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Alcohol regulation, communication strategies and underage alcohol consumption in Spain: implications for social marketing

1. Introduction

Alcohol is the third leading cause of ill health diseases, and death in Europe and consumption per capita is the highest in the world (WHO, 2014). Additionally, debut age of alcohol consumption and binge drinking are becoming increasingly early among youth in the EU (Van de Broeck and De Bruijn, 2010). This situation is very worrying because children and adolescents are more vulnerable to the harmful effects of alcohol than adults (Anderson, 2009). Although it is illegal to target this group, there are many reports and studies (e.g. Calvert, 2008; EAPA, 2008) showing that the content and topic of many communication messages are aimed at children and adolescents. In this sense, alcohol advertisers increase their potential customer base by ensuring loyalty from an early age (Hastings *et al.*, 2010). Alcohol policies have been introduced both at European and national level to address this problem. However, as Paukste *et al.* (2014) point out, while regulation of physical availability, price and taxation are widely used in Europe, marketing control measures are still limited. For instance, most European countries, like Spain, have simply implemented partial marketing restrictions (WHO, 2013).

In this context, social marketing plays an important role. First, social marketing is recognized to be an effective way of changing people's behavior in order to improve their personal welfare and that of society (Andreasen, 1994; Dibb and Carrigan, 2013). Thus, social marketing campaigns have been widely used to reduce adverse behavior in young people in public health areas such as smoking, alcohol and drug consumption (for a systematic review see Kubacki *et al.*, 2015). Second, social marketing is also interested in analyzing the possible negative outcomes of marketing activities on individual or social behavior (Hastings and Saren, 2003). Third, social marketers focus their efforts not only on influencing individual behaviors (downstream level) but also that of target market peers (mid-stream level) or organizations and institutions that can play some positive role in supporting the desirable behavior (upstream level) (Andreasen, 2005). Thus, as Andreasen (2005) points out politicians and legislators can influence structural issues surrounding a desired behavior change, and alcohol regulation is particularly important because it may significantly reduce consumption (Anderson *et al.*, 2009a).

In general, there is evidence that the existing regulations are ineffective and alcohol companies are using new, original and creative marketing techniques to reach a young target audience (Van Dalen and Kuunders, 2006). So, improved monitoring is required to enhance the effectiveness of existing alcohol marketing regulations (Gordon *et al.*, 2010). In this regard, literature has paid little attention to the reaction of alcohol companies to the introduction of new regulations in European countries (Paukste *et al.*, 2014) or to their communication practices, such as sponsorship (O'Brien *et al.*, 2014). This study aims to examine alcohol communication strategies in Spain between 1999 and 2013 (a period of significant regulatory changes), and also to analyze the relationship between these strategies and underage (14-18 years) alcohol consumption in two different periods. Firstly, this paper analyzes the literature on alcohol marketing and its effect on consumption. There is a description of the evolution of alcohol communication regulations in Europe and Spain followed by analysis of the impact of alcohol regulation on consumption and on the communication strategies of alcohol companies. The methodology, sampling techniques, and

data gathering process used are described, followed by a presentation of the statistical results and, finally, a discussion of the results, conclusions and implications.

2. Literature review

In social science, there has been long debate about the possible causal relationship between exposure to alcohol marketing and young people's drinking habits. Of the two main research areas, one takes a consumer-oriented approach, which analyzes how psychological variables related to marketing influence consumption (e.g. brand recall, Primack *et al.*, 2014; advertising awareness, Sancho *et al.*, 2011; brand preference, Roberts *et al.*, 2014). And the other takes an econometric approach, which analyzes the aggregated effect of advertising exposure on alcohol consumption looking for correlations between the amount of alcohol advertising and drinking levels at a given moment (e.g. Nelson, 2003). This approach is the most commonly used in the literature and such investigations are either cross-sectional or longitudinal. Cross-sectional studies allow the analysis of correlations between different factors (e.g. advertising exposure) and alcohol consumption, whereas longitudinal ones allow exploration of the causal relationships between factors and the response, controlling for unobserved heterogeneity in terms of time and individuals. Although there are some divergent results in the literature (see De Bruijn, 2012), several systematic reviews of longitudinal studies (e.g. Anderson *et al.*, 2009b; Smith and Foxcroft, 2009) conclude that exposure to alcohol marketing increases the likelihood of young people starting to drink and drinking more if they are already consuming alcohol. Thus, the literature on underage alcohol consumption calls for stricter regulation to protect young people from alcohol associated problems.

2.1 Evolution of alcohol communication regulation in Europe and Spain

Youth alcohol consumption has been widely debated in various international institutions over recent decades. From the European Conference in Paris (WHO, 1995), to the Stockholm Declaration (WHO, 2001), the Framework for alcohol policy (WHO, 2006) and the latest European Plan to Reduce Alcohol Harm in 2012-2020 (WHO, 2012), several issues have constantly been raised. First, the need for special protection of young people from alcohol marketing. Second, the importance of ethical codes and efficient self-regulation in the industry. Third, the lack of a clear framework (incentives and punishments) and the existence of an independent institution which monitors market

At national level, the Spanish Government has developed national regulations in line with international recommendations which have limited alcohol communication activities, sales and physical availability during the last two decades to protect underage people (under 18s). In 1988 a nationwide ban on TV advertising of high-proof (above 20°) alcoholic beverages was introduced (BOE, 1988). Afterwards, other nationwide restrictions were introduced to protect young people from alcohol such as the ban on selling alcoholic beverages in schools in 1989 (OM, 1989) and the improvement of volumetric information on product packaging (RD, 1990). However, the most ambitious law yet drafted to protect underage people was debated in 2007 (MSC, 2007), but pressure from several lobbies (i.e. FEV and FEBE [1]) prevented it from being enacted (Rodriguez-Martos, 2007). Although there were no nationwide regulatory changes in 2007, most Regional Governments have tightened their regional regulations since 2007 along similar lines to the 2007 proposed draft. Hence, in 2010 (BOE, 2010), when alcohol regulation in the Spanish regions was highly homogeneous, the National Government promoted a change focus from regulating *advertising* to the wider concept of *commercial communication* (including sponsorship and promotion) but maintaining the former dual regulation (up to and above 20° proof). In addition, commercial communication of low-proof alcoholic beverages was forbidden on TV from 6:00 am to 8:30

pm and in any advertising media mainly aimed at young people (e.g. Super Pop and Bravo magazines). Finally, in 2012 (BOE, 2012), the Spanish national regulatory framework began taking into account the new digital media regarding alcohol advertising limitations.

