

Identifying factors affecting the value of advertisements on football clubs' and players' social media: a discrete choice analysis

Factors affecting the value of advertisements

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Abstract

Purpose – Advertisers frequently use social media for interactive and customer-oriented relationship marketing (RM) purposes. Moreover, sports clubs and players have been using their social media accounts to post content of their sponsors and other advertising companies. Such posts create visibility and have value for these advertising companies, something which has not been empirically quantified in the existing literature. Hence, this paper's purpose is to identify the factors or attributes that influence the value of such advertisement posts.

Design/methodology/approach – A discrete choice approach is used to empirically estimate the utility that sponsorship managers derive from a post advertising their company or product on football clubs' and players' social media.

Findings – The results indicate that more followers, better on-field performance and a lower price significantly increase the advertising company's utility. Moreover, the used social media channel has a significant influence too, since Facebook and Instagram are preferred over Twitter, due to the latter's limited degrees of freedom for advertisers.

Research limitations/implications – Considering additional factors such as the image fit between sponsor and sponsee and presence on the Chinese social media market offers an interesting avenue for future research.

Practical implications – The empirical estimates allow commercial managers of clubs and players to derive companies' relative willingness to pay (WTP) for changes in characteristics of advertisements on their social media from the calculated utilities. This information can be used in the pricing decision when social media posts are sold or included in sponsorship packages.

Originality/value – This is the first study applying discrete choice modelling to link social media marketing (SMM) and sports marketing.

Keywords Social media marketing, Sports advertising, Football, Willingness to pay, Discrete choice

Paper type Research paper

1. Introduction

Social media such as Facebook, Instagram, Twitter, Snapchat and YouTube connect millions of people in society on a daily basis. Hence, social media offer businesses a convenient opportunity to get in touch with their stakeholders, such as (potential) customers (Hanna *et al.*, 2011). Moreover, the attention of enterprises towards professional sports as a means of economic and commercial activity grew during the last few decades (Lagae, 2005). Consequently, companies started to use social media of famous sports players and clubs to reach a wide range of (potential) customers. Enterprises are willing to pay a lot of money for social media posts of those players or clubs containing content linked to the advertising

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enterprise. For example, Blinkfire, a company analysing social media, calculated that football player Neymar Jr. earns on average 459,000 euro per advertising post on his social media (El Economista, 2018). Not only players, but also football clubs like Real Madrid CF from Spain post advertising content, see e.g., the example involving Fly Emirates in Appendix 1. Nevertheless, the prices and sponsors' absolute willingness to pay (WTP) for the advertisements can be a lot higher than the actual estimated media value, as companies like Nielsen, GumGum and Hookit calculate. The latter's corrections account among other things for the prominence of the brand's logo (GumGum, 2020b). As a result, gross social media post values of sometimes more than 100,000 euro per post might be reduced by factors up to 80% in order to obtain sponsors' net media values (GumGum, 2020a).

Although sponsorships are no longer about visibility only, large shares of sports sponsorship budgets still go to shirt sponsoring and pitch-side advertising board visibility. In such agreements, visibility on social media is often included. Hence, clubs and players need to become aware of the exact value of this valuable asset by going one step further than the media valuations of GumGum, Hookit or Nielsen. In the following subsections, the research set-up leading to this next step is described.

1.1 Research objectives and questions

Since the existing literature did not yet empirically evaluate the factors driving the value of social media posts, the first objective of this paper is to explore the advertising companies' utility derived from sports social media posts. The empirical estimation of utility allows for the ability to derive the advertisers' WTP, i.e. the relative WTP, for changes in the individual characteristics of social media advertisements (Bech *et al.*, 2011), such as for a certain number of additional followers. Estimating this relative WTP for changes in the individual characteristics of social media advertisements is the second research objective. The resulting information is crucial for clubs' and players' pricing strategy when such posts are sold to companies or offered as part of a sponsorship deal. Given the particular impact in sports of on-field performance on fan behaviour and the creation of brand awareness, which measures the ability of customers to recognise or remember brands (Ngan *et al.*, 2011; Gladden and Funk, 2002), a specific social media marketing (SMM) study focusing on sports is justified.

