technicians” (1981: 11). The majority of these aerial pictures reported the name of the aviation unit, number of shot, date, time, location, grid reference, altitude, and focal length; on the images an arrow indicated the north. Therefore, a series of snapshots portraying a peaceful beach and nearby cliffs in a sunny May – which nowadays has the familiarity of a panoramic view taken with commercial drones at low altitude – revealed



Fig. 5 Reconnaissance photograph taken from an American Lockheed P-38F-5 fighter, flying at low altitude over Normandy in May 1944. Smithsonian National Air and Space Museum, NASM 9A06762.

a top secret, high risk, and historic mission. A pilot, on Lockheed P-38F-5 fighter with an oblique-angle camera mounted in the aircraft's nose, took these pictures in order to detect enemy fortifications. After flying over an apparent ordinary landscape, he finally located wired tripods sticking up on the beach. Photo interpreters later revealed that these small pylons, invisible at high tide, indicated the positions of German mines (Heiferman 2012: 195–197). It was the eve of the Allied landings in Normandy (Figure 5).

3. Aerial Photography in the Mass Commercial Press

3.1 German publishing

If the *production* of imagery on battlefields was staggering in both World Wars, the large-scale *reproduction* and distribution of this material to *in-form* public opinion was not less significant.

Using new technologies like the rotary printing press and the halftone, illustrated magazines started to incorporate photos to the articles. Illustrated periodicals were already one of the most popular print mediums since the beginning of the XX century (Ross 2010: 20–33). Although paper was in short supply in WWI, publishing companies rapidly adapted to the new situation by restructuring the volume and content of their publications. With a reduction in the number of pages for single issue, many German illustrated magazines continued to be published weekly. The most popular illustrated magazines in wartime were the *Berliner Illustrirte Zeitung* (*BIZ*) and *Die*

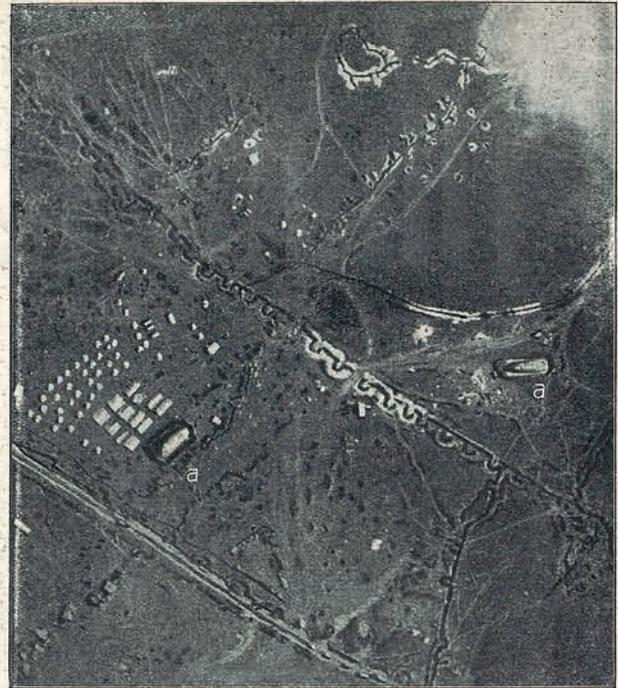
Woche, both published in Berlin. Interestingly, the public demand for news from the various theaters of war increased people's interest in visual reports: in fact, the number of copies sold by the *BIZ* grew from 100,000 at the beginning of the century to 800,000 in 1915, maintaining this level for the entire duration of the conflict (Weise 1991). Illustrations, maps, and reports with aerial photos facilitated the readers' understanding of events in war zones (troops movements, commanders' decisions, military activities on the front lines). Moreover, many illustrated magazines specifically dedicated to the developments of war appeared in 1915: *Die große Zeit*, *Illustrierte Kriegsgeschichte*, *Deutsche Kriegszeitung*, *Illustrierte Kriegs-Zeitung/Das Weltbild*, *Illustrierte Geschichte des Weltkrieges*, and *Illustrierter Kriegs-Kurier* were some of most popular titles. Offering experts' in-depth analysis on military strategies, innovative technologies, and medical innovations employed on the battlegrounds, these magazines were accompanied by many illustrative photographs, sometimes covering entire pages, which at that time measured ca. 34 × 26 cm. Over the years, the numbers of photographs incorporated in newspapers increased, substituting illustrations.

In this period, an aerial photo appeared at least every two weeks in regular illustrated magazines, and even more frequently in the newspapers dedicated to war. Most of the pictures taken from balloons, dirigibles, and airplanes in wartime were primary reconnaissance images created for military reasons and only at a later time they were made public (although the black stripe reporting technical information about the shot was always removed for military security, and photomaps remained top secret).

Individual vertical aerial photography largely became available in magazines during the war, representing a visual revolution for the German public. New photographic environments, portraying "flat" and "abstract" lands excluding any tridimensional effects, were explained to the population through dedicated articles that repeated the mantra: "Wie der Flieger sieht," "Was der Flieger sieht" (How/what the aviator sees). In March 1917 the *Berliner Illustrirte Zeitung* published an analysis of the new way of seeing the landscape from above developed by the aviation, describing the role of the pilot (Flieger) and the observer (Beobachter), and comparing their "trained eyes" with the vision of an ordinary citizen (Figure 6). The first words of the piece say: "Seeing is a matter of practice!" ("Sehen ist Uebungssache!"). A trained aviator gradually learns how to "really see" the landscape, grasping the important features of the land with a quick gaze. The article continues explaining: Where the ordinary person notices only a landscape, the aerial observer, thanks to photo devices, discerns a multitude of noticeable details, which offer many tactical possibilities. Making a fragment of time eternal, such photography presented a landscape that could



Flieger-Aufnahme des Bahnhofs Vorodzieja: Dieser sonst unbedeutende Bahnhof wurde vor Beginn einer russischen Offensivphase außerordentlich erweitert. Die deutsche Flieger-Aufnahme läßt erkennen: a und b große Hallen und Schuppen; d neue Ausladebahnhöfe; f Feldbäckereien.



Das Kampfgebiet südlich Montanban, aus 3000 Meter Höhe aufgenommen. Die deutsche Flieger-Aufnahme zeigt zwischen verlassenen Schützengraben und Infanteriestellungen 'eindliche' Truppenlinie sowie (bei a) zwei Fesselballons die im „Windflug“ liegen.

Was der Flieger sieht

Sehen ist Übungssache! Achtlos überfliehet das nicht geschulte Auge, was für das Künstlerauge von größter Wichtigkeit, von höchstem Reiz ist. Der Laie sieht eine anmutige Landschaft, der Generalstabsoffizier erblickt darin eine Fülle taktischer Möglichkeiten. Wer zum ersten Male fliegt, wird seine Freude haben an der Welt wie er sie von oben erblickt: so „jauber und niedlich“ sieht alles aus. Erst allmählich lernt der Flieger „sehen“, d. h. Wichtiges mit raschem geschulten Blick erfassen; Zeit zum behaglichen Beschauen hat er nicht, namentlich heute nicht mehr, wo die Gefahren für ihn von der Erde aus und in der Luft sich vervielfacht haben. Während des Fluges überm Feind arbeitet der Beobachter in angespanntester Tätigkeit; er hat im wahrsten Sinne des Wortes alle Hände voll zu tun. Er gibt nach der Karte die Flugrichtung an, macht Aufnahmen der wichtigen Geländeteile, notiert seine Wahrnehmungen, bedient die Bombenabwurfvorrichtung und muß dabei jeden Augenblick bereit sein, einen Luftkampf aufzunehmen. Unendlich anstrengend ist dies alles, auch das lange Stehen — und stehen muß der Beobachter fast während der ganzen Flugdauer überm Feind — ermüdet sehr, weil ständig ein enormer Luftdruck gegen den Oberkörper liegt. Nerven darf der Flieger gar nicht haben, plätschernde Schrapnelle in nächster Nähe dürfen ihn in der Arbeit nicht stören; der Auftrag muß erfüllt werden; und läßt der Beobachter sich durch solche



Bahnhof Rowno, Rußland. Die Flieger-Aufnahme läßt jeden einzelnen Wagen der vielen auf den Rangiergleisen stehenden Güterzüge erkennen.

„Neußerlichkeiten“ ablenken, so bedeutet das nur, daß er um so länger im feindlichen Abwehrfeuer bleiben muß, wodurch er wieder unnötig die Nerven seines Führers verbraucht. Was muß nun der Beobachter sehen? Alles, was irgendwie wichtig ist, um daraus Schlüsse auf die Absichten und die Tätigkeit des Feindes zu ziehen. Da ist zuerst die Front selbst. Bis auf kleinste Grabenzipfelchen muß er die feindliche Stellung genau erkunden und sie durch aneinandergereihte Lichtbilder festlegen. Für eigene Infanterieunternehmungen ist es von größter Wichtigkeit, genau im feindlichen Grabensystem Bescheid zu wissen. Dann kommt die feindliche Artillerie! Eins der schwierigsten Gebiete. Nur sehr geübte Beobachter können mit Sicherheit eine besetzte Batteriestellung von einer unbesetzten, eine Scheinstellung von einer wirklichen unterscheiden. Am leichtesten ist eine Batterie während des Schießens am Mündungsfeuer zu erkennen, aber bei Annäherung des Fliegers wird eben jedes Schießen (ausgenommen das der Fliegerabwehrgeschütze) abgebrochen. Da heißt es denn, mit unsäglicher Geduld nach den äußeren Umständen seine Feststellungen treffen; auch hier wird natürlich jede Stellung photographiert. Es klingt so einfach: „wird photographiert“. Der photographische Apparat wiegt etwa 20 Pfund und muß außerhalb des Rumpfes senkrecht und möglichst ruhig gehalten werden, damit die Aufnahme nicht „verwackelt“ wird. Ein Ausflühen auf die Bordwand

Fig. 6 Berliner Illustrierte Zeitung (March 11, 1917): What the aviator sees. Berlin, Ullstein, 10, 130.



Fig. 7 Berliner Illustrierte Zeitung (January 11, 1925): The giant toy. The world from above: Rides in a hot-air balloon. Berlin, Ullstein, 2, 36–37.

be amply explored even at a later stage; but only if the viewer held the key to interpret the space from above. The practice of publishing two aerial pictures next to another presenting a target (a village, a fort, or a train station) before and after a bombing started in WWI.

Thus, military methods of photoreconnaissance produced a new aesthetic, completely transforming the way of seeing and interpreting the landscape. This change determined the visual canons of the German society in the following period of the Weimar Republic. In fact, newspaper articles devoted to vertical aerial photography continued to be published even after the end of conflict. In the interwar years public attraction for aviation – partially created by the popular narrative of the hyper-masculine *Fliegerheld* (flying hero) emerged from WWI – was reinforced by the risky adventure of sporty brave individuals. It is the case of Willi Ruge’s spectacular photo-essay “I Photograph Myself during a Parachute Jump” (BIZ 1931: 843–845). Ruge was an aerial gunner and a reporter in WWI. Later on, he worked in the German aviation film industry, and became internationally famous for portraying himself during his parachute descent with a camera strapped to the belt. These eye-catching pictures condensed all the components that the modern narrative of illustrated magazines imposed in the interwar period: documentation, entertainment,

modern sporting heroism, and technical abilities (the latter often gained in the previous military context).

It was quite common that pilots and photographers who served in WWI later became photo and film entrepreneurs as well as fundamental personalities in disseminating aerial photographs. Robert Petschow, a professional soldier in the Airship Battalion deployed by the army to operate tethered balloons, learned new photographic techniques on the battlefields of WWI. After the war, besides editing the aviation magazine *Die Luftfahrt*, he traveled all over Germany, becoming the best-known aerial photographer of the interwar years by regularly publishing on illustrated newspapers (see BIZ 1925: 36–37, Figure 7). His vertical shots proposed a new visual experience of the landscape, showing a human-made geometry and a sense of abstraction to a certain extent similar to the close-ups offered by the microscope (Beckmann 1992). With this avant-garde approach – corresponding to the revolutionary German photographic movement of the *Neues Sehen* – Petschow’s work was selected for the international exhibition *Film und Foto (FIFO)*, which occurred in Stuttgart in 1929 and was organized by the Deutsche Werkbund (German association of architects, designers and industrialists). Influencing generations of artists, *FIFO* has been considered a crucial exhibition that, for the first time,

Weihnachts- Preisrätsel

„Die Welt von oben gesehen“

Was stellen diese 6 Bilder dar?

Von oben, vom Luftschiff, vom Flugzeug aus, nehmen die Dinge eine ganz andere Gestalt an. Sie sehen wie breitgequetscht



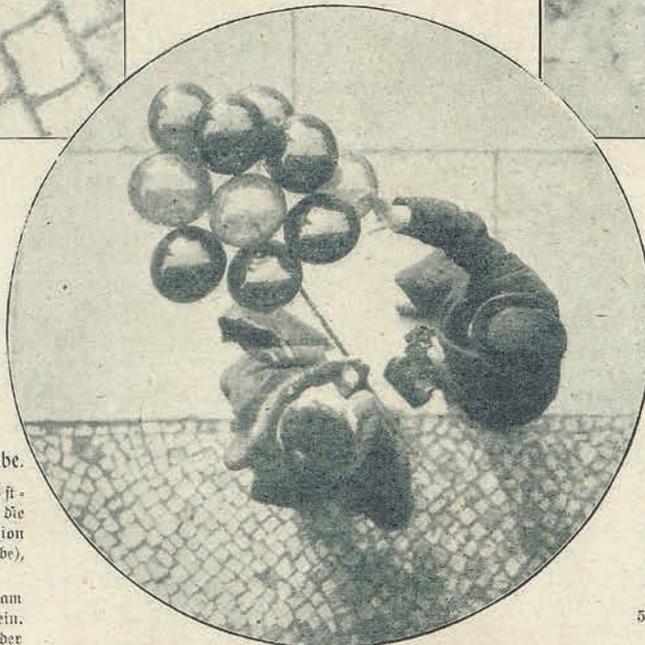
Die Welt von oben gesehen. Was stellen diese Photographien dar? Bild 1.

aus. Können unsere Leser die hier abgebildeten photographischen Aufnahmen enträtseln? Auf die richtige Lösung dieser Preisangabe, also auf die Angabe, was jedes dieser sechs Bilder darstellt, setzen wir Preise aus von zusammen

1000 Mark.

Bedingungen zur Preisangabe.

1. Die Lösungen müssen auf Postkarten geschrieben sein und die Adresse tragen: An die Redaktion der „Illustrierten“ (Preisangabe), Berlin SW, Kochstraße 22/26.
2. Alle Lösungen müssen spätestens am 20. Januar in unserem Besitz sein. Das Ergebnis wird in einer der darauffolgenden Nummern veröffentlicht werden.



Die Welt von oben gesehen.

Ein Beispiel: Photographische Aufnahme einer Verkäuferin von Kinderballons.

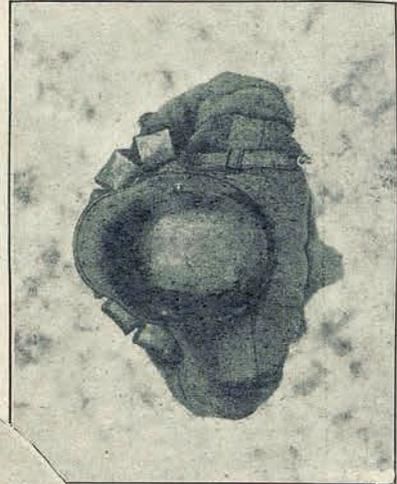


Bild 2.

3. Für die richtige Lösung setzen wir einen 1. Preis von 300 Mark, einen 2. Preis von 200 Mark, einen 3. Preis von 100 Mark und nach Bedarf bis acht Trostpreise von je 50 Mark aus.
4. Gehen mehrere richtige Lösungen ein, so werden die Preisträger durch das Los bestimmt, derart, daß aus allen richtigen Lösungen der zuerst Gezogene den Hauptpreis, der Zweite den 2. Preis, der dritte Gezogene den 3. Preis und die folgenden 8 Läufer die Trostpreise erhalten. Gehen mehr richtige Lösungen ein, so müssen die durch das Los nicht Gezogenen sich auf mehr Glück bei einem späteren Preisanschreiben verlassen.
5. Die einmal getroffene Entscheidung der Redaktion, der sich die Einsender durch ihre Beteiligung unterwerfen, ist auf alle Fälle endgültig.

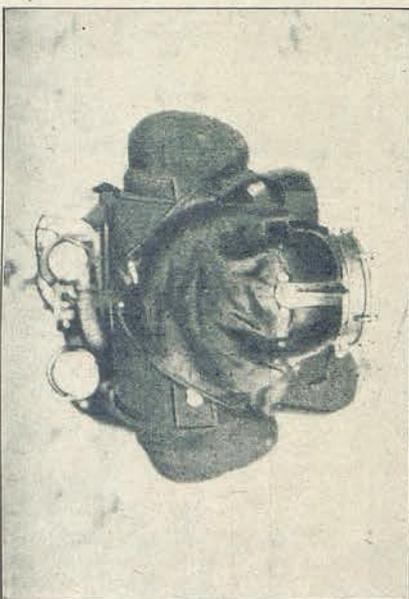


Bild 3.

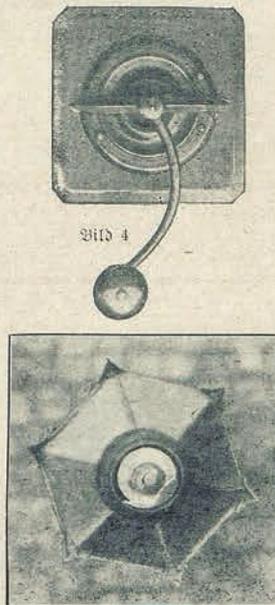


Bild 5.

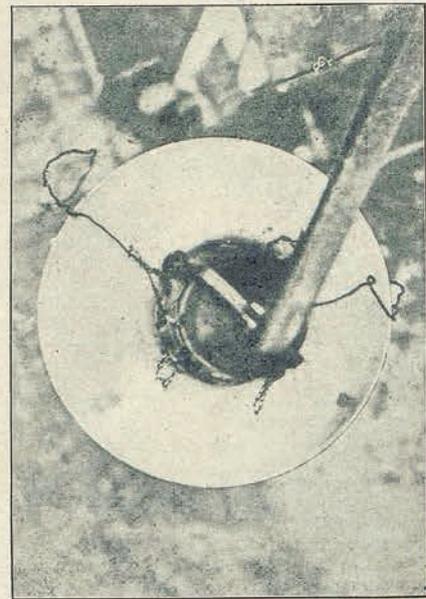


Bild 6.

