Journal of Gambling Issues
Volume 47, May 2021
http://igi.camh.net/doi/pdf/10.4309/jgi.2021.47.6
DOI: http://dx.doi.org/10.4309/jgi.2021.47.6

Advertising slogans in the gambling industry: content analysis informed by the heuristics and biases literature

Michał Krawczyk[1] & Łukasz Własiuk[1]

[1] Faculty of Economic Sciences, University of Warsaw, Warsaw, Poland

Abstract

In this paper, we analyse the contents of over a thousand gambling slogans. We identify several features considered in the literature that the slogans might capitalize on. In particular, we investigate heuristics and biases analyzed in the behavioural economics of decision making under risk, such as the gambler's fallacy. We then employ factor analysis to identify the main types of heuristics and biases showing up in the analyzed slogans. We find three naturally interpretable factors and show that they intuitively correlate with the type of game each slogan advertised. We also construct an index of potentially dangerous features a slogan might have and show that their use subsided slightly in the UK after the Industry Code for Socially Responsible Advertising was implemented in 2007.

Keywords: advertising slogans, content analysis, cognitive biases, behavioural economics

Résumé

Cet article porte sur l'analyse de plus d'un millier de slogans sur les jeux de hasard. Nous retrouvons dans ces slogans de nombreuses caractéristiques évoquées dans la littérature sur le sujet, en particulier les heuristiques et biais analysés en économie comportementale dans la prise de décision en situation de risque, comme l'illusion du joueur. Au moyen d'une analyse factorielle, nous dégageons les trois principaux types d'heuristiques et de biais qui se manifestent dans les slogans étudiés. Nous décelons ensuite trois facteurs interprétables et démontrons leurs corrélations intuitives avec le type de jeu dont chaque slogan fait la promotion. Enfin, nous proposons un index des caractéristiques potentiellement dangereuses des slogans sur les jeux de hasard et démontrons que l'emploi de ceux-ci a diminué légèrement au Royaume-Uni après l'adoption du Gambling Industry Code for Socially Responsible Advertising en 2007.

Introduction

Gambling remains highly popular globally, despite being highly unprofitable and potentially life-devastating for both the players and their families. Intense advertising is often put forward as one of the reasons for this apparent mass delusion and blamed for the industry's high (but hardly quantifiable; see Walker, 2007) social costs. Indeed, nearly everyone surveyed recalls having seen or heard gambling advertisements (Amey, 2001; Derevensky et al., 2007). This calls for carefully crafted legal standards to assure that the advertisements are not misleading, cunningly abusing players' misconceptions and biases. While these regulations are already in place in most countries, continuing research on gambling advertising is a must.

In this project, we conduct a content analysis of gambling advertisement slogans. Naturally, ours is not the first attempt to do so; see, e.g., McMullan & Miller (2009) and Sklar & Derevensky (2011). However, we believe our approach shows a number of appealing and largely novel features. We specifically focus on cognitive biases analyzed in behavioural economics literature on decision making under risk, trying to identify cases in which the slogans capitalize on such biases. In this way, we combine two research directions that Binde (2014) and others have proposed to have high priority in gambling advertising research: content analysis and analysis of risk factors for problem gambling. To be sure, while irrational beliefs and perceptions may indeed be at the heart of the cognitive model of gambling, other significant aspects of gambling advertising do nevertheless exist, such as the use of visuals and audio; however, analysis of the content of slogans applies to all communication channels, which can thereby be meaningfully compared.

The focus on the content of the message also makes our analysis relevant for other domains than the advertising of gambling. Participation in lotteries and casino games represent a simple but economically significant case of decision making under risk. The extent to which gambling advertisements make an appeal to various heuristics and biases proposed in the behavioural economics literature may also shed a certain light on their relative importance in other domains in which monetary risk is salient, such as investing and insurance.

Within the gambling industry itself, our approach allows us to cover different varieties. Arguably, not all games are made equal. The addictive potential, in particular, differs considerably between types of gambling. It is not known, however, if this is reflected (or possibly also caused) by differences in terms of the features of advertisement slogans used.

Even more importantly, our analysis is an attempt to measure the effectiveness of regulations of gambling advertisements. It is an explicit goal of these regulations to restrict the use of unethical messages, which could reinforce misguided beliefs about the costs and risks associated with gambling. These efforts are specially meant to protect children and vulnerable persons, as alternative ways of achieving this goal are associated with serious difficulties. In particular, a wholesale ban on advertising legal

gambling is widely considered to push the potential customers towards grey markets, while zoning (protecting minors from seeing the advertisements) turns out to be largely ineffective (Hörnle and Carran, 2018).

Because of the long time period covered by our sample and a large number of observations from the UK, we are able to investigate the impact of its 2007 Industry Code for Socially Responsible Advertising. The Code was the industry's reaction to the Gambling Act of 2005 which had liberalized the market, in particular permitting television advertising for all forms of gambling (thereby dramatically increasing exposure to the advertisements). While the Code is not a law per se, there is broad understanding that the government expects compliance, otherwise threatening to make the restrictions legally enforceable; firms disobeying the Code also face a threat of having their license revoked.

The Code among other things stipulates that the advertisements should comply with the rules of the Committee of Advertising Practice (CAP) and the Broadcast Committee of Advertising Practice (BCAP) and that the advertisements cannot be misleading. However, enforcement of this rule turns out to be challenging. Distinguishing between messages that are prohibited (such as portraying gambling as a replacement for work or as something that enhances sexual attractiveness) and those that are allowed (emphasizing fun and excitement associated with playing) may be nearly impossible. Regulation of gambling advertising is generally based on the transmission theory of communication, focused on the intent of the advertiser, whereas what ultimately matters is how the message is perceived (Hörnle & Carran, 2018). Again, this analysis may provide us with hints whether regulation of advertisement may be effective in curbing misleading messages also in other markets, such as financial services.

Finally, we provide a methodological contribution to the literature. In particular, we use factor analysis to identify main dimensions explaining the variability of advertisement slogan content.

Related literature

The current project is related to several strands of the empirical literature on gambling advertising, mostly using content analysis and surveys. Several of these studies focused on the form of advertisement communication. Findings include the common use of celebrities, attractive imagery, and, what was most prevalent, informal language and humour (Korn, 2005; McMullan & Miller, 2008; Sklar & Derevensky, 2011).

One exceptionally important theme is the reference to *emotions*[1] (Florsheim & Gorn, 1985; McMullan & Miller, 2008; Puntoni et al., 2009). Advertisements often include

[1]Words and phrases in italics are labels of relevant advertisement features to be used in the current study.

excited faces and voices, make use of exclamation marks, and emotion-related language [*thrill, playing feels good*]. These elements help attract attention and signal that gambling is an entertaining activity promising much fun associated with the play itself and with winning.