To this end, the following research questions are proposed: "Which club-, player- and social media-related factors affect sponsors' utility derived from company or product advertisement posts on social media of players or clubs?" and "How much are sponsors willing to pay (more or less) for changes in the characteristics of these social media posts?"

1.2 Research scope

The scope of this paper is limited to football, since this sport generates the most attention and the largest business figures worldwide, also on social media (Statista, 2017).

Regarding social media channels, this research solely focuses on Facebook, Twitter and Instagram. The reason for this is two-fold. First, based on Statista (2017) data about the number of worldwide users, it seems that Facebook is the most popular channel, followed by YouTube, Instagram, Twitter and Snapchat. Second, it was analysed to what extent football clubs and players are active on social media by focusing on the 32 teams participating in the UEFA Champions League in 2017/18. All clubs were present on Facebook, Twitter, Instagram and YouTube. However, the number of followers on YouTube was significantly below those on Facebook, Twitter and Instagram. Concerning players, the social media presence of the most popular player of each Champions League club was studied too. Nearly all players had a profile on Facebook, Twitter and Instagram, whereas almost no player had his own YouTube or Snapchat channel. Consequently, Facebook, Twitter and Instagram are deemed the most popular social media in football and hence best suited for social media

advertisements. The Chinese social media channels are left beyond the scope of this research too.

As a result of the chosen research questions and focus, an analysis of the effects of specific content on the target audience (e.g. on their brand awareness, brand appreciation or spending behaviour) is out of scope as well.

1.3 Research methodology

In order to formulate an answer to the research questions, a discrete choice modelling approach has been adopted. First, a number of club- and player-related factors with potential influence on the utility of posts have been identified. Subsequently, a conjoint analysis discrete choice survey has been designed. Using 40 questionnaires completed by sponsorship managers of active football sponsors and their advisors, the size and significance of the impact of the identified factors on the users' utility have been estimated empirically in two separate models. One model accounts for a company post on clubs' social media, whereas the other model accounts for a post on players' social media. This is required to answer the first research question.

From the (theoretical) utility differences, the relative WTP for post characteristics changes could then be calculated in order to answer the second research question (Bech *et al.*, 2011). Although a discrete choice approach results in relative WTPs for differences in characteristics of the social media posts and hence relative price differences between specific social media posts, absolute prices can be approached by inferring the price of one "base" post. This could, e.g., be done by using the example of the post of Neymar Jr. as the upper limit and valuations made by firms like GumGum, Nielsen and Hookit as the lower limit. Of course, this absolute WTP level is strongly dependent on the market and the budgets of the advertisers.

Finally, it is important to point out that no control group is used in a discrete choice methodology. Only respondents from the intended target group are required to fill out the survey. The stability of the results in a discrete choice analysis is tested by means of sensitivity analyses, involving omitted responses.

1.4 Research contributions and structure

This research makes several contributions. First of all, and to the best of the authors' knowledge, this is the first study identifying which factors significantly affect the companies' utility derived from advertising on football clubs' or players' social media. Having an insight into these value determinants will improve decision-making of clubs and players about prices for their social media advertisements. Second, this is also the first study that applies discrete choice modelling to make the link between SMM and sports marketing. Third, the results will allow clubs' and players' managers to create better sports social media advertisements by better accommodating those factors valued most by the advertising companies. Fourth, the insights from this research will lead to better sponsorship deals in terms of the realisation of common objectives.

The remainder of this paper is organised as follows. The next section explores the relevant literature on social media and sports marketing, in order to situate this research in its relevant scientific field. [Section 3](#) explains the discrete choice methodology and the different design options considered. The results of the analysis and the discussion are presented in [Section 4](#). [Section 5](#) derives a number of managerial implications and the final section contains the conclusions and suggestions for future research.

2. Theoretical insights into sports social media marketing

This research is positioned at the interface of two research domains: SMM and sports marketing. Both are discussed in [sections 2.1](#) and [2.2](#) and related to one another in [Section 2.3](#).

