

MORAVIAN GEOGRAPHICAL REPORTS

Czech Academy of Sciences, Institute of Geonics

Palacký University Olomouc, Faculty of Science

journal homepage: www.geonika.cz/mgr.htmldoi: <https://doi.org/10.2478/mgr-2025-0016>

Where to place my bets? Players' adaptation to the reduction of gambling venues

Filip Kovařík ^{a*} , David Fiedor ^a , Jindřich Frajer ^a , Eva Aigelová ^b ,
Miloslav Šerý ^a , Miroslav Charvát ^b 

Abstract

This study examines players' adaptation mechanisms after gambling venues reduction. Current research on gambling regulation focuses primarily on availability effects, yet empirical evidence on how players adapt to venue closures remains limited. Environmental prevention strategies that systematically alter gambling conditions create natural experimental situations where players must adjust their behaviour to changed circumstances. To address this gap, we conducted an online survey among 1,503 regular gamblers in the Czech Republic. Using multinomial logistic regression, we analysed adaptation strategies across three venue types: lottery outlets, betting shops, and electronic gambling machine (EGM) venues. Our findings reveal that 41.3% of regular players experienced venue closure, with significant variations in adaptation patterns. While 68.8% of lottery players switched to other venues, only one-third of EGM players chose this option, with most transitioning to online gambling instead. Key predictors of online migration included younger age, online preference, and venue supply levels. Notably, only 5.5% of EGM players completely ceased gambling after venue closure, suggesting limited effectiveness of supply reduction for high-risk gambling forms. Gender emerged as a significant factor, with men showing 65–73% lower probability of cessation. These results indicate that venue restrictions primarily lead to activity redistribution rather than participation reduction, supporting the 'balloon effect' concept.

Keywords: Gambling, venue reduction, player adaptation, gambling substitution, Czech Republic

Article history: Received 10 June 2025, Accepted 15 September 2025, Published 31 December 2025

1. Introduction

The gambling supply undergoes constant evolution in response to technological advances or changes in regulatory frameworks. Despite these dynamic changes, empirical evidence regarding players' adaptive mechanisms to these transformations remains surprisingly limited. Gambling regulation has undergone significant transformation over time. Like the study of gambling itself, this development is highly interdisciplinary, as it encompasses social, political, cultural, economic and geographical perspectives that collectively contribute to understanding the complexity of gambling and its impacts on society (Livingstone et al., 2017). Gambling regulation represents a complex set of legislative and administrative measures that primarily aim to protect public health and minimise negative societal impacts. Regulatory frameworks differ significantly across jurisdictions, encompassing a broad spectrum of tools from complete prohibition to various levels of controlled access. However, no jurisdiction has yet created a regulatory system that effectively addresses public health problems whilst simultaneously dealing with conflicts of interest (Van Schalkwyk et al., 2021). Key contemporary regulatory mechanisms include, particularly, operator licensing, reduction in the number of gambling venues, establishment of age limits, and mandatory implementation of

self-regulatory measures. Some cities additionally introduce zero tolerance towards selected forms of gambling (most commonly those operated in casinos). Environmental prevention refers to strategies that modify physical, social and economic accessibility through systematic environmental changes (e.g., pricing policies, venue density regulation, legal restrictions) rather than focusing on changing individual behaviour (Morrison & Cameron, 2015). These regulatory approaches, whilst diverse in their forms and intensity, share a common denominator – they influence the spatial and temporal accessibility of gambling for users. Environmental prevention, which systematically changes conditions for gambling, thus creates natural experimental situations in which players are forced to adapt their behaviour to changed circumstances. It is precisely these situations that present a unique opportunity for an empirical study of adaptive processes that have thus far remained largely unexplored. Understanding how players react to limited gambling supply is crucial not only for evaluating the effectiveness of regulatory measures but also for predicting their unintended consequences and optimising future public health interventions.

The present study explores adaptive mechanisms and changes in player behaviour in situations where the availability of gambling venues in space becomes restricted. Whilst previous research

^a Department of Geography, Faculty of Science, Palacký University Olomouc, Czech Republic (*corresponding author: F. Kovařík, e-mail: filip.kovarik@upol.cz)

^b Department of Psychology, Faculty of Arts, Palacký University Olomouc, Czech Republic

documents the significance of availability for the level of gambling participation, systematic attention has not yet been paid to how players adapt to situations where their usually visited venues are unavailable or completely closed. The primary aim of the research is to assess what proportion of players have experienced this situation and subsequently to identify factors that predetermine players' adaptation to the limited supply of gambling venues.

2. Theoretical background

Restricting accessibility is one of the fundamental regulatory tools. This geographical factor is crucial, as it plays a significant role in shaping gambling behaviour and levels of participation in gambling. Research repeatedly confirms that proximity and accessibility of gambling venues are essential determinants of gambling engagement and also problem gambling (Welte et al., 2004; Pearce et al., 2008). Moreover, living in proximity to casinos or other gambling venues is associated with higher rates of gambling participation and problem gambling. Welte et al. (2004) found that individuals who live within 10 miles of a casino exhibited twice the rate of problem gambling compared to those who live at a greater distance. Similarly, Pearce et al. (2008) demonstrated that the availability of gambling venues in the neighbourhood was associated with increased gambling activity. The density of gambling venues in an area also influences participation rates. Regions with higher concentrations of gambling venues tend to exhibit higher participation rates (Young et al., 2012a). This relationship appears to be particularly strong for electronic gambling machines (EGMs), with their greater density being associated with increased gambling expenditure and problem gambling (Marshall & Baker, 2002). The socioeconomic characteristics of neighbourhoods themselves also influence gambling patterns. Areas with higher socioeconomic deprivation contain more gambling venues and exhibit higher rates of gambling participation (Wardle et al., 2014). State borders represent another geographical factor influencing participation, as some customers travel to neighbouring jurisdictions with more lenient gambling laws (Chambers, 2011). This can affect gambling behaviour and revenues in border regions (Fiedor et al., 2017). Geographical factors, such as availability, should thus be considered as an essential element in gambling regulation (Young et al., 2012b).

