INTERNATIONAL MIGRATION REVIEW

Smuggled Versus Not Smuggled Across the Czech Border[1]

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The main goal of this paper is to analyze the spatial behavior of unauthorized migrants in their attempts to irregularly cross the Czech state's "green" border (including walking trails) into Austria and Germany, between 2005 and 2007. It demonstrates the importance of select demographic and human characteristics of the migrants, as well as the physical features of the environment, in their crossing. Our main premise concerning the importance of smuggling and the more sophisticated means and strategies employed among migrants using smugglers' services (vis-à-vis those without smugglers) was confirmed.

Current migration patterns in Europe form a complex mosaic, conditioned and, consequently, triggered by a wide range of factors, which can be economic, political, demographic, and environmental (*e.g.*, Morokvasic, 2004; Kaczmarczyk and Okólski, 2005; Bonifazi *et al.*, 2008). Clearly, European Union (EU) countries, including, to some extent, certain new member states from Central/Eastern Europe (CEE) that joined the EU in 2004, are important poles of attraction for migrants (be it permanent, long-term, or only transit) who come mostly as economic migrants from economically weaker countries, especially from the countries of the former Soviet Union and Asia. While economic motivation is by far the dominant motive, political reasons, in the broad sense of the word, also come into play (migration based on political instability, ethnic and/or religious tensions, civil wars).

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Harsh environmental conditions and natural disasters may also lie behind migration. Many migrants are drawn to the most developed EU countries (where substantial ethnic diasporas of immigrants have already been established), meaning that new EU member states have, to date, served as transit rather than destination areas. The Czech Republic is an important exception as it has a large population of long-term and permanent migrants on its territory (as of December 31, 2009, 433,305 immigrants were residing in the country legally – Horáková, 2009). This does not mean, however, that this country has no transit migrants; indeed, quite the opposite is true (*see* below).

"Push factors" for migration definitely exist, yet opportunities to legally enter the EU from poorer countries are very limited; nonetheless, unauthorized, irregular, undocumented, clandestine, or illegal[2] modes of migration emerge. Moreover, there is a strong "pull factor": High demand among employers in developed destination countries for this type of migration is consistently expressed.[3] On the other hand, it is necessary to recall that in Europe and the U.S. the most common way to get into a destination country (as in many other developed immigration regions) is to ignore visa conditions rather than resort to unauthorized entry[4] (*see* Pastore, Monzini, and Sciortino, 2006). Düvell (2006, 2008) provides a glimpse of what is going on in terms of transit migration, especially concerning those who travel irregularly across state borders. To characterize unauthorized migration (*see* also Portes, 1978), we must introduce two contemporary key "migratory regimes/processes", namely trafficking in human beings and smuggling migrants (*see e.g.*, Morrison and Crosland, 2001; Salt, 2001; Goodey, 2004; Laczko and Gozdziak, 2005; Obuah, 2006).

The difference between smuggling and trafficking lies in one key fact: Smuggling helps international migrants get into countries irregularly

[2]There is no clearly defined and "stable" meaning of these terms in academic discourses (*see e.g.*, discussion in Düvell, 2008 and Nevins, 2002). We prefer to use the term "unauthorized" (alternatively "irregular") to refer to primarily migrants' unauthorized journey as such, entry, exit, but also possibly their residence and employment. In contrast, Czech official documents often use the term "illegal" in these contexts.

[3]Here, we ignore the current global economic crisis that may, in a long term, be considered as a temporary phenomenon.

[4]It is valid also for the Czech Republic where another important "entrance channel" is represented by foreigners who only request asylum after being caught for being in the country irregularly (Zpráva 2008). Illegal entry as such shall mean crossing borders without complying with the necessary requirements for legal entry into the receiving state (United 2000c).

in exchange for high fees, yet, upon arrival in the destination country, smuggled individuals enjoy relative freedom. Trafficking, on the other hand, while it also often involves being smuggled across borders, is characterized by the trafficked individuals remaining under control and often being heavily exploited (they are exposed to primarily psychological, financial, and sometimes even physical exploitation[5]) after arriving in the destination country (*see* the definitions in United 2000a, b). Nevertheless, as for example Peixoto[6] (2008:83) points out, the distinction is not as simple as it might seem to be – smuggling and trafficking may not appear as "clear-cut and distinct phenomena. Instead, they are connected with each other and with regular labor migrations". The normative and policy distinction between the two is very clear – contrary to smuggling, trafficking results in the exploitation of the person.

What justifies our research on unauthorized migration and human smuggling in the Czech Republic? First, we are seeing a general increase in the level of unauthorized migration, trafficking, and smuggling on a global scale[7] (Obuah, 2006). Migrant smuggling and especially trafficking in persons are legal concerns and may be connected to criminal networks that operate in various international criminal activities, such as drug or arms trafficking[8] (*see* Väyrynen, 2003; Petros, 2005). Not only do these trends threaten states, migrants themselves are very often threatened, being subject to strong coercion and exploitation (*see* Drbohlav and Janská, 2009). Second, "various authors have estimated the total volume of irregular entries to the EU between 400,000 and 600,000 per year, the overwhelming part of it going through the EU's eastern borders and a large and growing share of it being facilitated by professional people smugglers" (Jandl, 2007:292; *see* also Pastore, Monzini, and Sciortino, 2006). The Czech Republic is an important part of this transit Eastern zone. Third, there is a lack of sophisticated and systematic studies that explore the issue of unauthorized/irregular

[5]Although the conditions vary considerably depending on the situation, the two most common forms of trafficking in persons relate to indentured or forced labor (often termed "modern forms of slavery") and coerced sexual exploitation in prostitution rings.

[6]As for this issue, *see e.g.*, Kaczmarczyk and Okólski, 2005, too.

[7]However, it is worth mentioning that according to Jandl (2007:292), border apprehension statistics indicate a "sustained decline of detected irregular border crossing across the CEE region since the turn of the century".

[8]Human migrant smuggling and trafficking may be closely tied to drug smuggling, arms smuggling, money laundering, and other organized crimes of international concern (*see e.g.*, Ministry of the Interior of the Czech Republic, 2008).

migration in general terms or trafficking in human beings and smuggling migrants, in particular, throughout the entire CEE region including the Czech Republic. Apart from a series of studies on transit migration in various, individual states of CEE since the mid-1990s and Yearbooks on Illegal Migration, Human Smuggling and Trafficking (*e.g.*, Futo and Jandl, 2004; Futo, 2008) that have provided a valuable overview and analysis of irregular migration trends in a number of CEE countries, for more than 10 years, drawing on information from the border services of the respective states, there are only a small number of studies of the phenomena in question. All of them, however, deal primarily with the process of trafficking in human beings. Fourth, this country, along with many other western democracies, appears to converge in their common failure to manage migration effectively and efficiently, as demonstrated by "the widening gap between the migration-policy goals they set themselves and the actual results achieved" (Martin, 2003:5). Any new information in this regard would always be highly welcome (*see* also *e.g.*, Koser, 2005).

In December 2007, the Czech Republic joined the Schengen Agreement and, in doing so, the systematic control of persons at the state border was abolished. We think that despite this fact, our research into unauthorized migration and human smuggling within the Czech state borders may have more general importance in revealing what, to a large extent, has remained hidden "behind the scenes".

