

GAMBLING AND ITS ACCESSIBILITY: CASE STUDY OF OLOMOUC (CZECH REPUBLIC)

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Abstract

The issue of gambling, which the article discusses, is – in terms of scientific approach – a rather neglected topic in the Czech Republic, although in recent years gambling has enjoyed significant media coverage. This geographical contribution to the study of gambling at a local level lies mainly in the exploration of its spatial distribution and the related accessibility. Many studies have shown the impact of the accessibility of gambling on the prevalence of problem and pathological gambling. This article aims to analyse the spatial concentration of gambling venues in Olomouc and explain the localization of its centres. For this purpose, we used the kernel density function in the ArcGIS programme. We have defined two kernels, one in the historical centre of Olomouc and the other near the main railway station. Both the gambling centres are easily accessible locations and it is also possible to connect them with a higher number of crimes committed. In conclusion, we also analysed Masarykova Street, which is the street with far and away the highest number of gambling venues in the city. We paid attention to the link between the presence of gambling venues and associated service facilities such as ATMs and pawnbrokers.

Key words: gambling, accessibility, availability, Olomouc, Czech Republic, case study.

INTRODUCTION

Gambling is a very specific kind of socio-economic activity, as it brings not only entertainment, but in extreme cases, also personality and behavioural disorders in the form of problem and pathological gambling. Nevertheless, gambling is a natural phenomenon of mankind and the evidence of its presence in society dates back to the times of the ancient civilizations of Mesopotamia and Egypt (Szczyrba et al. 2015). Even the theory of probability, nowadays a basic mathematical discipline, began to develop as a part of the theory of gambling, based on the works of Blaise Pascal, Pierre de Fermat, and Christian Huygens in the mid-17th century. In their works, we can find such important concepts as probability and mean value, their

basic properties, and methods for their calculation (Hendl 2012; Budíková 2016). Technological progress has made it possible to develop new, technologically demanding types of gambling, which can more easily lead to gambling addiction. Above all, these technologies include the electronic gaming machines (EGMs) or betting games in casinos. In the Czech Republic the number of EGMs has been very high on a long-term basis and according to an annual global study, in 2010 the Czech Republic belonged among the top 10 countries in terms of the absolute number of EGMs in the world (TNS 2011). In most Czech cities, gambling halls and casinos are perceived as a normal part of life; city streets are lined with gambling venues and non-stop bars attracting passers-by with the promise of high payouts (Fiedor et al. 2016).

The issue of gambling, as a topic of research, can be viewed from many viewpoints. Therefore, gambling has been scientifically explored by economists (Christiansen 1998; Sauer 2001; Eadington 1999; Philander et al. 2015), addictologists (Abbott et al. 2014; Meyer et al. 2009), sociologists (Lee et al. 2006; Binde 2005), psychiatrists and psychologists (Błaszczynski and Nower 2002; Błaszczynski et al. 2011), and, last but not least, geographers (Raento 2000; Marshall and Baker 2001; Marshall 2002). Geographical research into gambling is an integral part of public health research and it typically examines the connection between the accessibility of gambling, the socio-demographic characteristics of the gamblers, and the nature of their involvement in gambling (Binde 2009). Especially in countries (e.g. Australia, Canada, the USA) where the experience with gambling is reproduced in a long-term perspective, its research has a strong position in the above-mentioned disciplines. The current knowledge of gambling in the Czech Republic is totally inadequate, and not only in comparison with those countries. There are only a few studies, which are mainly focused on pathological gambling (Maierová 2012; Nešpor and Csémy 2005; Mravčík et al. 2015b).

The impacts on the gamblers themselves and their families and surroundings are obviously perceived negatively. Gambling, however, cannot be associated only with negative effects on individuals and their surroundings. The gambling business certainly also has positive aspects, which often include a positive impact on higher employment in the region (Philander et al. 2015) or the tax revenues of public budgets (Pickernell et al. 2013). The tax revenues of the state or municipalities and cities are one of the main reasons why gambling is tolerated in many countries. In 2015, municipalities in the Czech Republic shared an income from gambling of more than 5.5 billion CZK, and the state budget received more than 2.5 billion CZK. Therefore many municipalities in the Czech Republic only regulate gambling but do not ban it, because the income from gambling constitutes an important part of their budget.

Therefore, the aim of this article is to focus on gambling on the local scale, through the example of the city of Olomouc, which is characterized by

a long-term high concentration of so-called hard gambling (EGMs and betting games in casinos). The research is focused on the spatial accessibility of hard gambling in the city of Olomouc. The successful solution of the research problem implies finding answers to several research questions: Is the accessibility of hard gambling in Olomouc higher than in other cities in the Czech Republic of similar size? Is the concentration of gambling in Olomouc distributed uniformly, or are there core areas with higher concentrations of EGMs or casino betting games? Does the spatial distribution of EGMs and casino betting games correspond with the distribution of other socio-economic phenomena, e.g. socially excluded localities or crime? Is there a higher concentration of services such as ATMs or pawnshops around gambling venues, where it is possible to get more cash for gambling?

THEORETICAL BACKGROUND

Information on the spatial distribution of gambling venues is very important for a research study focused on public health. Generally, besides the structural characteristics of gambling venues (distinguishing individual types of facilities and the kind of gambling that is offered in them), there are also situational characteristics, which can include the specific location of the facility, the number of venues or EGMs in a pre-defined area, opening hours, or the form of advertising or consumer incentives. In recent decades, the scientists who focus on gambling have mostly been attracted by the situational characteristics, which can also be understood as the availability and accessibility of gambling, and their relationship to the prevalence of problem and pathological gambling has been particularly examined (St-Pierre et al. 2014).

Marshall (2005) distinguishes several dimensions of accessibility and availability: geographical, temporal, and social accessibility; some authors then combine geographical and temporal accessibility and use the term space-time accessibility accompanied by financial accessibility (Moore et al. 2011; Thomas et al. 2011). Most empirical studies have confirmed a link between the geographical accessibility of gambling venues and the prevalence of problem gambling

(Rush et al. 2007; Pearce et al. 2008; Welte et al. 2009; Welte et al. 2004). For example, using logistic regression, Pearce et al. (2008) revealed that people living within 0.7 kilometres of casinos, EGM facilities, or betting shops have more than twice as high a probability of becoming problem gamblers as residents living more than 3.1 kilometres from such facilities. Nevertheless, the relationship of the distance of gambling venues from the place of residence and the prevalence of problem and pathological gambling has not always been clearly demonstrated, especially if we focus on a younger age group, the one aged 18–29 years (Welte et al. 2007). Besides the demonstration of a positive association between the geographical accessibility of gambling and the occurrence of problem gambling, the definition of gambling centres can help decision makers when they are thinking about the regulation of gambling or the location of medical facilities to help pathological gamblers (Rush et al. 2007).