However, the contemporary lifestyle of residents is characterised by considerable spatial mobility that transcends the administrative boundaries of their residential localities. The daily mobility of residents is a significant element of people's spatiotemporal experiences (Kwan, 2013). People move between different locations throughout the day for work, education, shopping or leisure activities, significantly influencing their exposure to various services and opportunities (Neutens et al., 2012). Actual exposure to services may differ considerably from that indicated by mere analysis based on service accessibility at the place of residence. Whilst the spatial mobility of residents expands their potential exposure to gambling venues, technological development and digitalisation bring an entirely new dimension to gambling accessibility. The combination of increased spatial mobility of residents and growing digitalisation of the gambling industry creates complex accessibility patterns, where physical and virtual accessibility of gambling complement and overlap with each other. The gambling industry is undergoing significant transformation, which is characterised by the growing importance of the online environment (Gainsbury, 2012). Simultaneously with this change, regulatory interventions are also occurring, often leading to a reduction in the number of land-based gambling venues (Rossow & Hansen, 2016). This trend was significantly accelerated by the COVID-19 pandemic, when forced closure of land-based venues occurred, leading to a faster shift of players to digital platforms (Håkansson, 2020).

Thus, it is crucial to understand how players react when venues are closed or temporarily unavailable, especially since research indicates that supply-side interventions may not produce expected outcomes. The limitation of electronic gambling machines (EGMs) quantities does not guarantee a proportional reduction in aggregate gambling expenditure through these devices (Markham & Suomi, 2024). The empirical evidence demonstrates variable regional responses (McMillen & Doran, 2006), suggesting that the relationship between machine availability and gambling behaviour is more complex than a simple linear correlation would suggest. Moreover, in oversupplied EGM environments, the elimination of certain machines may prove insufficient to curtail gambling behaviour, as the remaining device concentration continues to provide ample opportunities for consumer engagement (Delfabbro, 2008).

The closure of gambling venues can have a significant impact on gambling behaviour, with the nature and extent of player responses differing substantially between various gambling formats. This issue is important both from a public health perspective and from the viewpoint of regulatory authorities and gambling operators. The restriction of betting opportunities on sporting events during the COVID-19 pandemic was the reason for reduced player activity (Gainsbury et al., 2021). However, not all players reacted to venue closures in the same way; some players used these changes to shift activities to other forms of gambling (Wardle et al., 2021), particularly towards online casinos (Lischer et al., 2021; Xuereb et al., 2021).

3. Data and methods

The research was conducted in the Czech Republic, a country that ranks among the states with the highest availability of gambling. Publicly available data on gambling can be divided into two basic categories: data on the gambling landscape and data on players. The first two subsections thus describe data availability in these two areas, whilst their further processing is then described in the third subsection.

3.1 Gambling landscape

By the term gambling landscape, the authors understand all gambling in a land-based environment, i.e., lottery outlets, betting shops, gambling halls, and casinos. Whilst in the case of riskier (also hard) forms of gambling, i.e., gambling operated primarily in gambling halls and casinos (Kovářík & Fiedor, 2025), the Ministry of Finance of the Czech Republic publishes data on address locations from as early as 2013, in the case of betting shops this is only from 2017 (MFCR, 2025). However, as stated in its annual reports by the National Monitoring Centre for Drugs and Addiction, data on the address locations of betting shops were not complete from the beginning (Mravčík et al., 2021). Data on the availability of lottery outlets is not publicly available; therefore, only address locations published on the websites of individual lottery operators can be used. The gambling landscape presented in the article is thus created by combining data from the Ministry of Finance of the Czech Republic on address locations of EGM venues (gambling halls and casinos, current as of 01.01.2024), in combination with a geodatabase of betting shops and lottery outlets, which was manually created in a GIS environment from data published on the websites of individual operators within the Czech Republic. Database creation took place during the period November 2023–January 2024.

Ministry of Finance data were geocoded based on OpenStreetMap using the MMQGIS plugin in QGIS 3.34 software environment. Unlinked address points were geocoded manually. The result was a point layer of locations with EGM venues and point layers of betting shops and lottery outlets were manually created. These geodata were subsequently used to calculate

the potential supply of a given type of gambling venue in the vicinity of each respondent's residence. This was related to the definition point of municipality (taken from ZABAGED, 2025), in the case of large cities, to the definition point from a part of the municipality (e.g., city districts and subdivisions). Potential supply for each residence was then taken as the sum of all venues for a given type of gambling within a radius of 5 km (for lottery outlets), 10 km (betting shops) and 15 km (EGM). The chosen buffer also corresponds to accessibility of 5, 10 and 15 minutes by car at an average speed of 60 km/h (a 50 km/h limit applies for driving in municipalities in the Czech Republic) and was calculated in GIS as linear distance, which in the case of distance to gambling venue was used by, for example, Welte et al. (2004) or Rush et al. (2007). In their study, Welte et al. (2004) also state that a distance up to 10 miles (approximately 16 km) from a casino is significant for the increased occurrence of problem gamblers. The resulting gambling supply for each respondent was then divided into quintiles, which entered statistical analyses for each of the three types of gambling venues separately. Data on the gambling landscape were further used to create density maps of the occurrence of individual gambling venues in the Czech Republic, displayed through a 10 × 10 km grid.

3.2 Questionnaire

Data on players and their gambling behaviour are not publicly available, and it is therefore necessary to conduct one's own sample surveys (most commonly questionnaire-based). For this reason, a questionnaire survey was conducted among regular players (respondents with experience of some gambling in the last month) using an online panel administered by the external agency. Due to the non-existence of a list of all regular players, the general population was approached in the first step using quota sampling, whilst quotas of basic sociodemographic characteristics (gender, age, education, size category of municipality of residence, NUTS3 region) were respected. A total of 4,313 respondents participated in the survey, of whom 1,503 (34.8%) had experience with at least one gambling form in the last month (regular players). Respondents thus may not have had any experience with some forms of gambling or may not have had such recent experience. Data collection took place at the turn of November and December 2023. This study received ethical approval from the Ethics Panel of the Faculty of Arts at Palacký University Olomouc (standard FF-B-20–02, registration number 02/2023). The data acquisition ensured complete anonymity, and the subjects' involvement was strictly voluntary. Informed consent was obtained from all participants before their research engagement.