Fig. 8 Berliner Illustrierte Zeitung (December 28, 1919): Prize competition *Seeing the world from above*. What do these 6 images represent? Berlin, Ullstein, 52, 544.

gathered American and European experimental production together. However, not only the field of art was interested in Petschow's aerial views. A copious amount of his photos illustrated Eugene Diesel's book *Das Land der Deutschen* (1931), a geographical survey composed of three sections: *Die Naturlandschaft* (the natural landscape), *Die Kulturlandschaft* (the cultural landscape), and *Die Maschinenzeit* (the time of machines). The book became so popular that a new affordable edition appeared in 1933, with a changed introduction supporting the nationalistic idea of German landscape promoted by the rising regime.

Finally, readers were even encouraged (through games) to discern strange objects represented from above. Starting from December 1919, the *BIZ* proposed prize competitions by asking the public: *Die Welt von oben gesehen. Was stellen diese 6 Bilder dar?* (Seeing the world from above. What do these 6 images represent?). A game that nowadays would be pretty easy to solve, it must not have been so obvious in 1919, since the first prize was 300 marks – a substantial sum at the time (Figure 8).

Although the mainstream tendency of the print press during the post WWI Weimar Republic aimed at attenuating the recent traumatic experience of war with a renovated vitality – an editorial line known at *BIZ* as “Lebensfreude” (joy of living) – the previous examples demonstrate that military aerial photography determined new aesthetic models that profoundly influenced German visual culture.

3.2 American publishing

The famous American mass circulation magazine *Life* first appeared in 1936 and was launched by Henry R. Luce. It promoted greater accessibility to the news using pictures rather than texts. *Life* borrowed formulas that were already experimented by the pioneering *Berliner Illustrierte Zeitung* (*BIZ*) – such as candid photography and photo essays – and shared with the German periodic the idea of “seeing life in pictures” (Korff

1927). The influence of *BIZ* on *Life* was also due to the work of Kurt Korff, an editor at *BIZ*, who emigrated to the U.S. when Adolf Hitler came to power, and later became advisor to Henry R. Luce's magazine. However, *Life* was even more sensational than *BIZ* due to its panoramic views, sophisticated layout, and engaging documentaries. Reducing the distinction between political press, commercial press, war reports, and advertisement, the magazine aimed to inform and entertain the public, inevitably being the reflection of a society that increasingly integrated “spectacle” and “modern living” with the “war living.”

When the United States entered WWII in 1941, *Life* started to publish photographic materials officially provided by U.S. Army Air Forces, U.S. Signal Corps, and the U.S. Navy, integrating documentaries by famous photo reporters. Differently from WWI, aerial photographs published in WWII newspapers were not exclusively provided by the military aviation; rather, for the first time, professional photographers hired by *Life* magazine were attached to the U.S. Army Air Forces with the purpose to document specific aerial activities (often in the aftermath of the attacks). After the testing ground of the Great War, photography was generally recognized as a powerful tool of propaganda, necessary to raise the spirit of nationalism in the population, justify the sacrifice of American soldiers, and legitimize U.S. military interventions.

On many pages of the magazine, it was common to find graphic and photographic explanations of the technologies used by the different American military corps during the war and the effects of the enemy's weapons, as well as photographic surveys documenting battles and their aftermath with repercussions on civilians and the cityscapes.

In the magazine of December 22, 1941, after the Japanese attack on Pearl Harbor, *Life* included stunning illustrations of the globe “as seen from the Moon” to describe salient strategic locations on the new battlefield in the Pacific Ocean. The vastness of this unexpected arena of war led the editorial board



Fig. 9 Cover and three pages (32-60-61) of the February 22, 1943 issue of *Life* entitled *Photo Reconnaissance*. Dmitri Kessel took the photo on the magazine cover.

of *Life* to publish in the same issue a poetic and geographical overview of “the oldest, deepest, and bluest sea,” where it “lies half of the world’s water” and “sit great cities whose life depend on the sea.” It followed a visual list of American and Asian cities magnificently presented through aerial views.

In order to be updated to the last technological innovation, *Life* dedicated the cover of the February 22, 1943 magazine to “Air Reconnaissance,” with a Dmitri Kessel’s picture showing an army air observer. An article in the same issue explored the training of the “Eyes of the Army” at the Brooks Air Force Base in Texas, explaining the principles of photo reconnaissance, and engaging readers through titles like “What is this?” (*Life* 1943: 32), asking the public to interpret military documents (Figure 9).

This entanglement between military experience, commercial photography, and avant-garde visual strategies distinguished American propaganda, in which the publishing techniques started in WWI were strongly enhanced. Edward Steichen, a fine art photographer famous in the American art scene, commanded the Photographic Section of the American Expeditionary Forces in WWI, and became responsible of the Naval Photographic Institute in WWII. In this latter role, he directed the full-color documentary *The Fighting Lady* (1944), filming the life on board of an American aircraft carrier. In the plot, the monotonous routine of the seamen on the ship is interrupted

by diverse attack targets (Marcus Island, Kwajalein, and Saipan), in a “climax of battle and destruction.” During the scenes of strikes, spectators watch real technicolor footages shot by gun cameras mounted on aircrafts and the narrator reminds them “our eye is now the very eye of the flying airplane.” A series of these impressive frames, showing hit Japanese planes that crashed into water, was also reproduced on the magazine *Life* (March 5, 1945: 76–78) in the section “movie of the week,” in which the carrier, the *Fighting Lady*, is described as a heroine. *Life* recognized the spectacular power of these shots, dedicating two entire pages to the colored photographs. The black silhouette of the wounded plane, silvery gasoline vapor, flames of the explosion, and the orange glare are recorded plunging into the blue sea (Figure 10).

Towards the end of the conflicts, however, the content of *Life* partly changed, and destruction and dead bodies substituted spectacular aerial views, strategic maps, and technological analysis. On June 4, 1945, Margaret Bourke-White’s pictures showing the effects of fire-bombing on German towns and cities (Nuremberg, Mainz, Essen, and Jülich) were published with the title “The Battered Face of Germany” (*Life* June 4, 1945: 21–27). Bourke-White took these oblique panoramic photos during a U.S. Air Force combat mission, showing “dunes of rubble” caused by both precise strategic targets and carpet raids (although the controversial bombing of Dresden was not mentioned



Fig. 10 Frames from the movie *The Fighting Lady* published in *Life* magazine (March 5, 1945, pp. 77–78).

in *Life*). The U.S. Strategic and Technical Air Forces employed then this material for the analysis of damage. Bourke-White also documented the atrocities of the Nazi regime in Buchenwald in May 1945 issue. Regarding the publication of pictures of war's death and destruction in Spain, China, and Germany, *Life* states: "Dead men will have indeed died in vain if live men refuse to look at them." A few weeks after the atomic bomb drop on Hiroshima and Nagasaki *Life* reported full page aerial views showing the cities before, during, and after the bombing. In contrast, the magazine only published the total devastation from the perspective of the Japanese civilians in September 1952, when the military censorship ceased (Lee 2011).

The articles published in *Life* magazine, as well as the ones on *BIZ* during the WWI, demonstrate that civilians were not only conscious of the evolving technological apparatus used by armies and of possible effects enemy's weapons could cause on their lives, but they were also constantly (although partially) informed of the warfare on the other sides of the globe. The goal of the illustrated press was to show these distant scenarios, transforming farness into closeness.

During the World Wars, techniques of propaganda and censorship employed specific communication strategies, choosing aerial photography to demonstrate the scientific and technological superiority of the national armed forces and to aestheticize, namely anesthetize, violence. Indeed, military strikes and bombings at the expense of the enemies were mainly portrayed by means of spectacular images visually pleasing, while close-ups of casualties were shown only after rival attacks, in order to condemn the atrocity provoked by the enemy and rise emphatic reaction in the magazine's readership.

In this period, visual mechanisms used in warfare (analysis of maps, interpretation of photos, aerial images before and after an event) started also to be applied as common tools for reporting news in the commercial press. Moreover, photographs sponsored an ambivalent idea of landscape that, by the end of WWII, could be categorized in the forms of (1) scenarios as sources of national identity, (2) remote and exotic landscapes photographically captured and distributed for the first time (3) sectioned terrains and portions of seas available to be interpreted and analyzed, and (4) cityscapes that lay in ruins. Often these four types of landscape coexisted together at the same time in German and American magazines, sometimes even in the same issue.

4. God's-eye view and bird's-eye view

4.1 Frampol

9 September 1939

vertical angle photograph: Frampol (Poland), ca. 4500 m on the ground

He knew that the wide world was full of strange cities and distant lands, that Frampol was actually no bigger than a dot in a small prayer book; but it seemed to him that his little town was the navel of the universe and that his own house stood at the very center. (Singer 1982: 41)

18 September 1939

vertical angle photograph: Frampol (Poland), ca. 1275 m on the ground

One morning, while Abba was wondering among his thoughts, he heard a tremendous crash. The old man shook on his bones: the blast of the Messiah's trumpet! He drooped the boot he had been working on and ran out in ecstasy! But it was not Elijah the Prophet proclaiming the Messiah. Nazi planes were bombing Frampol. Panic spread through the town. [...] Flocks of birds flapped about in the sky. The forest was burning. Looking down from the hill, Abba saw the orchards under great columns of smoke. The apple trees were blossoming and burning. (Singer 1982: 50)

Frampol is a small town in the southeastern corner of Poland, circa 70 km from Lublin. Just few people know its troubled history.

Some literature aficionados could remember Isaac Bashevis Singer's brilliant descriptions of the town in some of his short stories. In *The Little Shoemakers*, for example, he portrays Frampol as an important center of artisans with a significant Jewish community, narrating the series of tragic events that struck the city at the end of the thirties. Besides Singer's tales, however, most of the visual records of the area before 1939 are lost. One picture still available is a plan of the town dating back to September 9, 1939. In this aerial photograph, Frampol's unique baroque street layout stands out: three concentric rectangles are organized around a large central square resembling the board of the game Nine Men's Morris. Today, the grid plan can still be identified in Google Maps' satellite image, although the eighteenth-century town hall does not stand at the center of the wide, regular marketplace anymore.

Just a week after the snapshot, on September 18, 1939 a new picture, taken from the same point of view, features a completely different scenery. The grid of streets, which constituted the visual focal point of the first photograph, has disappeared. In the new tragic topography, the eye of the viewer cannot anchor to any gridlines because most of the landscape seems to be rubbed out. What looks like an erasure is actually the catastrophic effect of a raid carried out by the *Luftwaffe* (Figure 11). On September 13, 1939, the German Air Force dropped high explosive bombs and incendiary bombs, destroying ninety percent of the buildings. The human losses were relatively small due to the fact that the population already experienced a first small bombing and was hidden outside the city (Puzio 2009).



Fig. 11 Frampol before and after the German *Luftwaffe* bombing raids in September 1939. The pictures were first published in *Freie Welt* (August 3, 1965), a magazine distributed by Berliner Verlag in East Germany.

Both pictures were therefore taken by a German pilot or an automated camera mounted in reconnaissance planes. According to the photo interpreter Harry Hahnwald and the pilot Manfred Otto, Frampol functioned as military experiment, where the effectiveness of new weapons was tested (Freie Welt 1965: 8–15). The aerial view that immediately preceded the violence served to define the precise target, while the second record allowed to measure the consequences inflicted by the *Luftwaffe*'s attack. The city did not fulfill any military or strategic function: neither railway nor factories were present, and the Polish army, whose specific divisions were retreating in the eastern regions of Poland at that time, did not have any units stationing in Frampol. Therefore, German aviation was not exposed to any anti-aircraft fire and could freely test the bombs on the city.

Although the tragic history of a small town such as Frampol was not reported by any newspapers before the 1960s, and – unlike the terror bombing of Guernica (another testing ground of the *Luftwaffe*) – definitely did not have an international echo, the two aerial photos contribute to problematize the type of gaze developed in the warfare. If Singer's tale depicts the total destruction at close range, the photographs reverse the perspective, showing the detached viewpoint of a "hunting" eye, product of military reconnaissance. Frampol was firstly detected by the penetrating lens of the camera and then was selected as a target because its aesthetic features induced to visibility. The town's urban planning, based on organizing axes culminating at a central focal point of the square, made it an evident landmark clearly discernible from the air, a bullseye. According to Ernst Gombrich's theory in *The Sense of Order*, a book dealing with psychology

of perception in relation to patterns, the break of a monotonous repetition makes an object worthy of attention (Gombrich 1979). Moreover, Frampol's visible obliteration after the bombing would have proved (as it indeed did) the degree of effectiveness of the *Luftwaffe*'s weapons. This attraction of the eye to discontinuity – which was the reason why Frampol was noticed – required cities to use camouflage during the warfare. Thus, in the World Wars painters were not hired to document the war (the sense of reality given by photo reporters was much more powerful), but they were recruited to implement camouflage techniques in the landscape.

In a completely different field, the same selective dynamics of sight guided designers and editors of the illustrated magazines to publish a photo instead of another, influencing, and sometimes manipulating, their audience. Probably, even the photos of Frampol – which first appeared in 1965 on *Freie Welt*, a magazine distributed by Berliner Verlag in East Germany – were published because of their eye-catching features. Although many other bigger cities were bombed in Poland during WWII, the GDR magazine decided to denounce the crimes of the *Luftwaffe* that occurred in 1939 through this visually attractive aerial material representing a small, remote community. Firstly, the pictures were presented as truthful documents, secondly, but not less significantly, covering more than one page of the magazine, the two photos had a big impact on the readers, who were led to scrutinize differences between the first and the second shot. The Nazis did this scrutinization as well.

The sharpness of reconnaissance aerial photography indicated an omniscient God's-eye view, a unidirectional gaze that in the visual arts has been

theorized by Norman Bryson's *The logic of gaze* as well as analyzed by Martin Jay's *Scopic regimes of modernity*. A way of seeing that in Bryson's terms is a gaze (rather than a glance) removed from the personal experience of the observer. A unified vision and all-dominant perspective that has been embodied in the Western tradition, theorized in books like Douhet's *The Command of the Air* (1921), and tragically realized in the Second World War through the transcendent experience of verticality above all.

Therefore, if Frampol was bombed because it visually appeared from the sky the perfect testing ground where measuring the level of destruction of a strike, for the same visibility its tragic story came out on the pages of the magazine. While the readers watch the scene from the elevated vantage point of the offenders, the victims experience is not represented. Since most of the inhabitants of Frampol perished in the Holocaust, only proposing Singer's reconstruction in the short story *The Little Shoemakers* can give voice to the people who from below could only look up to the sky.

4.2 Philosophies of Aerial Photography

"Everything is equal in front of the lens" came to be a recurring phrase at the beginning of the twentieth century, and the cruel context of the technological battlefields required the rationality and functionality of lenses able to capture everything without discrimination. In military reconnaissance, the camera was introduced to compensate human visual imperfection, or, to use Gombrich's theory, this device was developed to counterbalance the human predisposition to be attracted only by certain visual features. Unlike the observer, the camera was able to penetrate spaces previously inaccessible to human perception, as well as having the power to make eternal a fragment of time. This section of time and space could then be enlarged offering unexpected details that the human eye had not previously noticed. In this context, photography started to be an analytical tool, able to provide scientific objectivity and, as shown in the previous sections, it became the primary support for military raids.

The identification of camera and gun has been widely described by intellectuals: Susan Sontag used the expression "War-making and picture-taking are congruent activities" (Sontag 2003: 53), Paul Virilio with the famous term "watching machine" associated "the eye's function being the function of a weapon" (Virilio 1989: 19). However, it was the controversial German author Ernst Jünger who pioneered this way of thinking when in 1934 wrote:

The photograph stands outside the zone of sensitivity. It has a telescopic quality; one can tell that the event photographed is seen by an insensitive and invulnerable eye. It records the bullet in mid-flight just as easily

as it captures a man at the moment an explosion tears him apart. This is our peculiar way of seeing, and photography is nothing other than an instrument of our own peculiar nature. (Jünger 2008: 39)

As claimed by Jünger, photography expresses detachment and cruelty, qualities of the vision that emerged during WWI and that, to a certain extent, continue nowadays. At present, remote controlled aircrafts occupy an ever-growing space in commercial and recreational fields of Western societies, and the expression *drone* is widely associated with suggestive panoramic photos, which increasingly circulate in the news, on YouTube, in documentaries and movies (Zimmer 2013). In many parts of the world, people access spectacular vistas of remote wild lands through high-resolution displays on mobile phones, TVs, and computers that offer sharp pictures with unprecedented degree of details. In order to produce such images, digital cameras are mounted to UAVs piloted remotely and sold as hobby gadgets for relatively accessible prices.

By contrast, in specific countries, like Syria, Pakistan, Yemen, and Afghanistan, the term *drone* assumes a radically different connotation. After 9/11, the use of UAVs for surveillance and targeted killing dramatically escalated as a consequence of the global war on terror. When a mission is too "dull, dirty and dangerous" for humans (Tice 1991: 53), digital camera's sensor replaces the eye of the pilot by recording inaccessible areas from above. While surveilling at video screens from a control station, the operator can drop missiles able to incinerate bodies outright. The investigative journalist David Rohde, kidnapped by members of the Taliban in November 2008, describes the experience of being threatened by American drone strikes during his captivity: "The drones were terrifying. From the ground, it is impossible to determine who or what they are tracking as they circle overhead. The buzz of a distant propeller is a constant reminder of imminent death. Drones fire missiles that travel faster than the speed of sound. A drone's victim never hears the missile that kills him" (Rohde 2012). While the victim does not realize he/she is being targeted, the sensor operator is aiming the laser marker of a missile, which can only be spotted by specific troops' vision goggles. This beam, which Marines call the "Light of God," announces that whoever or whatever it is focused on is about to be destroyed (Fast 2011).

The constant mediation of the camera, whose lens functioned as a shield between the observer and his/her surroundings, generated a cold gaze that changed the ability to experience pain. Because of the entanglement between photography and military applications, modern perception itself has been assimilated in the form of warfare observation. This kind of detachment not only can be perfectly applied to the war at distance, such as combatted by drones, but it has become the general way in which reality is perceived.