The geographical accessibility of gambling and the creation of centres (kernels) of gambling in the city of Olomouc are only the first part of the geographical research into gambling at the local level (apart from temporal accessibility, which we do not take into account in this article). Another and equally important part is the subsequent focus on the surroundings of gambling venues in terms of financial accessibility, as defined by Thomas et al. (2011). As Thomas et al. (2011) also point out, the location of ATMs near gambling venues increases the accessibility of funds, which can lead to impulsive behaviour on the part of gamblers. The consequence is the extension of the time spent gambling and an increase in the stakes (Błaszczynski et al. 2001). ATMs are not the only fast and affordable way to get more cash for gambling. The link between the spatial distribution of gambling venues and pawnshops is reflected in an old Chinese proverb that says: “Where there is gambling, there is pawnbroking” (Gao 2015). Pawnshops are used mainly by pathological gamblers who have already lost large sums and so they are not usually able to get money from an ATM. In their research into gambling in socially excluded localities in the Czech Republic, Mravčík et al. (2014) highlighted, among

other things, the operations of pawnbrokers, who buy goods stolen by gamblers to get money to play with. A socially excluded locality is a space where there is a higher concentration of persons with features associated with social exclusion, i.e. unemployment, discrimination, poor skills, low incomes, poor housing, bad health, and family breakdown (Čada 2015). These factors are also reflected in further research into the relationship between gambling and criminal activity. Smith et al. (2003) use the term “gambling-related crime”, which includes illegal gaming, criminal offenses typically committed by problem gamblers (forgery, misappropriation of money, etc.), crime associated with gambling venues and their surroundings (money laundering, theft, assault), and offenses committed within the families of addicted gamblers (e.g. domestic violence). Criminal behaviour associated with pathological gambling is considered, for example, by Meyer and Stadler (1999); in the Czech Republic, the attention is paid primarily to criminal behaviour related to the operation of gambling venues – noise pollution at night, drunkenness, and prostitution (Mravčík et al. 2014) or crimes committed by problem and pathological gamblers, of which tax fraud, misappropriation, or theft from close relatives are those most often mentioned (Roznerová and Mravčík 2015).

DATA AND METHODS

The basic regulatory instrument of gambling in the Czech Republic is Act no. 202/1990 Coll., On Lotteries and Other Similar Games, as amended. The Lottery Act defines various types of games, gaming environments, and the licensing principles and possibilities of regulation of various types of games, as well as the role of various state administration and local government bodies. Figure 1 shows the role of the three actors (municipalities, regional administrations, and the Ministry of Finance of the Czech Republic) in the process of licensing various types of games and the capability of municipalities (local councils) to regulate gambling.

The article focuses on so-called hard gambling (defined according to the potential impact on the development of addictions or problem or

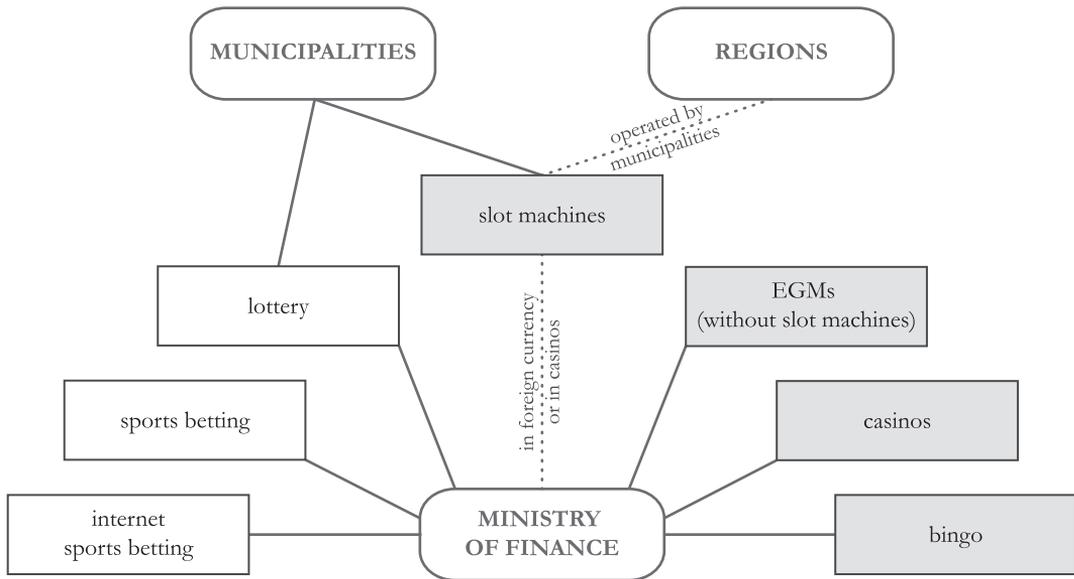


Figure 1 The principle of licensing particular types of gambling, including an indication of the types of games which municipalities can regulate (grey background). Source: compiled by the author.

pathological gambling), which in this sense includes technical equipment and live games operated in casinos (both licensed by the Ministry of Finance) and EGMs (licensing powers delegated to municipal authorities or, in special cases, regional councils; see Figure 1). Besides hard gambling, the article will also focus on betting shops, which, because of their location, are often associated with the presence of hard gambling venues.

Available Data

The data on the licensing of gambling has to be divided into three groups – gambling games licensed by the Ministry of Finance, EGMs licensed primarily by municipalities, and betting where the Ministry of Finance issues a license to the betting companies but does not license or regulate individual betting shops. The data on gambling licensed by the Ministry of Finance is available on their website in the form of an informative list of licensed EGMs. For each EGM, it states the address of the premises where the licensed EGM is located, the type of the EGM (interactive video-lottery terminals, electro-mechanical roulette, slot machines, betting games

in casinos and others), the operator, and the serial number of the machine. A partial problem with the use of this data lies in the inaccuracies in the records that frequently occur, so that it is advisable to verify the data in the field where possible. The data about slot machines that are licensed by municipalities can also be obtained through the database of the Ministry of Finance. Municipalities are required to send the Finance Ministry a list of the slot machines licensed in the past year by the end of the first quarter. Consequently, it is possible to request this list from the Ministry of Finance on the basis of Act no. 106/1999 Coll., On Free Access to Information. Unlike the list of EGMs licensed by the Ministry of Finance, this list does not contain all the identification data; for example, it lacks the exact address of the facility in which the licensed machine is located. Without additional field research (in the case of Olomouc conducted in June 2016), it is impossible to get a complete overview of the EGMs being operated. The last type of game that is involved in this study is betting. Data on betting shops can be obtained from the websites of betting companies which have a licence to operate fixed-odds betting.

The Lottery Act distinguishes between three types of premises where hard gambling may be operated: venues with a special regime (not specializing in gambling, but providing gambling services as a collateral activity, e.g. restaurants or petrol stations), gambling halls, and casinos. It is important to emphasize that the Lottery Act does not explicitly define a casino; it only states that it is a special type of gambling hall, where so-called live games are operated. Regarding the premises with a special regime, the Lottery Act specifies that they cannot operate more than six EGMs.

Besides the data on the licensed EGMs, it is also possible to monitor the regulatory tools of municipalities and city councils. Since 2012, they have been able to regulate hard gambling through generally binding regulations, which must be publicly available on the website of the municipality. These regulations can also be found in a list published by the Ministry of Finance.