The main part of the questionnaire for this study consisted of questions focused on player adaptation when the gambling landscape changes. Specifically, in parts of the questionnaire focused on numerical lotteries, sports betting¹, and technical games² (always the land-based modality), respondents who had any experience with the given gambling form were asked whether it had ever happened to them in their life that a venue they regularly visited was closed. If they had experienced this situation, a follow-up question was asked about how they behaved in the given situation (with response options focusing on adaptation within the same gambling form: other venues, online version of the same activity, or stopping that specific gambling form, plus an option for switching to other gambling forms entirely).

In addition, the questionnaire contained sociodemographic characteristics of respondents such as gender, age, highest educational attainment, municipality of residence, as well as the degree of experience with individual forms of gambling (both land-based and online) and general preference for online or land-based modality (three categories: I prefer land-based, I don't mind, I prefer online). Concerning the varying riskiness of individual forms, three types of players were created based on experiences from the last month: lottery, betting, and casino games. If a respondent had only played lotteries in the previous month, they fell into the 'lottery' category; if they played betting, then into the 'betting' category; if they played technical games or other casino games, they fell into the 'casino' category (described in more detail in Fiedor et al., 2025). Respondents further underwent diagnosis of problem gambling using the PGSI Short Form tool. This consists of three statements³, to which the respondent answers using the options 'never' (scored as 0), 'sometimes' (1), 'most of the time' (2), or 'almost always' (3). By summing, a score can be obtained for which the following interpretation is used (according to Dowling et al., 2018): 0 points (non-problem gambling), 1 to 2 points (at-risk gambling) and three or more points (problem gambling). Internal consistency, measured by Cronbach's alpha, reached a value of 0.83, indicating acceptable reliability. The average inter-item correlation was 0.62. The PGSI Short-Form, in its Czech version, was also used by Chomynová et al. (2024) at the National Monitoring Centre for Drugs and Addiction to monitor gambling behaviour in the Czech Republic.

Additionally, the questionnaire contained a question about whether the respondent encounters individual gambling venues (lottery outlets, betting shops, gambling halls, or casinos) on their usual daily movements, whereby they could record multiple options (described in more detail in Kovařík et al., 2025).

3.3 Statistical analysis

In addition to commonly used methods of descriptive and inferential statistics, some methods of multivariate statistics were also used. Specifically, the nature of the variables involved in using multinomial logistic regression to explain the variability of player adaptation. Models were processed using Jamovi (Version 2.6.17; The Jamovi Project, 2025) to examine the relationship between various predictors and adaptation to the given venue closure. Three separate models were created for lottery outlets, betting shops, and EGM venues. In all models, the dependent variable was adaptation to venue closure, categorised as 'online – other venues' and 'stopped gambling – other venues', with 'other venues' serving as the reference category.

4. Results

4.1 Experience of gambling venue closure

The research sample included 1,503 respondents who had experience with gambling in the last month. Given that these players could have encountered the closure of gambling venues in the past and may no longer currently play the given form of gambling, questions regarding venue closure were directed to all respondents with lifetime experience of specific forms of gambling (lotteries, sports betting, technical games). Lifetime prevalence of playing lotteries reaches 62.6% in the sample of regular players, whilst for the other two forms it is significantly lower (41.9% for sports betting players and 42.9% for technical games players). In

¹ Also referred to as odds betting.

² Technical games are a specific gambling form in the Czech Republic operated on technical devices (electronic gambling machines, electromechanical roulette) which, under Czech legislation, can be legally operated exclusively in designated gambling halls or casinos.

³ In the last 12 months: Have you bet more than you could really afford to lose? Have people criticised your betting or told you that you had a gambling problem, regardless of whether or not you thought it was true? Have you felt guilty about the way you gamble or what happens when you gamble?

this context, it is necessary to understand the different numbers of respondents who experienced the closure of venues for the given form of gambling. The most significant absolute number was recorded for gambling hall/casino closures (343), which represents an essential difference given the lower number of respondents with experience of this gambling form. Whilst for this form it means that 53.2% of all those who have experienced closure of this type of venue, for betting shops it was 47.9% (302) and for lottery outlets only 33.7% (317).

Concerning the fact that respondents could have experienced closures of different types of venues, it is evident that these groups partially overlap (Fig. 1). Overall, 620 respondents, i.e., 41.3% of all regular players, experienced the closure of some venue. Almost 60% experienced the closure of only one type of gambling venue, most commonly gambling halls/casinos (24.7%). However, the research sample contains 14.7% of respondents who experienced the closure of all three types of venues – lottery outlets, betting shops and EGM venues.

Spatial distribution and venue density differ across individual types (Fig. 2). Lottery outlets exhibit the highest density and most uniform coverage of the entire territory of the Czech Republic, which testifies to their excellent accessibility. Betting shops demonstrate significantly lower overall density with apparent urban concentration, predominantly in the metropolitan areas of Prague, Brno and Ostrava (the three most populous Czech cities), whilst extensive rural areas show minimal coverage. EGM venues present a specific spatial pattern with pronounced density in the border regions of western and northern Bohemia and southern Moravia, which reflects local regulatory specificities of individual municipalities. The last two types of venues indicate a specific connection between their density and urbanised areas, but with different intensity and spatial arrangement.

A sample survey across the entire Czech Republic naturally cannot be representative at the level of individual municipalities of respondents' residence. However, since the structure of the sample respected the size categories of municipalities, it is possible to observe potential differences in this variable (Tab. 1). Although all size categories behave similarly in fundamental indicators, i.e., the most petite proportions of respondents who experienced

venue closure are found for 'Lottery Outlets', followed by 'Betting Shops' and the most significant proportions for 'EGM Venues', some size categories show greater representation than others. Municipalities occupy the first three places for all venue types with populations between 10 and 100 thousand inhabitants.