Today, important events are engulfed by photographic lenses and microphones and lit up by bursts of flashing cameras. Often the event itself is completely subordinate to its “broadcast”; it thereby turns to a great degree into an object. We have grown accustomed to political trials, parliamentary meetings, and contests whose real purpose is to be the object of international broadcast. The event is bound neither to a particular space nor to a particular time, because it can be shown anywhere and as often as one likes. These are the signs of an immense detachment [...]. (Jünger 2008: 40)

Photography’s status as a mass medium of visual communication from the beginning of the twentieth century has turned into a real ubiquity of photography with the introduction of digital technology. The democratic nature of photography and its popularity as a medium – attributable to versatility, automatism, and realism – originated anxieties about the rampant photo-inflation. If the photographic impact undeniably enhanced the field of human vision, changing perspective on space and time – through high level of magnification, wide angle, bird’s-eye view, fish-eye sight, cosmic vista – the overwhelming production of pictures also created anaesthetization instead of emphatic proximity.

Nowadays, the revaluation of photography as essential tool in the contemporary discourse surrounding the climate change (Zylinska 2017) has posed the question: does photography represent a form of control, mechanization, and standardization of vision or it could generate a more inclusive and less anthropocentric view on the world? In other words, could photography lead to forms of attachment to, instead of detachment from reality?

Vertical aerial photographs capture the abstract flat land without borders revealing vivid images composed by patterns, which resemble the geometric and natural motives utilized by the so-called applied arts. Pilots have often described the Earth’s surface seen from above as a “flat carpet” and the British archaeologist O. G. S. Crawford, involved in aerial reconnaissance along the Western front in WWI, wrote that “the distant view is necessary to convert chaos into order” (1928). Crawford used also the metaphor of the cat’s vision on a Persian rug, whose motif is blurred by the proximity of the animal, compared to the “aerial view” of a human being able to recognize in those indiscernible colors the overall shape of an ornamental design. In some disciplines, such as archeology, the distance of aerial photographs supports the ability to “see all” at a glance giving a powerful spatiality that reveals unexpected traces on the land.

Aerial survey has also been considered the most suitable mean to capture large-scale geographical events, offering a holistic approach to landscape interpretation. In the 1930s, for instance, the environmental disaster of the Dust Bowl has been amply photographed from the air both by the Fairchild

Aerial Surveys Corporation and by Margaret Bourke-White, who took iconic oblique aerial photos of the Great Plain. In the 1950s, the aerial photographer William Garnett documented the emerging suburb of Lakewood in Los Angeles, the so called “instant city” in which 17,500 homes were erected within three years. Later, Garnett’s pictures were adopted by the American environmental movement to criticize a sterile type of urbanization that destroyed nature. Therefore, bird’s-eye views were employed to document unexpected morphologic transformations of the landscape caused by the increasing number and scale of human interventions, such as exploitation of natural resources, urban planning, industrial development, and use of biological and nuclear weapons. The optical and mechanical precision of new cameras portrayed the topography of landscapes dominated by rigid and artificial geometries that have replaced the wilderness areas. Today, aerial photography is regularly used as a scientific tool, for example to measure the decreasing size of glaciers (Doyle 2009). Photographs from drones are often intended to raise public awareness on the impact of human intervention on the Earth (e.g. Tom Hegen’s photos in the 2018 book *Habitat*).

The dominant character of current scholarship aims at driving the cold, hunting, distanced and penetrating gaze to an ecological eye (Patrizio 2019).

The historical moment that has matured a new and revolutionary point of view towards the environment (i.e. this ecological eye) is represented by the famous photo known as *Earthrise* (1968). It was the first time that human beings admired an external perspective of their birthplace; until mid-1960s nobody knew what color the planet was. Later on, the Earth colors became even more worldwide celebrated through the snapshot *The Blue Marble* (1972). In the context of the Cold War, when superpowers started the space race, the American space mission Apollo 8 (1968) aimed to identify lunar landing sites by means of high-resolution photography. Among other tasks, the astronauts could use both handheld cameras and automatic devices to analyze the lunar surface. In a primarily scientific and technical space program the type of pictures such as the *Earthrise* were categorized as “low-priority target of opportunity” (Cosgrove 1994: 274). However, the registration of the dialog between the astronauts (William Anders, Frank Borman, and Jim Lovell) while taking the snapshot demonstrate the astonishment for the scene appearing in front of them (NASA 2013):

Anders: Oh my God! Look at that picture over there!

There’s the Earth coming up. Wow, is that pretty!

Borman: Hey, don’t take that, it’s not scheduled. (joking)

Anders: (laughs) You got a color film, Jim?

Hand me a roll of color, quick [...]

Lovell: Oh man, that’s great!

The *Earthrise* did not function as a “work photography”, to use the expression Colonel Stanley applied to imaging in the military context, especially because it did not have any particular practical value for the mission. Nevertheless, it contributed to re-imagine the position of humankind in the world. From the most remote place human capacity could reach (in a disciplined and regulated environment not so different from a military one), the emotional state astronauts experienced was not of a mastering God’s eye view; it seemed to be instead the excitement of the dream coming true: a bird’s-eye view become cosmic. It was an emotive feeling in front of a sublime tiny blue dot placed in the depths of the infinite darkness.

5. Conclusion

The entanglement of aerial photography and warfare, entrenched during the World Wars, has widely influenced people’s ways to perceive the landscape. From a technological point of view, the need of photoreconnaissance for intelligence and mapping boosted the combination of photography and flight, enhancing the production of light devices, specific optics, and photogrammetric analysis. The concept of visibility-invisibility became fundamental in WWII, and new camouflage techniques were developed in order to avoid interception by the powerful eye of the camera.

In societies, like Germany and the U.S., where visual communication already played a significant role, the commercial press employed a high amount of spectacular aerial photographs, showing military technological innovations that symbolized national superiority. The aestheticization offered by the distant view simultaneously allowed the anesthetization of violence. Aerial photography was recognized as an efficient tool to propagandize the conflict because it embodied these two properties.

Moreover, the German magazine *BIZ* and the American *Life* – two famous illustrated periodicals that shared the idea of “seeing life in pictures” publishing mainly lifestyle news – started to adopt new military visual techniques (e.g. aerial maps, visual surveys, and photo interpretations) as persistent communication strategy to illustrate the most diverse topics during and after the war.

Thus, aerial militarized visualities influenced every layer of the society, transforming people’s way of observing and interpreting territories, meanwhile creating new aesthetic canons in representing the landscape. The population underwent *a training of the eye*, which was intended to define an ambiguous, enhanced, and multifaced idea of landscape. By the end of WWII, the category of landscape included (1) scenarios as sources of national identity, (2) remote and exotic landscapes photographically distributed for the first time (3) sectioned lands or

portions of seas available to be interpreted and analyzed, and (4) cityscapes that lay in ruins.

Evolving in the military context, the peculiarity of aerial photography is necessarily embroiled with the idea of cold, hunting, distanced and simultaneously penetrating gaze; a mastering God’s-eye view, which implies a way of controlling and dominating space, that geographers, cultural theorists, and art historians have amply described (Adey 2013; Bryson 1983; Cosgrove 1994; Della Dora 2013; Jay 1993). This connotation cannot be overlooked in a reflection on the essence of aerial photography, even when, in the contemporary discourse surrounding the climate change, automatized sophisticated technologies give the impression society has entered an era of “nonhuman vision” that is able to go beyond the detachment of human kind from its habitat.

However, as a technology developed to potentiate the field of vision, and to make visible the invisible, aerial photography generates a strong feeling of wonder: an extreme surprise that does not necessarily implicate superiority (God’s-eye view), but simply provokes an unexpected emotion in front of an unforeseen scene (bird’s-eye view).

This ambivalence, which constitutes the photographic act, metaphorically represents the condition of the humankind: hanging in the balance between seeing as a synonym for knowledge-power and feeling as a metaphor for knowledge-closeness.

Acknowledgements

The author wishes to thank Dr. Dorot Skakuj and Tomasz Brytan (Biłgoraj Regional Museum), Dr. Simone Simpson and Maciej Kordelasinski (Deutsches Historisches Institut Warschau), and Marta Niepytalska (Rachel Carson Center) for the valuable information provided regarding the bombing of Frampol and the history of the city. She is also grateful to Paolo Carniti, Rory Hill, Christina Littlejohn, Sarah Elizabeth Yoho, and the anonymous referees for their useful bibliographical suggestions and comments.

References

- Amad, P. (2012): From God’s-eye to Camera-eye: Aerial Photography’s Post-humanist and Neohumanist Visions of the World. *History of Photography* 36(1), 66–86, <http://dx.doi.org/10.1080/03087298.2012.632567>.
- Babington Smith, C. (2004): *Evidence in Camera: The Story of Photographic Intelligence in the Second World War*. Stroud, Sutton Publishing.
- Beckmann, A. (1992): Abstraktion von oben. Die Geometrisierung der Landschaft im Luftbild, *Fotogeschichte* 45/46, 105–116.
- Berliner Illustrierte Zeitung (March 11, 1917): Was der Flieger sieht. Berlin, Ullstein, No. 10, 130–131.

- Berliner Illustrierte Zeitung (December 28, 1919): Die Welt von oben gesehen. Was stellen diese 6 Bilder dar? Berlin, Ullstein, No. 52, 544.
- Berliner Illustrierte Zeitung (January 11, 1925): Das Riesenspielzeug. Die Welt von oben: Fahrten mit dem Freiballon. Berlin, Ullstein, No. 2, 36–37.
- Berliner Illustrierte Zeitung (May 24, 1931): Ich fotografiere mich beim Absturz mit dem Fallschirm. Berlin, Ullstein, No. 21, 843–845.
- Bryson, N. (1983): *Vision and Painting: The logic of gaze*. Yale University Press.
- Campbell, J. B. (2008): Origins of Aerial Photographic Interpretation, U.S. Army, 1916 to 1918. *Photogrammetric Engineering and Remote Sensing* 74(1), January 2008, 77–93, <https://doi.org/10.14358/PERS.74.1.77>.
- Cosgrove, D. (1985): Prospect, Perspective and the Evolution of the Landscape Idea. *Transactions of the Institute of British Geographers* 10(1), 45–62, <https://doi.org/10.2307/622249>.
- Cosgrove, D. (1994): Contested Global Visions: One-World, Whole-Earth, and the Apollo Space Photographs. *Annals of the Association of American Geographers* 84(2), 270–294, <https://doi.org/10.1111/j.1467-8306.1994.tb01738.x>.
- Cosgrove, D., Fox, W. L. (2010): *Photography and Flight*. London, Reaktion Books.
- Crawford, O. G. S., Keiller, A. (1928): *Wessex from the Air*. Oxford, Claderon Press.
- Davies, N., (2006): *Europe at War 1939–1945: No Simple Victory*. London, Macmillan.
- della Dora, V. (2013): Topia: landscape before linear perspective. *Annals of the Association of American Geographers* 103(3), 688–709, <https://doi.org/10.1080/00045608.2011.652882>.
- Dewsbury, J. D., Harrison, P., Rose, M., Wylie, J. (2002): Enacting geographies. *Geoforum* 33, 437–440, [https://doi.org/10.1016/S0016-7185\(02\)00029-5](https://doi.org/10.1016/S0016-7185(02)00029-5).
- Doyle, J. (2009): *Seeing the Climate? The Problematic Status of Visual Evidence in Climate Change Campaigning*. Ecosee: Image, rhetoric, and nature, New York: State University of New York Press, 279–298.
- Douhet, G. (1998): *The Command of the Air (Il dominio dell'aria, 1921)*. Washington, D.C., Air Force History and Museums Program.
- Dyce, M. (2013): Canada between the photograph and the map: Aerial photography, geographical vision and the state. *Journal of Historical Geography* 39, January 2013, 69–84, <https://doi.org/10.1016/j.jhg.2012.07.002>.
- Fast, O. (dir.) (2011): *5,000 Feet is the Best*. Denmark, Commonwealth Projects, 30 min.
- Foucault, M. (1977): *Discipline and punish: the birth of the prison*. New York, Pantheon Books.
- Freie Welt (August 3, 1965): *Frampol: Verurteilte Dorf*. Berlin, Berliner Verlag, 34, 8–15.
- Gombrich, E. (1979): *The Sense of Order: A Study in the Psychology of Decorative Art*. Oxford, Phaidon.
- Handwerk, B. (December 2, 2013): *5 Surprising Drone Uses (Besides Amazon Delivery)*. National Geographic (online).
- Hegen, T., Gerster, G., Leinfelder, R. (2018): *Habitat – human-altered landscapes*. Bielefeld, Berlin, Kerber Verlag.
- Heiferman, M. (ed.) (2012): *Photography changes everything*. New York, Aperture.
- Jay, M. (1993): *Scopic regimes of modernity*. in *Force Fields: Between Intellectual History and Cultural Critique*, New York: Routledge.
- Jäger, H. (2007): *Erkundung mit der Kamera*. München, VKA, Verl.
- Jiyoon, L. (2011): *A Veiled Truth: The U.S. Censorship of the Atomic Bomb*, Duke East Asia Nexus 3:1. Available at www.dukenex.us.
- Jünger, E. (2008): *On Pain (Über den Schmerz, 1934)*. New York, Telos.
- Kaplan, C. (2018): *Aerial Aftermaths: Wartime from Above*. Durham, Duke University Press.
- Kemp, C. (2014): “Heute gehört mehr denn je die Zeit dem Bilde.”: *Fotografie im Ersten Weltkrieg*. *Kultur und Technik* 38(2), 42–47.
- Kleinberg-Levin, D. M. (ed.) (1997): *Sites of Vision. The Discursive Construction of Sight in the History of Philosophy*. Cambridge, MA, The MIT Press.
- Konecny, G. (2012): *Geoinformation – Remote Sensing, Photogrammetry and Geographic Information Systems*. London, Taylor and Francis.
- Korff, K. (1927): *Die Illustrierte Zeitschrift. Fünfzig Jahre Ullstein (1877–1927)*, Berlin, Ullstein, 279–303.
- McCormack, D. P. (2010): *Remotely sensing affective afterlives: the spectral geographies of material remains*. *Annals of the Association of American Geographers* 100(3), 640–654, <https://doi.org/10.1080/00045601003795004>.
- NASA, Scientific Visualization Studio, (2013): *Earthrise: The 45th Anniversary*, <https://svs.gsfc.nasa.gov/vis/a000000/a004100/a004129/>.
- Life (December 22, 1941): *Pacific Battlefield*, *Pacific Ocean*, 11(25), 58–73.
- Life (February 22, 1943): *Photo Reconnaissance* 14(8), 59–65.
- Life (March 5, 1945): *Movie of the Week: Fighting Lady*, 18(10), 76–78.
- Life (June 4, 1945): *The Battered Face of Germany*, 18(23), 21–27.
- Life (August 20, 1945): *Atomic bombs, World War, 1939–1945 (Japan), Hiroshima (Japan), Nagasaki (Japan)*, 19(8), 25–31.
- Parks, L., Kaplan, C. (eds.) (2017): *Life in the Age of Drone Warfare*. Durham, Duke University Press.
- Patrizio, A. (2019): *The ecological eye. Assembling an ecocritical art history*. Manchester, Manchester University Press.
- Paul, G. (2004): *Bilder des Krieges – Krieg der Bilder. Die Visualisierung des modernen Krieges*. Paderborn, Schöningh.
- Puzio, P. (September 5, 2009): *Żywy poligon Luftwaffe (The Living Training Ground of the Luftwaffe)*, *Dziennik Wschodni*, 5 września 2009.
- Rohde, D. (2012): *The Drone Wars*. Reuters, January 26, <https://www.reuters.com/article/us-david-rohde-drone-wars-idUSTRE80P11I20120126>.
- Ross, C. (2010): *Media and the Making of Modern Germany: Mass Communications, Society, and Politics from the Empire to the Third Reich*. OUP Oxford.
- Ryan, J. R. (2013): *Photography and Exploration*. London, Reaktion Books.
- Schreyer, W. (1968): *Augen am Himmel: Eine Piratenchronik*. (E-book), Edition digital 2012, 94–97.

- Singer, I. B. (1982): *The Little Shoemakers*, in *The Collected Stories of Isaac Bashevis Singer*. New York, Farrar, Straus, Giroux, 3–56.
- Smith, C. (July 6, 2017): *The Best Drone Photos of the Year*. National Geographic (online).
- Sontag, S. (2003): *Regarding the Pain of Others*. New York, Farrar, Straus and Giroux.
- Stanley II, R. M. (1981): *World War II Photo Intelligence*. New York, Charles Scribners' Sons.
- Steichen, E. (dir.) (1944): *The Fighting Lady*. United States, 20th Century Fox, 61 min.
- Thrift, N. (1996): *Spatial Formations*. London, Sage.
- Tice, B. P. (1991): *UAVs, Force Multiplier of the 1990s*. *Airpower Journal*, (Spring).
- Virilio, P. (1989): *War and Cinema: The Logistics of Perception*. London, Verso.
- Weise, B. (1991): *Fotografie in deutschen Zeitschriften 1883–1923*. Stuttgart, Inst. für Auslandsbeziehungen.
- Wohl, R. (1994): *A Passion for Wings: Aviation and the Western Imagination, 1908–1918*. New Haven, Yale University Press.
- Zimmer B. (July 26, 2013): *The Flight of 'Drone' From Bees to Plane*. *The Wall Street Journal* (online).
- Zylinska, J. (2017): *Nonhuman Photography*. Cambridge, MA, The MIT Press

Introducing historical landscape in the cultural heritage conservation through the example of the Tokaj wine region in Hungary

Krisztina Albert^{1,2,*}

¹ University of Paris 8, Doctoral School of Social Sciences, Laboratory of social dynamics and spatial reconstruction, France

² Eötvös Loránd University – Atelier, Doctoral School of History, Department of european social science and historiography, Hungary

* Corresponding author: krisztina.albert12@gmail.com

ABSTRACT

The Tokaj wine region has been declared as a historical landscape by the decree of the National Ministry of Human Capacities in 2012. The historical landscape is defined in the Act LXIV of 2001 on the Protection of Cultural Heritage as an area under the preservation of Historical Monuments. The Tokaj Wine Region is the only legally recognized historical landscape in Hungary. This protection aims to preserve the historical built and natural environment as well as the traditional land use methods. The historical landscape, in the case of Tokaj, is a legal tool to increase the heritage protection level of the wine region. Nevertheless, no further details have yet been communicated on the preservation method. In this matter, protection remains on the level of discourse which puts emphasis on the expected perspectives in territorial planning and development. It may create a narrative that might potentially transform the territory. The region of our case study has been inscribed as a cultural landscape on the UNESCO World Heritage List and was added to the World Heritage List in 2002. Besides, the national government recognized the region as a territory of priority development in 2014 and a territory of priority touristic development in 2017. The area in question is marked by the stark contrast between social inequality and the image of the prestigious wine sector. In this paper, after providing a discussion of the institutional background of the adoption of the historical landscape in Hungary, I describe the different protection tools from the perspective of heritage conservation in order to reflect on the conception of the historical landscape: how was the region recognized as a historical landscape, and what was the purpose of this recognition? The main aim of the paper is to analyse the institutional process that led to the integration of a new object of protection in Hungary, called historical landscape.

