Exploring the Effects of Introducing a State Monopoly Operator to an Unregulated Online Gambling Market

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Abstract

Recent expansions in regulated offerings to include online forms of gambling have been undertaken amid animated debate on the potential impacts of this legalization. The objective of the present study is to examine changes in online gambling patterns before and after the opening of *Espacejeux*: the state-operated gambling website in Québec, Canada. Information on gambling habits was drawn from two repeated cross-sectional surveys conducted with samples representative of the general adult population of the province of Québec in 2009 ($N = 11,888$) and 2012 ($N = 12,008$). Behavioural data were retrieved from the Online Poker Database of the University of Hamburg (ODP-UHH) for 4,591,298 (2009/2010) and 2,909,562 (2013) unique real money poker identities; all Québec players were retained for analysis. Gambling patterns before and after legalization of online gambling were compared. The prevalence of Internet gambling remained stable: 1.5% of the population gambled online in 2012 compared to 1.4% in 2009. Of those surveyed, 82.5% continued to gamble on unregulated sites in 2012 and data from OPD-UHH confirmed that 90% of all real money online poker players still bet on unregulated sites in 2013. Results suggest that it may be prudent for government stakeholders to consider alternative approaches for managing online gambling offerings. Longitudinal analyses are needed to disentangle the effects of legalization of online gambling.

Keywords: Online gambling, legalization, regulation, Québec, poker

Résumé

L'augmentation récente d'offres réglementées, notamment des jeux en ligne, a fait l'objet de vifs débats sur les répercussions possibles de cette légalisation. Cette étude examine les changements dans les modèles de jeux en ligne avant et après l'ouverture d'Espacejeux, le site de jeux exploité par la province de Québec, au Canada. L'information sur les habitudes de jeu a été tirée de deux enquêtes transversales répétées,

réalisées avec des échantillons représentatifs de la population générale adulte de la province de Québec en 2009 (N = 11 888) et 2012 (N = 12 008). Les données comportementales ont été tirées de la base de données de poker en ligne de l'Université de Hambourg (ODP-UHH) sur 4 591 298 (2009/2010) et 2 909 562 (2013) joueurs de poker avec argent réel. Tous les joueurs québécois ont été retenus pour l'analyse. On a comparé les modèles de jeu avant et après la légalisation de jeux en ligne. La prévalence de jeu sur Internet est restée stable : 1,5 % de la population a joué en ligne en 2012 contre 1,4 % en 2009. Parmi les personnes sondées, 82,5 % d'entre elles ont continué de jouer sur des sites non réglementés en 2012 et les données de l'Université de Hambourg ont permis de confirmer que 90 % des joueurs de poker en ligne avec argent réel misent toujours sur des sites non réglementés en 2013. Avec ces résultats, les parties prenantes du gouvernement seraient avisées d'envisager d'autres approches pour la gestion des offres de jeux en ligne. Il faut effectuer des analyses longitudinales pour distinguer clairement les effets de la légalisation du jeu en ligne.

Introduction

Online gambling is emblematic of both the Internet revolution and the technological innovations of the late twenty-first century. The regulation of gambling on the Internet, given that it is global, frontier-free and not geographically bound, has raised major challenges for governments to manage this rapidly growing sector both legally and economically (European Commission, 2011). While precise market sizes are difficult to determine, the global online gambling market was estimated to be worth $35.97 billion USD in 2014 and is projected to reach a value of $66.59 billion USD by 2020 (H2 Gambling Capital, 2016). Government-operated gambling revenue in Canada over the 2013–2014 fiscal year totaled approximately $13.67 billion CAD, with $2.52 billion CAD from the province of Québec and $41.88 million CAD from online gambling within the province (Canadian Partnership for Responsible Gambling [CPRG], 2015). *Espacejeux*, the online gambling platform run by Québec's state monopoly operator since 2010, generated $66.2 million CAD in gambling revenue over the 2015–2016 fiscal year (Loto-Québec, 2016a). In Québec, the prevalence of online gambling was 1.5% in 2012 with poker as the most popular reported online gambling activity (Kairouz & Nadeau, 2014). Given its popularity, with 249 online poker websites available worldwide (Casino City, 2017), poker situates itself as a form of gambling of particular interest when examining the context of legalization and regulation of online gambling.