4.2 Adaptation to gambling venue closure

Respondents reacted to the closure of individual types of gambling venues in different ways (Tab. 2). For lottery outlets, most of them (68.8%) began using other venues. In contrast, only approximately one-third of respondents were for EGM venues. Betting shops represent a particular intermediate stage, where 54.6% used the option of utilising another venue. It appears that the riskier and less accessible form of gambling, the less players choose to switch to another venue and simultaneously

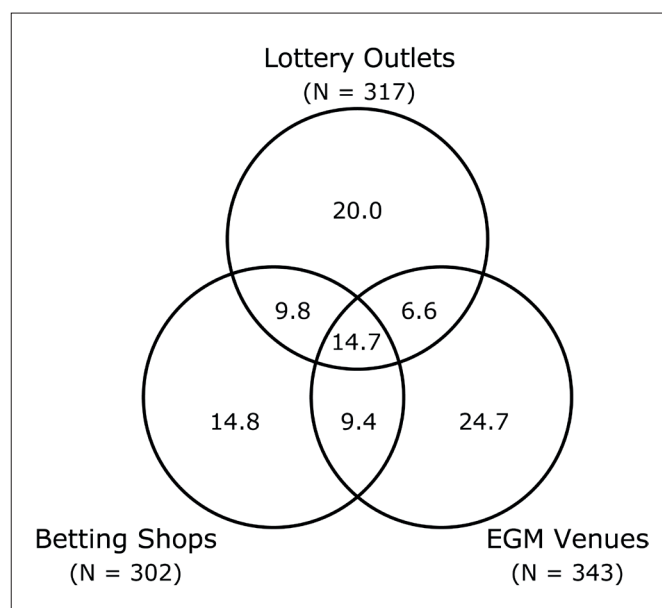


Fig. 1: Experience with the closure of gambling venue by type among regular players (N = 620)

Source: Own research; authors' processing

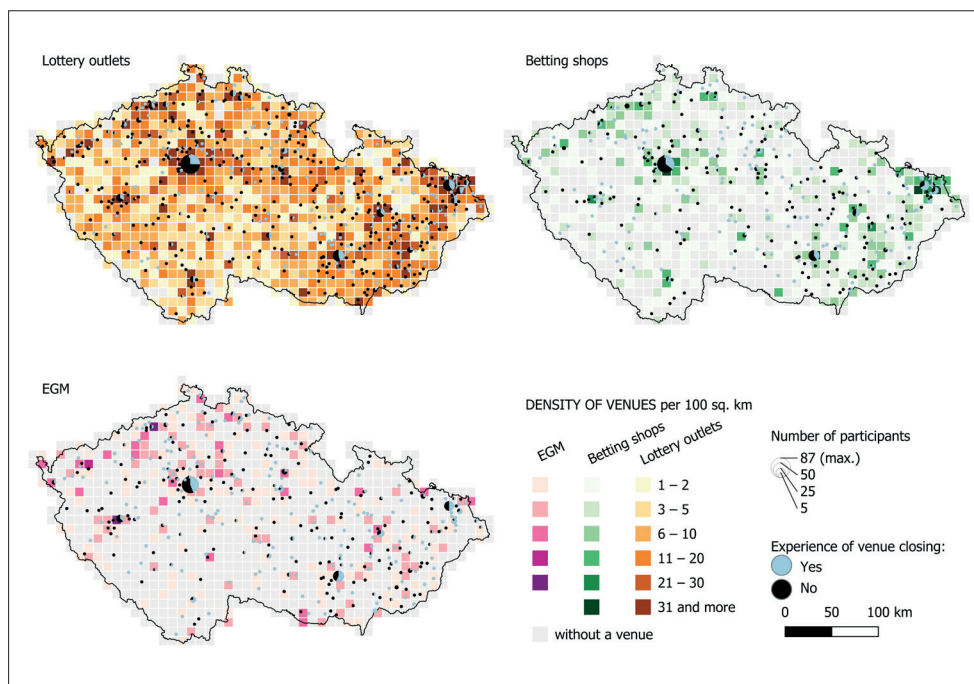


Fig. 2: Experience with the closure of gambling venues by type and density of venues

Source: Own research; authors' processing

Municipality Size (Population)	Lottery Outlets		Betting Shops		EGM Venues	
	Lifetime Gambling Experience (N)	Closure Experience (%)	Lifetime Gambling Experience (N)	Closure Experience (%)	Lifetime Gambling Experience (N)	Closure Experience (%)
0–999	137	27.0	90	48.9	93	50.5
1,000–1,999	100	34.0	63	44.4	68	51.5
2,000–4,999	128	25.8	75	38.7	74	50.0
5,000–9,999	80	28.8	45	40.0	52	48.1
10,000–19,999	83	42.2	57	61.4	53	69.8
20,000–49,999	122	38.5	89	55.1	89	56.2
50,000–99,999	99	43.4	70	50.0	69	58.0
100,000 and more	192	33.9	141	45.4	147	49.0
Total	941	33.7	630	47.9	645	53.2

Tab. 1: Number of respondents with lifetime experience of a given gambling form according to the size structure of municipalities of residence; supplemented by the proportion of those who experienced a venue closure
Source: Own research; authors' processing

transfer more to the online environment. It thus seems that accessibility may play a crucial role in the adaptation process. From a regulatory perspective, it is then essential to look at how many players stopped playing without replacing the given form with another. While this concerns 16.1% of respondents for lotteries, it is only 5.5% for EGMs. The following analysis excluded 3 respondents who reported adapting to venue closure by transitioning to other forms, given that this involved only 2 cases in lottery outlets and 2 cases in betting shops (with 1 respondent selecting this option for both venue types).