In particular, a reference to anticipatory emotions, especially the *dream* of enrichment [*high prize, life-changing, alternative to working*], is often made (Forrest et al., 2002) [*victory will feel good*]. This is understandable given the findings that the hope of winning is the strongest predictor of the decision to join the game (Ariyabuddhiphongs & Chanchalermporn, 2007) and that (lotto) players generally experience positive anticipatory emotions while waiting for the resolution (Kocher et al., 2014).

Gambling advertisements may also relate to emotions based on counterfactual inference, such as *regret* (Bell, 1982). One way it could be leveraged is by creating a sense of urgency (Newall et al., 2019b), implying that *the time to try* is right now, especially if incentives such as sign-up bonuses (Newall et al., 2019a are offered, resulting in a *low cost* of playing.

Research suggests that many lotto players pick identical numbers every week (Crosbie, 1996). Such players can thus expect bitter regret when they incidentally do not play while "their" numbers are drawn. Moreover, certain forms of gambling, notably the Dutch Postcode Loterij, are specifically designed to make sure that non-players find out about the opportunity they have just missed (their neighbourhood being drawn). Aversion to regret that may be anticipated in such situations may be exploited in advertisements (Clotfelter & Cook, 1991; Landman & Petty, 2000). Likewise, advertisements may play on the theme of anticipated *envy* towards the winners or *challenging* potential players to enter a competition with others.

With a *focus on the winners*, advertisements may also exploit their target audiences' cognitive errors such as availability heuristic (Kahneman & Tversky, 1974) because it is easy to recall winners and picture endless stacks of money simply waiting to be claimed ("They show them on TV!"), winning seems quite likely. *Wishful thinking* and *the illusion of control* (Langer, 1975), the incorrect belief that we are able to change the odds in our favour, can also boost the attractiveness of gambling and marketers are well aware. They may *challenge* potential players to demonstrate that they have what it takes to win. Binde (2007b) identified appeals to such misconceptions in advertisements of sports betting in particular (see also Griffiths, 2007; and, especially, Lopez-Gonzalez et al., 2018). It was also reported that bookmakers are especially eager to advertise bets that are *complex* (e.g., "Chelsea to win 2–1"; Newall, 2017) or feature *representative* events (e.g., "Leo Messi to score the first goal"; Newall, 2015).

For several other biases and heuristics that have been identified in behavioural economics literature on decision making under risk, it remains largely unexplored to what extent they may be exploited by gambling advertisements. These include the

gambler's fallacy, in which players, who have been mostly losing so far (which is to say, the large majority of players), expect to start winning soon, believing that their *luck* must turn around (Clotfelter & Cook, 1991, 1993; Jarvik, 1951). A similar effect may result because of risk seeking in losses (as in Kahneman & Tversky's Prospect Theory) whereby losers desperately try to "break even" (see also Köszegi & Rabin, 2006), and the "peanuts effect" (Prelec & Loewenstein, 1991; Weber & Chapman, 2005) of higher risk acceptance when the expected stakes are low (*low cost*). Likewise, players may be tricked by the effect of near-miss (see Kassinove & Schare, 2001; Monaghan et al., 2008): an impression that the success was extremely close when it really was not. In lotto, for example, it is frequently the case that a seemingly slight modification of two or three numbers would suffice to match all or all but one (but there are thousands of such modifications possible, so it is not really a near-miss). The effect is even stronger in slot machines, particularly in jurisdictions where the law does not require that they draw the symbols in a mutually independent manner. As a result, we often obtain two identical symbols—missing "just one more" to win. This is one way in which the advertisements may create an illusion that it is *easy to win*.

To be sure, the decision to gamble is not necessarily made in isolation. In lottery gambling, for example, players often form groups (syndicates); the willingness to play is also found to depend significantly on the number of players among acquaintances (Coups et al., 1998). Certain advertisements may follow this path, masquerading gambling as a "fun" time spent with friends or simply as an ordinary, harmless activity (Sparrow, 2009). Yet others try to link gambling to other socially desirable activities, such as sports (McMullan & Miller, 2009). Ultimately, of course, it is not so much the contents of advertisements that matter but its effects (Binde, 2007b).

The effects include the recruitment of new players and intensification of gambling in existing players, possibly leading to pathologies (Berger & Fitzsimons, 2008). For example, problem gamblers typically recall more advertisements than others (Binde, 2007a, 2009). Of course, that does not imply a causal link; for example, problem gamblers may pay more attention to these advertisements and remember them better. Likewise, survey responders often blame their (problem) gambling on advertisements (Grant & Kim, 2001; Hanss et al., 2015). Then again, shifting the blame for their bad habits on others is a natural ego-defending strategy. In this sense, direct econometric evidence that advertisements increase sales (Zhang, 2004) could be more convincing but identifying such effects is often a challenge.

The most relevant for the current investigation are the studies that try to link the effectiveness of the advertisements to their features. For example, Florsheim & Gorn (1985) found that advertisements showing gambling in a more positive light were more persuasive. Hing and colleagues (2014) reported that Internet gamblers admitted to occasionally gamble too much in response to advertisements offering free bets.

Focusing on the more long-term effects, Perry (1999) provided statistics showing a rapid increase in popularity among the youth of a cigarette brand after it started

using a cartoon character in its advertisements; a discussion of an analogous impact of gambling advertisements upon the younger generation can be found in Derevensky et al. (2007) and Korn et al. (2005); see also Binde (2014) and McMullan & Miller (2009) for a comprehensive review. Taking a broader perspective, while irrational cognitions may be associated with more intense gambling (Goodie & Fortune, 2013), it is not yet well understood how these errors and biases arise (Monaghan et al., 2009) and to what extent they are malleable. The latter question is of importance e.g., from the viewpoint of cognitive therapy of problem gambling (Toneatto, 2002). In this sense, investigating the advertisements may bring a more thorough understanding of the role of errors and biases in (problem) gambling.

Materials and methods

Content analysis is a useful technique as it addresses in an unobtrusive way the key questions of communication research, namely "who says what, to whom, why, how and with what effect" (Babbie, 2020). Specifically, it allows us to investigate the techniques used to capture the interest of the consumer and persuade him or her to try their luck.

Sample

The data set analyzed in this project was purchased from a research firm AdSlogans, which specializes in collecting advertisements from major marketing agencies both in the UK and abroad. We asked for a sample of gambling slogans split in two: about half of it coming from the most recent years, 2010–2016, and the rest from an earlier period of 1997–2005. In this way, we maximized the chance to identify a structural change in the contents of the advertisements. Indeed, one may suspect that the effect of the implementation of the Code (if any) was gradual. In this sense, observations from 2007 or 2008 could reveal little, especially because the date on which the slogan debuted could sometimes be imprecise. Likewise, slogans, say, from the 1980s could be different from the most recent ones for a number of reasons that would be difficult to account for. The choice of dates was also dictated by data availability.