2.1 Social media interactions: an important tool for relationship marketing

Interaction is one of the key aspects of relationship marketing (RM), which aims at building, maintaining and enhancing relationships with customers. Additionally, it contributes to strengthening brand awareness, better understanding of customer needs and improving customer loyalty (Grönroos, 2004; Stavros *et al.*, 2008). As argued by Grönroos (1994) and Gummesson (2011), RM should be considered as a paradigm shift in marketing due to its emphasis on interactive, win-win relationships and networks in which the customer is a co-producer of value. This is opposed to the traditional marketing mix paradigm based on the 4Ps, in which the buyer has a passive role and no personalised relationship or interaction between buyer and seller exists (Constantinides, 2006).

Social media are defined by Kaplan and Haenlein (2010, p. 61) as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of user-generated content (UGC)”. The user as a content contributor is what distinguishes social media from other online platforms and what makes it increasingly useful for RM purposes. This is also suggested by Constantinides and Fountain (2008) who define Web 2.0 as a collection of open-source, interactive and user-controlled online applications. As such, Web 2.0 offers companies substantial opportunities for personalised and direct interactions with customers, as well as for getting feedback on customer needs and opinions.

Since interactivity, personalisation and customer empowerment are distinctive features of both RM and social media, SMM has become a crucial part of many organisations' RM strategy. As social media can reach a wide group of consumers in a fast, interactive and relatively inexpensive way, they are valuable tools for companies to help them meet their RM objectives (Williams and Chinn, 2010). According to Kim and Ko (2012), social media allow organisations to perform integrated marketing activities less costly and with much less effort than before. Other specific organisational objectives to be pursued through SMM include increasing brand awareness, stimulating sales, improving brand image, generating traffic to online platforms, reducing marketing costs and creating user interactivity by stimulating users to post or share content in an online community (Ashley and Tuten, 2015; Bianchi and Andrews, 2015; Schultz and Peltier, 2013; Witkemper *et al.*, 2012). However, according to Maricic *et al.* (2019), effective embedded ads that want to increase sales should not only try creating brand awareness, but also focus on a positive perception of the sponsoring company's products and/or services.

2.2 Sports marketing: a source of value for both sports entities and advertisers

This study combines SMM with sports marketing. The latter is defined by Shank and Lyberger (2014, p. 5) as “the specific application of marketing principles and processes to sport products and to the marketing of non-sports products through association with sports”. This paper relates to the second part of this definition, as it deals with sports entities promoting a company's product or brand through the former's social media. However, posts of fans involving club sponsors, such as a shirt sponsor on a fan's shirt, also generate important value for a club (Jensen *et al.*, 2015), are beyond the scope of this paper. In addition, this research particularly pays attention to advertising, which is defined by Richards and Curran (2002) as “a paid, mediated form of communication from an identifiable source, designed to persuade the receiver to take some action, now or in the future”. In this paper, the source is a club or a player posting an advertisement of a company on its social media, while the receiver is a follower of this club or player and the action is becoming a customer of the company. These relationships within the sports social media framework are illustrated in Figure 1. It also shows where value is created for the advertising company.

Sports marketing is important for both sports entities and advertising companies for several reasons. For sports entities, sponsoring and advertising are growing sources of revenues due to the ever-increasing commercialisation of sports. Ross *et al.* (2019) show that the highest earning football clubs generated about 40% of their total revenues from commercial activities including sponsoring and advertising in 2017/2018, so optimising advertising agreements is key to their success.

Next to the financial importance of sports marketing, sports entities use RM to strengthen relationships with their customers, the fans and to improve customer loyalty (Harris and Ogbonna, 2008; Lapio and Morris, 2000; Stavros *et al.*, 2008). Fans are highly involved customers, seeking long-term association with a sports team (Shani, 1997). In addition, sports consumers are more loyal than the average consumer (Waters *et al.*, 2011). Consequently, they have a strong desire to constantly stay up to date about their favourite sports team(s) or player(s) (Abeza *et al.*, 2013). From the perspective of companies advertising through sports, the main reasons behind this advertising strategy are in line with the objectives of RM: enhancing customer relationships and creating brand loyalty (Donlan and Crowther, 2014).