Moreover, Spain's alcoholic beverages industry has had a voluntary self-regulatory ethical system since 1999 and it was revised in 2006 (Autocontrol, 2015). Although these *Self-regulatory ethical codes* [2] are intended to protect children and young people and promote responsible consumption, several studies from Spanish consumer associations have claimed that 30% of TV alcohol advertisements and 50% of radio alcohol advertisements explicitly target adolescents and young people (FACUA, 2007), and contravene the regulations in terms of performance and content (music, social success, legitimacy, etc.) (e.g. AUC, 2009).

2.2 Impact of alcohol regulation on consumption

A large number of studies analyze the consequences of an alcohol advertising ban on consumption with diverse results; but direct comparison of such studies may not be acceptable because of differences in methodology and dependent variable measurement. Several studies in the U.S. and Canada examine state-level partial alcohol advertising bans using panel data aggregate alcohol consumption (e.g. Ornstein and Hanssens, 1985; Nelson, 2003). These studies find that overall consumption of distilled spirits is higher in states with a partial ban on billboard alcohol advertising. A panel study for OECD countries from 1970 to 1983 (Saffer, 1991), using similar methodology and dependent variable, found that alcohol advertising bans reduced consumption and abuse. However, this last study was replicated by Young (1993) whose reexamination of the data and procedures revealed a number of flaws, finding no evidence that bans reduced consumption. Afterwards, Saffer and Dave (2002) published a study using time-series data from 20 countries over 26 years and their main conclusion was also that alcohol advertising bans decrease alcohol consumption (the implementation of a ban could reduce alcohol consumption by 5% to 8%). In line with Young (1993), Nelson and Young's (2001) study from 1977 to 1995 and Nelson's (2010) study from 1975 to 2000 of 17 OECD countries found no relationship between alcohol advertising broadcast ban and a decrease in alcohol consumption.

Few studies, however, have attempted to measure policy comprehensiveness and stringency at national and state levels using cross-sectional studies (e.g. Brand *et al.* 2007; Paschall *et al.*, 2009). These cross-national-based studies are based on the Alcohol Policy Index (API) and per capita consumption levels and reveal a clear inverse relationship between policy strength and alcohol consumption. However, they only suggest that countries with more conservative drinking regulations are more likely to enact and enforce comprehensive policies, and these regulations also discourage young people from drinking, but they do not analyze whether the introduction of restrictions affects alcohol consumption.

Finally, an ambitious new multi collaborative project labeled "The International Alcohol Control (IAC) Study" is currently being developed (for further information see Casswell *et al.*, 2012). This study introduces a longitudinal survey instrument to measure alcohol consumption (instead of total consumption and/or consumption per capita) and policy relevant variables such as exposure to marketing activities in order to assess changes over time within countries and compare countries.

2.3 Alcohol regulation effects on alcohol firms' communication strategies

Advertising strategies pursued by firms related to alcohol beverages (hereafter alcohol firms) facing alcohol regulatory changes have not been theoretically analyzed in depth (Paukste *et al.*, 2014). As already noted, the main ban on alcohol marketing targeted traditional media so alcohol firms are now using integrated marketing-mix strategies and technologies to maintain

brand awareness among young people (for further information see AMA, 2012). Review of technical reports and academic studies has identified several strategies. For example, alcoholic beverage firms have huge budgets to spend on online-communication strategies, mainly to implement their social media strategies (for further details see Nicholls, 2012). Likewise, in recent years academic literature has analyzed the placement of alcohol brands in films and songs, even in films for children (e.g. Thompson and Yokota, 2001). Another strategy used to overcome regulatory restrictions is the launch of low-proof products (e.g. premium strength premixed spirits are the latest variant of the category labeled ‘designer drinks’ or ‘alcopops’ or Ready-to-Drink beverages (RTDs). In most countries the content of beer and alcopops marketing is subject to a voluntary code of conduct because they are below the legal minimum alcohol content. These products are very dangerous because they blur the differentiation between nonalcoholic and alcoholic beverages, and promote increased alcohol consumption in young people. Billboard advertising is also a very commonly used media in the alcohol industry. Although many countries forbid the use of billboard advertisements close to schools and education centers, this rule is frequently breached (e.g. Scott *et al.*, 2008 in the US).