In total, the data set has 1071 slogans from 1997–2016. They were differentiated in several dimensions. Some 43.2% came from the UK, 24.3% from other major English-speaking countries: the United States, Australia, Canada, and Ireland, with most of the remaining ones from continental Europe. The latter were available in their English translation. More than half of the slogans advertised state lotteries (including scratchcards). Other major product categories were online gambling (16.3 %), sports betting online (6.1%), sports betting (5.4%), casinos (4.8%), and bingo (3.6%). Most of the slogans were broadcast on television (71.8%) but a significant share was printed (13.7%) or shown in more than one medium (6%).

Features

In the current study, we wanted to determine to what extent advertisement slogans show several features identified in existing literature as potentially effective and

perhaps dangerous (intensifying problem gambling). In the first step, several features were defined, based on the categories reported in previous studies. Subsequently, we modified and extended the list during the exploratory analysis of the slogans in our sample. The ultimately used list is presented in Table 1. We provide examples of characteristic slogans that were judged to show the feature and the prevalence of each feature (which will be discussed in the Results section).

Rating

The rating followed the method used in previous literature, such as McMullan & Miller (2009). Four raters (the two authors and two student helpers) independently judged for each slogan if it shows each specific feature. Each rater faced a different, randomized order of slogans and features. The rating was blind in the sense that the rater did not know the year, origin, communication channel, or type of market in which the slogan was used, only its contents.

Internal consistency and consistency between raters

Within-rater consistency was assessed with Cronbach's alpha measures based on repetitions that naturally occurred in the database, namely on 42 slogans that appeared more than twice in the database. Consistency varied considerably between raters, ranging from a poor .53 to a high .87. Overall between-rater consistency among all raters as well as among their subsets showed unimpressive but acceptable kappa levels ranging from .38 .61. Because these statistics did not suggest excluding any one of them, data from all four have been used. Implied mean rating (e.g., .75 when three out of four raters believed the slogan did show the feature) was used as the variable of interest.

Data analysis

Clearly, the features were often closely inter-related. Moreover, telling if a specific slogan showed a specific feature (rather than its close relative only) was often a matter of judgment, as seen in less-than-perfect consistency statistics reported before. Finally, and most importantly, we wanted the data to tell us whether certain aggregate themes can be identified; these themes could be useful for subsequent data analysis. For all these reasons, factor analysis was performed, using the principal factor method applied to all features seeking to establish a small number of dimensions that explained a possibly large share of the variance in ratings. Additionally, we defined the *Hazard Index*, this Index being the mean of ratings of features that are typically considered in existing literature as deceitful and/or potentially dangerous to vulnerable populaces of players, so that their use may be restricted by legal regulations and codes of ethics. These features are *regret, gambler's fallacy, wishful thinking, illusion of control, easy to win, near-miss, life-changing*, and *alternative to working*. Indeed, implying that winning is likely just because the player is knowledgeable or simply wants to win, that gambling may be reasonably expected to provide sizable profits so that there is no need to work, etc., may clearly mislead

Table 1
A list of the characteristic features identified in the current study.

Feature	Definition	Examples	Prevalence (%)
Fun	The slogan implies that gambling is an enjoyable form of entertainment	"First in fun. First in cash"	8.1
Challenge	The slogan directs the attention to the competition between the players; slogan challenges the target to face other players or the game itself	"Football Lotto. Just how far will you go to win?"	9.9
Thrill	The slogan promises thrill and excitement associated with participation, with the prize or anticipation thereof	"Make sport more interesting"	9.5
Emotions	The emotion-related words and collocations are used.	"Moments you never forget"	9.9
Playing feels good	The participation in the game will bring pleasure.	"Enjoy it"	6.9
Victory will feel good	The positive emotions are promised in case of winning.	"Enjoy playing, enjoy winning", "How will you celebrate?"	6.7
High prize	The slogan focuses on the height of the prize.	"Get richer than rich", "Become scandalously rich"	13.1
Life changing	The slogan implies that winning will be a life-changing event.	"Life changing"	11.8
Alternative to working	The slogan suggests that playing is a way to advance in life, portrayed as an alternative to working, investing, etc.	"Win a life"	2.2
Focus on the winners	The slogan focuses on presenting the image of the winner.	"Everyone loves a winner"	6.4
High probability of winning	The slogan implies a sizable chance to win, higher than it follows from the theory of probability.	"Your biggest chance to win"	7.0
Easy to win	The slogan implies that the prize can be easily reached.	"Somebody's gonna win. Might as well be you"	8.2
Near miss	The slogan implies that past failures were actually near misses so that success is imminent.	"Luck will find you"	1.5
Gambler's fallacy	The slogan implies that a change of fate is imminent—/a streak of losses will be followed by a gain.	"Change your luck"	0.6
Regret	The slogan implies that not playing will result in bitter regret.	"Play now, or you'll never win!"	1.8
Wishful thinking	The slogan implies that merely wishing to win will be sufficient to actually make it come true.	"What if you won this Christmas?"	9.7

Table 1 Continued.

Feature	Definition	Examples	Prevalence (%)
Dream	The slogan contains a direct reference to dreams.	"The dream comes true"	12.1
Luck	The slogan refers to the concept of luck.	"Will the Welsh enjoy the luck of the Irish?"	12.1
Illusion of control	The slogan implies that random mechanisms can somehow be controlled, turning the game of chance into a game of skill.	"You Decide," "Luck is no coincidence"	4.5
You can play your way	The player can play in his or her own special way.	"Bet your way at Betway Bingo"	3.8
Time to try	The slogan implies that the target has waited for too long and the time is ripe to play.	"So what are you waiting for?	7.0
New game	A new game to try out.	"Loxo, the new game from the National lottery"	2.0
Easy to play	There are no obstacles to start playing.	"It's easy, cheap and gives away millions"	5.0
Low cost	The ticket is cheap or free.	"It's like a lottery...but free"	2.2
Not as bad as…	Comparison to some other, apparently less attractive, more costly, more dangerous form of gambling.	"A more fun casino"	1.3
Better than others	The slogan claims that the offered game is distinctly better than those offered by competitors.	"Nobody creates more millionaires"	10.0
Envy	An attempt to induce envy toward other players, who might succeed in winning instead of us	"Play Lotto or it could be him."	4.7
Representativeness	The slogan suggests that something "representative" should happen to the player—winners will win, etc.	"If you know about sport, you can win every day."	0.7
Complex probabilities	The slogan suggests that the game is complex, there are many different chances to win, etc.	"A lottery of seven chances more."	1.0

Note: the prevalence reflected the number of raters identifying the feature. For example, if, out of 1000 slogans, one feature had been found in 100 slogans by all raters and in each of the further 100 slogans by just two raters, its prevalence would have been reported as 15%. The order in which the variables are presented is determined by factor analysis to be reported below.

the consumer to their detriment, thereby fulfilling the definition of deceptive advertising (Sheehan, 2013, p. 51). Of course, the choice of these and not other features could be subject to debate; the alternative compositions that we considered reasonable led to qualitatively analogous conclusions. Both the identified factors and the Hazard Index were subsequently analyzed using regression analyses, comparisons over time and across categories (market segments and advertising media).