Figure 3 illustrates the spatial patterns of adaptations to the closure of various gambling venues and reveals significant differences in player behaviour, which are closely linked to the supply of alternative options in space. These adaptation strategies differ not only by the type of gambling venue but also by the character of the settlement and regional specifics. For lottery outlets, adaptation through choosing other venues predominates uniformly across the entire country without significant regional differences. This consistent pattern suggests a good supply of alternative lottery outlets regardless of region. In the case of betting shops, a more pronounced spatial differentiation of adaptation strategies is evident. In large cities with a dense network of venues, the choice of another land-based venue prevails, reflecting

Adaptation	Lottery Outlets	Betting Shops	EGM Venues
Other Venue	68.8	54.6	33.6
Other Forms	0.6	0.7	0.0
Online	14.5	30.5	60.9
Stopped Gambling	16.1	14.2	5.5
Total	100.0	100.0	100.0
	(N = 317)	(N = 302)	(N = 343)

Tab. 2: Adaptation of players of different gambling venues to their closure (according to their type)

Source: Own research; authors' processing

the strong supply of alternatives in urban space. Conversely, the transition to online betting dominates in smaller municipalities and rural areas, likely due to the absence of accessible alternative venues within a reasonable distance. For EGM venues, the transition to online gambling strongly dominates across various types of territories. This trend is primarily due to EGM venues being the least common among the observed venue types, and therefore, the spatial availability of other venues is significantly limited. Thus, when a local EGM venue closes, players more often choose an online alternative rather than seeking a more distant physical venue of the same type.

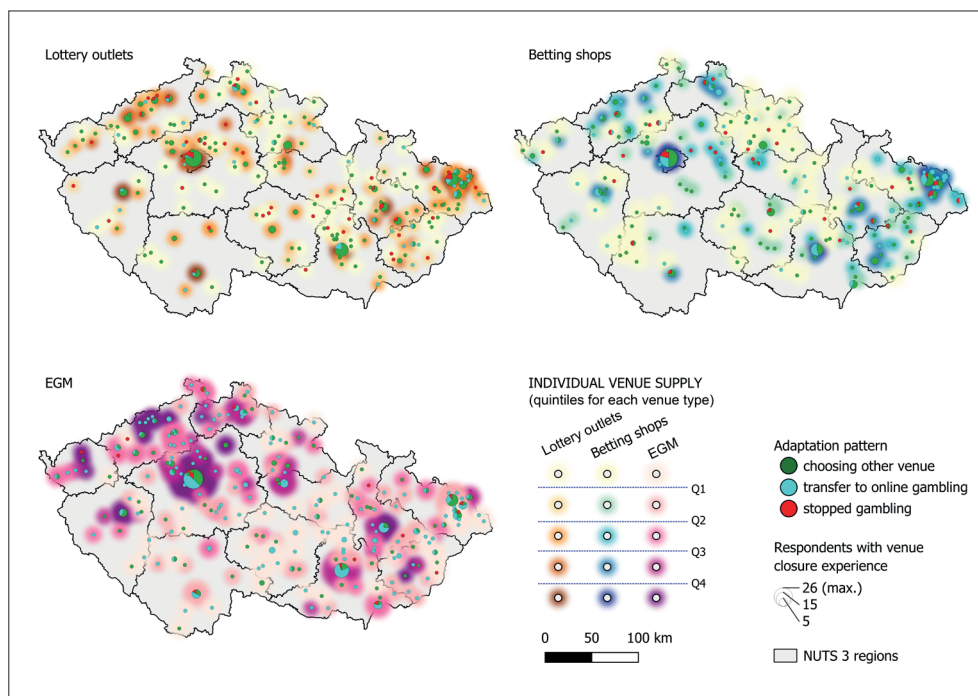


Fig. 3: Adaptation to venue closure among regular players (N = 617) and venue supply
Source: Own research; authors' processing

The following subsections present the multinomial logistic regression results for the three examined gambling venues, explaining respondents' adaptation to venue closure.

4.2.1 Lottery outlets

The lottery outlets closure model (Tab. 3) demonstrated adequate fit ($\chi^2 = 93$, $df = 44$, $p < 0.001$) with McFadden $R^2 = 0.179$ and Nagelkerke's $R^2 = 0.221$ (AIC = 519, $N = 315$). For the transition to online gambling (compared to using other venues), the most significant factors proved to be gambling modality preference and age. Players with a preference for the online environment exhibit an extremely high probability of transitioning to online forms (OR = $1.67e+7$, $p < 0.001$), similarly to players without preference distinction (OR = $5.06e+6$, $p < 0.001$). Age acts as a protective factor here, where with each year of age, the probability of transitioning to online modality decreases by 3.3% (OR = 0.967, $p = 0.025$). Lottery outlets supply also shows marginally significant influence, where players from areas with higher supply (categories 4 and 5) have almost five times the chance of transitioning to online modality (OR = 6.569, $p = 0.039$; OR = 9.421, $p = 0.080$), however these factors are no longer significant at the $\alpha = 0.05$ significance level. For cessation of gambling (compared to using other venues), gender is the dominant predictor, where men have a 73.7% lower probability of stopping gambling than women (OR = 0.263, $p < 0.001$). Other factors, including municipality size, player type, gambling severity (PGSI), and venue encounters, do not significantly influence adaptive behaviour statistically.

4.2.2 Betting shops

The model for betting shops closure (Tab. 4) exhibited similar fit characteristics to the model for lottery outlets ($\chi^2 = 118$, $df = 44$, $p < 0.001$) with McFadden $R^2 = 0.203$ and Nagelkerke's $R^2 = 0.258$

(AIC = 556, $N = 300$). For the transition to sports betting online (compared to using other venues), the key factors proved to be modality preference, player type, betting shop supply, municipality size and age. Players preferring the online environment exhibit 7× higher probability of transitioning to online modality (OR = 6.991, $p = 0.004$). Player type is a significant predictor, where lottery players (OR = 0.302, $p = 0.015$) and casino players (OR = 0.392, $p = 0.029$) have significantly lower probability of transitioning to the online environment than betting players. Betting shop supply in the highest categories (4 and 5) increases the chance of transitioning to online modality 3× (OR = 3.163, $p = 0.049$), almost 8× respectively (OR = 7.907, $p = 0.076$). Similarly to residence in municipalities with 10,000–19,999 inhabitants (OR = 5.221, $p = 0.031$). Age also acts as a protective factor here, where with each year of age, the probability of transitioning to online modality decreases by 2.6% (OR = 0.974, $p = 0.029$). Significant predictors for cessation of betting (compared to using other venues) are gender and player type. Men have a 68.9% lower probability of stopping betting than women (OR = 0.311, $p = 0.015$). Lottery players have 3.3× higher likelihood of stopping betting than betting players (OR = 3.338, $p = 0.020$). The venue encounter factor also proved marginally significant, where those who encounter them have a lower probability of stopping betting (OR = 0.495, $p = 0.087$).