Regulation of Sites and Gambling Behaviour

In response to what some authors have defined as a matter of sovereignty, governments have taken various regulatory approaches ranging from prohibition to open unregulated legalization of online gambling (Mcmillen, 2000), yet debate regarding

the most effective approach continues (Gainsbury & Wood, 2011). Each approach has strengths and weaknesses in terms of the capacity to channel gambling from regulated to unregulated markets, secure government revenue and protect citizens from fraud and health risks. Somewhere along the continuum of online regulation lies the case of Québec, where a state monopoly operator was introduced into a previously unregulated online market.

Empirical research has recently begun to investigate changes associated with the legalization of online gambling within treatment seeking populations. A recent Spanish study reported a significant increase in online gambling participation in a sample of pathological gamblers surveyed before the legalization of online gambling through a licensing system (2.53%) and three years after (24.21%; Chóliz, 2016). A study by Planzer et al. (2014), using a quasi-experimental design, produced a finding of noteworthy significance. The only significant association between prevalence of gambling-related problems and gambling policies across 34 European jurisdictions was that rates of problem gambling were higher where advertisement for online gambling was less regulated. Studies have also compared differences in gambling patterns and related harm between regulated and unregulated sites. In 2016, Costes, Kairouz, Eroukmanoff, and Monson reported that gambling on unlicensed websites was associated with more intense gambling patterns and more gambling-related problems compared to gambling on licensed websites.

Without evaluation before and after the legalization of online gambling offerings, the debate about the pros and cons of a given regulatory approach remains speculative. As such, studies providing empirical data before and after the regulation of online gambling, such as the present one are necessary and will provide support to ongoing discussion and debate regarding the best form of regulation for online gambling.

Anticipated Consequences of Legalization

Two opposing positions have been heavily debated regarding the consequences of legalization of online gambling focusing on the (1) economic benefits of channelling of online gambling offerings, and (2) detrimental risks of increased gambling-related problems.

The first position argues that legalization will lead to increased safety and security for players through channeling of participation to regulated websites while emphasising the positive economic impact. Developing a legal framework for the online gambling sector is projected to provide a foundation from which governments can begin to regulate, or control, the economic market as well as begin to steer citizens away from unregulated, and, at times, unsafe, gambling websites (European Commission, 2012). It is also hypothesized that government regulation via a public monopoly operator will protect citizen consumers more efficiently against developing gambling-related problems. Furthermore, revenues from legalized online gambling offerings would enable the increase of allocated funds to improve initiatives pertaining to responsible

gambling and to ensure the security and integrity of online gambling offerings (Nadeau et al., 2014).

The alternative position argues that legalization and the liberalization of the market will lead to increases in prevalence and concentration of gambling-related problems due to higher availability and normalization of online gambling. This position holds that expanding online gambling offerings might increase participation in online gambling and result in increases in higher risk behaviour and gambling-related problems (Nadeau et al., 2014). This debate is of particular concern for public health officials given that specific characteristics of online gambling, such as greater accessibility and anonymity, are associated with higher risk for gambling problems (Gainsbury & Wood, 2011).

The Case of Québec

In Canada, gambling is regulated under federal law via provisions outlined within the *Criminal Code of Canada* (Korn, 2000), which provides provincial governments, within the limits of their territory, the sole authority to manage and conduct gambling ventures (Nadeau et al., 2014). Until recently, all Canadian provinces had chosen to prohibit online gambling. In 2010, the Québec government authorized the Société des lotteries du Québec to offer online gambling in the province (Loto-Québec, 2016b) and later that year *Espacejeux,* the second provincially regulated online casino in Canada, was launched (Loto-Québec, 2016b). *Espacejeux* later joined BCLC's *Playnow* platform to offer a pan-Canadian poker network. With the opening of *Espacejeux*, the regulatory environment in Québec shifted from one where online gambling was completely illegal, to one where the state monopoly was instead competing with unregulated operators.

The website launch received extensive media attention and criticism from public health experts and commentators despite a dearth of empirical data concerning the relationship between regulatory frameworks and gambling-related outcomes. Using a repeated cross-sectional design, we aim to examine whether (1) whether the introduction of state-monopolist *Espacejeux* to the online gambling market of Québec was associated with an increase in the prevalence of online gambling and online poker among the Québec population, and (2) whether the introduction of *Espacejeux* to the online gambling market of Québec was associated with a channeling of the unregulated market in the form of capturing the majority of online gamblers.