Results

Overview of the contents, summary statistics

The prevalence of all the features is reported in the right-most column of Table 2. The slogans frequently made reference to emotions, thrill, and fun associated with playing, challenging the audience to try. Several of them focused on the winners,

Table 2
Factor loadings after varimax rotation

Variable	F1: Imagine	F2: It's fun	F3: It could be us
Dream	**0.7549**	-0.0615	0.0332
Life changing	**0.7590**	0.0119	0.0594
Wishful thinking	**0.4603**	-0.0294	**0.4668**
Victory will feel good	**0.4651**	0.1732	0.1117
Alternative to Working	**0.2882**	0.0030	-0.0659
High prize	**0.2807**	-0.1109	0.0405
Focus on the winners	**0.2186**	-0.0737	**0.3025**
Emotions	0.0648	**0.7406**	0.0285
Playing will feel good	-0.0830	**0.6659**	-0.1087
Fun	-0.0705	**0.5873**	-0.0494
Thrill	0.0067	**0.5311**	0.0793
Easy to win	0.1091	-0.0554	**0.6542**
Near miss	0.0556	0.0362	**0.5562**
Regret	0.0186	0.0155	**0.3387**
High probability	-0.0755	-0.0940	**0.2849**
Envy	0.0206	-0.0480	0.1997
Luck	-0.0296	-0.1075	0.1937
Easy to play	-0.0787	-0.0739	0.0252
Challenge	-0.0684	0.0210	0.0197
Time to try	-0.0558	-0.0391	0.0935
Gambler's fallacy	-0.0172	-0.0260	0.1485
Illusion of control	-0.0142	-0.0824	0.0745
Better than others	-0.1948	-0.1115	-0.1098
New game	-0.0783	-0.0679	-0.0501
Low cost	-0.0260	-0.0466	0.0009
Not as bad as …	-0.1037	-0.0781	-0.0736
You can play your way	-0.0897	-0.0623	-0.0396
Representative	-0.0315	0.0160	0.1084
Complex probabilities	-0.0832	-0.0602	0.0500

Note: Highest values shown in **boldface** for enhanced readability of the table.

suggesting that prizes are exorbitant and life-changing. Certain themes strongly suggested by behavioural literature, such as regret, near miss, or the gambler's fallacy seemed to be used only occasionally. No reference to the actual odds of winning was ever made.

Factor analysis

Figure 1 shows the eigenvalues of the factors, indicating that three of them explained the bulk of data variability, while others contributed much less.

All these three factors have natural interpretations (see Table 2. Factor 1) which could be called "Imagine," is correlated with the features associated with dreaming about exorbitant winnings. Factor 2, "It's fun" has high loadings for features associated with positive emotions. Factor 3, "It could be us" correlates with features suggesting that winning is quite likely so that not playing would be a bad choice.

Determinants of the use of the analyzed measures: Means and trends

Figure 2 shows the mean values of the three factors by type of gambling. While, as is always the case in factor analysis, the zero level does not have any special interpretation, the substantial differences between groups seem intuitive. In particular, compared to other markets, lottery advertisements encourage their target audience to

Figure 1
Factor analysis: Eigenvalues.

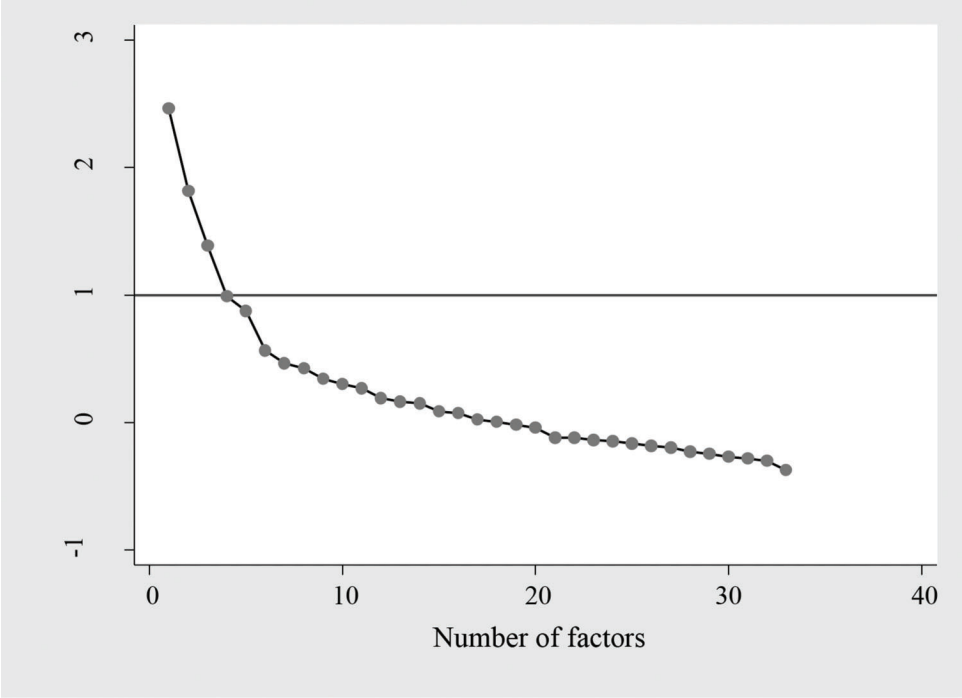
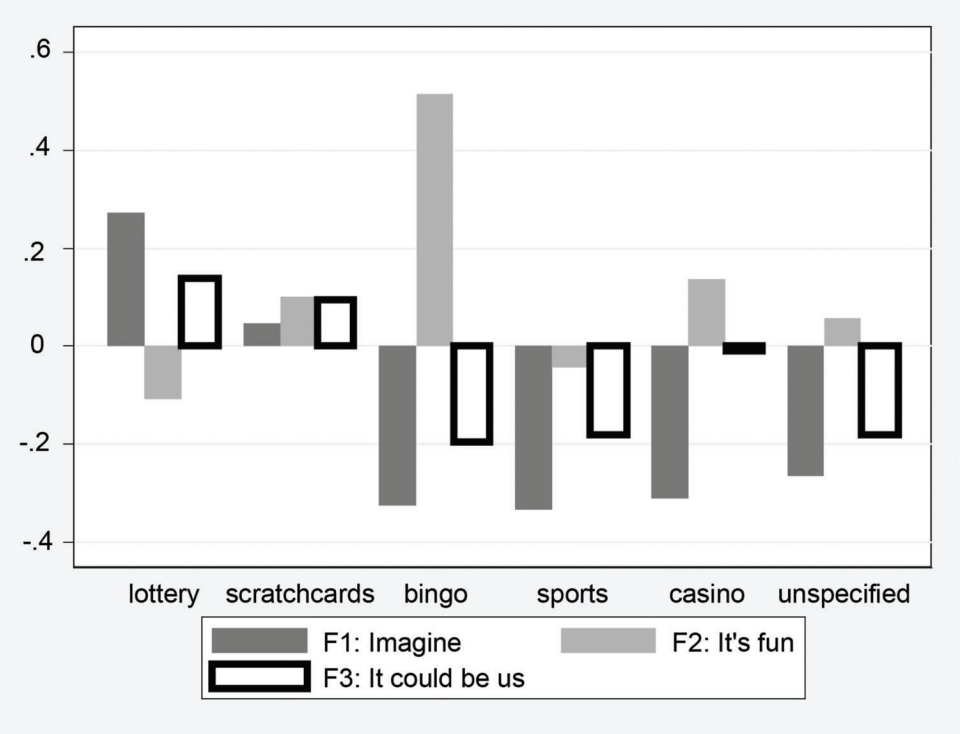