4.2.3 EGM venues

The strongest fit ($\chi^2 = 140$, $df = 42$, $p < 0.001$) was exhibited by the model for EGM venues closure (Tab. 5) with McFadden $R^2 = 0.246$ and Nagelkerke's $R^2 = 0.300$ (AIC = 516, $N = 343$). Player type, gambling severity (PGSI), number of forms played, municipality size and venue encounters proved to be key predictors for transitioning to online modality (compared to using other

Predictor	Online – Other Venue		Stopped Gambling – Other Venue	
	p	Odds Ratio	p	Odds Ratio
Age	0.025	0.967	0.897	0.998
Number of Forms Played	0.978	1.003	0.091	0.809
Gender				
Man – Woman	0.976	1.016	< .001	0.263
Municipality Size				
0–999 – 100,000+	0.735	1.510	0.757	1.473
1,000–1,999 – 100,000+	0.424	2.403	0.664	0.575
2,000–4,999 – 100,000+	0.544	1.968	0.648	0.562
5,000–9,999 – 100,000+	0.721	1.518	0.888	1.189
10,000–19,999 – 100,000+	0.296	3.302	0.962	0.946
20,000–49,999 – 100,000+	0.882	1.155	0.879	0.854
50,000–99,999 – 100,000+	0.709	0.738	0.376	0.422
Player Type				
Betting – Lottery	0.766	1.161	0.282	0.549
Casino – Lottery	0.358	0.553	0.937	0.954
PGSI				
At-Risk – Non-Problem	0.829	1.120	0.978	1.012
Problem – Non-Problem	0.305	1.641	0.550	0.731
Venue Encounters				
Yes – No	0.323	1.505	0.216	0.643
Lottery Outlets Supply ⁴				
2–1	0.128	2.909	0.869	0.907
3–1	0.666	1.385	0.868	0.883
4–1	0.039	6.569	0.919	1.100
5–1	0.080	9.421	0.954	0.921
Preference				
Online – Land-Based	< .001	$1.67e+7$	0.101	2.201
Both – Land-Based	< .001	$5.06e+6$	0.316	1.558

Tab. 3: Multinomial logistic regression for the dependent variable adaptation to lottery venue closure

Source: Own research; authors' processing

⁴ Indicates the distribution of lottery outlets within a 5-kilometre radius of the respondents' residence, divided into quintiles.

Predictor	Online – Other Venue		Stopped Gambling – Other Venue	
	p	Odds Ratio	p	Odds Ratio
Age	0.029	0.974	0.531	0.990
Number of Forms Played	0.211	0.900	0.223	0.837
Gender				
Man – Woman	0.464	0.721	0.015	0.311
Municipality Size				
0–999 – 100,000+	0.144	3.073	0.581	1.994
1,000–1,999 – 100,000+	0.093	3.588	0.513	2.361
2,000–4,999 – 100,000+	0.396	1.929	0.331	3.353
5,000–9,999 – 100,000+	0.992	0.991	0.238	4.748
10,000–19,999 – 100,000+	0.031	5.221	0.108	7.428
20,000–49,999 – 100,000+	0.221	2.273	0.548	2.045
50,000–99,999 – 100,000+	0.757	1.253	0.238	3.901
Player Type				
Betting – Lottery	0.015	0.302	0.020	3.338
Casino – Lottery	0.029	0.392	0.928	0.940
PGSI				
At-Risk – Non-Problem	0.388	1.393	0.351	0.589
Problem – Non-Problem	0.593	0.809	0.329	0.552
Venue Encounters				
Yes – No	0.518	1.224	0.087	0.495
Betting Shops Supply ⁵				
2–1	0.294	0.566	0.378	0.542
3–1	0.805	0.828	0.993	0.995
4–1	0.049	3.163	0.633	0.674
5–1	0.079	7.907	0.543	0.276
Preference				
Online – Land-Based	0.004	6.991	0.722	0.825
Both – Land-Based	0.177	2.633	0.312	0.560

Tab. 4: Multinomial logistic regression for the dependent variable adaptation to betting shop closure
Source: Own research; authors' processing

Predictor	Online – Other Venue		Stopped Gambling – Other Venue	
	p	Odds Ratio	p	Odds Ratio
Age	0.148	1.017	0.851	1.004
Number of Forms Played	0.031	0.847	0.180	1.209
Gender				
Man – Woman	0.301	0.689	0.720	0.801
Municipality Size				
0–999 – 100,000+	0.040	3.326	0.224	0.217
1,000–1,999 – 100,000+	0.229	0.505	0.570	0.607
2,000–4,999 – 100,000+	0.084	2.774	0.350	0.311
5,000–9,999 – 100,000+	0.309	1.842	0.317	0.275
10,000–19,999 – 100,000+	0.640	0.760	0.076	0.100
20,000–49,999 – 100,000+	0.143	2.213	0.293	0.336
50,000–99,999 – 100,000+	0.114	2.428	0.776	0.759
Player Type				
Betting – Lottery	0.003	3.620	0.006	16.934
Casino – Lottery	0.208	1.709	0.014	10.663
PGSI				
At-Risk – Non-Problem	< .001	0.305	0.275	0.449
Problem – Non-Problem	< .001	0.175	0.794	1.189
Venue Encounters				
Yes – No	0.040	0.513	0.787	0.847
EGM Venues Supply ⁶				
2–1	0.414	1.441	0.459	1.929
3–1	0.309	1.579	0.194	3.086
4–1	0.161	1.989	0.995	0.993
5–1	0.232	1.826	0.715	1.405
Preference				
Online – Land-Based	0.182	1.709	0.674	1.382
Both – Land-Based	0.735	1.155	0.497	1.709

Tab. 5: Multinomial logistic regression for the dependent variable adaptation to EGM venue closure
Source: Own research; authors' processing

⁵ Indicates the distribution of betting shops within a 10-kilometre radius of the respondents' residence, divided into quintiles.