Processing Methods

When comparing the penetration of gambling in a territory, the number of EGMs and betting games in casinos per thousand residents is often used as an indicator, although it would be more logical to take into account only the population older than 18 years (the participation of younger persons in gambling is forbidden by the law). As the number of EGMs is as of the end of the year (i.e. 31 December), the number of inhabitants of particular municipalities is also given as of the end of the year, not as a mid-year population in that year. Similarly, the article uses the number of betting shops per thousand inhabitants.

To delineate places characterized by the excessive occurrence of EGMs, we used the kernel density function, which is available in spatial analyst tools in the ArcGIS programme. Individual address points were weighted by the number of EGMs and casino betting games allowed, because it is obvious that the size of the premises shows its importance in the area. The kernel density function automatically calculates for each pixel (cell) a value showing the concentration of the phenomenon (McMillen and

Doran 2006). Besides the cell size, it is necessary to define the bandwidth (distance from the cell) for which we calculate the concentration. Setting these parameters is based on a rather subjective decision that significantly affects the final appearance of the map. The larger the bandwidth, the lower the differences between locations, and vice versa. In our analysis, we set the function parameters to 10 m for a cell and 1 km for the bandwidth (cf. Fiedor et al. 2016; Navrátilová 2014). Wardle et al. (2014) also used the kernel density function for the differentiation of places according to the density of EGMs, but their setting differed considerably since the territory they explored was the whole of Great Britain.

RESULTS

This chapter is divided into three parts: first, the city of Olomouc will be compared with cities of a similar size, then the internal structure of the city will be analysed and finally we will examine the relationship of the occurrence of gambling venues and associated services (ATMs, pawn shops) on Masarykova Street, where the concentration of gambling has been very high on a long-term basis.

Comparison of the city of Olomouc with other Czech cities of similar size regarding the gaming market

The city of Olomouc occupies a dominant position on the gaming market in the Czech Republic from a long-term perspective. In recent years, the number of EGMs and casino betting games per thousand inhabitants has been more than twice as high as that for the whole Czech Republic, and in this regard it occupies the first place among cities with more than 50 thousand residents (Fiedor et al. 2016; Mravčík et al. 2014). Nevertheless, the number of EGMs being operated was reduced in the period 2010–2015 and decreased from about 25 to 14 per thousand inhabitants (Figure 2). The same figure also shows that since the beginning of the period in question, České Budějovice has been struggling hard to reduce gambling and has established zero tolerance since the end of 2011 (Decree no. 4/2011), which means that after the expiry of the current licences it will not be possible to operate hard gambling legally in České

Table 1 Absolute and relative numbers of EGMs, casino betting games and betting shops in Olomouc and cities of a similar size as of 31 December 2015.
Source: Ministry of Finance of the Czech Republic (2016), Czech Statistical Office (2016), and Řezníček (2016); compiled by the author.

	Number of inhabitants	Absolute numbers				Relative numbers (per 1,000 inhabitants)	
		EGMs and casino betting games (according to the publisher of licence)			Betting shops	EGMs and casino betting games	Betting shops
		Municipalities	Ministry of Finance	Total			
České Budějovice	93,513	0	13	13	34	0.14	0.36
Hradec Králové	92,891	213	470	683	26	7.35	0.28
Liberec	103,288	262	811	1,073	28	10.39	0.27
Olomouc	100,154	42	1,363	1,405	41	14.03	0.41
Pardubice	89,638	142	809	951	39	10.61	0.44
Ústí nad Labem	93,248	260	551	811	32	8.70	0.34
Czech Republic	10,543,843	10,023	52,477	62,500	3,523	5.92	0.33

Note: The relative numbers of EGMs and casino betting games cannot be logically compared with the number of betting shops.

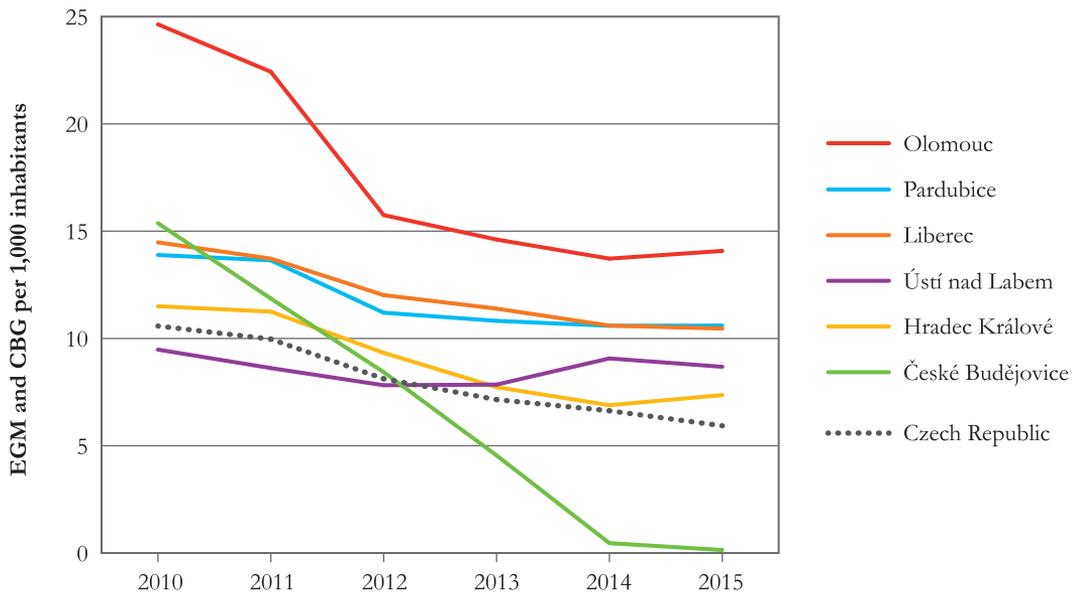


Figure 2 Number of EGMs and casino betting games (CBG) in Olomouc and the cities of similar size per thousand inhabitants in the years 2010–2015 (as of 31 December). Source: Ministry of Finance of the Czech Republic (2016), Czech Statistical Office (2016); compiled by the author.

Budějovice. All the other cities that can be compared have generally binding decrees regulating gambling, giving a list of addresses where gambling (EGMs and casino betting games) can be operated. Most cities released the first generally binding regulations of this type with effect from the beginning of 2012, as until then, under the existing law, the municipalities could issue licences and thus only regulate slot machines (Szczyrba et al. 2015). The numbers of locations where gambling is allowed are as follows: Hradec Králové – 67 places; Liberec – 86 places; Olomouc – 57 places; Pardubice – 89 places (only in urban districts I, II, III, and V; the others are not regulated); Ústí nad Labem – 109 places (Ministry of Finance of the Czech Republic 2016). Therefore, during the period in question, the number of EGMs in these cities was declining steadily but modestly. An exception may be Ústí nad Labem, which, at the beginning of the period, showed the lowest number of EGMs per thousand inhabitants of all the cities and was below the national average, while at the end of 2015 it had already overtaken not only the average in the Czech Republic, but also some other cities of comparable size. In

the last year of this period, Olomouc shows a slight increase, despite the fact that gambling was forbidden in 14 places by the generally binding Decree no. 5/2013. The reason is certainly the opening of a new casino, located in the Hodolany Resort, which was built on the premises of the former Hodolany Theatre. Regarding the number of gambling venues, the casino in the Hodolany Resort is one of the largest in Moravia, with a total of 151 EGMs and live betting games as of 31 December 2015.