KEYWORDS

historical landscape; cultural heritage; wine region; world heritage; territorial planning

Reviewed: 1 April 2019

Accepted: 8 April 2020

Published online: 20 May 2020

Albert, K. (2020): Introducing historical landscape in the cultural heritage conservation through the example of the Tokaj wine region in Hungary. *AUC Geographica* 55(1), 112–122
<https://doi.org/10.14712/23361980.2020.8>

© 2020 The Author. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

This paper has a double objective. First, it defines the challenges of the preservation of a spatial area from the perspective of heritage conservation through the notion of the historical landscape. Second, it analyses how legal tools (decree, law, regulation, etc.) on a national level, in this case Hungarian ones, relate to international conventions (Convention for the Protection of the Architectural Heritage of Europe, European Landscape Convention, Convention Concerning the Protection of the World Cultural and Natural Heritage). Instead of comparing the conceptions of heritage and landscape according to the Conventions, in particular the European Landscape Convention and the World Heritage Convention, we will study how both Conventions, notably the European one, influenced, the national institution to adapt the notion of the landscape in territorial planning and heritage conservation in the case of Tokaj wine region, recognized as a World Heritage site on the 26th session of the World Heritage Committee of UNESCO in Budapest in 2002. It should be noted that the landscape is not only conceived as a heritage in the World Heritage Convention, but also recognized as an element of the European heritage in the European Landscape Convention (Margarito 2019). That being said, neither of these Conventions mention the notion of historical landscape, whereas the National Office of Cultural Heritage in Hungary adopted in 2005 the notion to manage challenges of the preservation of a spatial area.

The Tokaj wine region provides an excellent case study to demonstrate the complexity of protecting a large area by illustrating interactions between actors on the national, international and local levels with diverse objectives: create a legal framework for the Hungarian World Heritage properties, introduce landscape in the heritage conservation, integrate the prescriptions of international conventions in a national legal framework, respond to the local demand on heritage protection. The events in 2008 around a project to construct a straw burning power plant in Tokaj wine region led the local civil society (winemakers, mayors, administrators ...) to protest against the project and to claim for a national legal framework for the World Heritage site. The events accelerated the decision-making process on a national level leading to the introduction of the Act on World Heritage in 2011 and the decree designating the Tokaj wine region as a historical landscape in 2012. The unfolding of the events brings us to the question of the role of heritage conservation in relation to the World Heritage site of Tokaj. Thus, the study incorporates the follow-up on the interviews with the decision makers about the protection of the World Heritage site.

Tokaj wine region is the only legally recognized historical landscape in Hungary. This is the first time that a large area (88,134 ha) is recognized by the legislation for not only its natural significance but also

cultural value. Nevertheless, no decree as to the implementation of the requirements of such legislation has yet been adopted. In consequence, no regulations or principles related to precise the modalities of the protection yet exist. For that matter, it would be a significant contribution to specify what an adequate protection framework might be. Following the description of the analytical framework of this study, I provide an account of the institutional processes of the introduction of the decree on the historical landscape by mentioning the reasons for the adoption of this new object of protection, and I contextualize the Tokaj wine region by describing the existing legislative protection tools. Finally, I conclude by studying the response and interpretation of local territorial planning actors in the wine region of the historical landscape.

2. Material and methods

This study is an attempt – within the boundaries of cultural heritage studies – to survey the institutional process of the introduction and adoption of the historical landscape in Hungary through the example of the Tokaj wine region, UNESCO World Heritage site. The idea of historical landscape determines the theoretical framework of the article. I use the notion of the historical landscape to understand the discourse of local actors in relation to the protection of the World Heritage site and discuss the local conception linked to it. Firstly, I concentrate on the analytical framework characterized by many extra European conceptions where the notion of the historical landscape is identified as a legislative conservation tool in heritage management. Secondly, the article also discusses how the ratification of the European Landscape Convention of Hungary influenced the cultural heritage policy on a national level by introducing the idea of sustainability in heritage conservation and by expanding the protected object to a large area defined as landscape.

To do so, first, I analyse the legislative framework of the cultural heritage protection on a national level: the Act on the protection of cultural heritage, the Act on World Heritage, the decree on the historical landscape and meeting reports on the elaboration of the decree. Second, we will analyze the configuration of the actors participating in the elaboration of the decree on historical landscape by studying which institution initiated the decree and who carried out the process. In this phase of the research, I conducted 4 semi-structured interviews (two actors from the national level and two actors from the Tokaj wine region) to specify the initial conception and motivations for the adoption of the decree. My experience as a site manager of the World Heritage site of the Tokaj Wine Region Historic Cultural Landscape for eighteen months from March 2016 allowed me to participate in several assemblies charged with the protection of the World Heritage site. Curiously few of them

approached the question of the regulations on the historical landscape. Concerning the World Heritage site, I study the Management Plan elaborated in 2016 to understand how the Plan apprehends the historical landscape. Other sources of this paper include the national and local media publications in line with the decree of the historical landscape to become analyse the narrative constructed on a national and local level by decision makers and experts on cultural heritage as to the decree.

3. Theoretical background

The reconstruction of the historical landscape became the main subject of the historical geography since 1890 (Timar 2006). The major theoretical approaches were proposed by such German geographers as Alfred Hettner, J. F. Unsteadis, Konrad Kretschmer, Shaffer, and Ruppert. Their studies were based on the analyses of different horizontal stratifications of landscape in different epochs. In addition to the historical reconstruction of the natural landscape, the spatial dimensions of the built environment (urban landscape) and society were also examined (Timar 2006). French geographers, for their part, played an important role in the institutionalization of historical geography in 1930, notably, the founders of the Annales school: Lucien Febvre and Marc Bloch. They emphasized the link between history and geography. The influence of French historical geography, after World War II, despite its former European leadership, gradually decreased. French academic researchers began to turn to economic geography, human geography or regional geography. However, it would be hard to overlook Roger Dion's lecture in 1948 at *Collège de France* who became a historical geography professor in the *Collège*. Dion highlights the role of archeology in historical geography. He specifies that historical geography of France should be, along with archeology in the most general sense of the word, a research for reasons that determined the formation of human settlements (Dion 1990: 29). In 1988, Xavier de Planhol and Paul Claval published the work titled *Géographie historique de la France*. The two authors maintained the closest connections with the Cambridge School of Historical Geography (Timar 2006). The aim of the work is to specify the establishment of the settlements on the French territory and to recall how it was successively divided and articulated through time (Claval 1992). Indeed, the ideas propounded by the Cambridge School of Historical Geography was represented in almost every major university by the 1970s (Timar 2006). In Great Britain, historical geography represented a discipline all apart. Moreover, other disciplines such as archeology, sociology, migration studies completed the conception of historical geography by authors such as Pooley, Meinig, Lawton etc. (Timar 2006).

In the case of Hungary, researches in historical geography were influenced by English and German works since the 1980s (Timar 2006). The Department of Nyírség under the supervision of the Hungarian Society of Geography founded in 1975 by Sandor Frisnyak, one of the pioneers of historical geography who also studied the Tokaj wine region. Considerable research had been carried out on the region about the history of settlements, land use, viticulture etc. In other words, it can be noted that Tokaj wine region, our case study, is not only relevant in the case of heritage conservation and territorial planning, but has already been the subject of several studies in the discipline of historical geography.

The historical landscape classification was adopted in the heritage management and in territorial (and urban) planning. The notion entered the vocabulary of the conservation managers in the cultural heritage and territorial planning field in 1970s. The first symposium entitled International Symposium on the Conservation and Restoration of Gardens of Historical Interest tackled the question of the landscape in a historical perspective, but beyond the conservation of monuments, it also took consideration the sites, gardens districts, parks, and rural landscapes into account. The symposium was organised by the International Council on Monuments and Sites (ICOMOS) and the International Federation of Landscape Architects (IFLA), and took place in Fontainebleau. The landscape became a new object of conservation as part of the heritage on an international level. That is to say, although it was not until recently that the notion of cultural and historical landscape as a record of the past of the society has caught on among landscape architects, territorial planners and conservation managers (Buggey 1992; Birnbaum 1995), it has already been a subject and object of research in human geography (Sauer 1925; Claval 1974). From 1920, initiatives emerged to define the origin, evolution, and the physical characteristics of cultural and historical landscape, principally in the United States and in the United Kingdom. The increasing number of preservation perspectives of historical landscape in the United States and in Great Britain between 1920 and 1990 is well described in William H. Tishler's article. The author has strived to emphasize how the national management tools integrated the international framework by giving a supranational character to the historical landscape. Two opposing dynamics can be identified in the article. One that emerged in the United Kingdom proposing a theory that landscape changes over time (Darby 1973), and the other coming from the United States, in particular from the Berkeley University, representing the approach where a special emphasis is given to cultural features rather than to change (Sauer 1925).

In 1999, Operational Guidelines have been elaborated by the Alliance for Historic Landscape Preservation, and the California Department of Transportation

based in a document prepared by the National Park Service in the USA. The Alliance was founded in 1978 and it assembled researchers and managers in North America in order to exchange ideas about the methods to analyze the landscape. The aim of the Operational Guidelines is to encourage managers to implement the requirements in Section 106 of the National Historic Preservation Act 1966 to inscribe national heritage in the National Register of Historical Places. The conception of the historical landscape introduced in the Guidelines presented methodology to organize data by highlighting the continuity of the history of landscapes transformed by human activity. According to the Guidelines, the notion of the historical landscape is defined as “a geographical area which has undergone past modification by human design or use in an identifiable pattern, or is the relatively unaltered site of a significant event, or is a natural landscape with important traditional cultural values” (General Guidelines For Identifying And Evaluating Historical Landscapes, California Department of transportation 1999: 5). According to the definition of Charles A. Birnbaum the “historical landscapes include residential gardens, community parks, highways, rural communities, cemeteries, battlefields and zoological gardens and institutional grounds. They are composed of a number of characters defining features which individually or collectively contribute to the landscape’s physical appearance as they have evolved over time” (Birnbaum 1995: 1). However, the term of historical landscape is not reduced to the definition strictly used in the National Register. It designates all the cultural landscapes likely to be present on the register. Beyond the legal and planning documents, numerous journals (e.g., *Historic Preservation*, *Landscape Architect Canada*, *Landscape Architecture*, *The Association for Preservation Technology International*) treated the notion of historical landscape.

Since the 1990s, archeology and ecology in the United Kingdom began to develop methods with the intention of understanding social history from the study of landscapes. Just to mention one, The International Association for Landscape Ecology organised a conference in Stockholm in 2001. The conference tackled the notion of historical landscape from the perspective of heritage: Can historical landscapes be defined by specific criteria? Is it possible to determine a typology of historical landscapes? If so, would it be possible to use the typology across regional and national boundaries? The article published in the collection of the conference by Graham Fairclough who offers to approach the analyses of the landscape by the question of time depth. The landscape perceived as a set of changes allowing understanding of the development of society and its relation to the past. Like history, archeology has, in its turn, also taken interest in the study of the object of the landscape. It is on this logic that the National Historic Landscape Character Program (HLC), framed by English Heritage, was founded

in partnership with the local government archeology services. This program aims to understand today’s landscape by adopting an interdisciplinary approach, encompassing from human sciences to engineering (Fairclough 2008: 302). The purpose of this method is to contribute to heritage management by bringing the issue of change to the heart of the debate. This program promotes the participation of various territorial actors in the decision-making process concerning the territorial planning and the safeguarding of cultural heritage (Fairclough 2008: 303).

While the operational use of the concept of historical landscape has come from archaeologists in Great Britain and from landscape architects and geographers in the United States, the question of preservation and change remains to be debated on both sides. The use of the historical landscape in the field of cultural heritage preservation and spatial planning seems to be a technical, legal and administrative tool to describe cultural, economic and social phenomena (Sonkoly 2017: 15).

I would highlight the article written by Hans Renes, a geographer at the University of Utrecht, entitled “Historic Landscapes Without History? A Reconsideration of the Concept of Traditional Landscapes”. The author studies history in landscape analysis and criticizes the common theory, that we have distinguished as dynamic landscape after 1990, but before the landscape was considered as stable. The author blames, in the first place, the approach that before the 1900s the landscape development was slow and gradual; and in the second place, that the development in marginalized areas was even more gradual. Finally, since the 19th century, the landscapes have transformed. This statement reinforces the debate between development and preservation in landscape planning rather than highlighting the management of change. According to Renes, the history of landscape demonstrates the complexity of landscapes that we must take into account in the spatial planning and management of cultural heritage by focusing on change.

4. The institutional background of the historical landscape in Hungary

It is worth considering the institutional background of heritage conservation in Hungary since 1990 when the first reflections on the notion of the historical landscape in relation to the conservation of Historical Monuments emerged. In 1992, the National Office for the Protection of Historical Monuments (*Országos Műemlékvédelmi Hivatal*) was established. The activities of the Office were defined by the decree of the minister in charge of the territorial planning and environmental protection. Historical Monument gained importance in the area of territorial planning by the publication of the Act LIV of 1997 on historical

monument protection (Fekete 2005). Although a major change came in 2001 when the Office of Cultural Heritage (*Kulturális Örökségvédelmi Hivatal*) was founded. We can note that a modification has been made in the title of the institution: monument has been replaced by the notion of cultural heritage. This modification marked a wider conception of protected elements, and in consequence, an institutional change. Thus, historical monuments became part of cultural heritage. The Office of Cultural Heritage was functioning until 2012, when the Gyula Forster National Heritage and Asset Management Centre (*Forster Gyula Nemzeti Örökségvédelmi és Vagyongazdálkodási Központ*) inherited the services of the Office. The National Center stopped its activity in 2016. The services of the National Center were inherited by three other institutions: the Prime Minister's Office, the Hungarian Academy of Arts and the Budavári Property development and Operator Ltd. Since March 2019, as the Deputy State Secretary for the protection of cultural heritage has been defunct, the service in charge of the protection of historical monuments is the Deputy State Secretary for Architecture and Public Construction (*Építészeti és Építésügyi Helyettes Államtitkárság*) within the Prime Minister's Office. The administration in charge of the protection of monuments went through several institutional and conceptual changes. The *institutionalization* of the notion of cultural heritage expanded the object of protection. The question of the protection of a spatial area became increasingly imperative. Meanwhile, on the international level, in the World Heritage inscription process, the cultural landscape category became official in 1992, and the European Landscape Convention was adopted in 2000.

The notion of the historical landscape first appeared in 2005 in the Act LXIV of 2001 on the Protection of Cultural Heritage, as a specific object of Historical Monuments. The association of these two terms (historical monument and historical landscape) has been previously discussed in Hungary in the framework of a conference entitled "Historical Landscape, Cultural Landscape and Protection of Historical Monuments" in June 1993. The conference was organised by the National Office for the Protection of Monuments and the Ministry of Environment and Territorial Development. 116 participants from 16 different countries, mainly landscape architects, ecologists and specialists on historical monuments, debated the three keywords of the conference. The cultural landscape has emerged as a new theme in the context of the protection of Historical Monuments in Hungary. Following Hungary's ratification in 1990 of the Granada Convention (1985), it was noted that no cultural landscape was included in the Hungarian Register of Historic Monuments.

In April 2005 Hungary ratified the European Landscape Convention. Followed by the ratification, the Hungarian parliament acknowledged the European Landscape Convention and published the Convention

in a national legislative framework: Act CXL of 2007 on the European Landscape Convention. The European Landscape Convention is presented in English and in Hungarian versions in the Act. Thus, a national legislative scheme had been created for the Convention. The entering into force of the Act on the 1 February 2008 accelerated the reflection on the historical landscape by the National Office of Cultural Heritage. In consequence, a priority task has emerged: to specify the definition and the implementation of the protection of the historical landscape.

The modification of the Act LXIV of 2001 on the Protection of Cultural Heritage in 2005 recalled the task to elaborate specifications and regulations concerning historical landscapes in Hungary as an area under the protection of Historical Monument. The modification of the Act, firstly, carried the concept of sustainability, beyond the concept of protection, and secondly, it introduced the notion of the landscape to the protection and management of the natural and cultural heritage. Finally, the modified Act obliged updating the regulations concerning the protection of Historical Monuments in order to adapt a sustainable vision in the protection and management of cultural heritage. The proposition for the integration of the historical landscape in the Act LXIV of 2001 on the Protection of Cultural Heritage was carried out by the National Office of Cultural Heritage. The idea came directly from an architect who was familiar with the international dynamics in the heritage conservation, having participated in several meetings on the elaboration of the European Landscape Convention as a member of International Council of Monuments and Sites in Hungary since 1983 and vice-president between 2005 and 2008.

In January 2008, an international conference on the topic of "Implementing the European Landscape Convention: implications and opportunities" was organised by the National Office of Cultural Heritage. At the conference the presentation of Graham Fairclough focused on the subject of the National Historic Landscape Character Program (HLC) named above. He underlines how archaeology adopted landscape. While the idea of the landscape defined in the European Landscape Convention put an emphasis on human perception of an area "whose character is the result of the action and interaction of natural and/or human factors" and recognized its multi-period character contrary to the conception of the archaeology on landscape where rather specific aspects (particular period or activity, settlements) are studied (Fairclough 2006). The historical landscape in the Act LXIV of 2001 on the Protection of Cultural Heritage is conceived as a well-defined topographical area, associating the notion of the historical landscape with the concept of Historical Monuments, emphasizing the historical evolution of the landscape. The historical landscape becomes a legislative tool to protect a spatial area.

While the historical landscape figured in the Act LXIV of 2001 on the Protection of Cultural Heritage since 2005, it was not applied. The intense debates concerning the World Heritage site of Tokaj wine region in 2008, particularly about the absence of the Management Plan's legal status of the World Heritage site elaborated in 2003, led the National Office of Cultural Heritage to apply the historical landscape protection on the wine region. The States Parties and the local authorities should elaborate a management plan or other documented management system to ensure that the criteria decisive for the inscription such as the definition of the Outstanding Universal Value including the conditions of integrity and/or authenticity are sustained. The management plan must describe how the Outstanding Universal Value is maintained. Indeed, in 2003 a Management Plan has been elaborated, but it had no legal status. The debates in the wine region were raised because of a project which aimed to construct a straw burning power plant in Szerencs on the buffer zone of the World Heritage site, on which I develop below. We can observe, that the notion of historical landscape as a national protection tool had been directly associated with the World Heritage site of Tokaj, recognized as a cultural landscape.