Nevertheless, sponsorship is the fastest-growing tool of marketing in the alcohol sector and its share of budget allocation has steadily grown in the last decade. For instance, according to the Federal Trade Commission (2014) in the US, fourteen companies with a market share of 79%, reported domestic sponsorship expenditures of \$615 million (17.8% of their marketing spending) in 2011. Sponsorship is defined “*as payment to a third party for an activity, event or other cause, whereby the sponsor obtains the right to associate itself with the event or cause*” (Belt *et al.*, 2014, p.1977-1978) and several studies (e.g. Wyllie *et al.*, 1989) support the effectiveness of this communication tool to develop positive brand associations in young people. In this regard, sponsorship operates differently from conventional advertising. Compared to the more direct and explicit advertising messages on TV, radio or in the press, sponsorship message are indirect and implicit (Levin *et al.*, 2001). Thus, the sponsor may communicate with its target audience without being overly intrusive so that sponsorship activities are often more accepted by the public (Mason, 2005). Using internal documents from alcohol firms, Hastings and colleagues reveal the intent of some alcohol companies to use brand sponsorship to target young drinkers with their brands (Hastings *et al.*, 2010). Thereby, most events sponsored by alcohol companies are aimed at young audiences and are related to sports and music. The sponsoring of sporting events, the leading object in terms of budget, has become a highly effective communication tool to increase the likelihood of alcohol consumption in young people and particularly boys (Davies, 2009); whereas the main objective of music festivals and concerts sponsoring is to raise brand awareness, create positive brand attitudes and build emotional connections with young consumers (Hastings *et al.*, 2010). Although there is research on alcohol company sponsorship in some countries (e.g. Australia), few studies have been published about alcohol company sponsorship in European countries, especially after the introduction of legislative changes, as in the case of Spain.

3. Methodology and objectives

To achieve the proposed objectives this study is based on two main data sources. For underage alcohol consumption, the biannual national survey of the Spanish National Plan on Drugs (hereafter PNSD) ESTUDES is used. This longitudinal survey is based on representative samples [3] of Spanish underage students. It contains information on frequency and quantity consumed in five product categories, age, gender and other risky behaviors, gathering information from students from 14 to 18 years old, who answer a 45-minute

questionnaire on risky behaviors. These self-reported underage consumption measurements overcome the former limitation of previous econometric studies (see De Bruijn, 2012), which measure alcohol consumption by using alcohol sales or consumption intention instead of actual self-reported consumption of the target group at individual level. Moreover, the use of representative samples of the population from 2004 to 2010 enables this study to analyze the relationship between communication strategy changes and underage consumption. The main data source for commercial communication in Spain is INFOADEX [4]. This nationwide database contains detailed information on advertising expenditure in the Spanish alcoholic beverage industry (manufacturers, distributors and retailers) since 1994, distinguishing between standard advertising (hereafter advertising) and sponsorship. This information comes from an exhaustive analysis of all the advertisements broadcasted in the media (TV, Billboard, Press and Magazines, Radio and the Internet) for each alcohol product. The study also includes additional control variables for demographic composition and economic situation, measured by the Spanish Statistics Institute (INE), such as: province, personal income, product category, relative prices (beer and liquor) and inflation.

3.1 Descriptive analysis and objectives

To study alcohol firms' changes in strategy (due to regulatory changes), the evolution of alcohol advertising and sponsorship expenditure from 1999 to 2013, and underage alcohol consumption in Spain's domestic market from 2004 to 2010 is analyzed.

Firstly, analysis of alcohol advertising and sponsorship (Graphics 1 and 2) suggests there is a structural change in 2007, when alcohol advertising drastically falls and alcohol sponsorship sharply increases. There is an expenditure deviation from alcohol advertising on TV, billboards and in the press and magazines to alcohol sponsorship. This behavioral change is a consequence of the tightening of national regulations on alcohol advertising in 2007 (MSC, 2007). However, there has been a sudden drop in sponsorship figures since 2010 due to the extension of alcohol advertising restrictions to *any commercial communication*, including sponsorship, events and promotions (BOE, 2010).

< Graphic 1 about here >

< Graphic 2 about here >

Secondly, and given the regulatory differences between low-proof ($\leq 20^\circ$) and high-proof beverages ($> 20^\circ$), it is interesting to analyze the evolution of alcohol advertising expenditure in terms of product category (Graphics 3 and 4). As in the previous case, there has been a sudden drop in alcohol advertising since 2007, greater for "long drinks and strong liquor" ($> 20^\circ$) than for "beer and cider" ($\leq 20^\circ$). In parallel, there has been a significant increase in sponsorship figures for the same product categories. However, since 2010 those figures have fallen drastically for "beer and cider" since the ban on low-proof alcohol advertising from 6:00 am to 8:30 pm. (BOE, 2010). It seems that the initial differences, due to the 1988 national regulations (BOE, 1988) have been reduced because subsequent regulatory changes are gradually converging restrictions on low-proof and high-proof beverages.

<Graphic 3 about here>

< Graphic 4 about here >

Thirdly, the evolution of underage alcohol consumption in terms of frequency and quantity of alcohol consumed is analyzed. The specific questions included in ESTUDES questionnaire regarding these two variables are, for both product categories (“beer and cider” and “long drinks and strong liquor”):

- 1) Frequency: “How often do you consume the following alcoholic beverages at “weekends” (from Friday to Sunday) during the last 30 days?” on a scale from “I have never consumed this beverage” to “every weekend”.
- 2) Quantity: What average number of drinks of the following alcoholic beverages have you drunk at “weekends” (from Friday to Sunday) over the last 30 days?” on a discrete scale in number of drinks (beer: 1 liter \approx 4 small bottles, strong liquor: 1 liter \approx 20 drinks). According to Podsakoff *et al.* (2003) using the number (in our case, alcohol drinks) permits an extra cognitive activity avoiding the simple “yea/nay saying” and thereby improves the validity of a past consumption measurement.

These quantity and frequency measurements are one of the main approaches to measure alcohol consumption in survey research (Bloomfield *et al.*, 2010). In this sense, an important number of studies (for example, Antai *et al.*, 2014, Bellis *et al.*, 2015) have been performed following this approach in the last decades. Moreover, several studies (for example, Duarte *et al.*, 2009 and Llorens *et al.*, 2011) have used the scales coming from ESTUDES nationwide survey. In addition, two main product categories are considered, “long drinks and strong liquor” (hereafter liquor) and “beer and cider” (hereafter beer), because they are the most relevant beverages both in terms of advertising/sponsorship and in terms of underage alcohol consumption [5]. Graphic 5 shows a steady gradual reduction in liquor and beer consumption frequency from 2004 to 2010 (liquor: from 2.37 weekends per month in 2004 to 0.50 weekends per month; beer: from 0.97 weekends per month in 2004 to 0.14 weekends per month in 2010). This evidences the higher prevalence of liquor consumption among Spanish youth and the overall reduction in frequency. Graphic 6 shows the average quantity consumed in a standard weekend, with a similar pattern for both product categories. There is a slight but constant increase in liquor and beer amounts until 2008 with a minor reduction in 2010 (liquor: from 2.45 drinks per weekend in 2004 to 3.31 drinks per weekend; beer: from 1.07 drinks per weekend in 2004 to 1.19 drinks per weekend in 2014).