The situation at the end of the period in question is also demonstrated in Table 1, which shows the absolute and relative numbers of EGMs and casino betting games, as well as the number of betting shops in the cities that were monitored. As is obvious from the internal structure of Olomouc, described below, fixed-odds betting is associated with the occurrence of hard gambling venues in many cases and the municipalities have no competence to regulate them. For example, in České Budějovice, with zero tolerance of hard gambling, the number of betting shops per thousand inhabitants is higher than the average in the Czech Republic. While hard gambling

venues are concentrated mainly in large cities, which in this respect significantly exceed the national average, betting shops are less concentrated. The reason can be found in the different degree of social acceptance of both types of games, as well as the risk of addiction. For example, the results of research carried out by Maierová et al. (2014) suggest that anonymity in the eyes of other gamblers is one of gamblers' leading criteria in their selection of gambling venues (the research was conducted among a set of pathological gamblers treated at psychiatric hospitals). Because pathological gambling is associated primarily with EGMs, we can conclude that this anonymity is mainly associated with this type of gambling, while participants in fixed-odds betting sometimes compete among themselves – betting shops publish rankings of the best punters for that calendar month for each branch separately (Krauss 2010). Therefore, this difference in the behaviour of gamblers might lead to the fact that the network of betting shops is less spatially concentrated, because gamblers would lack anonymity in the smaller towns of the Czech Republic.

Gambling in the internal structure of the city of Olomouc

The districts of the city of Olomouc, as well as the basic settlement units, are highly diversified and some of them still have the character of a self-contained country-like settlement (Šimáček et al. 2016). These districts are former municipalities affiliated to Olomouc in the 1970s and 1980s and providing recreational facilities for the inhabitants of Olomouc (Droždín, Lošov, Nedvězí, Radíkov, Svatý Kopeček) or areas for the development of housing (Chomoutov, Topolany, Týneček). On the other hand, Bělidla, Hejčín, Hodolany, Chválkovice, Neředín, Pavlovičky, Povel, and Řepčín were integrated in the early 20th century and today they constitute a compact development within the original city of Olomouc (Fiedor et al. 2016). Only a few betting shops can be found outside this compact development.

In Olomouc, hard gambling can theoretically be operated legally in 57 places, but actually it can only be found at 53 of them. In addition, there are two

more venues operating in violation of a generally binding decree of the city, because not all administrative proceedings concerning the withdrawal of their licenses have been completed yet.

The total number of betting shops in Olomouc is 38 and only 15 of them are located in separate premises, i.e. without any connection with a hard gambling venue (Figure 3). Nevertheless, not all fixed-odds betting shops are directly joined to a gambling venue, but they are always at the same address. An example might be a betting shop and a casino in a shopping centre.

The lack of a definition of a casino in the Lottery Act causes a kind of methodological limitation. For this reason, in Figure 3, the number of casinos is 19 and the total number of casinos in the Czech Republic (about 500) is thus considerably overestimated (Mravčík et al. 2015a). Most of them, however, do not regularly offer live games and they are rather gambling halls. Usually, the owners of these “casinos” have a licence to operate casino betting games just to be able to occasionally organize a poker tournament. If we focus only on casinos in Olomouc with regular operation of live games, there are only four.

For the definition of centres of hard gambling in Olomouc, we used the kernel density function. Two of the resulting kernels have the highest kernel density index values and another kernel shows a slightly lower density (Figure 4). The first kernel is the inner-city district of Olomouc (comprising the basic administrative units of the historical centre and Flora Parks) and the Olomouc West district (the basic administrative unit called Stadiums); the second kernel consists of the Hodolany district (comprising the basic administrative units of Kosmonautů Street, the Central Railway Station, and Hodolany). The third (smaller) kernel consists of the Povel and Nové Sady districts, which is an area of Olomouc given over to housing estates.

The above-mentioned kernels of gambling can be characterized from several points of view. The first kernel was formed in the middle of the historical heart of Olomouc and the second in the area around