5. Tokaj wine region: the contextualization of the object of conservation

Tokaj wine region is situated in the north-eastern part of Hungary. The region covers 27 settlements including 5 towns reaching a population of approximately

75,000 inhabitants. The surface area of the region is 88,124 ha including 5,800 ha of vineyards. The vineyards are situated on the volcanic slopes of the south-eastern part of the Zemplén mountain along the rivers of Tisza and Bodrog. The topographic, environmental and climatic combination creates a favorable microclimate for the wine production. This microclimate is characterized by hot and dry summers, cold winters and autumns particularly long and hot allowing the development of the "pourriture noble" (*Botrytis cinerea*), benefits for the production of the sweet wine called *Aszú*. The *Botrytis cinerea* is a fungus which affects the wine grapes by creating two different kinds of infections on grapes. The first, grey rot, is the result of a long wet or humid conditions. The second, noble rot, is the result of drier conditions following wetter ones. It can produce, as a result sweet wines, such as the *aszú* of Tokaj. The legal delimitation of the wine region goes back to 1737 when Emperor Charles VI by a royal decree protected the wine region. The *Aszú* wine reached an international recognition in the beginning of the 16th century when the wine was consumed in the French, English and Russian royal courts. During the Soviet period farmlands were collectivized in favor of intensive agriculture. The wine became the monopole of the State. In 1990, the state firm "*Borkombinát*" was demolished and several foreign investments (to mention some of them: Axa Millésimes, Vega Sicilia, GAN, GMF) moved in the region. The new firms contributed on the one hand to the refurbishment of historical domains and on the other hand to the introduction of new technology.

The inscription of the Tokaj Wine Region Historic Cultural Landscape on the World Heritage List

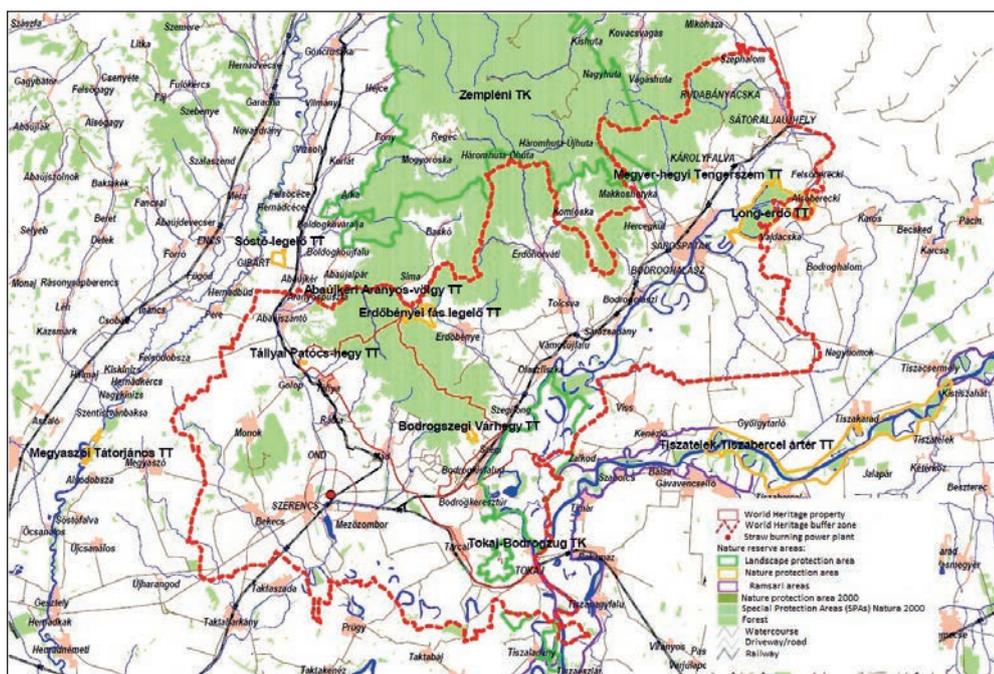


Fig. 1 Natural protected area in the Tokaj wine region.

Source: Megalapozó dokumentáció I kötet. (2014) modified by Krisztina Albert.

follows the last dynamics of the spatial reorganization since the democratic transition. The wine region was inscribed on the basis of outstanding universal value criteria (iii): the Tokaj wine region represents a distinct viticultural tradition that has existed for at least a thousand years and which has survived intact up to the present; and (v): the entire landscape of the Tokaj wine region, including both vineyards and long established settlements, vividly illustrates the specialized form of traditional land use that it represents.

It is considered to synthesize the laws impacting the landscape and heritage conservation:

- 1) Act LIII of 1996 on the protection of the environment;
- 2) Act XXI of 1996 on territorial planning and development;
- 3) Act CXXI of 1997 on the viticulture and wine commercialization;
- 4) Act XXVI of 2003 on the elaboration of a national territorial plan,

1) The law on the protection of environment precise the conditions of the management of the natural areas. 6827 ha of the region is under this protection, divided into 2 areas and 6 zones managed by the National Parc of Aggtelek. One part of the protected area belongs to the Natura 2000 network and it is part of the Ramsar Convention.

2–3) The law on the territorial planning and development specifies the organization and the regulation of the territory on the local and national level. This law orders the elaboration of a National Territorial Plan. The definition and the structure of this Plan are detailed in the Act XXVI of 2003. In addition to the Plan, the law on the territorial planning mentions the specificities of the World Heritage sites.

4) The law on the viticulture and commercialization regulates the planting, cultivation, cutting out vineyards, the production and commercialization of wine products, the system of their registration, and the administrative tasks related to viticulture and wine production.

6. The straw burning power plant at the heart of the local conflict

Alongside of the tasks since 2005 concerning the Act LXIV of 2001 on the Protection of Cultural Heritage, the following event accelerated the process of the designation of a historical landscape in Hungary. In Tokaj wine region, the heart of the conflict was indeed a project to construct a 49.9 MW straw burning power plant on the south of the World Heritage site in the buffer zone, on the outskirts of the town of Szerencs, on a 6.5 ha large area. On the 3 December 2008, 9 villages within two towns were threatened

to be excluded from the World Heritage site: Abaujszanto, Erdőhorvati, Golop, Legyesbénye, Szerencs are situated in the buffer zone and Bodrogkisfalud, Mezőzombor, Szegi and Tallya situated on the property. An authorisation has been given by the Environmental Agency of the Region of Northern Hungary to construct the power plant. The project was later cancelled, because of the legal framework of the Regional Territorial Plan. The plan forbids the construction of heavy industrial equipment on the World Heritage site (Briffaut, Brochot 2010: 156). The cancellation of this project is due to several reasons. The principal building of the proposed straw burning power plant was 34 m high which has been judged oversized. Moreover, the proposed technology was inappropriate in the given environmental context where the type of the agriculture to operate the power plant did not exist.

The investors foresee to bring the straw from the plain known as Alföld. The plain is situated around 100 km away from the Tokaj wine region. In addition to the long distance, the produced fuel would have been transported with trucks, giving rise to an increased traffic, with an additional 20 000 vehicle per year (100 trucks per working day). Several associations such as Tokaj Renaissance or Association for the World Heritage pointed out their fear concerning the production of the wine which needs a specific microclimate for the botrytisation of the grapes. Thus, the quality of the wine would deteriorate. (Briffaut, Brochot 2010: 156)

Despite the prevention of the environmental impact and the wine production, 9 settlements requested to quit the World Heritage site due to the high regulation required, the basis of their discontent. Some of the mayors placed their hopes in the construction of the straw burning power plant because of its economic potential. The industry in the region had seen a significant activity until the communist period. The mayors projected the start of the reindustrialisation process which could produce job opportunities to locals, in an area where the unemployment rate is one of the highest in Hungary (KSH 2006). After the events, the Hungarian National Commission for UNESCO reached out to the World Heritage Center. Consequently, a Complex Impact Assessment has been elaborated in December 2008 on the cultural heritage and landscape. The document was prepared by a bureau working in the environmental field. Eventually, the project was completely abandoned.

7. Towards a spatial protection of the Tokaj wine region

However, the debates are not limited to the question of the project of the straw-burning power plant, but

it stretches out other tensions already existing in the region. For example, the increase of the truck circulation from/to Romania and Bulgaria since their accession to the European Union, or a project of a central hydraulic in the valley of Aranyos, or another project of a coal-burning thermic power plant in Slovakia only 17 km away from the World Heritage site, and last but not the least, the dispute concerning the designation of the origin of Tokaj wines in Slovakia (Soós 2009). It is also worth mentioning the debates concerning the Natura 2000 zone, and the influence of mines, quarries and other mineral exploitation industries. There are 21 mines and quarries in operation in the region on the World Heritage site. Although, they

are not officially taking part within the World Heritage site, paradoxically a few of them are in the heart of the property. There are about a thousand people who are employed in the industry (Megalapozó dokumentáció Tokaj-Hegyalja Történelmi Borvidék Kultúrtáj Világörökségi helyszín 2014: 132). The mines contribute to the economy of the region, but at the same time, they have a considerable impact on the landscape. In parallel with the mines, the Natura 2000 zone is also a source of conflict between winegrowers and the National Park of Aggtelek concerning the protection of the environment and the potential winegrowing development. These areas are often considered as the best *terroir*.

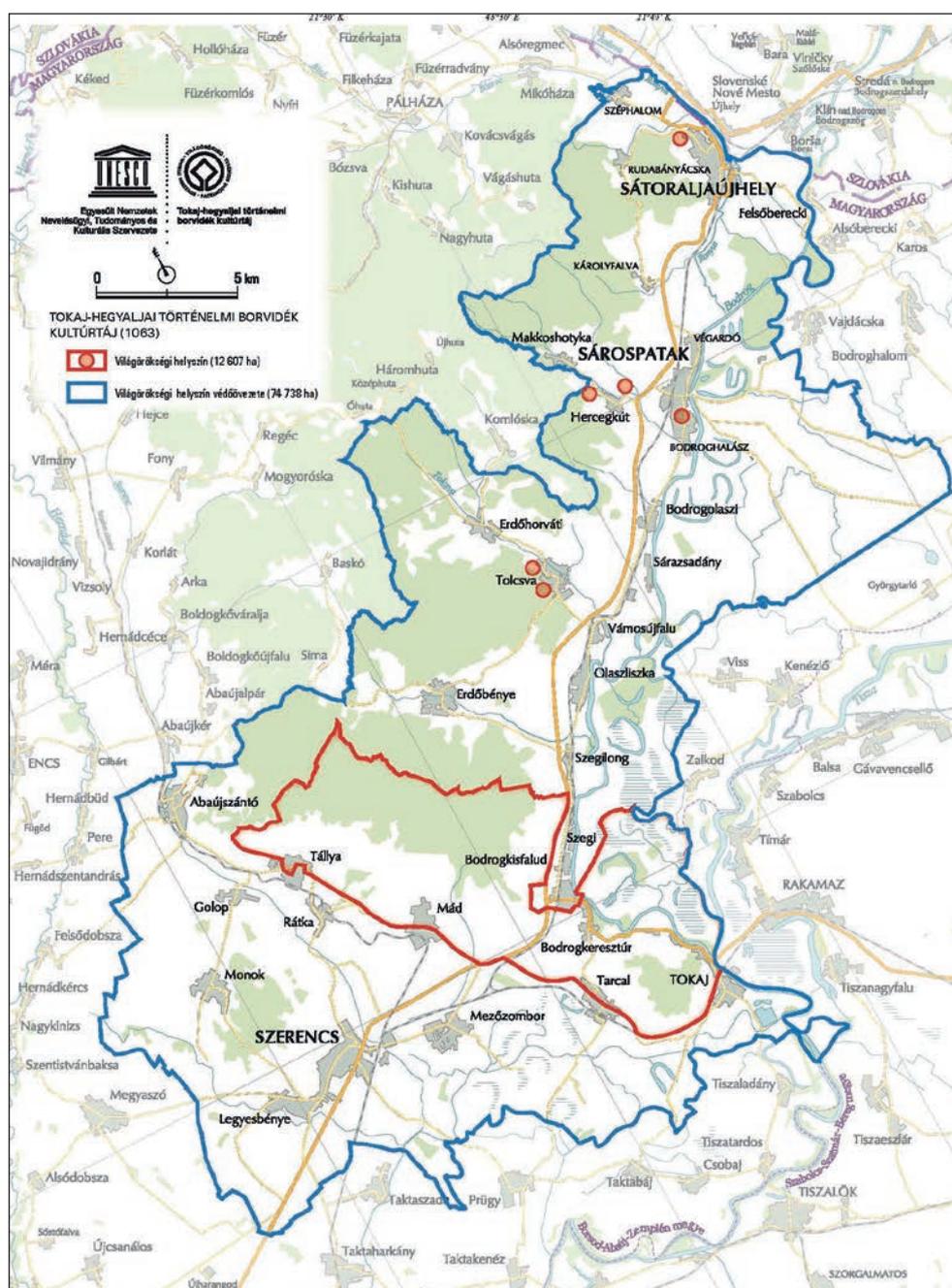


Fig. 2 The boundaries of the World Heritage site of the Tokaj Wine Region Historic Cultural Landscape.

The question of the boundaries of the World Heritage property and its buffer zone are also worth mentioning. According to the Operational Guidelines for the Implementation of the World Heritage Convention, it is necessary for the protection of the site to identify a core and buffer zone in order to safeguard the criteria decisive for the inscription such as the definition of the Outstanding Universal Value including the conditions of integrity and/or authenticity. The core zone represents the property. The buffer zone is defined as the area around the property to ensure the protection of the site. The boundaries of the site follow the official border of the Tokaj wine region as per the Act CXXI of 1997 on the viticulture and wine commercialization assigning an official and protected designation of origin label to production of Tokaj wines. Following this logic, 9 settlements (Tokaj, Tarcál, Mezőzombor, Bodrogkeresztúr, Tállya, Mad, Rátka, Szegi, Bodrogkisfalud) and 6 caves (Ungvari in Satoraljaújhely, Rakoczi in Sarospatak, Gombos-hegyi and Koporosi in Herceghut, Oremus and the ones in the Museum in Tolcsva) have been indicated as being part of the core zone. This division of the wine region into two parts set up a system of prioritisation of the region. The definition of the boundaries contributes to symbolic, administrative and financial debates between the municipalities and the central services embodied in the figure of Budapest. The division also changed the vision of the territory, especially of the mayors, by calculating and associating funds to the two different zones since the public call of subsidies such as GINOP 7.1.6.-16 Development of World Heritage sites, depends on the location in relation to the World Heritage property. In Hungary, like in many other countries, competition exists between territories in order to obtain a financial investments from national and/or European funds.

As demonstrated in the work of Briffaud and Brochot, a certain local interest emerged with regard to the heritage conservation and regulation on a larger scale. The debates formed a new category of local actors whose objective was, in particular, to defend local heritage. The different conflicts showed in the first place the weakness of the Management Plan of the World Heritage Site elaborated in 2003. The plan did not have any legal function. In the second place, the existing protection was judged by the local civil society and several municipalities as legally insufficient to cover the Tokaj wine region, otherwise a straw-burning power plant project of this size would not have been proposed. It must be noted that the inscription on the World Heritage List does not endow any legal status to the site. The authorities carried out actions on the basis of the common law. Following the dilemmas, the authorities on the national level accelerated the procedures in order to take legal measures for the protection of the World Heritage within the national legal framework. The World Heritage legal status has been questioned not only concerning the Tokaj, but

also with regard to seven other Hungarian sites (Old Village of Hollókő and its Surroundings, Budapest, including the Banks of the Danube, the Buda Castle Quarter and Andrassy avenue, Millenary Benedictine Abbey of Pannonhalma and its Natural Environment, Caves of Aggtelek Karst and Slovak Karst, Fertő/Neusiedlersee Cultural Landscape, Hortobágy National Parc, Early Christian Necropolis of Pécs). In consequence, a Law on World Heritage has been adopted in 2011 in order to translate the Management Plan as a legal tool.

The National Office of Cultural Heritage informed the 27 municipalities in the wine region in April 2008 about the start of the official process to protect the boundaries of the World Heritage site on a national level known as historical landscape. In November 2011, the proposition of the decree was in preparation and in February 2012 the National Ministry of Human Capacities declared the region as a historical landscape. If the historical landscape already figured in the Act LXIV of 2001 on Protection of Cultural Heritage, there was no site using this denomination:

A paradoxical situation presented in Hungary, we can only designate a historical landscape as a historical landscape if it is protected. Other sites are cultural landscapes even if they have the values of a historical landscape. (Telephone interview with an ex-member of the Office of Cultural Heritage, architect, a member of International Council of Monuments and Sites in Hungary since 1983 and vice-president between 2005 and 2008, on the 1 September 2018)

The decree considers 27 settlements as part as the official administrative area of the Tokaj wine region under the protection of Historical Monuments: Abaújszántó, Bekecs, Bodrogkeresztúr, Bodrogkisfalud, Bodrogolaszi, Erdőbénye, Erdőhorváti, Golop, Herceghut, Legyesbénye, Makkoshotyka, Mád, Mezőzombor, Monok, Olaszliszka, Rátka, Sározsadány, Sarospatak, Satoraljaújhely, Szegi, Szegilong, Szerencs, Tarcál, Tállya, Tokaj, Tolcsva, Vámosújfalú. There are more than 200 Historical Monuments inside 700 to 800-year-old caves in the territory. However, the decree increased the number of the Historical Monuments to 90,000. The declaration of the historical landscape on the wine region expresses the aim of the protection: “to preserve the historic built and natural environment as well as to conserve the traditional land use methods. The cultural values that the landscape may enhance should be used in a sustainable way.” The Act underlines that a partially built-up area, as a topographically demarcated unit of cultural significance (historical, architectural, artistic, scientific etc.) and as a result of the combined work of human activity and nature, gains the protection of Historical Monuments. The publication of the decree represents a sort of first step to define a regional policy according to the member of the National Assembly for Satoraljaújhely:

The historical landscape is the basis to apply the World Heritage law in January 2012 because we need to ensure the protection on a national level of every World Heritage site. This protection is the historical landscape in the case of the Tokaj region. We needed this, to define a regional development policy and to incorporate the cultural values in the economic development and employment creation. In this way we avoid regional conflicts, like the project of the straw-burning power plant. (Richard Hörcsik, deputy, Zemplén TV, 22 February 2012)

Indeed, the historical landscape recognised the World Heritage boundaries as legal ones, inscribed from this point forward in the Hungarian legislation. In this sense, the decree on historical landscape has the potential to turn the region from its territorial division between the buffer and the core zones into an integral region having equal values. Nevertheless, further modification has not been made yet concerning the regulations on the protection of Historical Monuments. We underline, the recommendations made in the World Heritage Management Plan elaborated in 2016 after the adoption of the Law on World Heritage. The Management Plan, which lays out the actions for 6 years on the World Heritage Site, recommends the creation of a precise object and regulations concerning the historical landscape. The object of the protection should be in parallel with the Outstanding Universal Values of the Tokaj wine region. We can observe at this stage of the study that the historical landscape, as a legislative tool, has been connected with the Outstanding Universal Values of the World Heritage site.