<Graphic 5 about here >

<Graphic 6 about here >

These 2004-2010 figures suggest that Spanish underage people have globally increased the average amount of drinks (liquor and beer) they usually consume in a standard weekend (binge drinking patterns), and that they clearly prefer liquor to beer.

The literature review and the descriptive analysis suggest that the regulatory changes in Spain since 2007 have affected alcoholic beverage firms’ communication strategies (expenditure on alcohol advertising decreases and expenditure on alcohol sponsorship increases). Thus it is interesting to analyze the evolution of the relationship between alcohol advertising and sponsorship expenditures and underage alcohol consumption between consecutive periods (before and after 2007). Additionally, another factor that is considered in this study when analyzing the relationship between communication strategy changes and underage alcohol consumption is the alcohol content (low-proof and high-proof beverages) since legal

restrictions are different. Finally, and given the different dimensions of underage alcohol consumption, both frequency and quantity are analyzed.

4. Results

To study the importance of alcohol advertising and sponsorship on underage alcohol frequency and quantity consumed during the 2004-2010 period (PNSD available data) panel data methods are used. Likewise, two independent models are developed to explain frequency of consumption and the average quantity consumed [6], distinguishing between low-proof alcohol (beer and cider) and high-proof alcohol (long drinks and strong liquor). The proposed models are presented in Equations 1 and 2.

$$FREQ_{k,i,t} = \beta_0 + \beta_1 \times Standard\ Ad\ expenditure_{k,i,t} + \beta_2 \times Event\ sponsorship\ expenditure_{k,i,t} + \beta_3 \times AGE_{i,t} + \beta_4 \times SEX_{i,t} + \beta_5 \times Relative\ Price_{k,i,t} + \beta_6 \times INCOMEPC_{i,t} + \varepsilon_{k,i,t} \quad (Eq. 1)$$

$$QUANT_{k,i,t} = \beta_0 + \beta_1 \times Standard\ Ad\ expenditure_{k,i,t} + \beta_2 \times Event\ sponsorship\ expenditure_{k,i,t} + \beta_3 \times AGE_{i,t} + \beta_4 \times SEX_{i,t} + \beta_5 \times Relative\ Price_{k,i,t} + \beta_6 \times INCOMEPC_{i,t} + \varepsilon_{k,i,t} \quad (Eq. 2)$$

Where:

k = product category: “beer and cider” (beer) or “long drinks and strong liquor” (liquor)

i = 1, 2... 52 (province)

t = 2004, 2006, 2008, 2010 (year)

FREQ = average number of weekends per month that product k is consumed, in province i and year t.

QUANT = average number of drinks per weekend consumed of product k, in province i and year t.

Standard Ad expenditure = alcohol advertising expenditure (in constant million €) for product k, in province i and year t (aggregated expenditure for all the media).

Sponsorship expenditure = alcohol sponsorship investment (in constant million €) for product k, in province i and year t.

Age = average age in ESTUDES sample, by province and year.

Sex: Proportion of women in ESTUDES sample, in province i and year t.

IncomePC = income per capita (in constant €), in province i and year t.

$\varepsilon_{k,i,t}$ = disturbance of the econometric model (it theoretically contains any variable not explicitly considered as regressor - e.g. any other marketing tactic employed by alcohol firms, apart from advertising and sponsorship-).

Panel data method has been used instead of independent cross-sections, because: i) it allows to control for unobserved heterogeneity derived from individuals (provinces) and time-periods (years), ii) it is based on more information (more variability and less collinearity), and iii) it allows analysis of more complex and realistic behavioral models (Hsiao, 2003; Baltagi, 2005). Several elements are controlled in order to obtain unbiased and consistent estimators. Hence, one-way static panel models are used, with year fixed effects by sub period (before and after 2007) to account for unobserved heterogeneity from a time perspective (e.g. exogenous economic factors not explicitly considered in the model), and Panel Least Squares estimation with robust variance-covariance matrix to control for cross-section (province) potential heteroscedasticity.

Overall, the results from the estimated alcohol consumption models (quantity and frequency) emphasize the importance of both advertising and sponsorship for beer and liquor (see Table 1 and Table 2 respectively). However, there are interesting differences depending on the consumption dimension and product category.

<Table 1 about here>

<Table 2 about here>

<Table 3 about here>

In the quantity models, the evolution of the relationship between alcohol advertising and sponsorship expenditures and underage alcohol consumption between periods is analyzed by using period-interaction effects [7]. On the one hand, regarding advertising for the beer quantity model (Table 3), the former positive relationship between beer advertising and average beer consumption disappears during the second period ($\beta_{\text{before2007}} = 0.060$, $p < 0.05$; $\beta_{\text{after2007}} = 0.030$, $p > 0.10$). In contrast, the relationship between liquor advertising and average liquor consumption does not diminish after 2007 ($\beta_{\text{before2007}} = 0.120$, $p < 0.05$; $\beta_{\text{after2007}} = 0.120$, $p > 0.10$). Hence, the evidence suggests that the relationship between liquor advertising expenditure, the most prevalent alcoholic beverage among Spanish adolescents, and average liquor consumption is still positive but very small. On the other hand, there is homogeneity regarding the relationship between sponsorship expenditure and average consumption for both product categories. Finally, there is a significant reduction in the relationships between beer and liquor sponsorship and average consumptions after 2007 (beer: $\beta_{\text{before2007}} = 2.491$, $p < 0.05$; $\beta_{\text{after2007}} = 0.680$, $p < 0.05$; liquor: $\beta_{\text{before2007}} = 2094.88$, $p < 0.05$; $\beta_{\text{after2007}} = 2.440$, $p < 0.10$).