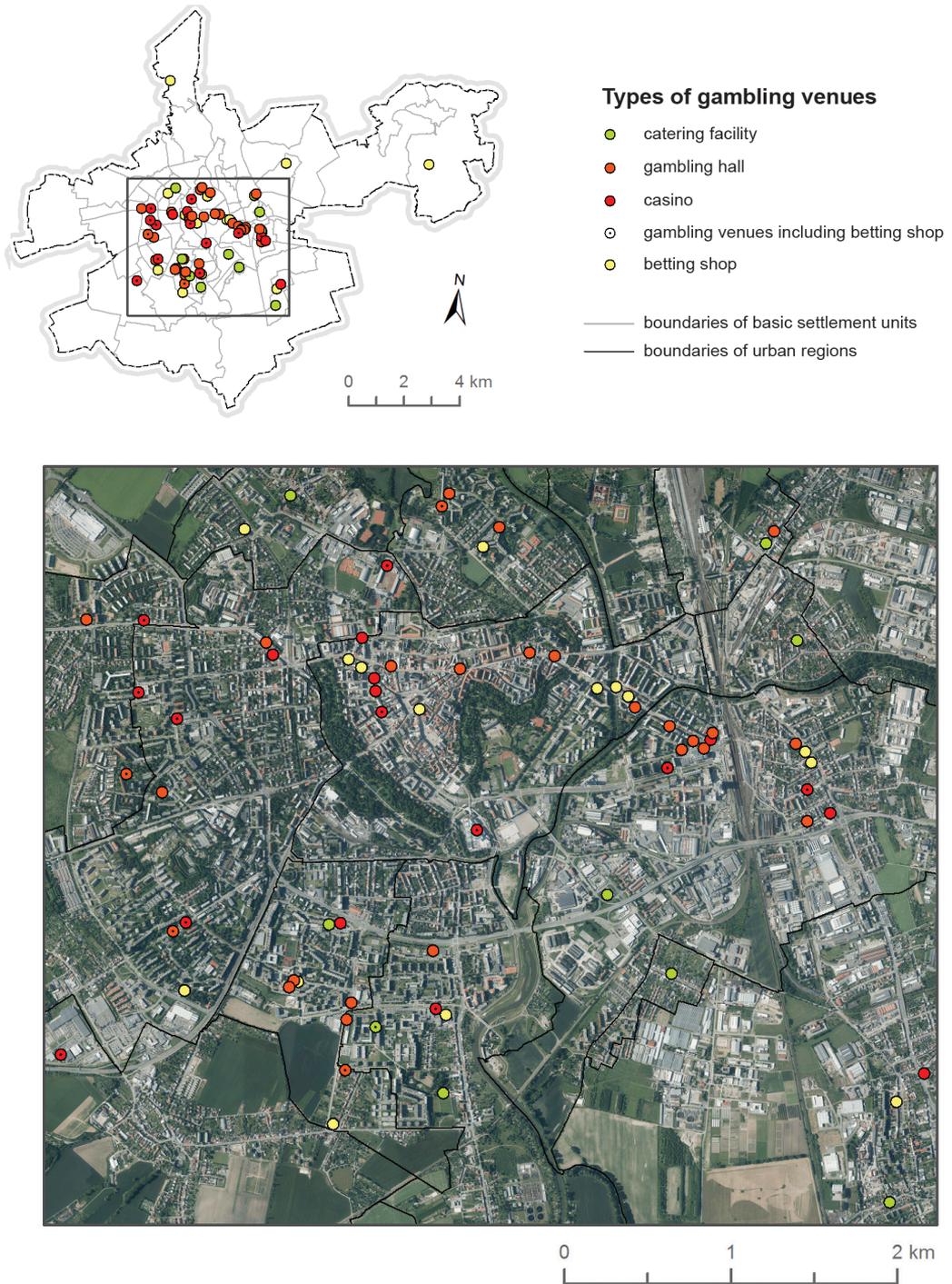


Figure 3 Spatial distribution of gambling venues (facility with a special regime, gambling hall, casino) and betting shops in Olomouc (31 May 2016). Source: ArcCR 3.2, Ministry of Finance of the Czech Republic (2016), websites of betting shops; compiled by the author.

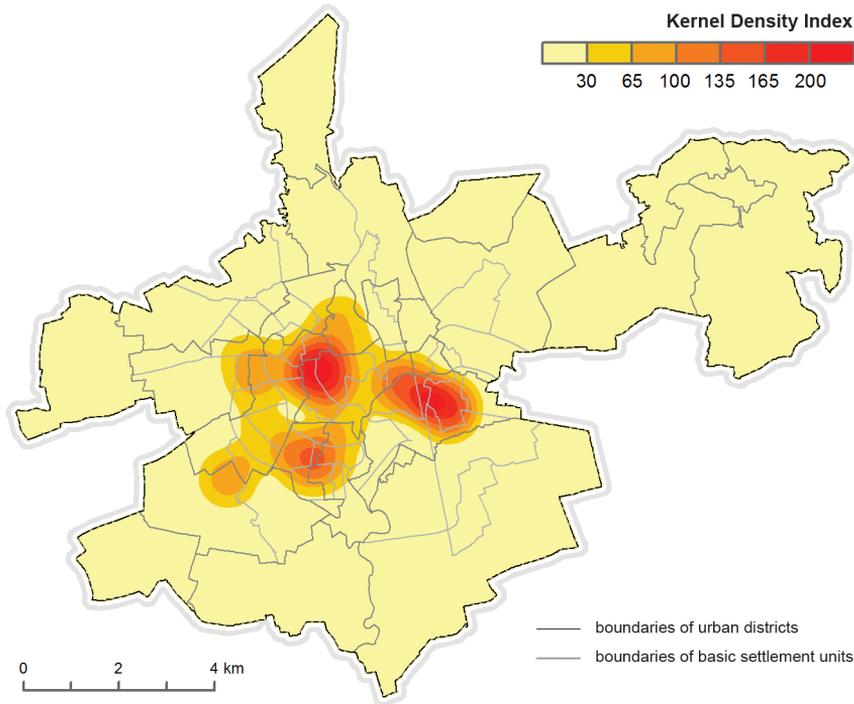


Figure 4 Kernel density of the hard gambling venues in Olomouc (as of 31 May 2016)

Source: ArcČR 3.2, Ministry of Finance of the Czech Republic (2016); compiled by the author.

the main train station (and near the bus station). Both these kernels of gambling are easily accessible, which is probably the main factor motivating the operators to establish gambling venues in these locations. In addition, both areas can be identified as problematic. According to surveys of crime in the city centre (the Olomouc inner city and Hodolany districts), Jeremenkova, Kosmonautů, Štursova, Riegrova and Svobody are the streets that are at the head in terms of the number of crimes committed, as in the years 2011 to 2014 more than a hundred criminal acts were reported in each of them (Hýža 2016). All the above-mentioned streets are within the defined kernels of gambling, and only one of them (Štursova) has no gambling hall. According to Hýža (2016), the area to the east of the main station located within the defined gambling kernel was not above average in terms of the number of criminal acts committed. This may be due to the fact that this region is dominated by the casino located in the Hodolany Resort, which opened up during 2015, i.e. not in the period in which the criminal acts were analysed. The latest determination

of socially excluded localities in Olomouc was carried out in May 2010, on the orders of the Olomouc Region (Zifčák 2010), and seven socially excluded localities were found, but none of them match the kernels of gambling defined in this article.

From the perspective of the functional land use of the basic settlement units with the highest concentration of gambling in Olomouc, these locations are mostly residential areas in the compact development of Olomouc (with the exception of the basic administrative unit of the Central Railway Station – a transport area – and Stadiums – an area dedicated to civic amenities), which is probably a result of the commercialization of the city centre (explained through the example of Masarykova Street). The housing development of the gambling kernel in the historical centre of the city is characterized by a high number of dwellings built before 1920 and both kernels are characterized by a low number of flats in houses, as well as a higher proportion of unoccupied apartments (Šimáček 2015).