8. Conclusion

The notion of the historical landscape, used in the discipline of historical geography since the end of the 19th century, has been adopted as a legal tool to protect spatial area with a concern with heritage conservation in Hungary, as a special object of protection of Historical Monuments. Heritage preservation proved to be an important tool in a moment of high tension as it showed in the case of the project of the straw-burning power plant. The event demonstrated a rapidly emerging civil society involving local wine-makers and municipalities to safeguard cultural and natural heritage in order to claim for a national legal framework for the World Heritage site. The demonstration against the project brought on the surface a set of issues already persisting in the region. The decree on the historical landscape, keyword of our article, was a pretext to study the question of the protection on a broader area. The aim of the article was to present the institutional background of the introduction of the notion of the landscape into heritage conservation and to analyse the conceptions linked

to it in the case of Hungary, and in particular of the Tokaj wine region. Influenced by European and extra-EU approaches, the European Landscape Convention, accelerated the adoption of landscape in territorial planning and heritage conservation. Second, beyond the European conception, the values of landscape had been linked to the Outstanding Universal Values in the case of the Tokaj wine region as a World Heritage site. In consequence, the boundaries of the site got inscribed in a national legal frame. However, the intense institutional changes concerning the cultural heritage protection since 2000, probably affected the administrative process to define the object of the protection of historical landscape on a national level. Without application decree in the case of the Tokaj wine region, the term remains general.

References

- Birnbaum, C. A. (1995): Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes, *Preservation Briefs* 36, 1–20, <https://archive.org/details/protectingcult00birn>.
- Buggey, S. (1992): APT Bulletin. Special Issue: Conserving Historic Landscapes. Fredericksburg, VA: Association for Preservation Technology International 24(3–4).
- Briffaud, S., Brochot, A. (2010): Paysages d'exception, paysages au quotidien. Une analyse comparative de sites viticoles européens du Patrimoine mondial. Rapport final de recherche pour la Direction des Etudes Economiques et de l'Evaluation Environnementale Ministère de l'Ecologie, de l'Energie, du Développement durable et de la Mer Programme « Paysage et Développement durable ».
- California Department of Transportation (1999): General guidelines for identifying and evaluating historical landscapes: Environmental program. California Department of Transportation Sacramento, California.
- Claval, P. (1974): *Eléments de Géographie humaine*. Edition M.-Th. Génin, Libraires techniques, Paris.
- Claval, P. (1992): La géographie historique de la France. *Géographie et cultures* 1992(3), <http://journals.openedition.org/gc/7072>.
- Darby, H. C. (1973): *A new historical geography of England before 1600*. Cambridge University Press.
- Dion, R. (1990): *Le paysage et la vigne: Essais de géographie historique*. Editions Payot.
- Fairclough, G. J. (2006): Our place in the landscape? An archaeologist's ideology of landscape perception and management. In: Meier, T (ed.) *Landscape Ideologies*. Budapest, *Archaeolingua*, 177–197.
- Fairclough, G. J. (2008): Heritage as Landscape – Archaeology, Heritage Management and the ELC, presentation on the 22 January in 2008 on the conference intitled “Implementing the ELC: implications and opportunities”, Budapest.
- Fairclough, G. J., Rippon, S. J. (eds.) (2002): *Europe's Cultural Landscape: archaeologists and the management of change*, 25–37, EAC Occasional Paper no. 2, *Europae Archaeologiae Consilium and English Heritage*, Brussels and London.

- Fekete, I. (2005): Muemlékvédelem és örökség Magyarországon: intézménytörténet, perspektívák, vélemények. *Világosság* 2005(6), 101–116.
- Központi Statisztikai hivatal Miskolci Igazgatósága (2006): A foglalkoztatás és a munkanélküliség területi különbségei az elmúlt 55 évben, Miskolc, Eger, Salgótarján, <https://www.ksh.hu/docs/hun/xftp/idoszaki/regiok/miskolcfooglalkoztatasa.pdf>.
- Margarito, M. (2019): Landscape and Heritage in the Words of the European Landscape Convention. *Culture and Musées* 33, 157–179, <https://doi.org/10.4000/culturemusees.3210>.
- Meining, D. W. (1979): *The Interpretation of Ordinary Landscapes: Geographical Essays*. Oxford University Press.
- Renes, H. (2015): Historic Landscapes Without History? A Reconsideration of the Concept of Traditional Landscapes. *Rural Landscapes: Society, Environment, History*, 2(1), p.Art. 2, <https://doi.org/10.16993/rl.ae>.
- Sauer, C. O. (1925): *The Morphology of Landscape*. University of California Publications in Geography 2 (2), 19–53.
- Sonkoly, G. (2017): *Historical Urban Landscape*. Palgrave Macmillan.
- Soós, G. (2010): Le site de Tokaj. In.: Valeurs universelles, valeurs locales : pour qui, pour quoi un site est-il grand ?, ICOMOS.
- Timar, L. (2006): Történeti földrajz és társadalomtörténet. In: Bódy, Z., Kovács, J. (eds.): Bevezetés a társadalomtörténetbe. Osiris Kiado, https://regi.tankonyvtar.hu/hu/tartalom/tamop425/2011_0001_520_bevezetes_a_tarsadalomtortenetbe/ch04s05.html.
- Tishle, W. H. (1982): Historical landscape: as an international preservation perspective. *Landscape Planning* 9(2), 91–103, [https://doi.org/10.1016/0304-3924\(82\)90001-6](https://doi.org/10.1016/0304-3924(82)90001-6).
- Város-Teampannon (2014): *Megalapozó dokumentáció I kötet. Tokaj-Hegyalja Történelmi Borvidék Kulturtáj Világörökségi helyszín.*

Feminist approaches in the geographies of religion: experience, emotions, everydayness and embodiment in postsecular society and space

Kamila Klingorová*

Charles University, Faculty of Science, Department of Social Geography and Regional Development, Czechia

* Corresponding author: kamila.klingorova@natur.cuni.cz

ABSTRACT

Recently, geography has included in research the increasing role of religion in postmodern Western society and space. Religion is no more being understood as an objective truth, but as an individual experience of a person with a significant impact on the perception of space and place-making. This problematic undoubtedly requires a new theoretical and empirical perception in the new geographies of religion. This paper appeals for the geographical study of the relation between religion and (postsecular) space could be significantly enhanced using feminist approaches, which enable the inclusion of personal experiences and individuality in the geographies of religion. Using the feminist approaches, the changes in religious climate, ongoing currently in the West, including Czechia, could be better addressed in geography. Thus, the paper theoretically discusses the potential of feminist approaches and argues especially for the relevancy of four topics, personal experience of people, emotions, embodiment, and the everydayness, which can offer new insights into understandings of the relation between religion and space. Similarly, methodologies used by feminist scholars provide unique option for getting to know how religious people interact with sacred as well as secular space. Therefore, the paper aims to justify the contribution of feminist approaches and the empirical research considering the creation of sacred space and framing the everyday religious experience of people.

KEYWORDS

feminist approach; sacred space; religious identity; place-making; everyday experience

Received: 6 March 2019

Accepted: 15 April 2020

Published online: 7 May 2020

Klingorová, K. (2020): Feminist approaches in the geographies of religion: experience, emotions, everydayness and embodiment in postsecular society and space. *AUC Geographica* 55(1), 123–133
<https://doi.org/10.14712/23361980.2020.9>

© 2020 The Author. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>).

1. Introduction

Religion is a diverse phenomenon which could be understood in many ways: as a cultural system, an institution, a specific belief in transcendence, or an individual emotional experience. All these forms address complex experiences of person and form her/his relationship with the world itself. The cultural and institutional form of religion (e.g. churches, religious institutions or civilizations) has been the subject of social geography research for decades. However, the individual religious experience, its role in people's life, understanding and spatial patterns, started to be acknowledged in geography in the last two decades, approximately, particularly because this form of belief has been started to dominate in the current Western society, which is also the case of Czechia (Havlíček and Klingorová 2018; Nešpor 2018).

The individual religious experience is especially valuable in relation with postmodern values in society where individuality is an important variable. With the raise of postmodernity (Beckford 1992), the importance of religion and spirituality deepens, especially in relation to the social and cultural identity of people and in relation to public space (Cloke and Beaumont 2013; Beaumont and Baker 2011; Kong 2010). The reasons for the increase in the role of religion are to be found in the processes of globalization and migration, among others (Dwyer 2016; Henkel 2011; Kong 2010).

Furthermore, the form and function of religion is changing in postmodern space. These changes are described in the concept of postsecularisation (e.g. Williams 2015; Sturm 2013; Habermas 2008; Berger 1999). Religion is becoming more heterogeneous and is more often understood and lived as the individual experience of a person than as an objective truth formed by religious texts and institutions (Heelas and Woodhead 2005). Together with deinstitutionalization of religiosity, religion and spirituality moved from the 'officially sacred' space of churches and temples to the space of the ordinary everyday life of people (Klingorová and Gökarıksel 2018; Kong 2010; Gökarıksel 2009; Brace, Bailey, and Harvey 2006; Holloway 2003), which is also the case of Czechia (Havlíček and Klingorová 2018; Nešpor 2018). Generally speaking, religion and spirituality became dynamic variables which have a power to create and transform every space and cross-over every border in postsecular society (Gökarıksel 2009).

Therefore, alongside with these societal changes, religion and spirituality are increasingly discussed in social geography (Dwyer 2016; Kong 2010; Dewsbury and Cloke 2009; Holloway 2006) as one category of people's identity as well as a determinant of space. In critical and new cultural geography, religion is an important variable as well because it enriches the discussion about the formation of social identities, inequalities and values on one hand, and the formation

of space and place on the other (Dwyer 2016). The new geographies of religion (Kong 2010) are bounded with the new cultural geography in a way in which they study religion in the everyday life of ordinary people, focus on the dynamic relationships (between secularity and sacrality) in space, and use individual and qualitative approaches. Overall, the thinking of the new geographies of religion should move thematically from the 'big', traditional religions to spirituality and individual religiosity, empirically from religious authorities to women, young people and other minor groups, and from general patterns to experiences, spatially from temples and mosques to living rooms, and in scale from global differentiation of religion to human body.

Concerning the individual and emotional experience of a person with religion and/or transcendence, it is important to focus on 'how (do) different groups of men and women with different markers of social difference – race, class, age, disability, sexuality, locality – experience their religion and their use of religious space, and how do these people respond to other groups of men and women' (Hopkins 2009: 12). For such study, Hopkins (2009) pointed to the possibility of using feminist approaches in the geographies of religion.

In this paper, I would like to support this statement and argue that the studies of the relationship between person, religion and (postsecular) space could be well enhanced using feminist geographies. Even though the geographies of religion are not an increasingly developed subfield in Czechia, I believe that the feminist approaches in the studies of religion and space could significantly enrich discussion and, more importantly, empirical studies of religion and space in Czechia. I build on Kong's (2001, 2010) appeal for studying the 'poetics' of religious experience which needs to be understood at the scale of the human body. Even though in most of the geographies of religion literature, and in social science as a whole, feminist approaches have been considered mostly in relation with patriarchy and hierarchical relations, I argue that feminist approaches could be applied in a context of ordinary person, her/his emotions and body because they enable us not only to study gender and patriarchy, but also to emphasize the everyday level of experiencing religion and individual emotions relating to religion and spirituality of a person in space which is important in postmodern society. Thus, feminist approaches enable to address religious changes at the theoretical, conceptual and methodological level, change emotions and everydayness into analytical problems and, thus, include religion and spirituality as emotional and personal subjects into (empirical) spatial research. All these problems are very relevant in the context of Czech postsecular space and society.

Therefore, the main aim of this paper is to contribute to the interpretation of the relationship between

religion and space from the feminist perspective and theoretically as well as methodologically develop the argument that religion and spirituality are present in the space of ordinary, everyday life of people, public and private. Apart from the obvious theme of patriarchy and gender hierarchy, I discuss and further expand four topics of the geographies of religion for which the feminist approach is relevant: emotions, lived experiences, everydayness and embodiment, arguing that these are the problems of the interaction of religion and space in the period of postsecular society which need to be further developed. Moreover, I argue that the methodological approach used in feminist geographies provides unique option for getting to know how religious people interact with postsecular private and public space in their everyday life.

2. Postsecularism in geographical research

Changes in the opinion of people on religion and churches relate to increasing social emphasis on post-material values in the Western world (cities mostly, Inglehart and Appel 1989). People who emphasize self-expression, self-development and quality of life over material goods put more stress on the way religion can help them with their personal development instead of security and safety under the roof of a church. Therefore, the institutionalized form of practicing religion and the religion of objective truth is decreasing while, at the same time, people increasingly prioritize subjective and privatized ideas about transcendence (Heelas and Woodhead 2005; Heelas 1996). They choose those ideas which help them in their personal self-development. Individual religion is often connected with Protestant Christianity and, usually, energies, esoterism, Eastern and pre-Christian traditions, however, every person can have different and very diverse ideas about transcendence. Some of the spiritual ideas became the basis of the so called new religious movements (Vojtíšek 2007; Heelas 1996) which concentrate on personal development, quality of life and controlling negative emotions. Therefore, the religion of subjective experience and individual spirituality plays an increasing role in public space of the 'West' nowadays (Heelas and Woodhead 2005), while traditional (church) religiosity is decreasing.

The processes outlined above have been described, analyzed and theorized in social sciences for many decades (started by Luckman 1967; Berger 1999; among others). Habermas (2008) described such processes as postsecularisation. He emphasizes intermingling of diverse forms of religion and spirituality in public space together with secularity, which altogether form the postsecular society and space (see more Havlíček and Klingorová 2018). 'Key to Habermas' idea of post-secularism is the integration of religious ways of being within a public arena shared by

others who may practice different faiths, practice the same faith differently, or be non-religious in outlook' (Gökarıksel and Secor 2015: 21). Postsecularisation mostly designates the growing presence of religion in the public sphere and the growing plurality of religious communities (Williams 2015; Cloke and Beaumont 2013; Beaumont and Baker eds. 2011). Also, geographers of religion (e.g. Gökarıksel and Secor 2015; Williams 2015) speak about greater respect for the diverse religious cultures of postsecular spaces. Since the society is more willing to live with religion (Cloke and Beaumont 2013) and especially with new religious movements, postsecularisation also brings about a shift in the public perception of the role and potential usefulness of religion in society. Postsecularisation is especially apparent in society in the West in about last 20–30 years (Henkel 2014; Cloke and Beaumont 2013; Beaumont and Baker 2011).

In geography, the discussion about postsecularisation was raised at the turn of the millennium (Kong 2010). In general, geography enriches postsecular theory questioning continuous secularization and analyzing the interaction of secularity and sacrality in space (see Havlíček and Klingorová 2018; della Dora 2018; Gökarıksel and Secor 2015; Williams 2015; Henkel 2014; Tse 2014; Cloke and Beaumont 2013; Olson et al. 2013; Beaumont and Baker 2011; Kong 2010). The thesis of this discussion reflects the theories described above and enriches it with spatial dimension. The main idea is that "crossing-over" in the public arena between the religious and the secular' occurs (Cloke and Beaumont 2013: 2). Thus, even though religion is (re)appearing in public space (Kong 2010), secularisation continues (Sturm 2013). The processes of secularisation and desecularisation of space therefore act simultaneously (see for example Havlíček and Klingorová 2018).

The 'postsecular turn' in geography comes hand in hand with the 'new' geographies of religion (Kong 2001) which separate the 'politics' of religious space from the 'poetics', first emphasizing power relation in the process of making sacred space, second highlighting sacred place-making as 'a part of people's experience of the religious' (Kong 2001: 218). This difference illustrates the same change as from the religion of objective truth to the religion of subjective experience. The 'politics' of religion is closely tied with problems such as differences in religious adherence, diffusion of religions, differences in traditions and religious conflicts. In geographies of religion studies concerning these problems, quantitative data are used the most.

The 'poetics' of religious experience is more connected with personal identity of a person, her/his perception of sacredness (in space) and with creating religious community (Kong 2001). Apart from the 'poetics' of sacred, terms such as everydayness, perception, experience, identity, community, body, and diversity occur when going further beyond Kong's

(2001, 2010) ideas. Among others, Kong (2010) asks to study the places beyond 'officially sacred' such as pilgrimage sites, religious schools or roadside memorials. However, one can argue that the places beyond 'officially sacred' should not be limited to places which hold religious symbols as Kong describes them and, thus, include places of the ordinary everyday life of people. The transcendence is more often present in spaces of everyday life of a person than in 'officially sacred' spaces (Klingorová and Gökariksel 2018; Klingorová and Vojtíšek 2018; Finlayson 2012, 2017; Kong 2011; Holloway 2003, etc.), especially at the level of personal perception and experiences. People create sacred spaces for example through 'informal' religious practice (Klingorová and Vojtíšek 2018) or by experiencing their everyday activities 'through God' (Klingorová 2016). Thus, every space, even seemingly secular, could be perceived as sacred. Furthermore, the 'politics' of religion are being developed more at the global and national scale, while the 'poetics' of religious experience needs to be understood at the scale of the human body. Lastly, Kong argues that different geographies of religion of different groups of people, for example men, women, children, adults, elderly, should be theorized and their different experiences of sacred in public and private space should be studied.

Geographers of religion have already started to focus on religious experience in space and did a great job, however, there are still several topics, contexts, problems and examples which need to be taken into consideration and further developed. Development of these themes in the new geographies of religion requires theoretical and empirical approach which would allow to deal with its abstractness and focus on individual matters of life in private space. The question I ask is, therefore, how could feminist approach enhance Kong and others' calls for increased attention to religious experience of ordinary people?