Figure 2
Mean values of the three factors by type of game.

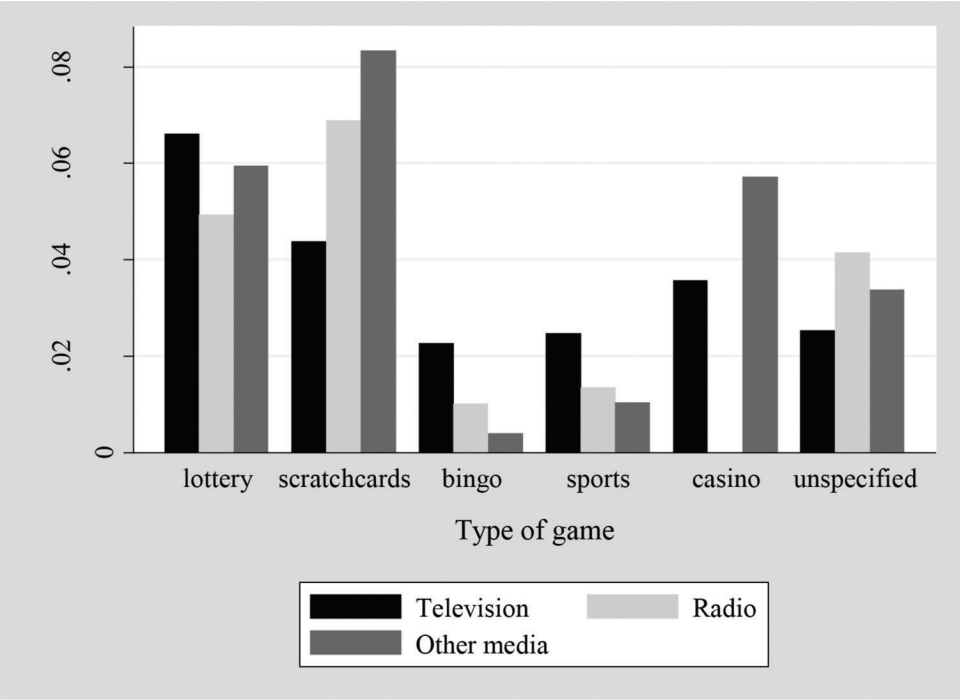


imagine the riches awaiting them (*imagine*) and to believe winning is quite possible despite the odds ("It could be us"). By contrast, bingo and casino advertisements focus on the fun the player can have on their premises.

As for the Hazard Index, interestingly, it takes the highest values in the lottery and scratchcard advertisements, regardless of the medium (see Figure 3). In other words, the relatively safe type of gambling has relatively aggressive advertisements. One example is a German SKL-Lotterie 1997 TV advertisement line "When are you going to become a millionaire?" Clearly, "By playing the lottery? Not in a lifetime" would have been the most honest (but obviously not included) answer. We have thus judged that the slogan encourages "wishful thinking" and believing that winning will be a "life-changing" event. Another example is the "Luck will find you" line used in banners and web advertisements of California Lottery's Black Exclusive Scratchers in 2014. Even though our analysis includes slogans only, so we could not have accounted for the attractive Lady Luck staring intently at the advertisement's audience, the slogan itself is clearly misleading, as it personifies randomness and implies that it somehow favours the player. Of course, in other cases, accounting for visual elements of the advertisements could have led to a different classification.

Concerning development over time, there is no clear trend (see Figure 4). (The same is true for the factors; see Appendix). The index goes down in the UK after the 2007

Figure 3
Mean value of the Hazard Index by medium and type of game.



legislative change, compared to the rest of the world but it is difficult to tell if the effect is lasting.

Determinants of the use of the analyzed measures: Regression analysis

To verify if the effects observed in figures shown in the previous subsection are statistically significant and robust to the inclusion of control variables, we ran a regression analysis; see Tables 3–5. All specifications include the type of game which, judging by the pictures, plays an important role. Models (2) and (4) additionally control for media type. Models (3) and (4) investigate location and period (with pre-2007 UK slogans as a base category). The estimates confirm all our observations concerning variables arising from the factor analysis: lotteries' advertisements want us to "Imagine" and to believe "It could be us"; casinos and bingo parlours promise fun; communication medium and time play exceptionally small roles. All these are quite robust across our four specifications.

Finally, Tables 6 shows the findings for the Hazard Index, across analogous specifications. We use tobit regression instead of simple OLS because the index often takes the value of 0. The finding that lotteries and scratchcards both include more "dangerous" advertisements is confirmed. Most interestingly, we also find that the variable indicating the post-2007 period in the UK is highly significant. The Industry Code might have helped to curb unethical advertising of gambling.

Figure 4
Mean value of the Hazard Index over time: the UK vs. other countries.