2.3 Quantitative research in sports social media marketing: a blind spot

Some sports SMM research has been carried out in the past. Baena (2016) already showed that sports social media are an ideal instrument for clubs' interactive marketing initiatives, in turn constructing virtual communities. Such virtual communities boost fan engagement, a crucial asset as it creates value for the club (Baeur *et al.*, 2008). Clubs interacting with their fans generate positive online and offline behavioural intentions among their fans, as the latter share their impressions and engage in a co-creation process with the club (Santos *et al.*, 2019). Posts that connect with the history of the club and posts including exclusive content, such as behind-the-scenes information, have the potential to generate high engagement levels (Parganas *et al.*, 2017; Osokin, 2019). Posts containing visual elements, such as photos and videos, have the largest impact on the audience, especially on visual social media channels, like Instagram, which are becoming increasingly popular (Osokin, 2019; Teo *et al.*, 2019). On these visual social media channels like Instagram, image quality is crucial for marketing purposes (Teo *et al.*, 2019). Moreover, Chou *et al.* (2020) advocate for sufficient attention for the aesthetics of advertisements, in order for these advertisements to be effective among the fans.

A new source of revenues for sports organisations and players is social media advertising (Williams *et al.*, 2014). The value of such club and player social media posts for advertisers has however not been empirically estimated in the literature until now. Existing academic

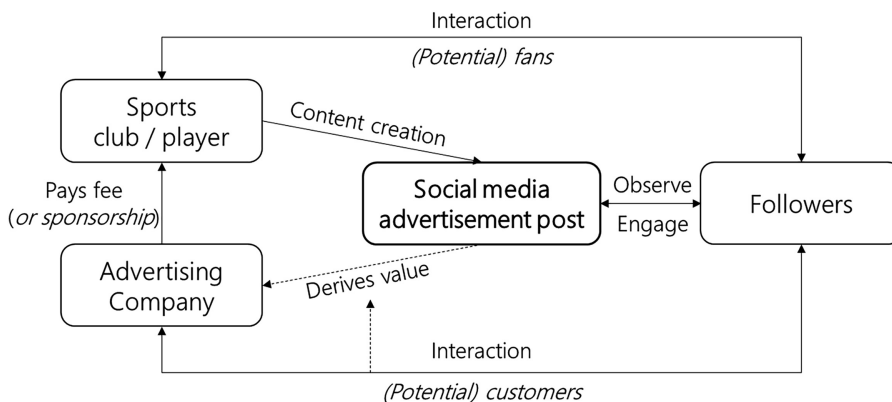


Figure 1. Relationships and interactions between the stakeholders in social media advertising

research about SMM in sports is mainly theoretical and lacks a quantitative approach. Focusing on sponsorship decision-making, Johnston and Paulsen (2014) mention important limitations of previous research, such as the lack of addressing cost considerations and trade-offs, as well as the inability to assess whether decision-making is driven by comparing a set of attributes or by certain heuristics. Moreover, existing studies are unable to deal with the wide variety of attributes impacting decision-making. The same limitations are valid for past research in the domain of SMM in sports. This paper fills this research gap by applying discrete choice modelling to sports social media advertising in football. The set of decision alternatives from which managers can choose in this approach take the potentially relevant individual attributes determining the value of football social media advertisements for advertising companies simultaneously into account.

3. Methodology

Discrete choice is a statistical research domain that analyses choices made by economic agents such as consumers, families and enterprises. This research domain emerged from the theory of consumer behaviour and has been previously applied in a variety of scientific fields, such as modal choice in transportation (Ben-Akiva and Lerman, 1985). Lancaster (1966) argued that consumers do not derive utility from goods as such, but from the combination of components or *attributes* of a specific good. This idea of utility has been incorporated in the random utility theory of McFadden (1974). This pioneering work describes how the discrete choice methodology models the choices economic agents make, based on a number of good attributes and the specific attribute states or *levels* [1]. To calculate the consumer's utility, discrete choice respondents are faced with a number of choice sets between products with different attribute levels, from which each time they need to select the alternative that appeals most to them (Boxall *et al.*, 2009).

According to Lancsar and Louviere (2008) and Swait and Adamowicz (2001a), discrete choice is better able to disentangle human preferences and has a larger potential to gather information on the human decision-making process than traditional market research. Nevertheless, this approach requires more effort from the respondents (Swait and Adamowicz, 2001b). Johnston and Paulsen (2014) discern three specific advantages of discrete choice modelling. First, it allows the researcher to test for the impact of a level change of one specific attribute on the consumer's utility, keeping all else equal. This corresponds to the common economic practice of *ceteris paribus* analyses. Second, such an approach is able to identify consumers' relative importance of attributes. Third, interaction effects between parameters could be included in the analysis as well. Hence, discrete choice analysis offers a viable approach to get an insight in the value of the different attributes that influence companies' decision making when involved in sports social media advertising. However, the methodology's limitations need to be taken into account as well when analysing the results. An important assumption is that products are the sum of their independent constituting parts and that decision makers are rational.