PHILOSOPHY OF OUR APPROACH, MAIN PREMISE

The most important, analytic part of this study has been drawn from a unique data set acquired by merging a database of anonymous personal data of persons detained while irregularly crossing the borders (including their personal demographic and migratory background) and geographical data describing various aspects of the place where they were detained (physical and human geographical features). Our analysis sheds light on the reality of unauthorized border trespassing, while at the same time, to some extent, facilitating predictions of such factors. The identification of socio-economic and physical–geographical aspects related to the choice to irregularly cross state borders thus aims to help clarify what has been to this point the hidden or rather fragmentarily and unsystematically ranked associations of this unauthorized action.

In order to respect a key polarity, unauthorized migrants were divided into two groups according to whether they were smuggled across the border or not. The key thesis we test is that utilizing smugglers and

their services is an important channel through which migrants often cross the Czech state border irregularly. Moreover, the premise is that when doing so, migrants accompanied by smugglers (vis-à-vis those crossing without smugglers) use more sophisticated and intricate methods of travel to successfully fulfill their mission (using more demanding routes over difficult, more remote or less developed terrain and rather harsh climatic conditions). Simply, they try to do their job well.

UNAUTHORIZED CROSSING OF THE CZECH STATE BORDER – WHAT THE DATA REVEAL

Data on unauthorized migration are regularly published in the Status Report on Migration in the Czech Republic (Zpráva o situaci v oblasti migrace na území České republiky; prepared by the Czech Ministry of the Interior). Unauthorized (in the Czech context referred to as "illegal") migration of foreigners across the state border is defined as events in which persons … "cross the Czech state borders by various reasons in unauthorized ways" (Zpráva 2008:107).

In harmony with Jandl's (2007) claims, over the lifetime of the independent Czech state, the unauthorized migration of foreigners across the state's borders has declined substantially in terms of the number of persons detained each year, that is, from 41,765 foreigners in 1993 to 2,837 foreigners in 2007 (Zpráva 2008). According to Čermáková and Lachmanová (2008:92), this substantial decline in the number of detainees "could be a result of a true drop in the numbers of persons irregularly crossing the Czech borders. Secondly, it was a result of changes in the political, economic, or security situation in source countries (*e.g.*, the end of the war in the former Yugoslavia, the subduing of the conflict in Chechnya, Afghanistan). Finally, it was a result of the continually increasing quality of border security, the change in the role of the Czech Republic from a transit country to a target country, or of the introduction of relevant steps in this and/or neighbouring countries (for instance the Dublin Agreement)". The drop in numbers of people detained need not necessarily mean a decline in the real volume of migrants irregularly crossing the state borders, however; changes in the strategies and tactics of migrants[9] may reduce the probability of their being detained (for instance,

[9]The Zprávy, mentioned above, have been pointing out these changes in unauthorized migration processes across the state borders of the Czech Republic for several years.

the increased use of smugglers' services, false passports, or more frequent use of vehicles against crossings of the so-called green border) (Čermáková and Lachmanová, 2008:92; they also refer to Jandl, 2007; and Yearbooks of the ICMPD – *see* below). We can only agree with these authors, who further state that the actual volume of unauthorized migration across state borders – not only in the Czech Republic – remains unknown, although it can be presumed to be substantially higher than relevant statistics indicate.

Among persons detained irregularly crossing the state borders in 2001–2006 (data from official statistics), the largest group was "Russian citizens (13% of those detained in this category of unauthorized migration, *i.e.*, approximately 8,200 persons), followed by citizens of China (10%), India (8%), Romania (8%), as well as neighboring Poland (7%) and Germany (7%). Thus, unauthorized migration across the state borders has been rather transitory in nature[10] and was connected with smugglers' networks and also, in part, with asylum proceedings (Čermáková and Lachmanová, 2008). In 2007, 58 percent of foreigners detected irregularly crossing the Czech state borders were from European states, while 35 percent were from Asia.

Our research is rooted in this reality and it seeks to widen the horizons of knowledge about unauthorized migration across the Czech state borders through our own original analysis.

RELATION TO OTHER STUDIES, THEORETICAL BACKGROUND

A strong research tradition exists on the U.S.–Mexican border and its massive flow of unauthorized Mexican migrants (*see e.g.*, Kossoudji, 1992; Espenshade, 1994, 1995; Massey and Singer, 1995; Singer and Massey, 1998; Cornelius, 2001, 2005; Nevins, 2002; Gathmann, 2008). We have opted, to some extent, for similar key research strategies as developed by Rossmo *et al.* (2008)[11] where the main purpose of both research activities was "to identify facilitating and inhibiting factors of

[10]In the case of citizens of neighboring states, it is rather a problem of infringement of the borders regime in the course of trips or during shopping visits in the Czech Republic (Zpráva 2008).

[11]Unfortunately, we did not find examples of similar research carried out in Europe.

illegal land border crossings in order to determine physical and human geographic features related to the probability of such movement…" (Rossmo *et al.*, 2008; :29). It is necessary to emphasize that the work of Rossmo *et al.* (2008) is fairly specific and unique regarding its conception. Many writings analyzing the environment of US–Mexican borders and the unauthorized migration across them (*see* also our quotations) work, particularly in the widest sense, "only" with social, socio-economic, socio-cultural and demographic variables. There was another important common feature between our study and those done by, for example, Gathmann (2008) and Singer and Massey (1998) – the rationale of separating and comparing those migrants who irregularly cross the border alone vis-à-vis those who make use of smugglers. On the other hand, the respective information on unauthorized migration and human smuggling in Europe is, in comparative terms, rather limited and underproduced (*see*, for example, Futo and Jandl, 2004; or Neske, 2006; Jandl, 2007; Futo, 2008).

Although not the main focus of this study, it is important to initially discuss the organization and execution of the actual unauthorized border crossing. It seems that one of the few more self-contained concepts specifically dealing with unauthorized migration or, respectively, with the process of human trafficking and partly also with smuggling is Salt and Stein's articulation of these problems (*see* Salt and Stein, 1997; Salt, 2001). Their central theme posits "migration as business" and it links the economic aspects of migration while also emphasizing the criminal aspects. This concept is often cited yet some limitations exist (Drbohlav, 2008). Another approach, which explicitly uses the concept described above, is the so-called model of a trans-national service industry by the authors Bilger, Hofmann, and Jandl (2006). However, in analyses from various European countries it is evident that there is a miscellaneous structure of hierarchically assorted subjects and institutions organizing unauthorized border crossings, from the "mighty", enormous – supranational ones to the very smallest – actually consisting of "non-organized local individuals", and that those being smuggled are not completely helpless and manipulable, that their own initiative and activities, existing social networks and/or culturally, and ethnically qualified links and structures might importantly enter into account (*see*, for instance, Herman, 2006; Pastore, Monzini, and Sciortino, 2006; van Liempt and Doomernik, 2006; Leman and Janssens, 2006). Theoretical and conceptual matters, however, are not the main topic of this paper. We work with data the nature of which does not allow us to tackle such issues in any detail.