Table 3
Mean values of the "Imagine" factor: Regression analysis

Variable	(1)	(2)	(3)	(4)
Scratchcards	-0.230**	-0.233**	-0.229**	-0.229**
Bingo	-0.627***	-0.620***	-0.561***	-0.565***
Sport betting	-0.647***	-0.6390***	-0.651***	-0.649***
Casino	-0.617***	-0.617***	-0.627***	-0.625***
Unspecified game	-0.576***	-0.563***	-0.526***	-0.525***
Year	0.006	0.056	-0.007	-0.007
Print		-0.037		-0.013
Other media		-0.077		-0.050
Australia			0.024	0.012
Canada			0.042	0.030
US			-0.048	-0.056
Other European countries			-0.035	-0.047
Rest of the world			0.104	0.094
United Kingdom after 2007			-0.199*	-0.200*
After 2007			0.304**	0.306**
Constant	-10.855	-10.701	13.492	13.448

*$p < .1$; **$p < .05$; ***$p < .01$.

Table 4
Mean values of the "It's fun" factor: Regression analysis

Variable	(1)	(2)	(3)	(4)
Scratchcards	0.212**	0.214**	0.195*	0.194*
Bingo	0.634***	0.629***	0.740***	0.758***
Sport betting	0.082	0.074	0.124	0.113
Casino	0.261**	0.263*	0.230*	0.223
Unspecified game	0.182**	0.173**	0.252***	0.244***
Year	-0.002	-0.003	0.002	0.002
Print		-0.001		0.073
Other media		0.166**		0.246**
Australia			0.039	0.102
Canada			0.040	0.100
US			0.139	0.181
Other European countries			0.078	0.144
Rest of the world			0.123	0.177
United Kingdom after 2007			-0.126	-0.116
After 2007			-0.018	-0.028
Constant	4.872	6.834	-4.603	-4.447

*$p < .1$; **$p < .05$; ***$p < .01$.

Table 5
Mean values of the "It could be us" factor: Regression analysis

Variable	(1)	(2)	(3)	(4)
Scratchcards	-0.048	-0.045	-0.052	-0.053
Bingo	-0.354***	-0.360***	-0.315***	-0.308***
Sport betting	-0.352***	-0.359***	-0.332***	-0.336***
Casino	-0.174*	-0.175	-0.197*	-0.199*
Unspecified game	-0.350***	-0.361***	-0.322***	-0.325***
Year	0.004	0.004	0.005	0.005
Print		0.030		0.023
Other media		0.071		0.095
Australia			-0.172	-0.151
Canada			-0.136	-0.115
US			0.019	0.032
Other European countries			-0.076	-0.054
Rest of the world			-0.026	-0.008
United Kingdom after 2007			-0.232**	-0.230**
After 2007			0.089	0.085
Constant	-8.400	-8.425	-10.705	-10.601

*$p < .1$; **$p < .05$; ***$p < .01$.

Conclusions

We have conducted a novel content analysis, informed by insights from behavioural economics literature, focusing on cognitive distortions that advertising slogans may

Table 6
Hazard Index: Tobit regression analysis

Variable	(1)	(2)	(3)	(4)
Model				
Scratchcards	-0.023	-0.024*	-0.027*	-0.028*
Bingo	-0.116***	-0.115***	-0.098***	-0.098***
Sport betting	-0.094***	-0.092***	-0.094***	-0.093***
Casino	-0.066***	-0.065***	-0.069***	-0.069***
Unspecified game	-0.064***	-0.061***	-0.052***	-0.051***
Year	0.000	0.000	-0.001	-0.001
Print		-0.014		-0.010
Other media		-0.007		0.001
Australia			0.005	0.000
Canada			-0.004	-0.008
US			-0.001	-0.006
Other European countries			0.006	0.001
Rest of the world			0.006	0.001
United Kingdom after 2007			-0.044***	-0.048***
After 2007			0.035**	0.034**
Constant	-0.667	-0.369	1.319	1.392
Sigma				
Constant	0.113***	0.113***	0.112***	0.112***

*$p<.1$; **$p<.05$; ***$p<.01$.

instil in their audience. We have made use of aggregated categories to account for the subjective coding of features considered and to identify major tendencies in the data. Certain of our observations are hardly surprising in view of common sense and existing literature. For example, in accordance with the observations that Clotfelter and Cook (1991) based upon their informal review of advertisements, slogans never mention the actual chance of winning. On top of that, we determined three main less-obvious findings.

First, large and robust differences are operative in the contents of advertisements for different types of games; perhaps counterintuitively, the "safest" games—lotteries—use relatively hazardous types of advertisements. They also score highly on the dimensions we have labelled "Imagine" and "It could be us," which are admittedly relatively misleading. By contrast, "It's fun" is the key component of advertisements for bingo and casinos, generally a more addictive form of gambling. Arguably, this negative correlation between inherent risk and aggressiveness of advertisement is highly fortunate, in all likelihood reducing the overall prevalence of problem gambling. The players would be in real trouble if relatively risky forms of gambling were also advertised in the most audacious way. Then again, are lotto advertisements really safe? After all, certain players do become addicted to lotteries. It is also possible that people transfer the messages across gambling types; the relatively unconstrained lotto advertisements may encourage them to gamble in general, also using other, more dangerous, means. Lotto advertisements may also make them

endorse more irrational beliefs about gambling in general, possibly making them more likely to gamble pathologically (Joukhador et al., 2003). Clearly, more research into these issues is needed. In particular, a number of other aspects of an advertising campaign that are beyond the scope of current analysis (e.g., its visual elements, as well as its scale and the extent to which it addresses young and vulnerable populaces) would also have a profound impact on it being hazardous or mostly harmless. Subject to these important caveats, our observation that the forms of gambling most likely to cause addiction are not the ones advertised in the most aggressive way, generally speaks against the claims that the advertisements can be blamed for a significant share of problem gambling cases (cf., Griffiths, 2005). Still, it may be that this mechanism is true within certain segments of the market. For example, Planzer and colleagues (2014) recently reported that non-clinical problem gambling was more common in those European countries that had less strict regulation of advertising of online (but not offline) gambling. This correlation does not imply a causal mechanism.

Second, the UK's 2007 legislative change appears indeed to have made a modest positive difference in terms of the use of problematic advertising slogans. Still, such observations need to be made with great caution, as many other factors might have played a role, and the impact of liberalization could only be expected to be substantially delayed (Parke et al., 2015).

Third, overall several features that were "promising" in view of theoretical literature and findings in other domains seem to play little role in how gambling advertisements are designed. For example, the gambler's fallacy and near-miss were among the least often encountered features.

Also, perhaps less surprisingly, we have found little evidence that slogans included content prohibited in most jurisdictions, such as addressing specifically children and other vulnerable groups or linking gambling to sexual success. The only one of such unacceptable features that we could sometimes (but rarely) identify is portraying gambling as an alternative to working, thus a possible solution to financial problems. By contrast, and in line with existing literature (Puntoni et al., 2009), aspects related to positive emotions such as excitement and fun (also reflected in our second factor) were quite commonly addressed.