⁶ Indicates the distribution of EGM venues within a 15-kilometre radius of the respondents' residence, divided into quintiles.

venues). Lottery players exhibit $3.6\times$ higher probability of transitioning to online gambling than casino players ($OR = 3.620$, $p = 0.003$). Gambling severity is a significant negative predictor, where at-risk players have 69.5% ($OR = 0.305$, $p < 0.001$) and problem gambling players even 82.5% ($OR = 0.175$, $p < 0.001$) lower probability of transitioning to online gambling compared to non-problem players. With each additional form played, the probability of transitioning to online gambling decreases by 15.3% ($OR = 0.847$, $p = 0.031$). Players from the smallest municipalities (0–999 inhabitants) have $3.3\times$ higher probability of transitioning to online gambling ($OR = 3.326$, $p = 0.040$). Players who encounter gambling venues have a 48.7% lower likelihood of transitioning to online gambling ($OR = 0.513$, $p = 0.040$). For cessation of gambling in EGM venues, player type is the dominant predictor. Lottery players have $16.9\times$ higher ($OR = 16.934$, $p = 0.006$) and betting players $10.7\times$ higher ($OR = 10.663$, $p = 0.014$) probability of stopping gambling than casino players. The influence of municipality size is also marginally significant, where players from municipalities with 10,000–19,999 inhabitants have 90% lower probability of stopping gambling ($OR = 0.100$, $p = 0.076$).

5. Discussion

5.1 Experience of gambling venue closure

A significant proportion of regular players (41.3%) experienced the closure of at least one type of gambling venue. This result suggests that the gambling landscape is not static, but its supply in space changes over time. However, the distribution of these experiences exhibits specific heterogeneity. Approximately 60% of affected respondents reported experience with the closure of only one type of gambling venue, most commonly EGM venues (24.7%). A remarkable finding is the existence of a subpopulation of players (14.7%) who experienced the closure of all three types of gambling venues (lottery outlets, betting shops, and EGM venues). Relocation or closure of shops and services is a common phenomenon in the urban environment. This occurs because of the improvement of transport accessibility or the reduction of the economic costs of shop operation (Hounwanou et al., 2018).

The different rates of experience with the closure of individual types of venues may result from different regulatory mechanisms. EGM venues (casinos and gambling halls) are subject to direct state legislative regulation (Frajer et al., 2024), whilst betting shops and lottery outlets are primarily regulated by market mechanisms. This regulatory approach dichotomy explains the empirical finding that the highest proportion of respondents (53.2%) reported experience with the closure of precisely EGM venues.

5.2 Adaptation to gambling venue closure

Players' adaptation to the closure or unavailability of land-based gambling venues differs significantly depending on venue type, which is influenced primarily by their specific social and spatial context (LaPlante & Shaffer, 2007). Each gambling venue type has a particular environment with different characteristics (Pennay et al., 2021), leading to different adaptive strategies when unavailable. For each gambling venue type, there are thus different statistically significant predictors that determine players' adaptive mechanisms.

Municipality size represents a significant determinant, where players from the smallest municipalities have $3.3\times$ higher probability of transitioning to online modality for EGM venues, which may reflect limited availability of other EGM venues in rural areas (Frajer et al., 2024). Simultaneously, players from medium-sized towns (10,000–19,999 inhabitants) exhibit $5.3\times$ higher probability of transitioning to online sports betting and 90% lower likelihood of stopping EGM venues gambling. Age is a protective factor against transfer to the online environment in

case of venue closure for two gambling venues. With each year of age, the probability of transitioning to online gambling decreases by 2.9% for lottery outlets and by 2.6% for betting shops. These results are consistent with the digital divide among older adults, who do not use the internet and modern technologies as much as younger people (Yang et al., 2024). Young adults (aged 18–24) are therefore also a more vulnerable group that exhibits more problems related to gambling. They have difficulty recognising the negative consequences of gambling that may occur in the future. They underestimate the seriousness of their gambling and more frequently choose online gambling, which is riskier, and addiction develops more quickly (Carbonneau et al., 2015). This phenomenon is also reflected in the highest prevalence of treated gamblers is under the age of 35 (Chomynová et al., 2024).

Only a marginal proportion of EGM venue players (5.5%) completely ceased participation in gambling after venue closure. EGMs represent the riskiest form of gambling (Kovařík & Fiedor, 2025), have an extraordinary impact on the population, combining high risk conditioned by speed of play with high frequency of gambling, which manifests in their addictive potential (Browne et al., 2023). It appears that these players lack internal control over gambling, lack acknowledgement of the problem and motivation for change, which could be followed by professional therapy and treatment (Błaszczynski et al., 2007).

Our data indicate that restricting the physical supply of these venues does not lead to a significant reduction in participation, but primarily to redistribution of gambling activities, whether spatial (other venue) or modal (online). These findings correspond with the 'balloon effect' concept, where restriction in one segment does not reduce the use rate, but leads to expansion in other segments (Windle & Farrell, 2012). Gambling severity (PGSI) manifested as a robust negative predictor of transition to online gambling for EGM venues, where at-risk players have 69.5% ($p < 0.001$) and problem gambling players even 82.5% ($p < 0.001$) lower probability of transitioning to online gambling than non-problem players. This finding can be interpreted in several ways. Problem gamblers may exhibit a higher preference for the land-based environment due to its specific structural characteristics, which may increase the addictive potential of gambling (Parke & Griffiths, 2007) and the overall gaming experience. At the same time, this group of people is more susceptible to cognitive distortions (Joukhador et al., 2003), which represent irrational beliefs associated with gambling (e.g., the belief in control over the course and outcome of gambling, the idea that future outcomes can be inferred from past results, or perceived inability to resist or discontinue gambling). Both these mechanisms are risk factors for problem gambling and prevent seeking professional care. The most significant proportion of people suffering from problem gambling across all forms of gambling can be found precisely with EGMs (Mravčík et al., 2021). Gender also manifested as a significant determinant, where men exhibit 72.9% lower probability of stopping gambling than women for lotteries ($p < 0.001$) and 65.5% lower for sports betting ($p = 0.022$). Men compared to women take more risks, exhibit lower levels of impulse control (Wong et al., 2013), participate in a greater number of gambling forms (Svensson et al., 2011), exhibit higher rates of problem gambling (Tran et al., 2024) and are differently motivated (McCormack et al., 2014), which influences engagement in gambling and willingness to stop. The decision not to cease participation after venue closure is determined not only by venue supply and the riskiness of the given gambling form, but also by sociodemographic and behavioural characteristics of players. Empirical evidence documents that male gender (Welte et al., 2007), lower age (Hing et al., 2016) and comorbid substance use (Baggio et al., 2018) represent significant predictors of persistence in gambling participation despite spatial and systemic barriers and act as risk factors for the development of problem gambling (Rash et al., 2016).