PREMISES TO BE TESTED

Based on well-known explanations of migration processes and experience of unauthorized migration movements accumulated so far (*see* mainly quotations above), we "translate the message" and formulate several premises that we will test through our analysis of smuggled/not smuggled unauthorized migrants in the Czech Republic:

1 Most of the migrants are economic migrants who come for work purposes.
2 Single male individuals will represent the most typical migratory group.
3 Most of the migrants are young, in the most mobile age cohorts – between 20 and 30 years of age.
4 Migrants from countries of the former Soviet Union will predominate among migrants.
5 Most of the migrants irregularly cross the border not alone, but with someone else.
6 Not negligible number of migrants irregularly crossing the borders use the assistance of people smugglers (especially those who try to irregularly cross the border for the first time).
7 Use of smugglers' services by migrants is increasing over time.
8 Self-crossers differ from those who use smugglers' services in terms of their social and demographic characteristics.
9 There will be both spatial and temporal clustering; specific landscape features/localities/zones and timing will be typical of migrants' behavioral patterns when irregularly crossing the border. Proximity to urban areas and both natural and artificial walking routes/paths, spurs and roads (except those which are well guarded) may be evident. There will be significant variations as to the time of year, week, and day migrants set out on their unauthorized journey.
10 Smugglers make greater use of terrain/landscape features and meteorological conditions to decide the chosen route for an unauthorized crossing than do those who try to irregularly cross the border alone.

METHODICAL DESIGN AND METHODS USED, DATA AND CONSTRUCTION OF INDICATORS

As already indicated, the main purpose of this research was to explain the spatial behavior of unauthorized migrants when trying to cross the Czech state border irregularly by identifying how important (and, *vice versa*,

unimportant) selected demographic, physical, and human features related to their background and the environment are in determining this crossing.

The key information for an essential, more precise linking of "events" of unauthorized trespassing in the territory was represented by a geographic database.[12] To process data in GIS, each location where unauthorized migrants were detained has been given a unique distinguishing number. Given landmarks were imported into the *.shp format to be subsequently processed in the ArcGIS program.[13] All the other variables are linked either to the detained migrants themselves[14] or other, in the widest sense, geographical variables ("landscape features", "spatially orientating" or "meteorological") – *see* more detailed specifications below and Table 1. Selected geographical conditions were joined with the location of the migrants' detention in our database. The main questions to be answered were as follows: Is there any relationship between geographical conditions and unauthorized trespassing? Is there any tendency toward the concentration of unauthorized trespassing into specific territories with specific conditions?

Database of the Circumstances of Migrants' Detention and Representative Demographic Indicators

The initial, basic database is an anonymous database acquired from the Directorate of the Czech Alien Police Service[15] and its Analytical Centre. This authority details certain features linked to individuals detained for unauthorized crossings. Acquired features are date and time of the trespassing, number of people in a group, the location, the direction of the crossing, forms of non-legality (from the point of view of entrance and residency), the authority which detected the person, and the zone where the

[12]All unauthorized crossings considered in the study are linked to 180 border landmarks – clearly defined points on the state border between the Czech Republic and Germany or Austria, respectively (*see* more Figure I).

[13]Only parameters describing the actual situation on the territory of the Czech Republic were taken into account.

[14]Needless to say, the database consists only of records of detected migrants, and we have not considered what proportion this may be of those who were not detected by either Czech, Austrian, or German authorities and whose border crossings were successful (*see* more above and Mahová, 2009).

[15]Since January 1, 2008, the former so-called Alien and Border Police Service was renamed to the Alien Police Service in accordance with the Czech Republic entry into "Schengen" and its restructuring.

TABLE 1
DESCRIPTIVE STATISTICS OF SELECTED LANDSCAPE, SPATIALLY ORIENTATING, AND METEOROLOGICAL DATA OF PLACES OF DETENTION, 2005–2007

Geographical–meteorological characteristics	Mean	Minimum	Maximum	SD
Inclination (degrees)	3.1	0.02	18.8	2.883
Altitude (meters above sea level)	514.1	163.51	1292.7	197.165
Distance from a border crossing (m)	4107.3	0	19617.2	4226.789
Distance from a forest path (m)	2517.3	0	32392.9	5934.964
Distance from a sealed road (m)	413.9	0	6554.3	612.357
Distance from a regular road (m)	110.3	0	1280.5	173.061
Distance from a watercourse (m)	0.4	0	2.0	0.668
Average temperature (°C)	7.8	−9	28.0	7.527
Wind (m/s)	2.6	0	12.5	1.638
Visibility (km)	21.1	0.2	65.0	13.783
Cloud formation[a] (/8)	5.4	0	8.0	2.459
Fresh snow (cm)	0.5	0	22.0	1.967
Snow layer (cm)	4.7	0	78.0	11.187

Notes: [a]Cloud formation is a measure giving the degree of cloud cover of the sky. Here, it is expressed in eighths – from 0/8 to 8/8 of cloud covering of the sky: 0/8 means clear sky without clouds, while 8/8 on the contrary represents fully overcast sky.
Source: Own research.

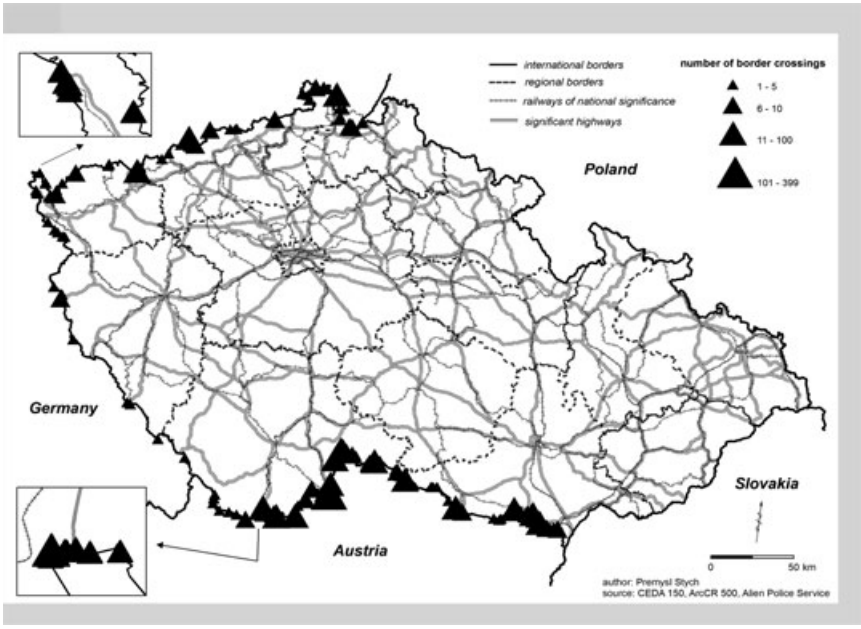
event occurred, the form of trespass (in secret or not), whether with the help of a smuggler or independently, nationality, age, whether this is a first or subsequent detention, handover to detention. This database holds considerable information because each migrant's detention has distinct features.

Specifically, our new database contains data from the detention of unauthorized migrants from so-called third countries, either during or after an attempt to cross the state borders (Czech–Austrian or Czech–German border moving from the Czech Republic into Austria or Germany; either by Czech or by respective foreign authorities) – where the border landmarks and exact time of detention are known precisely. The database comprises only detentions on walking trails or in open terrain – on the so-called green border. The original, much richer database was thus scaled down. Detentions at border crossings, detentions of migrants from other than "third countries",[16] and detentions for which there was only partial information and/or for which the time and place of the border crossing could not be accurately specified were not taken into consideration.[17] Thus, the new database depicts the situation in 2005–2007 and it shows the following numbers of detained migrants for each year: 2005 – 969 persons;

[16]This means countries of EU, European Economic Community, or Switzerland.

[17]Personal discussions with staff of the Directorate of the Czech Alien Police Service have confirmed that the quality and precision of completing records in the database on the part of the police staff varied between localities and were not consistent.