3. Agendas for feminist approaches

In geography (and other disciplines as well), feminism had long time been understood as a concept seeking inclusion of gender hierarchy, patriarchy and women's experience into research. This agenda could be associated with the 'politics' where patriarchy relates to oppression and inequalities within religion. The relation between religion and the role of women and gender inequalities in society is still worldwide discussed subject (e.g. Tomalin 2013; Woodhead 2013; Seguino 2011; McGuire 2008; Inglehart and Norris 2003; Ingersoll 2003). It is very sensitive subject because gender discrimination is not only contained in the substance of religion, but is a result of its politicization and use in power relations as well. The specific relationship between religion and gender hierarchy is determined by the concrete social and cultural context (Klingorová and Havlíček 2015) which could,

but does not have to, dominate in the given place, region, state, civilization, or cultural sphere.

Even though the problematics of patriarchy is undoubtedly important, feminist approaches should not be limited only to the study of gender and patriarchy. It might bring a broader perspective into the research on the relationship between religion and space. As defined within feminist geographies (e.g. Sharp 2009; Pratt 2009; McDowell and Sharp 1999; Nast 1994), feminist approaches take heterogeneity into account, focus on the (cultural) construction of identity of a person, and consider human body and emotions as research subjects. Here I find relation with the new geographies of religion which intend to focus on the 'poetics' of sacred and everyday experience of religion in postsecular space.

3.1 Religious experience of women

One exciting area to explore is the everyday experience of different people who belong to a particular religion, but also of people who interact with a space where such religion dominates. The focus on women experiencing religion in space has been well developing over last decade or so (e.g. Klingorová and Gökariksel 2018; Olson et al. 2013; Gökariksel 2007, 2009, 2012; Morin and Guelke 2007; Falah and Nagel 2005; Secor 2002, 2003; Dwyer 1999a,b). This body of scholarship takes without any doubt the biggest part of 'feminist' geographies of religion. It attempts to distance from the 'old' geography of religion where research focused on ordinary women's experience was underrepresented.

The initial assumption of such studies is the specific role of women adhering to a minor religion in a sacred space where a different major religion prevails, or in a secular space. Most typically, it is Muslim women in a secular or dominantly Christian space, e.g. Western and Central Europe. The problematic of the role of religious women within dissimilar religious space is strongly tied with politicization of secular or religious norms and values, and with feminist geopolitics (e.g. Gökariksel and Secor 2015; Berghammer and Fliegenschnee 2011; Dowler and Sharp 2001). Very lively discussion is about different headscarf policies in Western Europe where the headscarf policies at the state level differ in relation to differences in gender equality, culture and religious dominance, from regulation to accommodation (Sauer 2009). The way headscarf policies and religious power relations in general are formed and experienced 'from below', meaning by ordinary people (women in this case), could be understood through the analysis of everyday spaces (Gökariksel 2012). A closer look at the spaces of the everyday, ordinary life of people enables us to 'keep women visible in rapidly changing world conditions, where their activities tend to slip into the shadows of dominant models in the literature' (Dyck 2005: 234).

Despite criticism of Kong (2010) who says that religions other than Islam are overlooked in geographies of religion, the problematics of Muslim women still dominates the debate. Most often, Islam is studied as a minor religion in the context of the dominantly secularized Western Europe (Berghammer and Fliegeschnee 2011; Dwyer 1999a,b), in Turkey (Gökarıksel 2009, 2012; Secor 2002, 2007) or in the Middle East (Fenster 2007). Problems raised in these geographic, social and cultural contexts justify such research themselves. Further, religious experience of Muslim women is strongly tied with veiling as a spatial practice expressing their religious identity (e.g. Gökarıksel 2009, 2012; Sauer 2009; Secor 2007; Dwyer 1999b). Through the practice of veiling, a women's embodied experience with religion could be studied at different levels, as well as Muslim women's contact with public space. 'Dress is important for understanding gender, religion, and space because it is an embodied practice through which religious ways of being are represented and enacted' (Secor 2007: 153). Veiling clearly expresses Muslim women's identity on the outside. A veiled women's interaction with space is, thus, a phenomenon whose analysis can enrich research on religion and space, especially in the case of secular and dissimilarly religious public space.

On the contrary, one may argue that studying ideologically non-conflicting relations between religion, women and space is important for identification of possible problems of such an interaction. However, for example, Christianity in secular or culturally Christian space (such as for example in the West) is not an experience significantly appearing on the outflow of human body. Laic Christianity does not show up in appearance or clothing of a woman, which enables her to better blend with the majority in a public space. The most common symbol of Christianity on woman's body, a cross necklace, is not very noticeable and often even doesn't express religiosity of its holder. A veil is also a symbol of Christianity but is nowadays used almost exclusively by Nuns. As unusual clothing of Christian women could be considered formal clothing worn by women on Sunday. Because Sunday is a day of a worship in many Christian churches, women consider Sunday as a 'day spent with God' (Klingorová 2016) and, therefore, wear more formal dress than weekdays.

However, formally dressed Christian women on their way to church or Nuns are not considered as members of a different culture in (for example) the West, which is not the case for veiled Muslim women. It makes the subject of Christian women experience less problem-related than Muslim women experience. But, in my point of view, there are other themes which desire to be developed such as the difference between Catholic and Protestant women experience in relation to confession or celibacy, the experience of women priests, women's role in the openness of Christian churches to broader society (the case of maternity or parental centers) and many more.

3.2 Everyday life and space of religion

As I mentioned above, the most resonating theme concerning women's experience with religion is veiling. But women's experience of religion doesn't belong only to public, but also to a private space. The contextual shift from the public to the private space in the geographies of religion could be considered as one of the most important contributions of feminist approaches. However, these two spaces – public and private – should not be separated because religion is crossing-over the borders of both spaces. Even though the everyday life of a person is more connected with the private space (but should not be interchanged) through activities such as housework, leisure time or commuting, everydayness is not limited only to private or public space, nor the everyday religious experience. In this part of the paper, I focus on everydayness as a concept crossing-over public and private space and described as the quotidian, ordinary, routine or everyday (contrasting to special, exceptional) activities of people and spaces where these activities are located (Pinder 2009). I understand everyday life as activities through which people experience space around them. Thus, everydayness can involve every activity of a person through which they live her/his life. The cultural turn switched the attention of geography to such places and activities and how these are experienced, shaped and transformed by people.

For geographies of religion, 'the everyday is critical because the boundaries between the secular and the religious are constituted and maintained, as well as destabilized, transgressed and reformed, on a daily basis through seemingly mundane practices' (Gökarıksel 2012: 6). The geographies of religion have already started turning their interest from 'special' places such as church or temple to lived religion (MacKian 2012; McGuire 2008; Hunt 2005; Kong 2001 etc.) and to everyday practice and manifestations of faith (or secularity) in everyday spaces (Klingorová and Gökarıksel 2018; Dwyer 2015; Olson et al. 2013; Vincett et al. 2012; Gökarıksel 2009 etc.).

The routine everyday religious practices of individuals are complex, dynamic and lived and, thus, can be very different from practices of religious institutions and organizations (McGuire 2008). One of the possible strategies for dealing with everydayness in the geographies of religion is to let the definition of everydayness be a subjective understanding of an examined group and, therefore, to work with everydayness in a way which the actors subjectively describe it (Klingorová and Gökarıksel 2018). Another problem which the researcher should deal with is that research on experiencing religion in everyday life and space could avoid places which are 'special' or extraordinary, both in the context of the everyday life of a person and in a religious context, places such as pilgrimage sites, sacred mountains and other places which are not visited on regular basis, but on special

occasions and only once. However, visiting such places can have an important influence on an individual's experience of faith. The impression can even be projected into everyday experience and formation of everyday places of religion.

3.3 Emotions and lived religion

Everyday spatial experience with religion is strongly tied with the emotional and subjective experience of individuals (Bartolini et al. 2017; Finlayson 2012; Nast and Pile 1998 etc.). Religion is an emotional experience and emotions play a key role in the formation of sacred place (Klingorová and Gökarıksel 2018). Thus, individual and collective emotions should be considered in religion-geographic research. It was the feminist approaches which started the emotional turn in social geography (Davidson, Bondi, and Smith 2005; Pringle 1999) highlighting that feelings and emotions are important for geographic research because they form a way in which people perceive space and place (Davidson, Bondi, and Smith 2005). 'Emotional geographies emphasize how embodied emotions are connected to specific places and contexts because questions about how emotions are embodied and located merit further elaboration in the context of typical and less typical everyday lives' (Davidson, Bondi, and Smith 2005: 5). People assign meanings to places through emotions which reflect their subjective interpretation and perception (Sharp 2009). Thus, emotional geographies enrich research on perception of place and cultural geography in particular because emotions are gained with cultural values and determined by the circumstances and concepts of a particular culture (Pringle 1999).

Like other cultural patterns, religion forms the emotions and perception of religious, but also non-religious people. Even people who do not believe in God or other concrete transcendental power consider transcendence and energy in places of nature and a calm, pleasant environment where they can deeply think about life questions (Klingorová and Gökarıksel 2018). Thus, religion contributes to the meaning of sacred and secular places as well. Emotions related to religion can be positive, but also negative. Positive emotions prevail because religion usually brings peace, calmness, happiness, usefulness, satisfaction, and answers to important questions into an individual's life (Klingorová and Gökarıksel 2018). Negative emotions related to religion could be feelings of discomfort, shame, vulnerability and fear connected with everyday experience of exclusion, religious intolerance, or even racism (Hopkins 2006, 2007). Such negative emotions often importantly influence an individual's everyday time-space behavior when the person tries to avoid places where her/his religious identity is in the minority.

As discussed above, people have the most striking religious experiences in places beyond 'officially

sacred' space (Dwyer 2016; Gökarıksel 2009) because such places are more 'lived'. For example, a library with exposed religious symbols, a tree on the edge of a meadow (Klingorová and Vojtíšek 2018), a kitchen unit or even a bus stop (Klingorová and Gökarıksel 2018) could become a sacred place for an individual through her/his emotional religious experience. Emotional geographies thus allow us to develop research on religious space and place, its formation and transformation, considering everydayness and lived religion (MacKian 2012; McGuire 2008; Hunt 2005). The interest in religious emotions reflects the argument of McGuire (2008) who says that it is important to study religion not in a way which is defined by institutions, but in a way in which religion is lived in the everyday life of people. Of course, one cannot say that religious experience is weaker in a church or a temple, but religious experience in such 'officially sacred' places is more formed by religious symbolic, ritual and collective experience (Finlayson 2017) and less personal.

3.4 Embodied experiences with religion

Finally, feminist approaches might contribute to the research on religion and place by bringing the focus onto embodied experiences. Embodiment has a broad overlap with research on everydayness, emotions and women's experiences. Every research on religion works, necessarily, with embodied experiences such as baptism, marriage, confession, confirmation, or funeral (Dewsbury and Cloke 2009). Regular church visit is an (everyday) embodied experience as well (Wigley 2016). Furthermore, a human's body is an element in space on which religion can be visibly manifested. Religious people use their bodies to express their identity (Kong 2010) in, for example, wearing veils, skullcaps, cross necklaces, or vestment. A human's body outwardly reflects the individual's identity, values, and morality and, thus, becomes an indicator of religiosity. Simultaneously, a human's body is an instrument through which people religiously experience space (Kong 2010; Gökarıksel 2009; Holloway 2006; Bailey, Harvey, and Brace 2007 etc.).

Recently, the human body has gained more and more attention in social geography (Bailey, Harvey, and Brace 2007; Rodaway 1994). Research on embodiment could be enriching for studying religion and space, especially when we consider the body as an active subject. The body plays an important role in the production of a sacred (and secular) place (Holloway 2003) and, simultaneously, is the most 'private' and the most intensively experienced place in which religion manifests (or does not manifest).

Furthermore, a human body as a transcendence holder has the ability to bring sacrality into place and to make sense of sacred space (Holloway 2003, 2006; Sheldrake 2001), which reflects the ideas of the humanists Tuan or Buttner (Kong 2001). According to Eliade (1959), sacred place is created in secular

(profane in Eliade's words) space through sacred experience.

Thus, sacred place is part of space which gains special (transcendental, sacred, religious) meaning through ritual or religious experience of a person or group of people (Sheldrake 2001) who have (and share) interest in such a place. Sacred place therefore does not have to involve any religious symbols, it only can be created, transformed, perceived, or experienced with a presence of a body. Such places do not have to be identifiable at first sight. Thus, sacred place could be identified by an individual in any, seemingly secular space and 'the sacred is made and remade in everyday spaces through the embodied and emotional practices of religiously affiliated and non-affiliated' people (women in this case, Klingorová and Gökarıksel 2018: 56).

The current development in geographies of religion (e.g. Olson et al. 2013; Gökarıksel 2009; Holloway 2003, 2006) includes the role of embodiment and emotions in production of sacred places (Finlayson 2012). It perceives the human body as 'the primary site through which transcendence and its associated religious authenticity can be achieved by bringing faith simultaneously outward and inward' (Olson et al. 2013: 1432). Further, research on embodied experiencing religion supports the thesis that sacred and secular space are inseparable because religion, through embodied experiencing, has the ability to get into every space of everyday life. Usually, the human body is not limited to 'officially sacred' or other spaces. The research on embodied experiences is, thus, 'a good starting point for challenging any site as being wholly sacred or wholly profane, emphasizing instead a relationship of spatial construction' (Olson et al. 2013: 1424) and transformation of space. Every sacred space should be understood in accordance with the person or people who created such place. The tension between the sacred and secular meaning of places exists at the material, symbolic, and ideological level (Gökarıksel 2009; Howe 2009; Kong 2001) and 'the duality of the sacred and secular breaks down and their geographies appear more fluid and transformative' (Klingorová and Gökarıksel 2018: 56). Thus, from the feminist perspective highlighting the role of human body, Eliade's understanding of sacred and secular spaces as two different, separated and incompatible spheres could be considered as overcome because each person can perceive and experience the same place differently.

3.5 Methodological approach

The themes defined and discussed above have common focus on problems of individual experience, everydayness, emotions and body from the empirical point of view. More attention is put on formation of personal identity of religious minority (Aitchison,

Hopkins, and Kwan 2007; Hopkins 2007) or majority (Gökarıksel and Secor 2017a; Olson et al. 2013; Hopkins et al. 2011; Gökarıksel and McLarney 2010) or formation of behavior and everyday practices (e.g. Gökarıksel and Secor 2015, 2017a,b; Wigley 2016; Holloway 2003). The empirical analysis should therefore acknowledge what is unique, specific and individual, such as the place, body or identity. Methods so far predominantly used in the geographies religion are not able to achieve these goals, especially those which have quantitative character. Methodological approach which consider all the personal nuances of religion is needed, for which we can look for inspiration in the feminist geographical research.

Even though the methods which are typical for feminist geographies are hard to generalize, two common characteristics are to be found: the feminist research primarily works with qualitative participative methods and analyze the problem in ordinary, everyday spaces from a specific point of view of a concrete group of people. These strategies were partly adopted by the already existing scholarship of 'feminist' geographies of religion. Also, the influence is obvious in comparison of preferred methods of the 'old' and the new geographies of religion. The 'old' geography of religion worked prevalently with descriptive quantitative methods (Rinschede 1999), the research focused on macroregional, sociological and religionist analysis and methods were selected to describe the diffusion of religion and its influence on landscape. The new geographies of religion instead deal with local and personal specifics of the relationship between religion and space using behavioral approaches. The most commonly, combined methods inspired in ethnography, anthropology and sociology are used, for example combination of semistructured interviews with participant observation (Gökarıksel 2009), discourse analysis (Gökarıksel 2007) or statistical analysis (Besio 2007; more see at Gökarıksel 2012; Fenster 2007), or participative photography (Klingorová and Gökarıksel 2018; Klingorová and Vojtíšek 2018).

Generally, the most of researches which could be included in 'feminist' geographies of religion apply participative approaches engaging with (mostly) women (Klingorová and Gökarıksel 2018; Klingorová and Vojtíšek 2018; Gökarıksel and Secor 2015; Olson et al. 2013; Dwyer 1999a,b; 2015, Hopkins 2006; Secor 2002). Participative research enables to enter private space of involved person, analyze her/his emotional experience in detail (Pain 2004; Breitbart 2003), reflect specific conditions and knowledge of people, bring more authentic look (Noland 2006) and be more sensitive to minorities (Pain 2004). Further, participative methods allow research participant to decide alone which part (if ever) of private space is he/she willing to open for research. Also, participative research minimalizes the hierarchical relations between researcher and studied group and, thus,

makes the discussion about sensitive themes such as inequality, abuse or minority religion easier. Participants are allowed to define themselves how they understand research themes such as religion, spirituality, everydayness, inequality, hierarchy etc. The research thus better reflects the real perception of a studied group.

Furthermore, methods in the new geographies of religions need to acknowledge secularity and secular space as well. Undoubtedly, lived religion and religious experience of people should not be limited only into sacred space. Also, people who do not adhere any institutionalized religion often deal with personal spirituality or individual religious experience which is hard to categorize or even describe by the participant itself. Thus, the perspective which reflects the individual thought of a person and the local socio-cultural characteristics of a concrete space and place must be applied. These reasons lead again to the use of combined and participative methods, acknowledging the spatial aspect.

However, other methodological approaches such as descriptive or quantitative methods are to be considered as complementary or even the only suitable methods in many cases. Quantitative methods allow to acknowledge the general context and gain comparative view. Thus, the extensive research should be enriched with intensive research (and vice versa) which allows to move the research from general to personal context and from public to private space where the religion of subjective experience, prevailing in the postsecular society, acts the most.

4. Conclusion

The longstanding development which feminist geographies have undergone from the *Geography of women* through the *Geography of gender relations* to the *Feminist geographies of difference* (Pratt 2009) ended up with the main focus on the construction of identities of different people and emphasizing the plurality of experiences of people. In geographies of religion, a similar development could be traced: from the 'old' geography focusing on institutions and description of diffusion and manifestations of religion, the field moved to the 'new' geographies studying the mutually constructive relationship between religion and space with a special focus on the role of an ordinary person in this relationship. Both these developments follow a similar trend, simply put, from description to studying relationships between space and person. This common theoretical and empirical development encourages us to study the role of individuality of a person in the dynamic relationship between space and religion.

This paper develops this argument, discussing the current research of geographies of religion and arguing for the use of feminist approach. It argues that feminist approach allows to involve not only women's

experiences and perception of religion and sacred space, but, in particular, to encourage research on religion in space at an everyday and personal level. Feminist geographies' focus on personal everyday experience can offer new insights into understanding of the relation between religion and space. Feminist approaches also reflect general societal trends in Czech society, which are connected with postmodernism and theorized as postsecularism in the sphere of religious changes. In postsecular society, religion is no longer only about visiting church on Sunday, but also about experiencing everyday moments through religious ethics and informal spiritual practice. Religion as a personal emotional everyday experience of space is a key factor in production of the individual identity of a person. Not only people who adhere some traditional religion, but also those who do not declare institutional religiosity experience their own spirituality. And the context of the mostly secularized space of Czechia highlights the individual dimension of religion which could be included within geographies of religion using feminist approaches.