Consumption frequency models (Table 2) show interesting differences. As Table 3 shows the initial positive relationship between beer advertising and beer consumption frequency is considerably reduced during the second period, but it is still positive although very small ($\beta_{\text{before2007}} = 0.220$, $p < 0.05$; $\beta_{\text{after2007}} = 0.110$, $p < 0.05$). Likewise, the relationship between liquor advertising and liquor consumption frequency (Table 3) is also reduced after 2007 ($\beta_{\text{before2007}} = 0.330$, $p < 0.05$; $\beta_{\text{after2007}} = 0.150$, $p < 0.10$). Hence, the evidence suggests that the reduction in alcohol advertising expenditures has affected both product categories, but the relationship between alcohol advertising and consumption frequency is still positive but very small. However, disparate results are observed regarding the relationship between sponsorship expenditure and consumption frequency. Finally, there is a significant reduction in the relationship between beer sponsorship and beer consumption frequency ($\beta_{\text{before2007}} = 6.330$, $p < 0.05$; $\beta_{\text{after2007}} = 0.850$, $p < 0.05$); whereas the relationship between liquor sponsorship expenditure and liquor consumption frequency does not vary between periods ($\beta_{\text{before2007}} = 3.000$, $p < 0.05$; $\beta_{\text{after2007}} = 3.000$, $p < 0.05$).

5. Discussion and conclusion

In recent years, social marketing has increased in popularity and importance as a tool to achieve a culture of responsible alcohol consumption by designing and implementing campaigns (Kubacki *et al.*, 2015). To achieve this goal and especially to prevent binge drinking among highly vulnerable groups (e.g. underage people), research on potential drivers of alcohol consumption behavior such as alcohol marketing is required. Additionally, policy interventions are believed to be the most effective strategies available to governments to reduce alcohol consumption. So social marketers and policymakers must work together to reduce this undesired behavior (Andreasen, 2005). This is even more important in the current context since there is evidence that there is no adequate monitoring of these policies and more policy interventions are required (Farell and Gordon, 2012). This situation may be due to the fact that alcohol firms are not fully complying with existing legal regulations or they are adapting their marketing tools to keep on capturing young people's attention (Hastings *et al.*, 2010). So the purpose of this study is twofold. First, examining the communication strategies pursued by firms related to alcohol beverages in Spain during a decade with major changes in alcohol marketing regulations. Second, analyzing the evolution of the relationships between

those strategies and underage alcohol consumption in two different periods (before and after 2007).

This is a pioneer study in analyzing communication strategies in Spain's alcoholic beverages industry in a context of regulatory changes. Overall, it shows that under a restrictive framework, alcohol firms are driven to adapt their communication strategies to maximize their global expenditure on brand image and market share. In this way, since 2007 there has been continuous expenditure deviation from alcohol advertising to sponsorship activities due to regulatory changes. Moreover, from a product category point of view, there has also been a significant expenditure deviation from alcohol advertising to sponsorship, mainly for the beer and liquor categories. As the NZ Drug Foundation (2006) highlights, sponsorship activities are increasing and it is very dangerous for children because alcohol brand name and logos can appear at any time of day on sponsored programs. For this reason, there is an important debate in many countries concerning the total ban of alcohol sponsorship of events and sports. For instance, in Australia, The Ministerial Forum on Alcohol Advertising and Sponsorship (2014) recommended banning alcohol sponsorship of all streamed and broadcast sports. However, citizens appear to oppose any ban on such sponsorship (e.g. a poll in Ireland in 2015 reveals that 71% of citizens would not accept a ban, The Journal, 2015). In addition, several brands have launched non-alcoholic beverages (e.g. San Miguel beer 0.0%) which are not included in the beer category and other low-proof beverages that can be broadcast on TV (e.g. Rum Barcelo Cream), and they affect *main brand* recall and recognition.

The estimated model of underage alcohol consumption helps highlighting several issues. Firstly, a major body of the literature (e.g. Anderson *et al.*, 2009b; Davies, 2009) reports advertising and sponsorship as important factors for explaining the quantity and frequency of alcohol consumed by underage people. According to our results, the relationship between alcohol advertising and underage alcohol consumption have significantly diminished between periods but it is still positive (although very small) and significant as reported in other studies (e.g. Saffer, 1991; Saffer and Dave, 2002). Secondly, the observed expenditure deviation from alcohol advertising to sponsorship does not show the expected result, since it does not show an increase in the relationship between alcohol sponsorship and underage alcohol consumption after 2007. This can be explained because: i) the expenditure increase on sponsorship activities is lower than the decrease in expenditure on alcohol advertising, ii) sponsorship activities (any commercial communication) have been included in forbidden marketing tools since 2010, and iii) sponsorship is primarily aimed at enhancing brand image and creating brand associations in the mid- and long-term (Meenaghan, 2001).

Regarding the analysis of the trend in underage alcohol consumption results show that the number of weekends has been steadily decreasing since 2004 for both beer and liquor categories. However, the number of drinks in each intake has continuously increased since 2004, for both categories, with a slight reduction in 2010. This trend highlights the behavioral change in Spanish underage people to less frequent but more excessive alcohol consumption, concentrated in short periods of time (binge drinking). Nevertheless, it is not possible to affirm that this consumption trend is due to alcohol marketing bans, so more research is needed.