Figure I. **All Illegal Crossings Processed in the Given Database, Documented Through 180 Main Border Landmarks Located on the Czech–German and Czech–Austrian Borders, 2005–2007**



Source: own research.
Notes: All illegal crossings considered in the project are linked to 180 border landmarks – clearly defined points on the state border between the Czech Republic and Germany or Austria, respectively. The state borders are divided into separate sections by the base landmarks (marked, for instance, II) set at distances of approximately 20–30 km. The main landmarks (marked for instance II/2) refer to specific parts of the section and are at a distance of 200–1,000 m from each other. Intermediate landmarks (marked, for instance, II/2–3) refer to all refracting points of the border, and in reality, they are at distances of tens or hundreds of meters (up to 200 m) from each other because they must be visible from their respective neighboring points. Final supplementary points (marked, for instance, 25,008) are located in places of additional and more precise marking of the state borderline.

2006 – 425 persons; and 2007 – 127 persons. In total, there were 1,521 cases of unauthorized migrants or people detained while crossing the state border. Following the final sorting out of low-quality (incomplete) records, 1,509 cases were used for the consequent processing.

Database of "Landscape" and "Spatially Orientating" Variables

The second type of database contains data (variables) allowing the description of the area in terms of natural conditions and distances – proximity of paths or other selected identifiable objects.

The base for the DTM (Digital Terrain Model) creation were ZABAGED (Fundamental Base of Geographic Data of the Czech Republic) contours (1:10,000) allowing the assessment of the altitude of constituent landmarks. Further characteristics could be generated from DTM – namely inclination. The character and function of the building density and the character of landscape overlay (according to its type or use) can be analyzed using the CORINE (Coordination of Information on the Environment) 2006 database.[18] The database is created by polygons originating in the interpretation of satellite images.[19] Of course, for our research purposes, we use only selected categories.

For calculations of distances between places where migrants were apprehended and the closest settlement, the point layer of municipalities from the ArcČR database (Digital Database of the Czech Republic – 1:500,000) was used.[20] Primary data for the road infrastructure were drawn from the CEDA database (Central European Data Agency – 1:150,000) giving a denser network than the mentioned ArcČR. However, it was necessary to find another data source that would provide information not only on sealed local roads but on forest paths or walkways as well. The digital model of the territory on a scale of 1:25,000 from the CENIA (Czech Environmental Information Agency) map server (DMÚ25 – Digital Model of Territory 1:25,000)[21] proved appropriate.

The point layer of border crossings was again taken from CEDA. However, because the layer of roads was adjusted, it was necessary to take steps to localize crossings more precisely according to DMÚ25.[22]

The distance of a landmark from a watercourse was evaluated only by visual evaluation over DMÚ25. The landmarks were divided into three categories according to distances and types of watercourses.

[18]The aim of the CORINE Land Cover project is to create a database of European land cover on the basis of cohesive methods.

[19]The results are maps of vegetative cover on a scale of 1:100,000, divided into 44 categories.

[20]For the given entry layer, the lowest Euclidean distance to the element of the following vector layer was calculated.

[21]Although DMÚ25 does not include walking trails, unsealed forest paths are marked in sufficient density, and thus, they correspond to walking trails as well (this assumption was proved by comparison with walking maps on the website (www.mapy.cz and http://amapy.atlas.cz), *see* Mahová, 2009).

[22]The input layer comprises only the official border crossings, omitting the crossings designated for so-called minor cross-border contact or foot traffic.

Database of Selected Meteorological Phenomena

The database of the given cases of detention (according to landmarks and time parameters) and weather features in terms of selected elements and meteorological phenomena was created in collaboration with the Czech Hydro-Meteorological Office (ČHMÚ). The data source for this evaluation was the "Oracle" DBS ČHMÚ system. Of the relevant elements and meteorological phenomena, the following meteorological variables were chosen for our analysis on the basis of data accessibility and validity in the ČHMÚ database – *see* Table 1.

As DBS ČHMÚ includes coordinates of separate stations in a minute format, all coordinates were transformed for the place of the event from the decadal system into the minute system. For each case (the place of event), a minimum of the three nearest stations were selected (data source in DBS): precipitation, climatological, and professional meteorological (SYNOP). In each case (the day and time of the event), the data from DBS ČHMÚ were downloaded, at intervals of −3 to +1 h from the place of detention, and thus, the interval from-to was created for various parameters (interval).[23] Parameters selected in this way were assigned to each record (of the detained person) in constituent cases. In the final phase, a further checking stage took place, to minimize any errors of meteorological parameters due to unevenly positioned measuring stations.

Statistical Methods of Data Processing

The data file was processed first using basic methods corresponding to the nature of the data – in the first place basic statistical analysis, frequency classification. In order to respect a key polarity, unauthorized migrants were divided into two groups according to whether they were smuggled across the border or not. To compare evaluated parameters between constituent groups, the non-parametrical non-paired Mann–Whitney *U*-test was used. In the final stage of statistical analysis, a model of binary logistic regression was applied, where the dependent variable was whether a detained person had been smuggled across the Czech state border (code 1) or not (code 0). As the independent variables, the selected demographic

[23]For fresh snow and the total layer of snow, the data are given for period of 24 h, always from 7 o'clock in the morning of the same day, or the morning of the day after the record (when the event occurred).

variables were analyzed first, followed by "landscape" and "spatially orientating" variables, and subsequently all selected variables regardless of categories were finally included in the full model. All analyses were accomplished with the help of the statistical program SPSS (SPSS Inc, Chicago, IL, USA). All processed data were anonymous.

RESULTS

In the first place, we concentrate on describing the characteristics of migrants and then on evaluating them in a wider context of various variables that are subsequently analyzed.

Basic Characteristics of the Set of Migrants

Table 2 shows the characteristics of migrants. Men made up a comparatively high proportion of the sample – 900 men versus 379 women, with a supplement of 182 children. The predominance of males may indicate chiefly economic reasons for the given migration. The most common case was trespassing of Austrian borders (1,265 persons), while the rest were

TABLE 2
DESCRIPTIVE STATISTICS OF DETAINED MIGRANTS WITH VERSUS WITHOUT A SMUGGLER ACCORDING TO SEX, AGE, AND CITIZENSHIP (THE CZECH STATE BORDER/TOWARD AUSTRIA AND GERMANY/, 2005–2007)

	Without a smuggler		With a smuggler		
	N	%	*N*	%	Total
Sex					
Male	663	73.7	237	26.3	900
Female	247	65.2	132	34.8	379
Child	114	62.6	68	37.4	182
Age group					
0–15	132	63.2	77	36.8	209
15–24	308	76.6	94	23.4	402
25–34	382	69.7	166	30.3	548
35–44	170	70.2	72	29.8	242
Citizenship					
Belarus, Moldavia, Ukraine	284	70.3	120	29.7	404
Russia	246	64.1	138	35.9	384
China, Mongolia	174	72.8	65	27.2	239
Caucasian states, Kazakhstan	198	83.9	38	16.1	236
Other	158	64.2	88	35.8	246
Total	1060	70.2	449	29.8	1509

Source: Own research.

attempting to cross the Czech–German borders (244 persons). In terms of nationality, the largest group of migrants were from Russia (384 persons), followed by Ukraine (225 persons), Mongolia (175 persons), Georgia (136 persons), Belarus (101 persons), Moldavia (78 persons), and China (64 persons).