Method

Data Sources

This study was conducted using two sources of information on online gambling patterns among residents of the province of Québec, Canada: (1) ENHJEU-Québec Survey data collected through a province-wide gambling survey using a representative sample of the adult population, and (2) Online Poker Database of the University of Hamburg (OPD-UHH) behavioural data collected from unregulated online poker

sites available to Québec residents. Unregulated sites were defined as operators who operate in a jurisdiction without having a license issued by that jurisdiction.

ENHJEU-Québec Survey Data.   Data were derived from the two cross-sectional waves of the ENHJEU-Québec Survey, conducted in 2009 (N = 11,888) and 2012 (N = 12,008), to monitor trends in gambling patterns among the French and English speaking adult population living in private households throughout the province of Québec. Data were collected using computer-assisted telephone interviews from June to September in both 2009 and 2012, except in the Laurentians administrative region, where data collection in 2009 was completed by June 23 (prior to the opening of a casino in the city of Mont-Tremblant). The Research Ethics Board of Concordia University approved the study, and informed consent was obtained from each participant.

Sampling design.   In both ENHJEU-Québec surveys, sampling was conducted using a two-stage, stratified and non-proportional design covering regions and households. The 2009 sample was stratified geographically according to the 16 health regions of the Minister of Health and Social Services planning areas. Sample sizes were proportional to the square root of the number of census households in each region. Private households were selected by random digit dialing and one adult per household was randomly selected to participate in the survey. In 2012, stratification was performed by drawing samples from seven distinct regions according to Statistics Canada's classifications: (1) the census metropolitan area (CMA) of Montreal, (2) the 5 remaining CMAs (including Québec City, Sherbrooke, Ottawa-Gatineau, Trois-Rivières and Saguenay), and (3) all non-CMA areas. Given the under-representation of young men in the 2009 survey, male participants aged 18 to 35 were oversampled in the 2012 survey to replicate their proportion in the general population according to census data. Data were weighted to adjust for non-response and the multi-stage cluster sampling design, as well as to align with census information.

Survey measures

Participation in gambling activities.   Respondents' gambling participation during the previous 12 months was assessed for 11 activities: lotteries, bingo, horse racing, slot machines, video lottery terminals (VLTs), poker, table games (excluding poker), keno, sports betting, card games and games of skill. The gamblers group comprised those who reported betting or spending money on at least 1 of the 11 listed activities. To identify lifetime non-gamblers, past-year non-gamblers were asked to report whether they have ever bet or spent money on games of chance. Participants indicated which online gambling websites they used (i.e., *Espacejeux* or unregulated sites).

Poker-specific questions.   Respondents were asked a series of questions regarding time and money spent on online poker for cash games and tournaments, separately. Cash games were defined as all types of real money poker excluding tournaments. Participants were asked to report the number of times they bet or spent money on Internet poker in the past year. The amount of time each respondent spent on a typical occasion of playing online poker was recorded. Participants were also asked to indicate the amount of money spent during a typical session of playing online poker as well as

the most amount of money spent in a single day. To match the timeframe of the behavioural data, the annual spending and frequency estimates were divided by two to obtain six-month estimates for 2009 and 2012. Time spent on online poker cash games over 6-months was obtained by multiplying the reported duration of a typical session of online poker cash games by the 6-month frequency of online poker cash games.

OPD-UHH Behavioural Data.   The second source of information regarding the gambling practices of individuals residing in Québec was the Online Poker Database of the University of Hamburg (ODP-UHH): a collection of behavioural data gathered from online poker networks. The first round of data collection took place from September 2009 to March 2010, with data collected for every real money cash game player on the following poker networks: PokerStars, Full Tilt Poker, Everest Poker, IPN (Boss Media), and Cake Poker. A second round of data collection was conducted between March and September 2013; data were collected for every real money cash game and tournament player on PokerStars.com, PokerStars.es, PokerStars.fr, PokerStars.it and the Revolution Network. The final sample included 4,591,298 unique real money poker identities in 2009/2010 and 2,909,562 unique players in 2013. Players self-reported their geographic location. At Time 1, 24,212 players reported playing from Québec. At Time 2, PokerStars.com, the largest network of Canadian players, did not disclose data regarding players' cities, resulting in a smaller sample of Québec players drawn from the remaining networks. In 2013, 177 players were identified as playing from Québec.