Findings suggest several implications for academics, regulators, managers and social marketers. For academics, this study uses panel data methods to analyze, from a nationwide perspective, the communication strategies of alcohol firms during a period with regulatory changes and the relationship between such strategies and underage alcohol consumption. This longitudinal approach, based on representative samples of young people overcomes the limitation of studying alcohol sales. There are also interesting implications for regulators, who

are mainly concerned about protecting underage people from the harmful consequences of alcohol consumption. Alcoholic beverages firms have adapted their communication strategies to overcome legal constraints and reach their target groups (including young consumers). Therefore, there is a need for closer control over alcohol marketing activities because alcohol firms are still looking for new tools to reach young audiences. Finally, managers and advertisers within the alcoholic beverages industry should play a more prominent role in protecting youth from the damaging effects of alcohol. They should take great care when defining their communication campaigns (content, media, etc.) to avoid sending information to young audiences and hence comply with the ethical codes (Spanish self-regulatory codes). Social marketing can also play an important role through counter-marketing activities, disseminating information about the effects of alcohol in order to decrease its appeal and use among young people (Burton *et al.*, 2013). Counter-marketing is emerging as an important and effective strategy to modify corporate practices that harm health in different areas with an important role in online strategies (e.g. see The Truth campaign about the tobacco industry www.thetruth.com).

Finally, the study has some limitations that have to be taken into account and can be potential lines for future research. For example, the accuracy of sponsorship expenditure data (INFOADEX database) does not take into account the type of sponsorship (in-event vs. at-event). So in future studies it could be interesting to analyze this distinction both in terms of communication expenditure and impact on underage alcohol consumption. In addition, alcohol advertising expenditure does not exhaustively include point-of-sale promotion expenditures or other “below the line” activities such as product placement, product development and so forth. Additionally, in the case of online communication further research is needed. For instance, breaking down internet data into Website advertisement, social media, emailing, “advergaming”, brand Websites and so forth since these ways of communications have increased young people’s exposure to alcohol marketing (AMA, 2012). Moreover, the use of alcohol advertising and sponsorship expenditure to measure the effectiveness of alcohol marketing does not take into account the advertising carryover effect (Anderson *et al.*, 2009b) or actual exposure of young people to alcohol advertising (De Bruijn 2012). Finally, the use of alcohol advertising in terms of expenditure alone does not take into account qualitative factors of commercial communication campaigns (e.g. advertisement content). Therefore further qualitative research is needed to analyze what types of messages are being transmitted to young people (e.g. expressions of lifestyle and identity, communicate group identity, social status and aspirations and so on) and which are the most harmful for this target.

Footnotes

1. - FEV is the Spanish Wine Federation (Federación Española del Vino) and FEBE is the Spanish Federation of Spirits Producers (Federación Española de Bebidas Espirituosas).
2. - There are three ethical codes in the Spanish Alcohol Industry: Spirits self-regulatory code (FEBE, 2013), Beer self-regulatory code (Cerveceros, 2009) and Wine self-regulatory code (FEV, 2012).
3. - ESTUDES surveys are based on stratified, multistage and representative samples in terms of nation (NUTS 1 -Nomenclature of Units for Territorial Statistics in the European Union-) and province (NUTS 3). The average sampling size for ESTUDES biannual surveys are approximately 26,000 underage students (PNSD, 2004-2010).
4. - INFOADEX (1999-2013) estimated advertising expenditure is used because it includes volume discounts, offers, etc. Moreover, this expenditure (in current €) is deflated in this research to obtain an inflation-free measurement (in constant €).
5. - Weekend alcohol frequency and quantity consumed is analyzed because PNSD data confirms that Spanish underage alcohol consumption during week days (working days) is residual (average frequency 0.25 weekend per month; average quantity 0.25 drinks per weekend).

6. - The unit of analysis is the province (NUTS 3= province-level) since it is the minimum disaggregation of INFOADEX data.

7. - The inclusion of a period-interaction effect (product of a regressor and a period dummy) is used to break down the effect of a given variable (e.g. standard advertising) into sub-periods (e.g. before 2007 and after 2007) (Greene, 2000). In this way, the effect on the omitted group (e.g. observations after 2007) is directly measured by the coefficient of the variable (standard Advertising), whereas the effect on the focal group (observations before 2007) is the sum of the coefficient of the omitted group and the coefficient of the interaction term (standard Advertising X Dummy before 2007) (for further details on interpreting interaction effects in regression, see Baltagi, 1998; Yip and Tsang, 2007).

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Tables

Table 1
Models of underage beer frequency and quantity consumption: 2004-2010

Dependent variables:	Beer quantity		Beer frequency	
	Coefficient	P-value	Coefficient	P-value
Independent variables:				
Beer standard Ad (after 2007)	0.030ns	0.370	0.110**	0.000
Beer sponsorship expenditure (after 2007)	0.680**	0.000	0.850**	0.009
Beer standard Ad x Dummy_before2007	0.060**	0.015	0.110**	0.001
Beer sponsorship x Dummy_before2007	1.811**	0.000	5.480**	0.018
Control variables:				
Age	722.060**	0.000	264.320**	0.011
Sex	1397.040**	0.000	-1524.490**	0.000
Beer relative price	20.870**	0.010	-34.280**	0.001
Income per capita	-0.020**	0.000	0.000ns	0.272
Model adjustment:				
Adjusted R ²	20.56%		50.55%	
F-statistic (p-value)	7.468 (0.00)		26.559 (0.00)	

Panel Least Squares; Cross-section White Robust estimation; ** = 5% significant, * = 10% significant, ns = non-significant.
Constant coefficients are omitted; Standard advertising expenditure (in million€/year); Sponsorship expenditure (in million€/year).
Number of provinces (cross-sections) = 51; number of periods = 2004, 2006, 2008, 2010; Total number of observations = 204.