Ultimately, the data gathered from the discrete choice analysis allow the researchers to estimate the latent utility of a specific product i :

$$U_i = \alpha + \beta'X_i + \varepsilon_i, \quad (1)$$

with α the intercept coefficient and β' the vector of coefficients for product i 's specific levels of the considered attributes in vector X_i and ε_i the error term. By using this specification, which is based on the random utility theory, the proposed discrete choice approach differs from a simple conjoint analysis, which may result in misleading estimates and conclusions (Louviere *et al.*, 2010).

It is common to include the price variable in discrete choice analyses, since a higher price usually affects the utility of a product negatively. With function (1) including price as one of the X_i 's, the respondents' relative WTP for changes in the remaining attributes can be determined by keeping utility constant. For example, by improving the level of one attribute, utility rises. Hence, the required, calculated price increase that results in an equal utility decrease represents the relative WTP for this attribute improvement.

In the next subsection, the sample is described. This is followed by a discussion of the design of the discrete choice survey and a description of the final model.

3.1 Data collection and sample

In order to empirically estimate the coefficients, data are to be gathered from questionnaires containing choice sets with trade-offs between attribute levels, filled out by appropriate respondents. In line with the conceptual model of sponsorship package selection of [Johnston and Paulsen \(2014, p. 640\)](#), the discrete choice approach assumes that the decision makers have sufficient interest in investing in sports social media advertisements. As a result, sponsorship managers of active football sponsors and their advisors make up the homogeneous target group of this discrete choice analysis. Consequently, the sponsorship managers of sponsors of European clubs, national federations, FIFA, UEFA and tournament-specific sponsors have been approached through LinkedIn and William Fenton, Board Director at the European Sponsorship Association. In total, 40 anonymous respondents from this difficult-to-reach target group completely filled out the survey. This in turn resulted in a total of 800 evaluated choice sets: 400 for clubs and 400 for players. Such a large sample size is needed to guarantee statistical efficiency ([Lancsar and Louviere, 2008](#)).

3.2 Design of the discrete choice survey

The discrete choice approach in this paper is based on a conjoint analysis survey. It follows the methodology of [Greene \(2012\)](#) and takes into account some best practices identified by [Johnson et al. \(2013\)](#). Choice sets are composed of selected attributes and respective levels. In this research, each choice set consists of two alternative social media advertisement posts, from which the respondent needs to choose the preferred option. When designing such a survey, some methodological decisions need to be made, such as the included attributes and levels, the inclusion of a no-choice option, as well as the dimensions of the survey. This information is subsequently transformed into questionnaires. Since clubs and players differ in terms of commercial and social media activities, two separate models are required for posts on clubs' or players' social media.

3.2.1 Selection of attributes and levels. The retained number of attributes and levels is the outcome of a trade-off between statistical and response efficiency. On the one hand, more attributes and levels lead to a more realistic model with more explanatory power. On the other hand, more attributes and levels lead to a more complex model (e.g. more interaction variables) and a more complex questionnaire to be completed ([Street and Burgess, 2007](#); [Johnson et al., 2013](#)). Considering this trade-off, the approach of [Adams et al. \(2015\)](#) has been used to determine the set of attributes and levels. This approach is common in literature and encompasses three steps. First, the researchers select an initial set of attributes and levels, based on literature, practice and own judgement. Second, an expert panel formulates remarks to improve the set. In the third step, these remarks are incorporated in the final set of attributes and levels.

The expert panel for this research consisted of five members. Three of them represented international clubs' commercial departments: Stéphane De Coninck from Club Brugge KV (Belgium), Lisa De Croocq from RSC Anderlecht (Belgium) and Brandon Páramo from

Villarreal CF (Spain). Tomas Van Den Spiegel from Sporthouse Group (Belgium) was incorporated as an experienced practitioner in sports SMM. Finally, Toon Zijlstra, discrete choice expert at the University of Antwerp (Belgium) and the Netherlands Institute for Transport Policy Analysis (KiM), acted as the academic representative.