Between 2005 and 2007, the numbers of detained persons decreased considerably (in 2005, there were 965 persons, in 2006 a total of 417 persons, and in 2007 only 127 persons), Table 3. The decline in the number of persons detained is definitely linked to the gradual incorporation into the Schengen area, that is to say, many migrants waited for the Czech Republic to join Schengen, and for the associated "deregulation" of the state borders. The decrease was also linked to specific improvements of the situation in some "sensitive regions", potentially full of tension (*see* for instance Chechnya). Moreover, during this time period, the managing

TABLE 3
DESCRIPTIVE STATISTICS OF DETAINED MIGRANTS WITH VERSUS WITHOUT A SMUGGLER ACCORDING TO THE YEAR OF TRESPASS, PLACE OF DETENTION, AND NATURE OF THE PLACE OF DETENTION (THE CZECH STATE BORDER/TOWARD AUSTRIA AND GERMANY/, 2005–2007)

	Without a smuggler		With a smuggler		
	N	%	*N*	%	Total
Border of detention					
Austrian border	892	70.5	373	29.5	1265
German border	168	68.9	76	31.1	244
Year of detention					
2005	739	76.6	226	23.4	965
2006	253	60.7	164	39.3	417
2007	68	53.5	59	46.5	127
Place of detention					
State border	989	69.7	429	30.3	1418
Walking trail	71	78.0	20	22.0	91
Vegetative cover of the place of detention					
Discontinuous urban built-up area	49	81.7	11	18.3	60
Industrial and business grounds	13	100.0	0	0.0	13
Areas of mineral resources mining	2	100.0	0	0.0	2
Non-irrigated arable soil	92	70.2	39	29.8	131
Vineyards	24	43.6	31	56.4	55
Meadows and pastures	39	58.2	28	41.8	67
Mosaic of fields and meadows	31	79.5	8	20.5	39
Agricultural areas with parts of natural vegetation	570	76.7	173	23.3	743
Deciduous forests	23	82.1	5	17.9	28
Coniferous forests	196	73.1	72	26.9	268
Mixed forests	9	20.9	34	79.1	43
Woodlands	9	23.7	29	76.3	38
Swamp and marshland	3	13.6	19	86.4	22
Total	1060	70.2	449	29.8	1509

Source: Own research.

structures within the Czech Alien Police Service were reorganized – the establishment of new Departments of Alien and Border Police throughout border zones, accompanied with the rather limited experience of certain newly appointed police directors in guarding the border, might be behind this decrease too.[24]

Age is also specifically linked with time, with the average age of detained persons increasing over the study period. In 2005, it was 25.9 years, in 2006 27.2 years, and in 2007 29.7 years. Of the characteristics defining the nature of the migration process, in a majority of cases it was the first attempt to cross the border irregularly (87% of all cases). Of the 1,509 migrants detained in the course of unauthorized trespass of the state border (who fulfilled the criteria for our data file), there were 521 registrations in one place and one time, meaning that there was an average of three migrants per detention. The largest group consisted of 16 persons. Only in 54 cases was a sole migrant detained. The most frequent case was that of two migrants (27 detentions), followed by a threesome (21 detentions), and in the case of 20 detentions, the group comprised four migrants. Almost half the detained persons were foreigners who (before being caught at the border) were residing legally in the Czech Republic and were trying to cross the state border irregularly (49%), followed by migrants detained by foreign (Austrian or German) authorities (29%),[25] and in the rest of cases, it was usually a case of irregular residence on Czech territory with the goal of crossing the state border irregularly.

Basic Characteristics of Places of Detention

As mentioned above, all unauthorized crossings processed in the given database occurred at 180 main border landmarks with Germany and Austria (*see* Figure I). These landmarks come under six regions, and eighteen counties administratively governed by the Directorate of the Czech Alien

[24]One may also relate this fact to an increase in smugglers' services that were flourishing between 2005 and 2007.

[25]At that time, Czech Alien (and Border) Police Service were already closely cooperating with corresponding bodies in Germany and Austria (agreements were signed concerning mutual cooperation in terms of guarding the state borders between the Czech Republic and Germany in 2002, and the Czech Republic and Austria in 2005). Moreover, common cooperation, joint border patrols, and common strategies to detect irregular migrants were organized. The Czech border staff already had equipment for detecting migrants that was more or less comparable with that in Germany or Austria.

Police Service. Most of the migrants were detained in the South Bohemian region (1,071 cases, particularly in the county of Jindřichův Hradec, where 62% of all detained persons were caught) – 399 persons were detained at the main landmark No. 60 (24% of all migrants). This landmark is situated in the town of České Velenice where the Austrian town of Gmünd is located directly on the other side of the border.[26] It is also a fairly important railway junction. Two neighboring landmarks are also linked with significant numbers of migrants crossing the Czech state border irregularly in the direction of Austria (*see* Mahová, 2009). The second largest number of detentions occurred in the South Moravia region (195 cases, mainly in the county of Břeclav) and in the Ústí nad Labem region (147 cases, mainly in the county of Děčín).

From the point of view of geographical characteristics, the places of migrants' detention varied rather significantly (*see* again Table 1). Altitudes of places of detention varied from 164 m up to 1,293 m above sea level (average of 514 m above sea level), inclination reached approximately three degrees (19 degrees in maximum), the approximate distance of the detention from an official border crossing was around 4 km, so distances from roads of various types were naturally shorter (*see* Table 1). From a meteorological point of view, the crossings took place in relatively low approximate temperatures (7.8 °C) and in the lower visibility (21 km).

From the point of view of the character and function of a built-up area and landscape characteristics, the attempts at unauthorized border crossings occurred primarily in areas of natural vegetation (49% of detentions) and in coniferous forests (18% of detentions *see* Table 3).

Analysis of Selected Results from the Dichotomy "with a Smuggler Versus Without a Smuggler"

Bearing the research goals in mind, the following statistical analysis was primarily aimed at the evaluation of differences in unauthorized border crossings from the point of view of whether the individuals were smuggled

[26]One of the reasons why migrants found this "urban channel" so important for irregular crossings is that they could undertake it, even as a group, without any serious risk of being stopped by the Czech police. This was possible due to a loophole in the Czech legislation in which irregular crossing of the border was considered merely an offense and not a criminal offense.

across borders or not. Accordingly, the respective regression models were constructed.

Of the total number of 1,506 migrants detained when irregularly crossing the state border, almost 30 percent of them trespassed the border with a smuggler. Smugglers were used more frequently in the case of children (37%) and women (35%) in comparison with unauthorized migration of men (26%) – *see* Table 2. As compared to the rest of the age categories, the group of migrants aged 15–24 years made least use of the services of smugglers, while the youngest (0–15) used these services most. In terms of nationality, smugglers were used most frequently by migrants from Russia (36%) and least by migrants from the Caucasian states and Kazakhstan (16%).

It is clear from Table 3 that although the Austrian and German borders differ in absolute numbers of migrants detained (with a much higher number of crossings to Austria), the actual share of smuggled persons was higher for trespassing to Germany. On the basis of the data in Table 3, we can also see that there are important differences in the use of smugglers' services between the years. While in 2005 23 percent of detained migrants had resorted to a smuggler, in 2006 it was almost 40 percent and in 2007 already more than 46 percent of all persons detained. This increase, however, need not necessarily mean an increase in the real volume of migrants who use smugglers' services – *see* Jandl's (2007) explanations below. On the other hand, no substantial changes regarding the enforcement strategies, either in the Czech Republic or in Germany and Austria, were reported between 2005 and 2007 (interview with staff of the Directorate of the Czech Alien Police Service).