Table 2.
Models of underage liquor frequency and quantity consumption: 2004-2010

Dependent variables:	Liquor quantity		Liquor frequency	
	Coefficient	P-value	Coefficient	P-value
Independent variables:				
Liquor standard Ad (after 2007)	0.120**	0.004	0.150**	0.000
Liquor sponsorship expenditure (after 2007)	2.440**	0.009	3.000*	0.079
Liquor standard Ad x Dummy_before2007	0.030ns	0.663	0.180**	0.000
Liquor sponsorship x Dummy_before2007	2092.440**	0.001	74.500ns	0.783
Control variables:				
Age	965.090**	0.000	280.920**	0.002
Sex	1600.010**	0.003	-364.050ns	0.484
Liquor relative price	57.150**	0.036	-85.970**	0.001
Income per capita	0.000ns	0.442	0.010ns	0.471
Model adjustment:				
Adjusted R ²	14.76%		46.10%	
F-statistic (p-value)	5.309 (0.00)		22.274 (0.00)	

Panel Least Squares; Cross-section White Robust estimation; ** = 5% significant, * = 10% significant, ns = non-significant.
Constant coefficients are omitted; Standard advertising expenditure (in million €/year); Sponsorship expenditure (in million €/year).
Number of provinces (cross-sections) = 51; number of periods = 2004, 2006, 2008, 2010; Total number of observations = 204.

Table 3.
Relationship between advertising and sponsorship expenditure on underage beverage consumption by type of product: 2004-2010

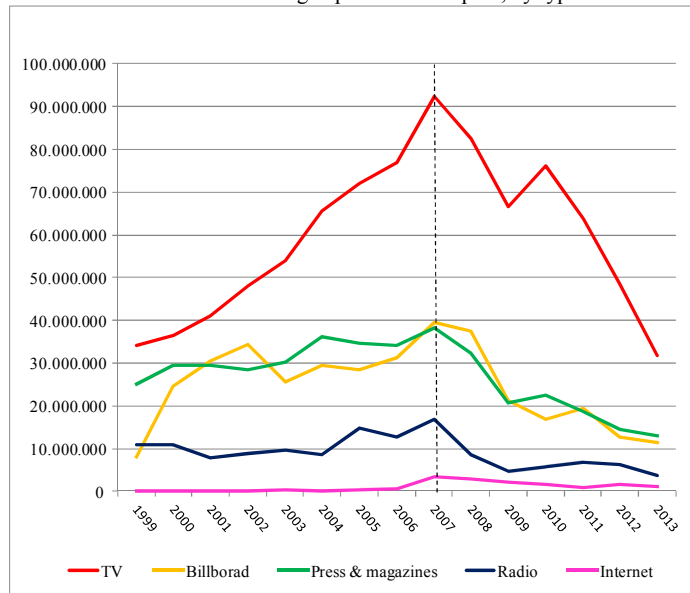
	Before 2007 ¹	After 2007	Variation	Summary
Beer quantity model:				
Standard Ad expenditure	0.060**	0.000ns	-0.060**	Advertising effect on beer quantity disappears
Sponsorship expenditure	2.491**	0.680**	-1.811**	Sponsorship effect on beer quantity diminishes (still positive)
Beer frequency model:				
Standard Ad expenditure	0.220**	0.110**	-0.110**	Advertising effect on beer frequency diminishes (still positive)
Sponsorship expenditure	6.330**	0.850**	-5.480**	Sponsorship effect on beer frequency diminishes (still positive)
Liquor quantity model:				
Standard Ad expenditure	0.120**	0.120**	0.000ns	Advertising effect on liquor quantity unchanged (positive effect)
Sponsorship expenditure	2094.880**	2.440**	-2092.440**	Sponsorship effect on liquor quantity diminishes (still positive)
Liquor frequency model:				
Standard Ad expenditure	0.330**	0.150**	-0.180**	Advertising effect on liquor frequency diminishes (still positive)
Sponsorship expenditure	3.000*	3.000*	0.000ns	Sponsorship effect on liquor frequency unchanged (still positive)

1.- The coefficient that measures the relationship between the independent variables (standard Ad and sponsorship expenditure) for the first period (before 2007) and the dependent variables (quantity and frequency) **are calculated by difference** between the coefficient of the **omitted group** (after 2007) and the **interaction effect** between each independent variable and the “before 2007” dummy variable.

** = 5% significant, * = 10% significant, ns = non-significant (non-significant coefficients in Table 1 and 2 are reported in Table 3 as 0.000ns).

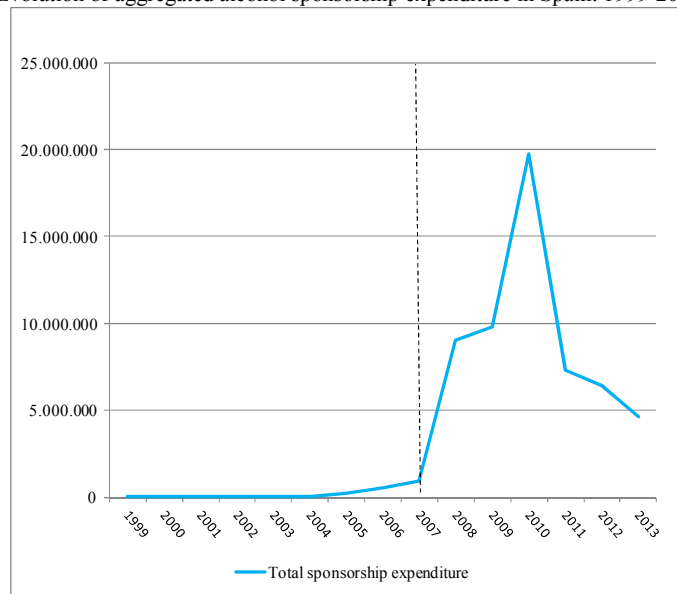
Graphics

Graphic 1
Evolution of alcohol standard advertising expenditure in Spain, by type of media: 1999-2013