Behavioural indicators.   Detailed information was gathered for all virtual playing tables, including the nicknames of players actively sitting at a table, the type of games they played, how much money they had bet at any given moment and players' geographic location. The data collected was used to generate different variables of playing patterns: such as number of sessions (i.e., uninterrupted period of play during which the player is virtually seated at one or more tables and not absent for a period longer than 15 minutes), playing time per session and number of tables played simultaneously during a given session (i.e., multi-tabling). When used in combination, the variables yield a key figure, the money volume in dollars rake spent (Figure 1). Money volume is defined as the product of playing time over a 6-month period, the mean number of tables played simultaneously and the mean rake paid to the operator per hour. The money volume of a player is the mean amount of money a player has paid to the operator during the six months of the observation period. It is important to note that this figure does not account for any cash flow between players. However, money volume should equal players' spending, since poker is a zero-sum game (after rake).

Analyses

Logistic regressions were conducted with each dataset to compare gambling patterns before (2009) and after (2012) legalization of online gambling. Odds ratios and 95% confidence intervals are reported for Internet gambling prevalence, Internet poker prevalence and online games. For money spent and time spent mean, median and standard deviations for each year are reported.
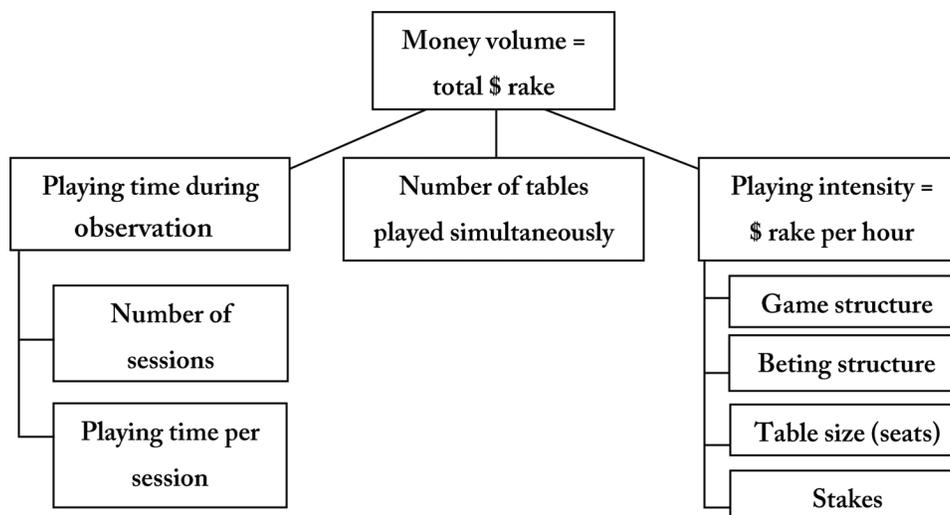
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                    ┌─────────────────┐
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Figure 1. Variables of Cash Game Playing Habits.

Results

The ENHJEU-Québec survey demonstrated that only 1.5% of the population gambled online for real money in 2012 versus 1.4% in 2009 (before *Espacejeux*). The majority of online gamblers played poker online at least once per year, and the corresponding online poker participation rates were 0.8% (2009) and 0.9% (2012). Behavioural data from the OPD-UHH show a modest decline in online poker participation from 0.84% in 2009/2010 to between 0.68% and 0.75% in 2013.

Prior to the introduction of *Espacejeux* by Québec's state monopoly operator in late 2010, all online gambling took place solely on unregulated sites. Data from the ENHJEU-Québec Survey in 2012 reveals that, after the introduction of a regulated online gambling site, 82.5% of online gamblers continued to play on unregulated sites, 58.3% exclusively. Data from OPD-UHH reveals similar results with between 89.2% and 90.2% of all real money online poker players from Québec playing on unregulated sites in 2013. These findings demonstrate that the introduction of *Espacejeux* did not lead to channeling of the majority of online gamblers from the unregulated market to a regulated site. In 2012/2013, both survey and behavioural data revealed that the majority of online poker players reported either gambling on cash games exclusively or on both cash games and tournaments (Table 1).