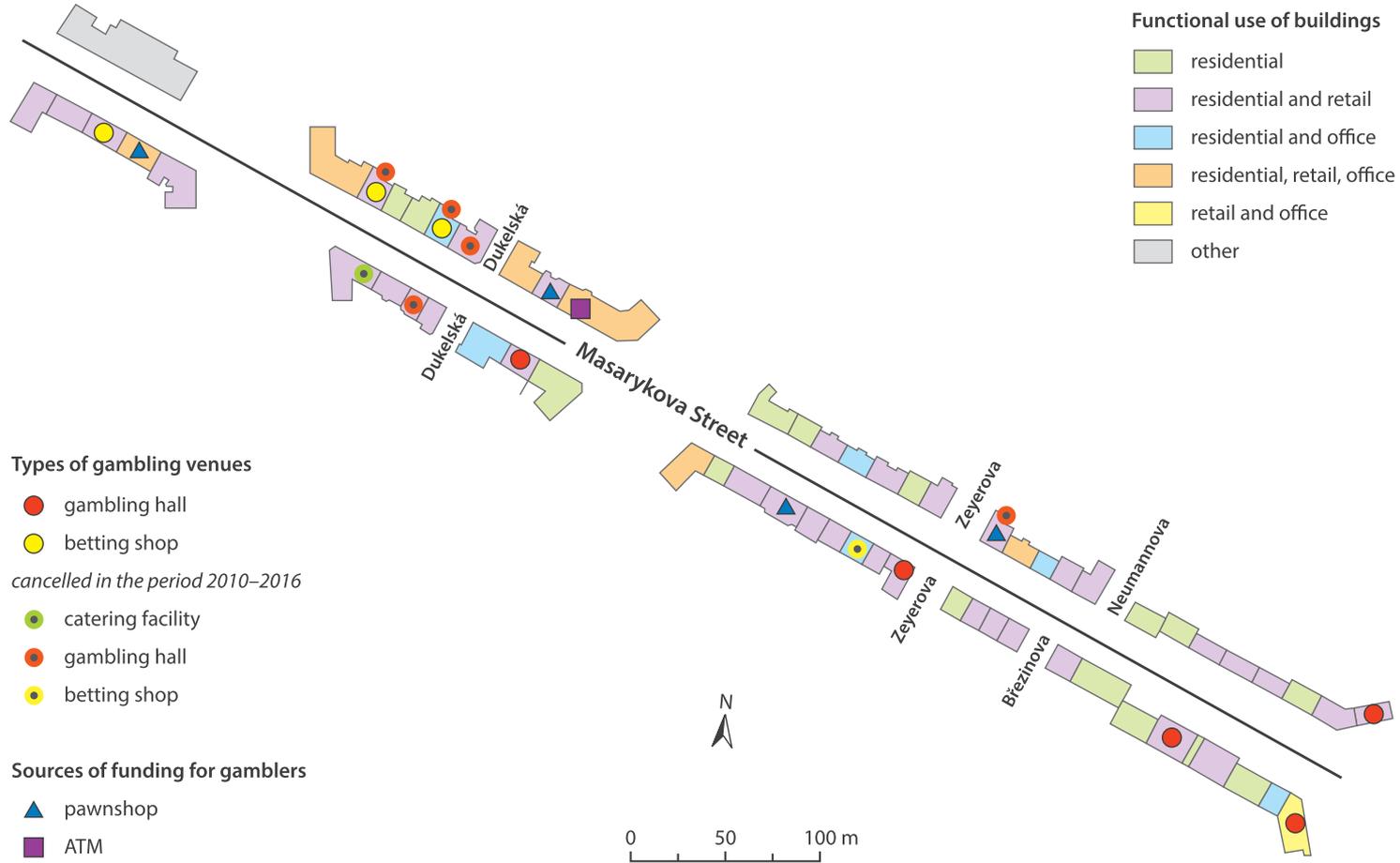


Figure 5 Functional use of houses on Masarykova Street in Olomouc (as of 31 May 2016). Source: ArcČR 3.2, Šuráň (2015); compiled by the author.

Masarykova Street Case Study

Masarykova Street is the street with the highest concentration of gambling venues in Olomouc on a long-term basis. It even forms the main part of the Hodolany gambling kernel, which has been determined above, and therefore this street was analysed in a separate subchapter. Masarykova Street is a fairly busy street with a tram line joining the main Olomouc railway station to the historical centre of the city. Most of the buildings are multifunctional. According to Sýkora (1999), the commercialization of urban centres during the period of transformation resulted in the assignment of the residential area of houses in the city centre to another functional use, mainly shops and offices. Therefore he categorizes the functional use of buildings into four basic categories and their combinations: residential function, retail function (besides retail units also hotels, restaurants, and personal services – e.g. hairdressers), office locations (including both public and private administration, schools and health centres, or post offices) and others. Almost all the buildings in Masarykova Street are used for, inter alia, habitation (mostly all the floors except the ground floor). The ground floor is often used for the operation of restaurants, retail stores, or other services.

A secondary objective was to determine whether there are business premises providing sources of funds, i.e. ATMs or pawnbroker's shops near the hard gambling venues and betting shops. At the moment, there are five gambling halls on Masarykova Street (including clubs whose address is not Masarykova Street, but are located in buildings that are part of it – see Figure 5). Other gambling venues are three betting shops that stand alone, i.e. not in relation to a hard gambling venue. Besides gambling halls, there are four pawnbroker's shops and one ATM on this street. The maximum distance that a gambler has to pass in order to obtain additional funds for gambling is no longer than about 125 m. We took into account only the pawnshops and ATMs located on Masarykova Street – another facility of this kind can be found near the main station, which is at the end of Masarykova Street. If necessary, gamblers can easily get cash and come

back to their game, which allows a deepening of the expected negative financial impacts on gamblers (Błaszczynski et al. 2001).

In the past, the number of gambling venues at this street was even higher, as illustrated in Figure 5. In the period 2010–2016, five gambling halls, one facility with a special regime and one betting shop were closed. Nevertheless, Masarykova Street remains the kernel of the concentration of gambling in Olomouc.

CONCLUSIONS AND DISCUSSION

According to many studies (Rush et al. 2007; Pearce et al. 2008; Welte et al. 2009), the accessibility and availability of gambling seem to be an important determinant of the risk of the development of problem and pathological gambling. Therefore, we have chosen the accessibility of hard gambling (EGMs and betting games in casinos) in Olomouc, and its spatial concentration, as a basic research question of this case study. It can be stated that the spatial distribution of gambling venues in Olomouc is very uneven, which is supported by the rural character of some of its parts (Šimáček et al. 2016; Fiedor et al. 2016). Using the kernel density function, we have defined two major gambling centres in Olomouc: the historical centre and the area around the main train station. Both centres are easily accessible and rather problematic locations, as all the streets with the highest numbers of crimes (we examined the districts of the inner city of Olomouc, Hodolany, and Nový Svět) can be found in the kernels of hard gambling that were determined (Hýža 2016). Nearly all of them have at least one hard gambling venue, usually a gambling hall. Although the areas of the gambling kernels in Olomouc can be labelled as problematic locations, they do not match the socially excluded localities determined in 2010 (Zifčák 2010).

Special attention was paid to Masarykova Street, which has been the street with the highest number of gambling venues in Olomouc on a long-term basis (Šuráň 2015). In this example, we demonstrated the connection of the network of gambling halls and accompanying business facilities, i.e.

ATMs and pawnshops, which support the continuation of gambling (Blaszczynski et al. 2001). The maximum distance which a player must go from a gambling hall to the nearest pawnshop is only about 125 m.

The goal of the case study was to localize the gambling centres in Olomouc and connect them with the occurrence of other socio-pathological phenomena. In the last few years, however, the understanding of gambling in the Czech Republic has changed significantly and we expect that there will be considerable regulation. Therefore, the author sees further possibilities for research on the local level of the city of Olomouc. For example, the accessibility of gambling defined by Marshall (2005) and Thomas et al. (2011) also involves temporal or financial accessibility, which was so far taken into account only partially for the example of Masarykova Street and not for the city of Olomouc in general.