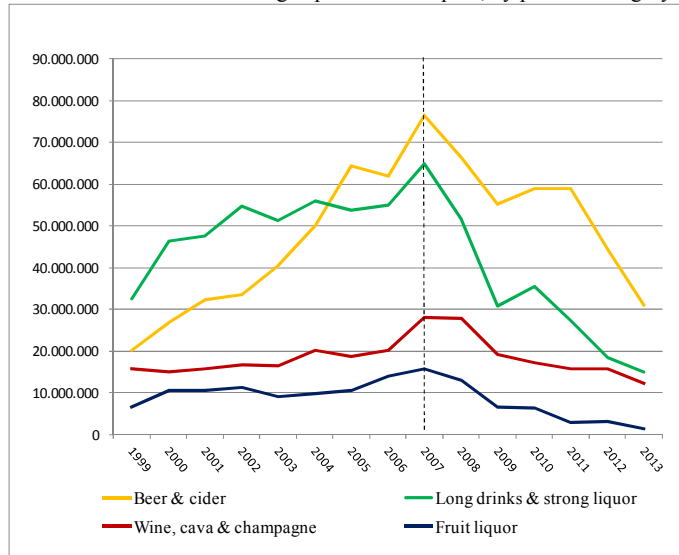
Source: Own elaboration from INFOADEX data

Graphic 2
Evolution of aggregated alcohol sponsorship expenditure in Spain: 1999-2013



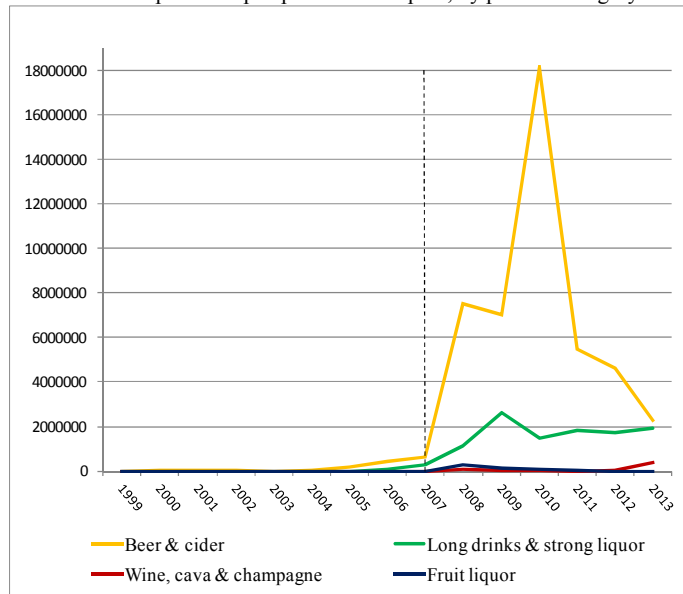
Source: Own elaboration from INFOADEX data

Graphic 3
Evolution of alcohol standard advertising expenditure in Spain, by product category: 1999-2013



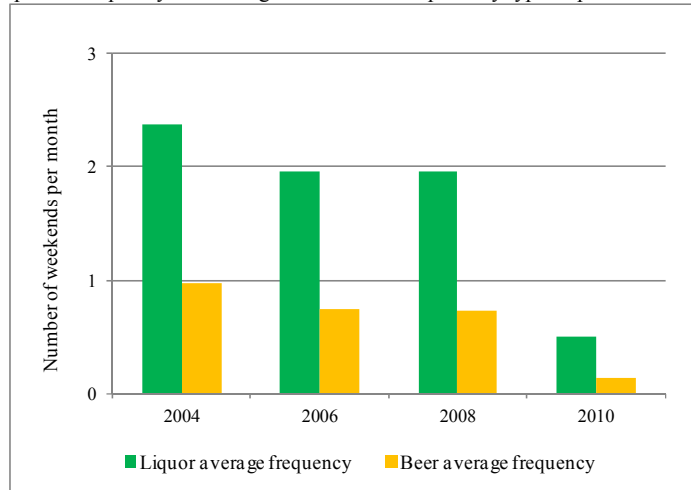
Source: Own elaboration from INFOADEX data

Graphic 4
Evolution of alcohol sponsorship expenditure in Spain, by product category: 1999-2013



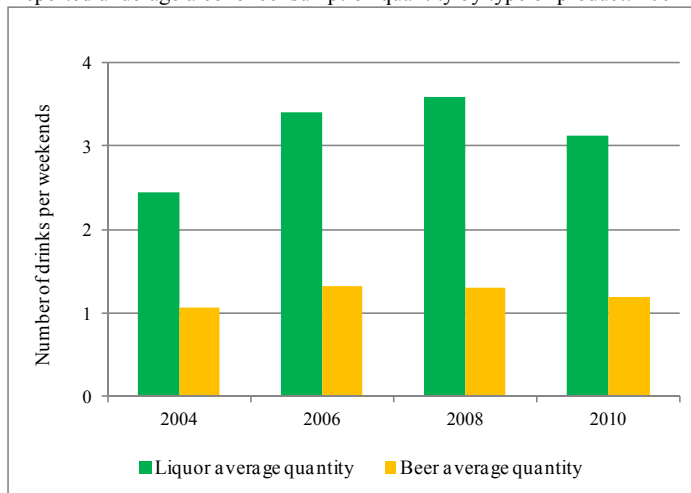
Source: Own elaboration from INFOADEX data

Graphic 5
Self-reported frequency of underage alcohol consumption by type of product: 2004-2010



Source: Own elaboration from ESTUDES data

Graphic 6
Self-reported underage alcohol consumption quantity by type of product: 2004-2010



Source: Own elaboration from ESTUDES data