The list of attributes, which are the same for clubs and players and the different levels for both entities are presented in Table 1. The first attribute is the social media channel on which the advertisement post appears. The three levels include the three most popular social media channels of clubs and players. Each channel involves a specific type of target audience and communication. According to the expert panel, it can reasonably be assumed that the respondents aggregate these underlying properties into each channel when comparing the levels of this attribute. Additionally, the experts remarked that Chinese social media could be included as well, which is in line with Nielsen (2016) finding that China's role in world football is becoming increasingly important. However, the number of European clubs and players using these Chinese social media is limited. Hence, they have been left out of this research.

Another important aspect of advertisements is reach. Speed and Thompson (2000) and Roy and Cornwell (1999) identify increased company exposure and brand awareness as important objectives of advertising. To capture reach in terms of observable social media characteristics, two attributes are retained: the number of followers and the time a post is visible on top of the club's or player's homepage. The expert panel indicated that these two attributes make considering the frequency of posts by the club or player redundant. The levels for visibility, the amount of time the post is on the social media homepage of the club or player, have been suggested by Tomas Van Den Spiegel. The levels for number of followers have been based on the ranges observed in the number of followers of clubs and players active in the European club competitions in 2017–2018. Both sets of levels were subsequently validated by the expert panel.

Return on investment (ROI) plays a crucial role for companies deciding on advertising and sponsoring (Cornwell, 1995; Stotlar, 2004; Lund, 2006). Therefore, the price of an individual social media post is included in the analysis. This is moreover required to estimate the relative WTP for the advertisement's characteristics changes (Greene, 2012; Bech *et al.*, 2011). The highest prices per post found in practice are nearing half a million euro. This is however an exceptionally high price. Hence the highest level included has been set to 250,000 euro.

Attribute	Club levels	Player levels
Social media channel	Facebook	Facebook
	Instagram	Instagram
	Twitter	Twitter
Number of followers	100,000	100,000
	1,000,000	1,000,000
	10,000,000	10,000,000
	50,000,000	50,000,000
	10,000 euro	10,000 euro
Price per post	50,000 euro	50,000 euro
	100,000 euro	100,000 euro
	250,000 euro	250,000 euro
	G5 UCL	90
Performance	G5 EL + non-G5 UCL	80
	G5 rest + non-G5 EL	70
	non-G5 rest	60
	6 hours	6 hours
Visibility	12 hours	12 hours
	24 hours	24 hours

Table 1.

List of attributes and levels of clubs' and players' social media posts

Dividing this level by two and rounding yields 100,000 euro for the following level. Similarly, 50,000 euro has been chosen as the next level. The final level has been set to 10,000 euro, since the expert panel indicated that a sufficiently low price is required for advertisement on smaller clubs' or less popular players' media.

Due to the impact of on-field performance on fans' buying behaviour and the creation of brand awareness, it has been decided to include club and player performance in the set-up as well (Ngan *et al.*, 2011; Gladden and Funk, 2002). Determining performance levels has however been less straightforward. For clubs, the national league ranking in the past season has been used, making a distinction between UEFA Champions League (UCL), Europe League (EL) spots and the rest of the league table. Moreover, teams from the strongest football countries (G5: England, Spain, Italy, Germany and France) reach higher scores in UEFA (2018) rankings than teams from smaller countries, as their national league performances are valued higher. Therefore, it has been decided to equate G5 teams with non-G5 teams that qualified one level higher. Hence, e.g. G5 EL teams and non-G5 UCL teams have been combined in one level. For players, a score out of 100 has been given. Four categories have been constructed: 60, 70, 80 and 90 points. These categories are based on the example of Jamie Vardy of Leicester City FC, who recently went through all these different performance categories over a short time span. The detailed explanation is included in the questionnaire in Appendix 1. Moreover, this approach is in line with the scores given to professional football players by the popular video game FIFA.