Further, the discussion above led to assumption that religious experience with space reflects broader socio-cultural issues because religion importantly shapes individual's relation to the world through its norms and traditions. The everyday context of religious experiences is instructive to examine public issues (Dunn 2005) such as culture, politics, economics, integration, gender relations etc. For example, the currently topical problematic of migration and cultural integration could be approached through the individual geographies of religion of actors. Therefore, understanding the contexts through which people of different religion individually perceive, construct and transform sacred spaces of everyday is important not only to the geographies of religion but also to the (new) cultural and social geography as whole.

Acknowledgements

The paper was supported by The Czech Science Foundation (grant number 17-08370S).

References

- Aitchison, C., Hopkins, P., Kwan, M. P. (eds.) (2007): Geographies of Muslim identities: diaspora, gender, and belonging. Aldershot, Ashgate
- Bailey, A. R., Harvey, D. C., Brace, C. (2007): Disciplining Youthful Methodist Bodies in Nineteenth-Century Cornwall. *Annals of the Association of American Geographers* 97(1), 142–157, <https://doi.org/10.1111/j.1467-8306.2007.00528.x>.
- Bartolini, N., Chris, R., Mackian, S., Pile, S. (2017): The Place of Spirit: Modernity and the Geographies of Spirituality. *Progress in Human Geography* 41(3), 338–354, <https://doi.org/10.1177/0309132516644512>.

- Beaumont, J., Baker, C. (eds.) (2011): *Postsecular Cities: Space, Theory and Practice*. London, Continuum.
- Beckford, J. (1992): Religion, Modernity and Post-Modernity. In Bryan R. Wilson (ed.): *Religion. Contemporary Issues*. London, Bellew, p. 19.
- Berger, P. L. (ed.) (1999): *The desecularisation of the world: Resurgent religion and world politics*. Grand Rapids, Wm. B. Eerdmans Publishing.
- Berghammer, C., Fliegenschnee, K. (2011): Developing a Concept of Muslim Religiosity: An Analysis of Everyday Lived Religion among Female Migrants in Austria. *Journal of Contemporary Religion* 29(1), 89–104, <https://doi.org/10.1080/13537903.2014.864810>.
- Besio, K. (2007): In the Lady's Seat. Cosmopolitan women travellers in Pakistan. In *Women, Religion and Space: Global Perspectives on Gender and Faith*, ed. K. M. Morin, J. K. Guelke. Syracuse University Press, 81–110.
- Brace, C., Bailey, A. R., Harvey, D. C. (2006): Religion, Place and Space: A Framework for Investigating Historical Geographies of Religious Identities and Communities. *Progress in Human Geography* 30(1), 28–43, <https://doi.org/10.1191/0309132506ph589oa>.
- Breitbart, M. M. (2003): "Participatory Research Methods." In *Key Methods in Geography*, edited by N Clifford and G Valentine, 141–56. London, Sage.
- Cloke, P., Beaumont, J. (2013): Geographies of postsecular rapprochement in the city. *Progress in Human Geography* 37(1), 27–51, <https://doi.org/10.1177/0309132512440208>.
- Davidson, J., Bondi, L., Smith, M. (2005): *Emotional Geographies*. Ashgate.
- Della Dora, V. (2018): Infrasecular geographies. *Progress in Human Geography* 42(1), 44–71, <https://doi.org/10.1177/0309132516666190>.
- Dewsbury, J. D., Cloke, P. (2009): Spiritual landscapes: existence, performance and immanence. *Social and Cultural Geography* 10(6), 695–711, <https://doi.org/10.1080/14649360903068118>.
- Dowler, L., Sharp, J. (2001): A Feminist Geopolitics? *Space and Polity* 5(3), 165–176, <https://doi.org/10.1080/1356257012010438>.
- Dunn, K. M. (2005): Repetitive and Troubling Discourses of Nationalism in the Local Politics of Mosque Development in Sydney, Australia. *Environment and Planning D: Society and Space* 23(1), 29–50, <https://doi.org/10.1068/d388>.
- Dwyer, C. (1999a): Contradictions of community: Questions of identity for young British Muslim women. *Environment and Planning A* 31(1), 53–68, <https://doi.org/10.1068/a310053>.
- Dwyer, C. (1999b): Veiled meanings: British Muslim women and the negotiation of differences. *Gender, Place and Culture: A Journal of Feminist Geography* 6(1), 5–26, <https://doi.org/10.1080/09663699925123>.
- Dwyer, C. (2015): Photographing Faith in Suburbia. *Cultural Geographies* 22(3), 531–538, <https://doi.org/10.1177/1474474014545300>.
- Dwyer, C. (2016): Why does religion matter for cultural geographers? *Social and Cultural Geography* 17(6), 758–762, <https://doi.org/10.1080/14649365.2016.1163728>.
- Dyck, I. (2005): Feminist geography, the "everyday", and local-global relations: hidden spaces of place-making. *Canadian Geographer* 49(3), 233–243, <https://doi.org/10.1111/j.0008-3658.2005.00092.x>.
- Eliade, M. (1959): *The Sacred and the Profane: The Nature of Religion*. New York, Harcourt, Brace and World.
- Falah, G.-W., Nagel, C. R. (2005): *Geographies of Muslim women: gender, religion, and space*. New York, Guilford Press.
- Fenster, T. (2007): Gender, Religion, and Urban Management. *Women's Bodies and Everyday Lives in Jerusalem*. In Karen M. Morin and Jeanne Kay Guelke (eds.): *Women, Religion and Space: Global Perspectives on Gender and Faith*. Syracuse, New York, Syracuse University Press, 41–60.
- Finlayson, C. (2017): Church-in-a-box: making space sacred in a non-traditional setting. *Journal of Cultural Geography* 34(3), 303–323, <https://doi.org/10.1080/08873631.2016.1264262>.
- Finlayson, C. C. (2012): Spaces of faith: Incorporating emotion and spirituality in geographic studies. *Environment and Planning A* 44(7), 1763–1778, <https://doi.org/10.1068/a44580>.
- Gökariksel, B. (2007): A feminist geography of veiling: Gender, class and religion in the making of modern spaces and subjects in Istanbul. In K. M. Morin and J. K. Guelke (eds.), *Women, Religion and Space: Global perspectives on gender and faith* (61–80). Syracuse, New York, Syracuse University Press.
- Gökariksel, B. (2009): Beyond the officially sacred: religion, secularism, and the body in the production of subjectivity. *Social and Cultural Geography* 10(6), 657–674, <https://doi.org/10.1080/14649360903068993>.
- Gökariksel, B. (2012): The intimate politics of secularism and the headscarf: the mall, the neighborhood, and the public square in Istanbul. *Gender, Place and Culture* 19(1), 1–20, <https://doi.org/10.1080/0966369X.2011.633428>.
- Gökariksel, B., McLarney, E. (2010): Introduction: Muslim Women, Consumer Capitalism, and the Islamic Culture Industry. *Journal of Middle East Women's Studies* 6(3), 1–18, <https://doi.org/10.2979/MEW.2010.6.3.1>.
- Gökariksel, B., Secor, A. (2015): Post-secular geographies and the problem of pluralism: Religion and everyday life in Istanbul, Turkey. *Political Geography* 46, 21–30, <https://doi.org/10.1016/j.polgeo.2014.10.006>.
- Gökariksel, B., Secor, A. (2017a): The Post-Islamist Problematic: Questions of Religion and Difference in Everyday Life. *Social and Cultural Geography* 18(5), 645–664, <https://doi.org/10.1080/14649365.2016.1210669>.
- Gökariksel, B., Secor, A. (2017b): Devout Muslim Masculinities: The Moral Geographies and Everyday Practices of Being Men in Turkey. *Gender, Place and Culture* 24(3), 381–402, <https://doi.org/10.1080/0966369X.2017.1314948>.
- Habermas, J. (2008): Notes on Post-Secular Society. *New Perspectives Quarterly* 24(5), 17–29.
- Havlíček, T., Klingorová, K. (2018): City with or without God? Features of post-secularism in religious landscape of post-communist Prague. *Social and Cultural Geography* 19(6), 789–811, <https://doi.org/10.1080/14649365.2017.1312696>.
- Heelas, P. (1996): *The New Age Movement: The Celebration of the Self and the Sacralization of Modernity*. Basil, Blackwell

- Heelas, P., Woodhead, L. (eds.). (2005): *The Spiritual Revolution: Why Religion Is Giving Way to Spirituality*. Oxford, Blackwell.
- Henkel, R. (2011): Are geographers religiously unmusical? Positionalities in geographical research on religion. *Erdkunde* 65(4), 389–399, <https://doi.org/10.3112/erdkunde.2011.04.05>.
- Henkel, R. (2014): The changing religious space of large Western European cities. *Prace Geograficzne* 137, 7–15, <https://doi.org/10.4467/20833113PG.14.006.2151>.
- Holloway, J. (2003): Make-believe: Spiritual practice, embodiment, and sacred space. *Environment and Planning A* 35(11), 1961–1974, <https://doi.org/10.1068/a3586>.
- Holloway, J. (2006): Enchanted Spaces: The Séance, Affect, and Geographies of Religion. *Annals of the Association of American Geographers* 96(1), 182–187. <https://doi.org/10.1111/j.1467-8306.2006.00507.x>.
- Holloway, J., Valins, O. (2002): Editorial: Placing religion and spirituality in geography. *Social and Cultural Geography* 3(1), 5–9, <https://doi.org/10.1080/14649360120114107>.
- Hopkins, P. E. (2006): Youthful Muslim masculinities: Gender and generational relations. *Transactions of the Institute of British Geographers* 31(3), 337–352, <https://doi.org/10.1111/j.1475-5661.2006.00206.x>.
- Hopkins, P. E. (2007): Global events, national politics, local lives: Young Muslim men in Scotland. *Environment and Planning A* 39(5), 1119–1133, <https://doi.org/10.1068/a38129>.
- Hopkins, P. E. (2009): Women, men, positionalities and emotion: Doing feminist geographies of religion. *ACME: An International E-Journal for Critical Geographies* 8(1), 1–17.
- Hopkins, P., Olson, E., Pain, R., Vincett, G. (2011): Mapping Intergenerationalities: The Formation of Youthful Religiosities. *Transactions of the Institute of British Geographers* 36(2), 314–327, <https://doi.org/10.1111/j.1475-5661.2010.00419.x>.
- Howe, N. (2009): Secular iconoclasm: purifying, privatizing, and profaning public faith. *Social and Cultural Geography* 10(6), 639–656, <https://doi.org/10.1080/14649360903068092>.
- Hunt, S. (2005): *Religion and the Everyday Life*. London, Routledge.
- Ingersoll, J. (2003): *Evangelical Christian women: War stories in the gender battles*. New York, New York University Press.
- Inglehart, R., Appel, D. (1989): The Rise of Postmaterialist Values and Changing Religious Orientations, Gender Roles and Sexual Norms. *International Journal of Public Opinion Research* 1(1), 45–75, <https://doi.org/10.1093/ijpor/1.1.45>.
- Inglehart, R., Norris, P. (2003): *Rising Tide: Gender Equality and Cultural Change around the World*. Cambridge, Cambridge University Press.
- Klingorová, K. (2016): Feministické geografie náboženství: křesťanství v každodenním životě mladých žen. *Geografie* 121(4), 612–631, <https://doi.org/10.37040/geografie2016121040612>.
- Klingorová, K., Gökariksel, B. (2018): “God was with me everywhere”: women’s embodied practices and everyday experiences of sacred space in Czechia. *Gender, Place and Culture* 25(1), 37–60, <https://doi.org/10.1080/0966369X.2017.1398138>.
- Klingorová, K., Havlíček, T. (2015): Religion and gender inequality: The status of women in the societies of world religions. *Moravian Geographical Reports* 23(2), 2–11, <https://doi.org/10.1515/mgr-2015-0006>.
- Klingorová, K., Vojtíšek, Z. (2018): Women’s everyday spirituality in Diamond Way Buddhism: an auto-photographic study. *Journal of Cultural Geography* 35(3), 291–314, <https://doi.org/10.1080/08873631.2017.1375783>.
- Kong, L. (2001): Mapping “new” geographies of religion: politics and poetics in modernity. *Progress in Human Geography* 25(2), 211–233, <https://doi.org/10.1191/030913201678580485>.
- Kong, L. (2010): ‘Global shifts, theoretical shifts: Changing geographies of religion’, *Progress in Human Geography* 34(6), 755–776, <https://doi.org/10.1177/0309132510362602>.
- Luckmann, T. (1967): *The Invisible Religions: The Problem of Religion in Modern Society*. New York, MacMillan.
- Mackian, S. (2012): *Everyday spiritualities: Social and spatial worlds of enchantment*. Basingstoke, Palgrave Macmillan.
- McDowell, L., Sharp, J. P. (eds.) (1999): *A Feminist Glossary of Human Geography*. London, Arnold.
- McGuire, M. B. (2008): *Lived Religion: Faith and Practice in Everyday Life*. Oxford, Oxford University Press.
- Morin, K. M., Guelke, J. K. (eds.) (2007): *Women, Religion and Space: Global perspectives on faith and gender*. Syracuse, New York, Syracuse University Press.
- Nast, H. J. (1994): Women in the Field: Critical Feminist Methodologies and Theoretical Perspectives. *Professional Geographer* 46(1), 54–66, <https://doi.org/10.1111/j.0033-0124.1994.00054.x>.
- Nast, H., and Pile, S. (eds.) (1998): *Places through the body*. London, Routledge.
- Nešpor, Z. R. (2018): ‘Postsekularismus po česku? Ne/religiozita současné české společnosti mezi Východem a Západem’. *Střed* 1, 101–118. Available at: http://religion-landscape.cz/download/papers/nespor_2018_stred.pdf (Accessed: 17 January 2019).
- Noland, C. M. (2006): Auto-Photography as Research Practice Identity and Self-Esteem. *Journal of Research Practice* 2(1), <http://jrp.icaap.org/index.php/jrp/article/view/19/50>.
- Olson, E., Hopkins, P., Pain, R., Vincett, G. (2013): Rethorizing the Postsecular Present: Embodiment, Spatial Transcendence, and Challenges to Authenticity Among Young Christians in Glasgow, Scotland. *Annals of the Association of American Geographers* 103(6), 1421–1436, <https://doi.org/10.1080/00045608.2012.702516>.
- Pain, R. (2004): Social Geography: Participatory research. *Professional Geographer* 28(5), 652–663, <https://doi.org/10.1191/0309132504ph511pr>.
- Pinder, D. (2009): Everyday life. In Derek Gregory, Ron Johnston, Geraldine Pratt, Michael Watts a Sarah Whatmore (eds.): *Dictionary of Human Geography*. 5th edition. Chichester, John Wiley and Sons Ltd., 223–225.
- Pratt, G. (2009): Feminist geographies. In Gregory, D., Johnston, R., Pratt, G., Watts, M., Whatmore, S. (eds.):

- Dictionary of Human Geography. 5th edition. Chichester, John Wiley and Sons Ltd., 244–248.
- Pringle, R. (1999): Emotion. In McDowell, L., Sharp, J. P. (eds.): *A Feminist Glossary of Human Geography*. London, Arnold, 68–69.
- Rinschede, G. (1999): *Religionsgeographie*. Braunschweig, Westermann.
- Rodaway, P. (1994): *Sensuous Geographies: Body, sense and place*. London, Routledge, <https://doi.org/10.4324/9780203306864>.
- Sauer, B. (2009): Headscarf Regimes in Europe: Diversity Policies at the Intersection of Gender, Culture and Religion. *Comparative European Politics* 7, 75–94, <https://doi.org/10.1057/cep.2008.41>.
- Secor, A. (2002): The Veil and Urban Space in Istanbul: Women's dress, mobility and Islamic knowledge. *Gender, Place and Culture* 9(1), 5–22, <https://doi.org/10.1080/09663690120115010>.
- Secor, A. (2007): Afterword. In Morin, K. M., Guelke, J. K. (eds.): *Women, Religion and Space: Global Perspectives on Gender and Faith*. Syracuse University Press, 148–158.
- Secor, A. J. (2003): Citizenship in the City: Identity, Community, and Rights Among Women Migrants to Istanbul. *Urban Geography* 24(2), 147–168, <https://doi.org/10.2747/0272-3638.24.2.147>.
- Seguino, S. (2011): Help or hindrance? Religion's impact on gender inequality in attitudes and outcomes. *World Development* 39(8), 1308–1321, <https://doi.org/10.1016/j.worlddev.2010.12.004>.
- Sharp, J. (2009): Geography and gender: what belongs to feminist geography? Emotion, power and change. *Progress in Human Geography* 33(1), 74–80, <https://doi.org/10.1177/0309132508090440>.
- Sheldrake, P. (2001): *Spaces for the Sacred Place, Memory, and Identity*. Johns Hopkins University Press.
- Sturm, T. (2013): The future of religious politics: towards a research and theory agenda. *Area* 45(2), 134–140, <https://doi.org/10.1111/area.12028>.
- Tomalin, E. (2013): *Religion and Development*. London, New York, Routledge.
- Tse, J. K. H. (2014): Grounded theologies: "Religion" and the "secular" in human geography. *Progress in Human Geography* 38(2), 201–220, <https://doi.org/10.1177/0309132512475105>.
- Vincett, G., Olson, E., Hopkins, P., Pain, R. (2012): Young People and Performance Christianity in Scotland. *Journal of Contemporary Religion* 27(2), 275–290, <https://doi.org/10.1080/13537903.2012.675741>.
- Vojtíšek, Z. (2007): *Nová náboženská hnutí a jak jim porozumět*. Praha, Beta Books.
- Wigley, E. (2016): The Sunday morning journey to church considered as a form of "micro-pilgrimage." *Social and Cultural Geography* 17(5), 694–713, <https://doi.org/10.1080/14649365.2016.1139168>.
- Williams, A. (2015): Postsecular geographies: Theo-ethics, rapprochement and neoliberal governance in a faith-based drug programme. *Transactions of the Institute of British Geographers* 40(2), 192–208, <https://doi.org/10.1111/tran.12069>.
- Woodhead, L. (2013): Gender Differences in Religious Practice and Significance. *International Advances in Engineering and Technology* 13, 58–85.