Of course, this explorative research venture has its limitations. It would be desirable to observe more variables; in particular, we do not even have a proxy for how successful a slogan was. The number of observations for certain markets was modest; we would especially like to investigate advertisements of (online) sports betting more in detail as it often seems aggressive and this type of gambling has considerable addictive potential. The quality of the rating could probably improve with additional experience with the task. Still, although the latter two issues reduced statistical power, the observed results were nevertheless clear and robust.

References

Amey, B. (2001). *People's participation in and attitudes to gaming, 1985–2000: Final results of the 2000 survey*. Wellington, New Zealand: Department of Internal Affairs. https://gluecksspiel.uni-hohenheim.de/fileadmin/einrichtungen/gluecksspiel/Sucht/Amey_1995-2000.pdf

Ariyabuddhiphongs, V., & Chanchalermporn, N. (2007). A test of social cognitive theory reciprocal and sequential effects: Hope, superstitious belief and environmental factors among lottery gamblers in Thailand. *Journal of Gambling Behavior*, *23*, 201–214. https://doi.org/10.1007/s10899-006-9035-3

Babbie, E. R. (2020). *The practice of social research*. Cengage learning.

Bell, D. (1982). Regret in decision making under uncertainty. *Operation Research*, *30*, 961–980. https://www.jstor.org/stable/170353

Berger, J., & Fitzsimons, G. (2008). Dogs on the street, pumas on your feet: How cues in the environment influence product. *Journal of Marketing Research*, *45*, 1–14. https://doi.org/10.1509/jmkr.45.1.001

Binde, P. (2007a). The good, the bad and the unhappy: The cultural meanings of newspaper reporting on jackpot winners. *International Gambling Studies*, *7*, 213–232. https://doi.org/ 10.1080/14459790701387667

Binde, P. (2007b). Selling dreams—causing nightmares? On gambling advertising and problem gambling. *Journal of Gambling Issues*, *20*, 167–192. https://doi.org/10.4309/jgi.2007.20.5

Binde, P. (2009). "You could become a millionaire": Truth, deception and imagination in gambling advertising. In S. F. Kingma (Ed.), *Global gambling: Cultural perspectives on gambling organizations* (pp. 171–194). New York, NY: Routledge. https://doi.org/10.4324/9780203870396-17

Binde, P. (2014). *Gambling advertising: A critical research review*. London, UK: Responsible Gambling Trust. https://about.gambleaware.org/media/1165/binde_rgt_report_gambling_advertising_2014_final_color_115p.pdf

Clotfelter, C. T., & Cook, P. J. (1993). The "gambler's fallacy" in lottery play. *Management Science*, *39*, 1521–1525. https://doi.org/ 10.1287/mnsc.39.12.1521

Clotfelter, C. T., & Cook, P. J. (1991). Lotteries in the real world. *Journal of Risk and Uncertainty*, *4*, 227–232. https://doi.org/10.1007/BF00114154

Coups, E., Haddock, G., & Webley, P. (1998). Correlates and predictors of lottery play in the United Kingdom. *Journal of Gambling Studies*, *14*, 285–303. https://doi.org/10.1023/A:1022009726406

Crosbie, P. (1996, January 6). So what's your chances of winning £40m? *Daily Express*, 27–29.

Derevensky, J. Sklar, A., Gupta, R., Messerlian, C., Laroche, M., & Mansour, S. (2007). *The effects of gambling advertisements on child and adolescent gambling attitudes and behaviors: Rapport remis au Fonds de recherche sur la société et la culture*. Montreal, PQ: International Centre for Youth Gambling Problems and High-Risk Behaviors, McGill University. http://youthgambling.mcgill.ca/en/PDF/Reports/Advertising.final.pdf

Florsheim, R., & Gorn, G. J. (1985). The effects of commercials for adult products on children. *Journal of Consumer Research*, *11*, 962–967. https://doi.org/10.1086/209030

Forrest, D., Simmons, R., & Chesters, N. (2002). Buying a dream: Alternative models of demand for lotto. *Economic Inquiry*, *40*, 485–496. https://doi.org/10.1093/ei/40.3.485

Goodie, A. S., & Fortune, E. E. (2013). Measuring cognitive distortions in pathological gambling: Review and meta-analyses. *Psychology of Addictive Behaviors*, *27*, 730. https://doi.org/10.1037/a0031892

Grant, J., & Kim, W. S. (2001). Personality dimensions in pathological gambling disorder and obsessive–compulsive disorder. *Psychiatry Research*, *104*, 205–212. https://doi.org/10.1016/s0165-1781(01)00327-4

Griffiths, M. D. (2005). Does gambling advertising contribute to problem gambling? *International Journal of Mental Health & Addictions*, *3*, 15–25. https://www.researchgate.net/publication/279703352_Does_Gambling_Advertising_Contribute_to_Problem_Gambling

Griffiths, M. D. (2007). *Gambling addiction and its treatment within the NHS: A guide for healthcare professionals*. London, UK: British Medical Association. https://www.researchgate.net/publication/281283034_Gambling_Addiction_and_its_Treatment_Within_the_NHS_A_Guide_for_Healthcare_Professionals

Hanss, D., Mentzoni, R. A., Griffiths, M. D., & Pallesen, S. (2015). The impact of gambling advertising: Problem gamblers report stronger impacts on involvement, knowledge, and awareness than recreational gamblers. *Psychology of Addictive Behaviors*, *29*, 483–491. https://doi.org/10.1037/adb0000062

Hing, N., Cherney, L., Blaszczynski, A., Gainsbury, S. M., & Lubman, D. I. (2014). Do advertising and promotions for online gambling increase gambling consumption? An exploratory study. *International Gambling Studies*, *14*, 394–409. https://doi.org/10.1080/14459795.2014.903989

Hörnle, J., & Carran, M. A. (2018). A sieve that does hold a little water: Gambling advertising and protection of the vulnerable in the UK. *Legal Studies*, 1–20. https://doi.org/10.1017/lst.2018.5

Jarvik, M. E. (1951). Probability learning and a negative recency effect in the serial anticipation of alternative symbols. *Journal of Experimental Psychology*, *41*, 291–297. https://doi.org/10.1037/h0056878

Joukhador, J., Maccallum, F., & Blaszczynski, A. (2003). Differences in cognitive distortions between problem and social gamblers. *Psychological Reports*, *92*, 1203–1214. https://www.researchgate.net/publication/10602679_Differences_in_Cognitive_Distortions_between_Problem_and_Social_Gamblers

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*, 263–291. https://doi.org/10.2307/1914185