The nature and function of the built-up area and the nature of the vegetative cover showed the biggest difference between persons who did or did not use smugglers, in that migrants were more likely to go with a smuggler in less accessible terrain, particularly through swamps, woodlands, or mixed forests – *see* Table 3.

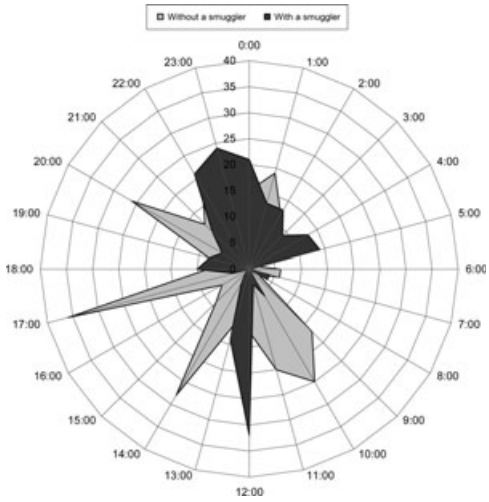
The timing of unauthorized border trespassing with and/or without a smuggler shows the more elaborate strategy of smugglers, who usually plan an unauthorized border crossing with their clients in the dead of night, making it more difficult to apprehend them – *see* Figure II (*see* also Rossmo *et al.*, 2008). The spread of unauthorized crossings over the year shows that the smugglers' activities are focused particularly in 2 months – August and September. On the contrary, unauthorized crossings without smugglers are more evenly distributed through the year – with peaks in

July and January – *see* Figure III. Generally, for some migrant groups, the time spread may be linked to the overall duration of their migration which can be too long in some cases, spanning months, and also respects limitations imposed by the change of climate due to the changing seasons (interview with staff of the Directorate of the Czech Alien Police Service). Regarding unauthorized crossings by day of week, migrants with smugglers prefer Wednesday, Thursday, and Friday, whereas Monday, Thursday, and Sunday are the most popular with self-crossers (*see* Figure IV).

The results in Table 4 describe the differences in meteorological data for detentions of persons with and without a smuggler. These results show that unauthorized crossings of migrants with a smuggler occurred more often with a thinner snow cover (perhaps the threat of easy tracking in snow was taken into consideration) but also in lower approximate temperatures and visibility.

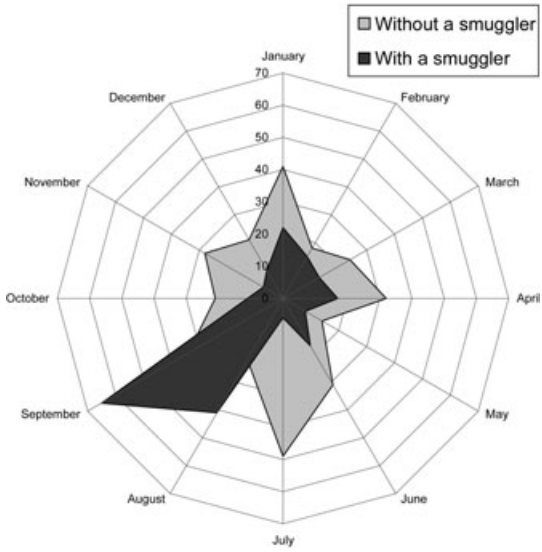
The results shown above and the differences in parameters of geographical and meteorological variables of migrants' places of detention with a smuggler versus without a smuggler are statistically drawn in the *t*-test in the Table 5. For instance, migrants with a smuggler walked sig-

Figure II. **The Distribution of Persons Detained When Illegally Crossing the Czech State Border (Toward Austria and Germany) with a Smuggler and Without a Smuggler by Time of the Day, 2005–2007, (In%)**



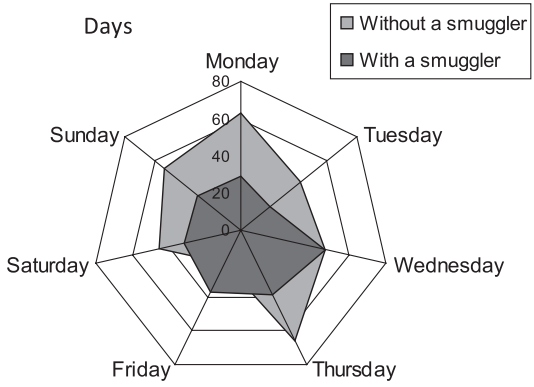
Source: own research.

Figure III. **The Distribution of Persons Detained When Illegally Crossing the Czech State Border (Toward Austria and Germany) with a Smuggler and Without a Smuggler by 12 Months of the Year, 2005–2007, (In %)**



Source: own research.

Figure IV. **The Distribution of Persons Detained When Illegally Crossing the Czech State Border (Toward Austria and Germany) with a Smuggler and without a Smuggler by Days, 2005–2007, (In %)**



Source: own research.

TABLE 4
DESCRIPTIVE STATISTICS OF METEOROLOGICAL DATA IN THE PLACE OF DETENTION FOR MIGRANTS WITH VERSUS WITHOUT A SMUGGLER (THE CZECH STATE BORDER/TOWARD AUSTRIA AND GERMANY/, 2005–2007)

	Without a smuggler ($N = 1060$)		With a smuggler ($N = 449$)		Total ($N = 1509$)	
	Mean	SD	Mean	SD	Mean	SD
Fresh snow [cm/24 hrs]	0.57	2.063	0.21	1.627	0.46	1.952
Total snow layer [cm]	4.43	9.705	4.04	10.977	4.32	10.089
Average temperature (°C)	7.15	8.611	6.17	7.980	6.86	8.437
Wind (m/s)	2.43	1.409	2.27	1.482	2.38	1.433
Visibility (km)	23.72	16.056	20.04	14.912	22.62	15.809
Cloud formation[a] (/8)	5.03	2.788	4.95	2.924	5.01	2.829

Note: [a]As for cloud formation – *see* table 1.
Source: Own research.

TABLE 5
***T*-TEST OF SELECTED GEOGRAPHICAL AND METEOROLOGICAL CHARACTERISTICS OF PLACES OF DETENTION FOR MIGRANTS WITH VERSUS WITHOUT A SMUGGLER (THE CZECH STATE BORDER/TOWARD AUSTRIA AND GERMANY/, 2005–2007)**

	Mann–Whitney *U*	Wilcoxon W	*Z*	Asymp. Sig. (2-tailed)
Inclination (degrees)	236859.500	799189.500	−0.145	0.885
Altitude (meters above sea level)	227691.500	328716.500	−1.341	0.180
Distance from a border crossing (m)	**221450.500**	**783780.500**	**−2.156**	**0.031**
Distance from a forest path (m)	236266.500	798596.500	−0.222	0.824
Distance from a sealed path (m)	**217629.500**	**779959.500**	**−2.654**	**0.008**
Distance from a road (m)	227539.500	328564.500	−1.361	0.173
Distance from a watercourse (m)	**222092.000**	**784422.000**	**−2.386**	**0.017**
Fresh snow (cm)	**201947.000**	**293753.000**	**−4.807**	**0.000**
Total snow layer (cm)	**211054.500**	**304150.500**	**−2.649**	**0.008**
Average temperature (°C)	**222167.000**	**323192.000**	**−2.043**	**0.041**
Wind (m/s)	**221771.500**	**322796.500**	**−2.121**	**0.034**
Visibility (km)	**205631.000**	**306656.000**	**−4.182**	**0.000**
Cloud formation (/8)	235363.500	336388.500	−0.339	0.735

Note: Statistically significant values are in boldface ($p = 95\%$).
Source: Own research.

nificantly more often ($p < 0.01$) at a greater distance from sealed paths and roads, in seasons with less snow and at lesser visibility.