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References

- Abbott, M., W., Romild, U., Volberg, R., A.** 2014: Gambling and Problem Gambling in Sweden: Changes Between 1998 and 2009. *Journal of Gambling Studies* 30, 985–999.
- Binde, P.** 2005: Gambling across cultures: Mapping worldwide occurrence and learning from ethnographic comparison. *International Gambling Studies* 5, 1–27.
- Binde, P.** 2009: *Gambling motivation and involvement: a review of social science research*. Statens Folkhälsoinstitut, Östersund.
- Blaszczynski, A., Collins, P., Fong, D., Ladouceur, R., Nower, L., Shaffer, H., J., Tavares, H., Venisse, J., L.** 2011: Responsible Gambling: General Principles and Minimal Requirements. *Journal of Gambling Studies* 27, 565–573.
- Blaszczynski, A., Nower, L.** 2002: A pathways model of problem and pathological gambling. *Addiction* 97, 487–499.
- Blaszczynski, A., Walker, M., Sharpe, L.** 2001: *The assessment of the impact of the reconfiguration on electronic gaming machines as harm minimisation strategies for problem gambling*. University Printing Service, Sydney.
- Budíková, M.** 2016: *Stručný historický přehled vývoje pravděpodobnosti a statistiky* (<https://www.math.muni.cz/~budikova/prf/historie.pdf>), accessed 2016-06-01.
- Christiansen, E. M.** 1998: Gambling and the American economy. *The Annals of the American Academy of Political and Social Science* 556, 36–52.
- Czech Statistical Office** 2016: *Databáze demografických údajů za obce ČR* (<https://www.czso.cz/>), accessed 2016-07-11.
- Čada, K.** 2015: *Analýza sociálně vyloučených lokalit v ČR*. GAC spol. s r. o., Praha.
- Eadington, W. R.** 1999: The economics of casino gambling. *Journal of Economic Perspectives* 13, 173–192.
- Fiedor, D., Szczyrba, Z., Smolová, I., Šuráň, Z.** 2016: Hazard v Olomouci a jejím zázemí: diskuse k rizikům ovlivňujících kvalitu života urbánní a suburbánní populace. In **Ira, V. ed.** *Městská a příměstská kvalita života z geografického hlediska (příklad městského regionu Olomouc)*.
- Gao, F.** 2015: Traditions and Reforms of the Regulation of Pawnbroking in Macau – A Comparative Analysis. *International Company and Commercial Law Review*.
- Hendl, J.** 2012: *Přehled statistických metod: analýza a metaanalýza dat*. Portál, Praha.
- Hýža, M.** 2016: *Kriminalita v Olomouci a její vnímání obyvatelstvem města, případové studie městských částí Olomouc-město, Hodolany, Nový Svět*. Diploma thesis, Palacký University in Olomouc.
- Krauss, F.** 2010: Taking the Points: The Socialization Process of a Sports Book “Regular”. *Occasional Paper Series*, 7.
- Lee, C.-K., Lee, Y.-K., Bernhard, B., J., Yoon, Y.-S.** 2006: Segmenting casino gamblers by motivation: A cluster analysis of Korean gamblers. *Tourism Management* 27, 856–866.
- Maierová, E.** 2012: Pathological slot machine gambling in the Czech Republic. *Adiktologie* 12, 334–343.

- Maierová, E., Charvát, M., Miovský, M.** 2014: Průběh a následky hráčských kariér u mužských pacientů hospitalizovaných v psychiatrických nemocnicích pro diagnózu F 63.0 patologické hráčství. *Česká a slovenská psychiatrie* 110, 291–300.
- Marshall, D. C.** 2002: *A geography of gambling: electronic gaming machines in Richmond-Tweed*. University of New England.
- Marshall, D. C.** 2005: The Gambling Environment and Gambler Behaviour: Evidence from Richmond-Tweed, Australia. *International Gambling Studies* 5, 63.
- Marshall, D. C., Baker, R. G. V.** 2001: Clubs, spades, diamonds and disadvantage: The geography of electronic gaming machines in Melbourne. *Australian Geographical Studies* 39, 17–33.
- Mcmillen, J., Doran, B.** 2006: Problem gambling and gaming machine density: Socio-spatial analysis of three Victorian localities. *International Gambling Studies* 6, 5–29.
- Meyer, G., Hayer, T., Griffiths, M.** 2009: *Problem gambling in Europe: Challenges, prevention, and interventions*. Springer New York.
- Meyer, G., Stadler, M. A.** 1999: Criminal behavior associated with pathological gambling. *Journal of Gambling Studies* 15, 29–43.
- Ministry of Finance of the Czech Republic** 2016: *Loterie a sázkové hry* (<http://www.mfcr.cz/>), accessed 2015-06-11.
- Moore, S., M., Thomas, A., C., Kyrios, M., Bates, G., Meredyth, D.** 2011: Gambling Accessibility: A Scale to Measure Gambler Preferences. *Journal of Gambling Studies* 27, 129–143.
- Mravčík, V., Černý, J., Leštinová, Z., Chomynová, P., Grohmannová, K., Licehammerová, Š., Ziegler, A., Kocarevová, V.** 2014: *Hazardní hraní v České republice a jeho dopady*. Praha: Úřad vlády České republiky.
- Mravčík, V., Chomynová, P., Grohmannová, K., Janíková, B., Grolmusová, L., Tion Leštinová, Z., Rous, Z., Kiššová, L., Nechanská, B., Sopko, B., Vlach, T., Fidesová, H., Jurystová, L., Vopravil, J., Malinová, H.** 2015a: Výroční zpráva o stavu ve věcech drog v České republice v roce 2014 (<http://www.drogy-info.cz/publikace/vyrocní-zpravy/vyrocní-zprava-o-stavu-ve-vecich-drog-v-ceske-republice-v-roce-2014>), accessed 2015-06-06.
- Mravčík, V., Chomynová, P., Roznerová, T., Drbohlavová, B., Černý, J., Tion Leštinová, Z.** 2015b: Prevalence problémového hráčství v České republice. *Adiktologie* 15, 310–319.
- Navrátilová, A.** 2014: *Geografie hazardu: případová studie Ostravy*. University of Ostrava.
- Nešpor, K., Csémy, L.** 2005: How many pathological gamblers is in the Czech Republic. *Časopis lékařů českých* 144, 706–708.
- Pearce, J., Mason, K., Hiscock, R., Day, P.** 2008: A national study of neighbourhood access to gambling opportunities and individual gambling behaviour. *Journal of Epidemiology and Community Health* 62, 862–868.
- Philander, K., S., Bernhard, B., J., Wimmer, B., S., Singh, A., K., Eadington, W., R.** 2015: US casino revenue taxes and short-run labor outcomes. *Journal of Policy Modeling* 37, 35–46.
- Pickernell, D., Keast, R., Brown, K., Yousefpour, N., Miller, C.** 2013: Gambling Revenues as a Public Administration Issue: Electronic Gaming Machines in Victoria. *Journal of Gambling Studies* 29, 689–701.
- Raento, P.** 2000. Geography of gaming: Casinos in the United States. *Terra* 112, 3–19.
- Roznerová, T., Mravčík, V.** 2015: Hazardní hráčství a jeho dopady – kvalitativní výzkum patologických hráčů. *Adiktologie* 15, 334–341.
- Rush, B., Veldhuizen, S., Adlaf, E.** 2007: Mapping the prevalence of problem gambling and its association with treatment accessibility and proximity to gambling venues. *Journal of Gambling Issues* 20, 193–213.
- Řezníček, R.** 2016: *Sázkové hraní v ČR, prostorová distribuce a další geografické aspekty*. Diploma Thesis, Palacký University Olomouc.
- Sauer, R. D.** 2001: The political economy of gambling regulation. *Managerial and Decision Economics* 22, 5–15.
- Smith, G. J., Wynne, H. J., Hartnagel, T.** 2003: *Examining police records to assess gambling impacts: A study of gambling-related crime in the city of Edmonton*. Alberta Gaming Research Institute.
- St-Pierre, R., A., Walker, D., M., Derevensky, J., Gupta, R.** 2014: How availability and accessibility of gambling venues influence problem gambling: A review of the literature. *Gaming Law Review and Economics* 18, 150–172.