In this context, the accessibility and regulatory framework of online gambling become particularly relevant, as it may provide an alternative pathway for continued gambling participation. The evolution of online gambling in the Czech Republic has been characterised by a gradual legislative expansion since the early 2000s. Whilst online gambling was not formally anchored in the Gambling Act until 2011, foreign operators began offering services in the Czech Republic as early as 2003. In 2008, the first five licences for online gambling were granted to domestic operators limited to sports betting (including live betting) and card games such as poker. Technical games and casino table games remained prohibited until the end of 2016 (Mravčík et al., 2017). The introduction of the new Gambling Act (Act No. 186/2016 Coll., on Gambling) in 2017 significantly broadened the scope of permitted online gambling forms. Current legislation now permits operators to offer lotteries (both numerical and instant scratch cards), sports betting, totalisator games, bingo, technical games (including slot machines and electromechanical roulette), and live games (such as blackjack or roulette). Participation in all forms of gambling is restricted to individuals aged 18 and over, who must create a player account requiring identity verification through national ID, with registration processes including mandatory checks against the excluded players list to prevent participation by self-excluded individuals. The current regulatory framework thus supports an online gambling market offering virtually all major gambling formats, potentially providing seamless substitution opportunities for players affected by land-based venue closures.

5.3 Limitations

Like any other study, the presented research exhibits several methodological limitations that must be reflected upon when interpreting the results. A particular limitation is the absence of the temporal dimension of experience with venue closure. Respondents reported this experience without specifying the timeframe, which may complicate analysis in a dynamically evolving gambling landscape. More critically, our study captured only the immediate behavioural responses to venue closure without examining the duration or sustainability of these adaptations. This temporal limitation is significant as behavioural changes in response to environmental constraints can involve a period of experimentation followed by a return to ordinary behaviours. Without longitudinal data, we cannot determine whether the observed adaptations represent temporary adjustments or sustained behavioural changes. This distinction is particularly important in the context of balloon theory – if behavioural switches are temporary, the public health implications may be less concerning than if they represent permanent shifts in gambling patterns.

Both relocation and absolute venue reduction could have occurred for lottery outlets and betting shops. Identification of this gap would require longitudinal monitoring of address points of venues, which would be feasible in the future, but not retrospectively, due to the unavailability of complete data for all gambling forms. Another limitation is the selectivity of the research sample, which includes only regular players (with gambling experience in the last month). This methodological restriction excluded individuals who may have ceased entirely gambling participation, possibly because of venue closure. The result may be a potential underestimation of the effectiveness of limited venue supply, as we capture only a subpopulation that either continues in the land-based modality or transfers their gambling activities to the online environment. Finally, it is necessary to address potential bias arising from the online administration of the questionnaire survey. Respondents recruited online may exhibit higher digital literacy and inclination towards online activities, leading to overrepresentation of individuals who preferentially migrated to the online environment in response to venue closure.

6. Conclusion

This study reveals that venue closures significantly impact gambling behaviour, with adaptation strategies varying considerably across different gambling venues. While some players seek alternative land-based venues, others migrate to online platforms, with only a minimal proportion ceasing gambling entirely. Key determinants of adaptation include age, gender, gambling severity, and local supply characteristics, with younger players more likely to transition to digital environments. The findings suggest that venue restrictions primarily redistribute rather than reduce gambling activity, highlighting the need for comprehensive regulatory approaches that account for both spatial and modal substitution patterns in gambling behaviour. The regulation of gambling and jurisdictional arrangements must be based on societal consensus and incorporate recommended elements of environmental prevention, preventive gambling strategies, player education, and programmes for changing societal attitudes, including applying responsible gambling elements and possibilities for effective utilisation.

Future research should focus on longitudinal monitoring of players' adaptive strategies in response to introducing more substantial regulatory measures restricting gambling supply in space. It would be appropriate to monitor not only shifts between different forms or modalities of gambling (from land-based to online environment) but also changes in gambling intensity. Such research would provide valuable foundations for creating effective regulatory frameworks that would minimise the 'balloon effect' whilst maximising the protective potential of regulatory measures. It would also be appropriate to focus on the practical application of environmental strategies that can help reduce gambling accessibility, introduce effective intervention procedures for working with at-risk groups of players, and increase societal awareness of the greater riskiness of all online gambling.

Acknowledgement

This work was supported by Palacký University Olomouc under the „Soft forms of gambling: popularity, availability, and risk level in relation to the development of gambling careers“ grant [JG_2023_003]. The funding body had no influence in the design of the study, or the collection, analysis, and interpretation of data or in writing the manuscript.

Data accessibility

The data will be provided upon request until the project's completion, after which they will be made publicly available on the project website (from 2027): <https://geography.upol.cz/soft-gambling-en>.

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Please cite this article as:

Kovářík, F., Fiedor, D., Frajer, J., Aigelová, E., Šerý, M., & Charvát, M. (2025). Where to place my bets? Players' adaptation to the reduction of gambling venues. *Moravian Geographical Reports*, 33(4), 198–208. <https://doi.org/10.2478/mgr-2025-0016>