Binary Regressive Models

In the last stage of statistical analysis, the method of binary logistic regression modeling was applied where the dependent variable was whether a

detained person was smuggled across the Czech border (code 1) or whether he or she crossed without a smuggler (code 0). The independent variables were basic characteristics of migrants' data files, particularly selected demographic parameters but also selected variables closely describing the crossing itself or selected indicators of the character and function of a built-up area and the character of vegetative cover.

Because of high proportion of migrants detained in the county of Jindřichův Hradec (and thus the influence on the overall spread of detentions), those migrants (a total of 942 persons) were excluded from the analysis, and thus, the regression analysis was further calculated for the data file for the remaining 567 migrants.

According to the output model from the binary logistic regression (*see* Table 6), it can be rather simplistically stated that unauthorized trespassing with a smuggler occurred statistically more often in 2007 (almost eight times more often) and 2006 (almost three times more often) than in the base year 2005. Looking at the vegetative cover, in comparison with a referential category, most unauthorized crossings with a smuggler took place in areas of swamp or marshland (nine times more often), mixed forests (almost eight times more often), and woodlands (more than four times more often), while there were substantially fewer in areas of natural vegetation. Smuggling was also statistically more frequent during low visibility (more than twice as often as when visibility was good). Looking at the place of detention, the presence of a smuggler accompanying migrants was statistically less frequent on the German border than on the Austrian border (the referential category) and in the case of migrants from Caucasian states and Kazakhstan than for migrants from Belarus, Moldavia, and Ukraine (the referential category), although differences in the latter cases are not too striking. Importantly, independent variables of sex and age did not appear statistically different in relation to the use of smugglers' services.

CONCLUSIONS

As already mentioned, the main goal was to research the spatial behavior of unauthorized migrants when trying (for some successfully) to irregularly cross the Czech state "green" border (including walking trails) into Austria and Germany, between 2005 and 2007 by identifying how important (and indeed unimportant) selected demographic (and "migratory"), physical, and human features related to their background and the environment were in their crossing.

TABLE 6
BINARY LOGISTIC MODELS, THE DEPENDENT VARIABLE – PERSON SMUGGLED: YES = 1/NO = 0 (THE CZECH STATE BORDER/TOWARD AUSTRIA AND GERMANY/, 2005–2007)

	Sig.	Exp (B)	95.0% C.I. for EXP (B)	
Sex + child				
Child		1		
Male	0.915	1.151	0.086	15.424
Female	0.884	1.207	0.095	15.312
Age group				
0–15		1		
15–24	0.742	0.665	0.058	7.559
25–34	0.723	1.549	0.138	17.443
35–44	0.861	1.243	0.108	14.319
Nationality				
Belarus, Moldavia, Ukraine		1		
Russia	0.680	1.225	0.467	3.213
China, Mongolia	0.256	0.665	0.330	1.343
Caucasian states, Kazakhstan	0.053	0.080	0.006	1.033
Other	0.280	1.428	0.748	2.727
Year of trespass				
2005		1		
2006	**0.000**	**2.858**	**1.594**	**5.125**
2007	**0.000**	**7.633**	**3.621**	**16.088**
Direction of trespass				
Austrian border		1		
German border	**0.000**	**0.314**	**0.164**	**0.602**
Repetition of trespass				
No		1		
Yes	0.647	1.178	0.585	2.369
Vegetative cover				
Discontinuous urban built-up area		1		
Non-irrigated arable soil	0.224	0.518	0.179	1.497
Vineyards	0.863	1.111	0.336	3.676
Meadows and pastures	0.373	0.595	0.190	1.865
Mosaic of fields and meadows	**0.020**	**0.118**	**0.020**	**0.715**
Areas with natural vegetation	**0.014**	**0.064**	**0.007**	**0.572**
Deciduous forests	0.120	0.305	0.068	1.362
Coniferous forests	0.788	1.142	0.434	3.009
Mixed forests	**0.001**	**7.856**	**2.338**	**26.398**
Woodlands	**0.016**	**4.402**	**1.311**	**14.780**
Swamp and marshlands	**0.010**	**9.200**	**1.715**	**49.368**
Visibility				
High (30 km+)		1		
Low (up to 10 km)	**0.048**	**2.259**	**1.007**	**5.065**
Average (10–29 km)	0.374	1.383	0.677	2.827

Note: Statistically significant values are in boldface (p = 95%).
Source: Own research.

The conclusions are outlined in the form of a discussion of the premises stated in the preface of the paper. These premises, in fact, define the main goals of the task. We limit ourselves to the most important information, and the reader can turn to the body of the text for details:

1 *The predominance of single males in the studied migratory flows may indicate mostly economic reasons for migration.* The predominance of males (males to females – 2.4:1.0) is not surprising. Thus, one could reasonably deduce that the migrants are mainly self-reliant family providers, while other members of those families often stay in the source countries, and only some whole families migrate, notably in cases of politically motivated migration, in the widest sense (for instance, a wave of migration from Chechnya in 2005).

2 *Most of the migrants are young, in the most mobile age cohorts – between 20 and 30 years of age.* Most of the given migrants (68%) were aged between 15 and 34, although a not negligible number (17%) of them were older – aged between 35 and 44. This is symptomatic of labor migration where mid-age categories of the labor force are also on the move.

3 *Migrants from countries of the former Soviet Union will dominate among unauthorized migrants.* Migrants from Russia, Ukraine, Mongolia, Georgia, Belarus, Moldavia, and China accounted for the biggest share of unauthorized crossings studied. This situation reflects not only economic disparities but also geographical setting/position and historical ties linked with the communist era, but also some cultural and language similarities (in relation to Slavic nations) – all these aspects make unauthorized transit through or stay in the Czech Republic for those migrants more convenient.

4 *Most of the migrants irregularly cross the border not alone, but with someone else.* Among unauthorized migrants who entered the analysis, the majority were making their first attempt (87% of all cases) and they most commonly crossed in larger groups of persons. There was an average of three migrants per detention. Only exceptionally was a sole migrant detained.

5 *Using the assistance of people smugglers became a sort of a standard strategy among migrants who irregularly cross the borders.* Although not a majority, about 30 percent of the followed migrants trespassed the border with a smuggler. In contrast with the proposed premises, those who tried to irregularly cross the border not for the first time used smugglers slightly more often (34%) than those who did it for the first time (29%) (*see* the opposite results in Rossmo *et al.*, 2008, where accumulated experience of crossing the U.S.—Mexican border led rather to avoiding smugglers' services). Smugglers were most often used by migrants from Russia and least by migrants from the Caucasian states

and Kazakhstan. Chinese and Mongolians were somewhere in the middle. The results of the binary logistic regression show that the presence of a smuggler accompanying migrants on the German borders was statistically less frequent than in the case of the Austrian one (which was used as the referential category) and the same applies for migrants from the Caucasian states and Kazakhstan in comparison with migrants from Belarus, Moldavia, and Ukraine (the referential category), although the differences in these cases are not overly striking.