- Sýkora, L.** 1999: Changes in the internal spatial structure of post-communist Prague. *GeoJournal* 49, 79–89.
- Szczyrba, Z., Mravčík, V., Fiedor, D., Černý, J., Smolová, I.** 2015: Gambling in the Czech Republic. *Addiction* 110, 1076–1081.
- Šimáček, P.** 2015: *Bydlení a bytová politika v ČR: zaměřeno na vývoj po roce 1989 a Olomoucký kraj*. PhD thesis. Brno, Masaryk University.
- Šimáček, P., Fiedor, D., Toušek, V.** 2016: Kvalita bytového fondu a bydlení v Olomouci a jejím zázemí. In **Ira, V. ed.** *Městská a příměstská kvalita života z geografického hlediska (příklad městského regionu Olomouc)*.
- Šuráň, Z.** 2015: *Hazard v Olomouci – geografické hodnocení rozložení sítě heren, kasin a sázkových kanceláří na území města*. Master thesis. Palacký University Olomouc.
- Thomas, A. C., Bates, G., Moore, S., Kyrios, M., Meredyth, D., Jessop, G.** 2011: Gambling and the Multidimensionality of Accessibility: More Than Just Proximity to Venues. *International Journal of Mental Health and Addiction* 9, 88–101.
- TNS** 2011: *World count of gaming machines 2010* (http://www.gamingta.com/pdf/world_count_2010.pdf), accessed 2016-07-15
- Wardle, H., Keily, R., Astbury, G., Reith, G.** 2014: 'Risky Places?': Mapping Gambling Machine Density and Socio-Economic Deprivation. *Journal of Gambling Studies* 30, 201–212.
- Welte, J., W., Barnes, G., M., Tidwell, M., C., Hoffman, J., H.** 2009: Legal gambling availability and problem gambling among adolescents and young adults. *International Gambling Studies* 9, 89–99.
- Welte, J., W., Barnes, G., M., Wieczorek, W., F., Tidwell, M., C., Hoffman, J., H.** 2007: Type of gambling and availability as risk factors for problem gambling: A Tobit regression analysis by age and gender. *International Gambling Studies* 7, 183–198.
- Welte, J., W., Wieczorek, W., F., Barnes, G., M., Tidwell, M., C., Hoffman, J., H.** 2004: The relationship of ecological and geographic factors to gambling behavior and pathology. *Journal of Gambling Studies* 20, 405–423.

Maps:

- Zifčák, P.** 2010: *Sociálně vyloučené lokality v okrese Olomouc, 1 : 50 000*. Olomoucký kraj.

Résumé

Hazard a jeho dostupnost: případová studie Olomouce (Česká republika)

Hazard je velmi specifickým druhem socioekonomické aktivity, neboť se pojí nejen se zábavou, ale v extrémních případech také s poruchou osobnosti a chování ve formě problémového a patologického hráčství. Přesto je hazardní hraní přirozeným fenoménem lidstva. S technologickým pokrokem se začaly rozvíjet nové typy hazardních her, u nichž je šance rozvinutí závislosti větší. Především se jedná o elektronická hrací zařízení (EHZ), případně sázkové hry v kasinu. Právě v počtu EHZ Česká republika dlouhodobě dominuje a dle absolutního počtu těchto zařízení patří ke světové špičce. Přestože v posledních letech dochází v České republice k výraznější medializaci problematiky hazardu, v akademickém prostředí patří mezi opomíjená a marginální témata výzkumu.

Dopady na hráče samotné i jejich rodiny a okolí jsou samozřejmě vnímány negativně. Tzv. tvrdý hazard (elektronická hrací zařízení a sázkové hry v kasinu) představuje zpravidla nejzávažnější rizika vedoucí ke vzniku problémového a patologického hráčství a obce jej mohou od počátku roku 2012 regulovat, zároveň však s sebou přináší také nejvyšší benefity pro rozpočty státu i obcí. V roce 2015 si obce v České republice z hazardu rozdělily více než 5,5 mld. Kč, státní rozpočet pak inkasoval další více než 2,5 mld. Kč. Mnoho obcí v České republice tak hazard reguluje, avšak nezakazuje právě proto, že příjmy z hazardu tvoří významnou část jejich rozpočtu.

Hlavním cílem článku je analyzovat prostorovou koncentraci provozoven hazardu v Olomouci a pokusit se vysvětlit lokalizaci jeho center. Dílčí pasáže článku se snaží odpovědět na několik následujících otázek: Je dostupnost tvrdého hazardu v Olomouci vyšší než v jiných městech České republiky majících obdobnou velikost? Je koncentrace hazardu v Olomouci rovnoměrná, či existují jádrové oblasti s vyšší koncentrací provozovaných EHZ či sázkových her v kasinu? Koresponduje prostorové rozložení EHZ a sázkových her v kasinu

s rozložením dalších socioekonomických jevů – např. se sociálně vyloučenými lokalitami či kriminalitou? Koncentrují se v okolí heren také obslužná zařízení typu bankomat či zastavárna, z nichž je možné získat další hotovost pro hazardní hry?

Příspěvek nejdříve srovnává Olomouc s městy obdobné velikosti a zdůrazňuje její dlouhodobě významnou pozici na trhu hazardních her v České republice. Následně přechází na lokální úroveň samotného města, kde se soustředí na prostorové rozložení hazardu a s tím související dostupnost. K tomuto účelu byla využita funkce kernel density v programu ArcGIS. Jednotlivé adresní body (provozovny tvrdého hazardu) byly váženy počtem v nich povolených EHZ a sázkových her v kasinu, neboť je zřejmé, že velikost provozovny udává její význam v prostoru. Podstata funkce kernel density spočívá v tom, že pro každý pixel (buňku) je automaticky spočítána hodnota vykazující koncentraci daného jevu. Celkově byla vymezena dvě jádra, a to v centru historické Olomouce a v okolí hlavního vlakového nádraží. Obě centra hazardu se vyznačují výbornou dostupností, na druhou stranu jde o lokality poměrně problémové vyznačující se nadprůměrným množstvím spáchaných trestných činů.

Zvláštní pozornost si vysloužila ulice Masarykova třída, jež je dlouhodobě ulicí s nejvyšším počtem provozoven hazardu v Olomouci. Na tomto příkladu bylo poukázáno na propojení sítě heren a doprovodných obslužných zařízení, tj. bankomatů a zastaváren, podporujících další pokračování ve hře. Maximální vzdálenost, kterou musí hráč od herny k nejbližší zastavárně překonat, je přibližně jen 125 m.

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