The fit between the image of the club or player and the image of the advertising company has been identified as a final attribute. Previous research of Johnston and Paulsen (2014) proved the importance of this fit for sponsors, since it has an impact on the image of the sponsor itself too (Gwinner and Eaton, 1999). Moreover, if fans identify themselves more with the sports team, the perceived congruence between the sponsor and sponsee can be higher. Other consequences include a more positive attitude towards the sponsor and a higher buying intention of the fans (Silva and Verissimo, 2020). Nevertheless, due to the inability to accurately observe and define attribute levels in real life and the methodology's assumption of rational decision makers, it had to be omitted.

3.2.2 No-choice option. In literature, a distinction is made between forced choice set-ups and those including a no-choice option, which is relevant when none of the options is sufficiently attractive, or when the choice maker would require more information about the alternatives (Street and Burgess, 2007; Dhar, 1997; Karni and Schwarz, 1977). The no-choice option also results in a more realistic interpretation of the results (Lancsar and Louviere, 2008).

The advantages of including a no-choice option are (1) a better representation of reality (Batsell and Louviere, 1991; Carson *et al.*, 1994; Haaijer *et al.*, 2001), (2) increased statistical efficiency (Anderson and Wiley, 1992; Louviere *et al.*, 2000) and (3) a model that is more closely related to the theory of demand (Boxall and Adamowicz, 2002; Bateman *et al.*, 2003; Louviere *et al.*, 2000). A potential disadvantage is that so-called difficult choices are avoided (Haaijer *et al.*, 2001; Tversky and Shafir, 1992). Such choices occur when it is difficult for the decision maker to trade off the alternatives, e.g. as a result of including too many attributes of each alternative in the survey. Given the rather low number of included attributes (five) for two alternative choices, the disadvantages of the no-choice option have been considered less important than its advantages. Hence, the no-choice option has been included in the survey.

3.2.3 Dimensions of the survey. The five selected attributes with a total of 18 levels give rise to 576 possible social media advertisement specifications. Moreover, each choice set consists of two alternatives and a no-choice option. Hence, 165,600 choice sets could be composed, which is by far too many for the final questionnaire. In order to trade-off statistical efficiency

and response efficiency, the formula “levels *minus* attributes *plus* one” is a standard to determine the minimum number of choice sets to be evaluated by each respondent. Since 14 choice sets for clubs and 14 for players may still be too many for one respondent, two questionnaires with 10 choice sets for clubs and 10 for players have been composed. This avoids respondents ending the questionnaire before completion, while still presenting a sufficient amount of different choice sets to each respondent. An additional advantage of such a heterogeneous design is that it is statistically more efficient than a homogeneous design, since it allows for more variation between the attribute levels in the choice sets (Chapman, 1984; Sándor and Wedel, 2005).

Another decision variable is the number of attributes that can have a different level within one choice set. Since it is difficult for respondents to evaluate choice sets with more than four differing attributes (Green, 1974; Grasshoff *et al.*, 2003), a maximum of four varying attributes has been chosen in the design of the survey. According to Kessels *et al.* (2009) and Kessels *et al.* (2011a, b), such partial profiles also increase response efficiency, although statistical efficiency is lower. Nonetheless, in case of one or more dominant attributes, also choice sets wherein this dominant attribute is held constant can be generated, allowing for better evaluation of the other attributes' utility.

The design of the survey is done in the JMP Pro 13 software from SAS, which generates the choice sets. A Bayesian D-optimal design is applied, which assigns “prior preferences” to the attributes. By taking foreknowledge on the relative preference of attribute levels over other levels into account in the design phase, better statistical results can be obtained. Choice sets only contain the most relevant trade-offs, while obvious choices are avoided (e.g. all levels optimal vs. all levels worst) (see Kessels *et al.* (2011a, b)). This leads to a more efficient design. The prior information used for this research design is based on the literature and economic theory. More followers, higher visibility, better performance and a lower price are expected to be preferred by sponsoring companies.

The D, G and A-efficiency measures of the designs for both clubs and players are calculated using JMP Pro 13 and are given in Table 2. Each of these three efficiency measures has a score between 0 and 100 and compares the design to an ideal orthogonal design. These three measures are good for both designs, which is required to be able to separately estimate each linear and interaction effect. Moreover, the average variance of prediction, which is to be minimised, is low for both designs. These observations confirm the efficiency of the used design approach. More information on these efficiency measures can be found in Goos and Jones (2011).