Online poker players who participated in the ENJHEU-Québec Survey reported having spent a mean of nearly $2,500 CAD over the course over a six-month period in 2009 and $683 CAD over six-months in 2012. The median spending lies at $67.5 and $100 CAD in 2009 and 2012, respectively, suggesting that the money spent is a highly skewed distribution with a few intense players driving most of the spending. This observation is reinforced by the large standard deviations of over $1,800 and $2,200 CAD, respectively. The mean time spent over the course of 6 months was 72 hours in 2009 and 132 hours over 6 months in 2012, with the median values being

Table 1
Descriptive statistics of online gambling activities among adults in Canada and Québec

	ENHJEU-Québec Survey Data						OPD-UHH Behavioural Data				
	Québec						Canada		Québec		
	2009 (n = 111)		2012 (n = 159)		OR[2]	CI OR[3]	2009/10	2013	2009/10	2013	
	%	CI %[1]	%	CI %[1]			%	%	%	Lower bound[4]	Upper bound[5]
Internet gambling prevalence	1.4	1.1–1.8	1.5	1.2–1.8	1.09	0.8–1.5	–	–	–	–	–
Internet poker prevalence	0.8	0.6–1.2	0.9	0.7–1.2	1.09	0.7–1.7	1.03	0.73	0.84	0.68	0.75
Players on unregulated sites	100	–	82.5	74.0–88.7	–	–	–	–	–	–	–
Exclusively unregulated	100	–	58.3	48.4–67.6	–	–	–	–	–	–	–
Unregulated & regulated	–	–	24.2	16.9–33.4	–	–	–	–	–	–	–
Online games (12 months)											
Poker[6]	60.5	48.9–71.1	60.6	50.5–70	1	0.5–1.9	–	–	–	–	–
Other activities exclusively	39.5	29–51.2	39.4	30.2–49.5	ref.	ref.	–	–	–	–	–
Online poker (12 months)											
Cash games only	–	–	56.2	43.6–68	–	–	–	26.6	–	26.5	33.3
Cash games & tournaments	–	–	39.2	27.9–51.8	–	–	–	48.1	–	43.5	48.0
Tournament only	–	–	4.7	1.8–11.3	–	–	–	25.3	–	23.3	25.3
Online poker on unregulated sites	100	–	90.0	81.6–94.8	–	–	100	–	100	89.2	90.2
Exclusively unregulated	100	–	58.9	46.2–70.4	–	–	–	–	–	–	–
Unregulated & regulated	–	–	31.1	20.8–43.8	–	–	–	–	–	–	–

[1] 95% Confidence interval (CI).
[2] Odds ratio.
[3] Odds ratio 95% Confidence interval (CI).
[4] Assumption: the regulated market 100% substitutes the unregulated market.
[5] Assumption: the regulated market 0% substitutes the unregulated market.
[6] May include other activities.

Table 2

Descriptive statistics of online poker cash game gambling in Québec, bi-annual

	ENHJEU-Québec		OPD-UHH[1]	
	2009	2012	2009/2010	2013
Total money spent (CAD)				
N	50	92	24,212	177
MEAN	2,483.18	683.42	196.43	317.06
MED	67.50	100.00	5.30	17.38
SD	1,8435.33	2,202.86	2,421.80	976.20
Total time spent (hrs)				
N	52	91	24,212	177
MEAN	71.88	131.99	21.83	33.67
MED	13.75	12.00	4.43	4.36
SD	133.75	765.72	58.14	63.55

[1] Spending figures were converted from USD to CAD to ensure comparability with ENHJEU-Québec data.

considerably lower at 13.75 ($SD = 134$) and 12 ($SD = 766$) hours, respectively. Again, the standard deviations are quite large, also suggesting a high concentration of playing time on a small number of intense players.

The behavioural data reveal similar trends: over the course of six months, Québec poker players were observed to spend a mean of $196 in rake in 2009/2010 and a mean rake of $317 in 2013. The median is considerably lower at $5 and $17, respectively, confirming the strong concentration of playing volume, which is further supported by the large standard deviations of $2,422 and $976. Playing time in hours is also concentrated in the behavioural data, but to a lesser extent: the mean values lie at 22 hours (2009/2010) and 34 hours (2013), with the median playing time amounting to 4.43 hours and 4.36 hours and standard deviations being 58 hours and 64 hours. Behavioural data thus suggest that money and time spent are, in actuality, lower than what players report when being asked (Table 2).

Discussion

The combination of both survey and behavioural data clearly show that the introduction of *Espacejeux* by the province's state monopoly operator into Québec's online gambling landscape did not increase the overall prevalence of gambling participation including poker. As previously reported, the rates of problem gambling also remained stable within the population (Kairouz & Nadeau, 2014; Kairouz, Paradis, Nadeau, Hamel, & Robillard, 2015).