6 *Use of smugglers' services by migrants is increasing over time.* Since 2005, the proportion of migrants using a smuggler has increased significantly – 23 percent of migrants in 2005, almost 40 percent in 2006, and in 2007 approximately 46 percent of all persons detained (the same trend is demonstrated by the model of binary logistic regression[27]). This is in harmony with the overall trend in CEE (Jandl, 2007). Jandl (2007) himself offers possible explanations: It is because "the proportion of irregular migrants using the services of human smugglers has increased faster than the decline in the overall number of border apprehensions, … modern border guard techniques and new modes of policing have increased the efficiency of border guards and police authorities … and … a shift in the modus operandi of human smugglers has led to a lower ratio of smuggled migrants transported per human smuggler …. " (Jandl, 2007:304).

7 *Self-crossers differ from those who use smugglers' services in terms of their social and demographic characteristics.* We were not able to ascertain any social characteristics for the respective sample of migrants (such data, especially regarding educational status, are not collected). On the other hand, we found that as far as demographic structures are concerned, fewer males, more females, and children, hence, more vulnerable groups of migrants (families with children, or females with children) rely on smugglers' services slightly more than others (*see* Table 2).

There will be both spatial and temporal clustering; specific landscape features/localities/zones and timing will be typical of migrants' behavioral patterns when irregularly crossing the border. Proximity to urban areas and both

[27]Due to the significant representation of migrants detained in the county of Jindřichův Hradec and the influence this fact has on the whole spread of detentions, these migrants were not included in the regression analysis.

natural and artificial walking routes/paths, spurs, and roads (except those which are well guarded) may be evident. There will be significant variations as to the time of year, week, and day migrants set out on their unauthorized journey. The desirability of certain locations and times reflect rational choices by illegal border crossers in view of the opportunities and risks presented by the physical and human environments (Rossmo 2008:55). The largest number of migrants along the whole German and Austrian border with the Czech Republic was detained in the South Bohemia region (particularly in the county of Jindřichův Hradec, which accounted for 62% of all detentions). The adjacent twin towns of České Velenice in the Czech Republic and Gmünd on the Austrian side were of particular significance. This section of the border (measured by three main landmarks in, or in the immediate surroundings of the twin towns) is clearly the most important pole of attraction for migrants irregularly crossing the Czech border into Austria. Thus, migrants successfully sought to take advantage of the non-transparent and anonymous character of the urban environment (on both sides of the border). The next most numerous group of detentions, although notably less frequent, was recorded in the South Moravian region (particularly in the county of Břeclav) and in the region of Ústí nad Labem (primarily in the county of Děčín). In terms of the geographical environment, the points where migrants were detained varied widely over the variables studied – for instance, altitude, inclination, distance of the point of detention from an official border crossing, or distances from paths and roads of various kinds. From a meteorological point of view, crossings took place in relatively low average temperatures and in lower visibility. With respect to the character and function of the built-up area and the type of vegetation, attempted unauthorized border crossings took place primarily in areas of natural vegetation and in coniferous forests.

In the course of a year (accrual of the three calendar years studied), the largest number of crossings took place in January, with the second peak in September. Various days of week were preferred by irregular migrants for unauthorized crossings. The highest frequencies of unauthorized crossings across the border were mostly either between 10 A.M. and 2 P.M., around 5 P.M. and between 10 P.M and midnight (with some significant differences between those who used smugglers and self-crossers – *see* the text).

Smugglers make greater use of terrain/landscape features and meteorological conditions to decide the chosen route for an unauthorized crossing than do those who try to irregularly cross the border alone. Our main premise of

the importance of smuggling and the more sophisticated means employed among migrants using smugglers' services (vis-à-vis those without smugglers) on the Czech state border was confirmed. From the point of view of the character and function of the built-up area and the character of vegetative cover, significant differences were shown in the tactics of migrants between those using smuggler's services and those who did not use them. Persons using a smuggler went by more demanding routes, generally in harder and more remote or less developed terrain giving perhaps a better hope of a successful crossing. They walked significantly more often through less accessible terrain, particularly through swamps and marshland, woodland and mixed forests. Similar results are given by the binary logistic regression – looking at the vegetative cover many unauthorized crossings with a smuggler took place in areas of swamps or marshland (nine times more often than for those without a smuggler) in comparison with the referential category (*see* Table 6), as well as in mixed forests (almost eight times more often) and woodlands (more than four times more often). In areas of natural vegetation, however, the probabilities are almost equal. From the descriptive statistics, it is also evident that, for instance, mining areas, industrial and business complexes, walking trails, discontinuous urban built-up areas, deciduous and coniferous forests were significantly preferred by migrants who did not count on smugglers' services.

Unauthorized crossings by migrants using a smuggler also took place rather more often when the snow layer was thinner (probably due to the recognition of the possibly easier identification of footprints in snow) but also at lower average temperatures, lower visibility, and lower cloud formation. For instance, migrants with a smuggler walked significantly more often at a greater distance from sealed paths and roads, and in a season of lower snow layer and lower visibility. Binary logistic regression also shows that a crossing of the border with a smuggler took place more than twice as often when visibility was low as when it was high.

To sum up, behavioral patterns of smugglers and their clients in landscape are instrumental in successfully fulfilling their mission. What is worth stressing is that the regression analysis does not indicate any difference according to sex, age, or repeated attempts in the frequency with which unauthorized border crossing attempts are carried out with a smuggler versus without one.

Generally, this study represents the first attempt at a more complex analysis of the spatial behavior of migrants in the course of their irregular

state border crossings in CEE. For the time being, it is hard to gain more results from the acquired data to seek and corroborate certain possible regularities (we did not find any similar research in Europe and direct comparison with the US–Mexican border remains difficult – although many parallels are suggested by the results of our study: namely, for example, the attractiveness to unauthorized migrants of urbanized structures sited directly on borders, the frequency of unauthorized crossings in the course of a year, the age profiles of migrants, or moving through terrain that offers good possibilities of concealment – compare to Rossmo *et al.*, 2008). Equally, this research cannot be directly used in practice in the environment where it originated (the Czech Republic *de facto* lost its state border in this area with its entry into Schengen on December, 21, 2007). In spite of this, or perhaps precisely because of it, we believe that the philosophy of our approach (getting to know the process of unauthorized migration in more detail, via migrants' spatial behavior) is well founded and it deserves to be extended and refined – in terms of both basic and applied research. Research of this type, however, should not generally contribute only to building new barriers. We recognize that improving the situation often calls for more than just strengthening restrictions, oppression, or the militarization of borders. On the contrary, arrangements of this kind can often have a negative effect, if any (*see* for instance Espenshade, 1994; Cornelius, 2001, 2005; Nevins, 2002). The path to success in the struggle against unauthorized migration must also lead through proactive approaches on the part of destination countries (or larger regional blocks or coalitions) in tackling various aspects of their societal structures – from labor markets to "information strategies and policies". As Martin (2003:8) aptly formulates the struggle against unauthorized migration must also utilize continuing research and connections to practice as well as set "realistic goals, coordinated migration management within and across countries and the continuing monitoring and revision of appropriate policy instruments… ." (Martin, 2003:8).

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