Kassinove, J. I., & Schare, M. L. (2001). Effects of the "Near Miss" and the "Big Win" on gambling persistence. *Psychology of Addictive Behaviors*, *15*, 155–158. https://doi.org/10.1037//0893-164X.15.2.155

Kocher, M.G., Krawczyk, M., & van Winden, F. (2014). "Let me dream on!": Anticipatory emotions and preference for timing in lotteries. *Journal of Economic Behavior & Organization*, *98*, 29–40. https://doi.org/10.1016/j.jebo.2013.12.006

Korn, D., Hurson, T., & Reynolds, J. (2005). *Commercial gambling advertising: Possible impact on youth knowledge, attitudes, beliefs and behavioural intentions: Final report*. Toronto, ON: Ontario Problem Gambling Research Centre. https://www.researchgate.net/publication/254050348_Commercial_Gambling_Advertising_Possible_Impact_on_Youth_Knowledge_Attitudes_Beliefs_and_Behavioural_Intentions

Kőszegi, B., & Rabin M. (2006). A model of reference-dependent preferences. *The Quarterly Journal of Economics*, *121*, 1133–1165. https://doi.org/10.1093/qje/121.4.1133

Landman, J., & Petty, R. (2000). "It could have been you": How states exploit counterfactual thought to market lotteries. *Psychology &; Marketing, 17*, 299–321. https://doi.org/10.1002/(SICI)1520-6793(200004)17:4<299::AID-MAR3>3.0.CO;2-E

Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, *32*, 311–328. https://doi.org/10.1037/0022-3514.32.2.311

Lopez-Gonzalez, H., Estévez, A., & Griffiths, M. D. (2018). Controlling the illusion of control: A grounded theory of sports betting advertising in the UK. *International Gambling Studies*, *18*, 39–55. https://doi.org/ 10.1080/14459795.2017.1377747

McMullan, J. L., & Miller, D. (2008). All in! The commercial advertising of offshore gambling on television. *Journal of Gambling Issues*, *22*, 230–251. https://doi.org/ 10.4309/jgi.2008.22.6

McMullan, J. L., & Miller, D. (2009). Wins, winning and winners: The commercial advertising of lottery gambling. *Journal of Gambling Studies*, *25*, 273–295. https:// doi.org/10.1007/s10899-009-9120-5

Monaghan, S., Blaszczynski, A., & Nower, L. (2009). Consequences of winning: The role of gambling outcomes in the development of irrational beliefs. *Behavioural and Cognitive Psychotherapy*, *37*, 49–59. https://doi.org/10.1017/S135246580800502X

Newall, P. W. S. (2015). How bookies make your money. *Judgment and Decision Making*, *10*, 225–231. https://www.researchgate.net/publication/279997433_How_ bookies_make_your_money

Newall, P. W. S. (2017). Behavioral complexity of British gambling advertising. *Addiction Research & Theory*, *25*, 505–511. https://doi.org/10.1080/16066359.2017. 1287901

Newall, P. W. S, Moodie, C., Reith, G., Stead, M., Critchlow, N., Morgan, A., & Dobbie, F. (2019a). Gambling marketing from 2014 to 2018: A literature review. *Current Addiction Reports*, *6*(2), 49–56. https://doi.org/10.1007/s40429-019-00239-1

Newall, P. W. S., Thobhani, A., Walasek, L., & Meyer, C. (2019b). Live-odds gambling advertising and consumer protection. *PloS One*, *14*(6), e0216876. https:// doi.org/10.1371/journal.pone.0216876

Parke, A., Harris, A., Parke, J., Rigbye, J., & Blaszczynski, A. (2015). Responsible marketing and advertising in gambling: A critical review. *The Journal of Gambling Business and Economics*, *8*(3), 21–35. https://doi.org/10.5750/jgbe.v8i3.972

Perry, C. (1999). The tobacco industry and underage youth smoking: Tobacco industry documents from the Minnesota legislation. *Archives of Pediatric Adolescent Medicine*, *153*, 935–941. https://doi.org/10.1001/archpedi.153.9.935

Planzer, S., Gray, H. M., & Shaffer, H. J. (2014). Associations between national gambling policies and disordered gambling prevalence rates within Europe.

International Journal of Law and Psychiatry, *37*, 217–229. https://doi.org/10.1016/j.ijlp.2013.11.002

Prelec, D., & Loewenstein, G. (1991). Decision making over time and under uncertainty: A common approach. *Management Science*, *37*, 770–786. https://doi.org/10.1287/mnsc.37.7.770

Puntoni, S., De Langhe, B., & Van Osselaer, S. M. (2009). Bilingualism and the emotional intensity of advertising language. *Journal of Consumer Research*, *35*, 1012–1025. https://doi.org/10.1086/595022

Sheehan, K. B. (2013). *Controversies in contemporary advertising* (2nd ed). Los Angeles, CA: Sage Publications.

Sklar, A., & J. L. Derevensky. (2011). Way to play: Analyzing gambling ads for their appeal to underage youth. *Canadian Journal of Communication*, *35*, 533–554. https://doi.org/10.22230/cjc.2010v35n4a2331

Sparrow, M. K. (2009). *Can Internet gambling be effectively regulated? Managing the risks*. Unpublished manuscript.

Toneatto, T. (2002). Cognitive therapy for problem gambling. *Cognitive and Behavioral Practice*, *9*(3), 191-199.

Walker, D. M. (2007). Problems in quantifying the social costs and benefits of gambling. *American Journal of Economics and Sociology*, *66*, 609–645. https://doi.org/10.1111/j.1536-7150.2007.00529.x

Weber, B. J., & Chapman, G. B. (2005). Playing for peanuts: Why is risk seeking more common for low-stakes gambles? *Organizational Behavior and Human Decision Processes*, *97*, 31–46. https://doi.org/10.1016/j.obhdp.2005.03.001

Zhang, P. (2004). *Over- or under-advertising by state lotteries* (unpublished doctoral dissertation), University of Maryland, College Park, MD.

****

Submitted December 17, 2019; accepted September 21, 2020. This article was peer reviewed. All URLs were available at the time of submission.

For correspondence: Michal Krawczyk, Ph.D., University of Warsaw, Długa 44/50 NIP 525-001-12-66 Warszawa, Warszawa 00-241, Poland.
E-mail: mkrawczyk@wne.uw.edu.pl

Competing interests: None declared (all authors).

Ethics approval: Not required.

Acknowledgements: This research was supported by grant 2016/21/B/HS4/00688 awarded to MK by the National Science Centre of Poland. Patrycja Janowska, Bartosz Arseniuk and Kamil Mańczuk provided research assistance.

Appendix

Figure of mean values of factors over time