The data indicate that despite the introduction of *Espacejeux,* the majority of online gamblers have continued playing on unregulated sites, a result in direct contrast with the hypothesis that offering a legal option for online gambling will result in the channeling of a significant portion of players from unregulated websites to *Espacejeux*. Given these results, it may be prudent for government stakeholders to consider

alternative approaches for managing online gambling offerings. Considering that the online gambling market is well established, government agencies need to be cognizant when entering a mature market. As in the case of Québec, perhaps a more suitable response would be the establishment of a licensing system where existing private operators obtain licences from government regulatory bodies and follow guidelines established by their respective jurisdictions.

There are multiple potential explanations for the stability of the online gambling market despite the introduction of *Espacejeux*. The player pool of the *Espacejeux* network is small compared to other sites, which is particularly salient with regards to online poker (Fiedler & Philander, 2013), an activity that represents the biggest share of the online gambling market in Québec. Because what is commonly known as the network effect, where each additional player in the player pool benefits the other players, *Espacejeux* is particularly disadvantaged in this regard. Furthermore, poker is unique among online gambling activities because it is both a game of chance and of skill (Costes et al., 2016; Fiedler & Rock, 2009). Thus, the network effect is strengthened by a skill effect whereby players want to compete with the best players and will choose where they play accordingly. All of these factors result in a small number of large companies dominating the online poker market with smaller and newer providers or operators struggling to grow and capture a portion of the market (Katz & Shapiro, 1985). A state monopoly is further hindered by the necessity to limit its offering within the geographic bounds of their province. In this respect, unregulated websites sites have an edge compared to regulated gambling offerings because of the unrestricted geographic scope of their participant pool (Costes et al., 2016). If players do not find enough games or players for their preferred variant, skill level and stakes of poker, they are likely to choose a different site with those features. Hence, the only way for *Espacejeux* to become more attractive is by either shutting down the (unregulated) competition or by expanding the player pool to include other operators and offering more competitive clientele.

Contrary to the idea that gamblers underreport their gambling involvement in surveys as a result of biased memory or anticipated moral sentiments (Meyer & Bachmann, 2005), our findings comparing survey data to data on actual playing behaviour indicate that surveyed gamblers overreported their gambling expenditures. A possible explanation for the observed overreporting is that players may have misunderstood the question as having asked how much they bet instead of how much they actually lost (i.e., bets minus winnings) (Blaszczynski, Ladouceur, Goulet, & Savard, 2006). That being said, while the 2009 mean is strongly influenced by one outlier, who spent considerably more than others, an overreporting was also found in 2013, although to a lesser extent. Other potential reasons for this overreporting might be that the behavioural dataset does not include all operators and players could also have played and spent funds elsewhere or that behavioural data includes only the rake paid to the operator and not the amount lost to other gamblers. However, the latter should only affect the distribution of spending (fewer extreme spenders and no net winners) and not the mean, since the cash flow between players evens out, after rake, as poker is a zero-sum game.

Certain methodological limitations of the present study should be noted. As is the case with all self-report data, there is potential for social desirability bias. Despite the large number of cases, OPD-UHH data are limited in terms of market coverage as it does not comprise all available online poker websites. Specifically, the inclusion of *Espacejeux* in the 2013 data could have strengthened findings. While poker remains the most popular form of online gambling, the OPD-UHH is limited by its singular focus on this form of gambling. Nevertheless, poker does represent the majority of online gamblers and the largest share of online gambling activity. Similar research on other forms of online gambling could contribute to a more thorough understanding of the effects of *Espacejeux* on Québec's online gambling market.

Conclusion

Results clearly demonstrate that the introduction of a regulated offering by the state monopoly into Québec's online gambling market was not associated with significant change in online gambling and online poker participation. Most players continued to play on unregulated sites despite the introduction of a state monopoly operator, indicating a partial channelling of online gambling from unregulated websites to the available regulated site. The triangulation of survey and behavioural data provides a more complete picture as self-reported data were supported with objective behavioural data provided by online gambling websites. The absence of channeling of gamblers to *Espacejeux* calls for future discussion of other forms of regulation and governance of gambling offerings such as a licensing system. Furthermore, the increased revenues associated with the migration of gamblers to the state monopoly website raise a fundamental question on whether this substantial revenue is being put to use in a responsible manner. Still, longitudinal analyses are needed to fully disentangle the effects of legalization of online gambling.

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