3.2.4 Presentation of the questionnaires. After designing the survey in JMP Pro 13, the choice sets have been included in a questionnaire that has been presented to the participants by means of the survey tool in the software Qualtrics XM. This software has also been used to collect the responses. The assignment of questionnaires to the respondents is random and has been done by Qualtrics as well. A screenshot of an example question is included in Figure 2. Moreover, Appendix 1 contains additional screenshots with the information that was given to each respondent at the start of the survey.

Table 2.
Design efficiency
measures

Measure	Club design	Player design
D-efficiency	84.43	82.00
G-efficiency	63.91	68.50
A-efficiency	75.49	73.80
Average variance of prediction	0.011	0.012

9/10. Which choice would you make?

	Choice A	Choice B
Medium	Instagram	Facebook
Amount of followers	1 million	1 million
Price per post	250 000 euros	100 000 euros
Performance	G5 UCL	G5 EL/Non-G5 UCL
Hours visible	6	12

- Choice A
 Choice B
 No Choice

Factors affecting the value of advertisements

Figure 2. Example of a choice set for clubs in Qualtrics

3.3 The model

The design of the survey gives rise to the following specific discrete choice models for the utility of a social media post i (the dependent variable), with its own attribute levels (the independent variables), respectively for clubs (C) and players (P):

$$\begin{aligned}
 U_i^C = & \beta_0^C \text{ASC} + \beta_{1,1}^C \text{Facebook}_i + \beta_{1,2}^C \text{Instagram}_i + \beta_{1,3}^C \text{Twitter}_i + \beta_2^C \text{Followers}_i \\
 & + \beta_3^C \text{Price}_i + \beta_{4,1}^C \text{NonG5rest}_i + \beta_{4,2}^C \text{G5rest_NonG5EL}_i + \beta_{4,3}^C \text{G5EL_NonG5UCL}_i \\
 & + \beta_{4,4}^C \text{G5UCL}_i + \beta_5^C \text{Visibility}_i + \varepsilon_i,
 \end{aligned} \quad (2)$$

$$\begin{aligned}
 U_i^P = & \beta_0^P \text{ASC} + \beta_{1,1}^P \text{Facebook}_i + \beta_{1,2}^P \text{Instagram}_i + \beta_{1,3}^P \text{Twitter}_i + \beta_2^P \text{Followers}_i + \beta_3^P \text{Price}_i \\
 & + \beta_{4,1}^P \text{Cat60}_i + \beta_{4,2}^P \text{Cat70}_i + \beta_{4,3}^P \text{Cat80}_i + \beta_{4,4}^P \text{Cat90}_i + \beta_5^P \text{Visibility}_i + \varepsilon_i,
 \end{aligned} \quad (3)$$

with the attribute levels given in Table 1 and the coefficients as in Eq. (1). The estimated coefficients are given in Table 3 and Table 4 respectively and discussed in Section 4.

Factor	Estimate	p -value*
Social media channel		<0.0001
> [Facebook]	0.2348	
> [Instagram]	0.2968	
> [Twitter]	-0.5315	
Number of followers	1.66×10^{-8}	<0.0001
Price per post	-4.31×10^{-6}	<0.0001
Performance		<0.0001
> [non-G5 rest]	-0.5429	
> [G5 rest + non-G5 EL]	-0.2158	
> [G5 EL + non-G5 UCL]	0.3349	
> [G5 UCL]	0.4239	
Visibility	0.0159	0.1736
No-choice ASC	-1.3830	<0.0001
AIC:	679.9463	
BIC:	715.1679	
-2*Log likelihood:	560.6446	

Note(s): * p -values for the likelihood-ratio test, distributed chi-squared

Table 3. Estimated utility model for posts on clubs' social media

Factor	Estimate	<i>p</i> -value*
Social media channel		<0.0001
> [Facebook]	0.4130	
> [Instagram]	0.5793	
> [Twitter]	-0.9923	
Number of followers	4.33×10^{-8}	<0.0001
Price per post	-9.06×10^{-6}	<0.0001
Performance		<0.0001
> [60]	-0.6183	
> [70]	-0.5549	
> [80]	0.4738	
> [90]	0.6994	
Visibility	0.0053	0.7503
No-choice ASC	-1.8162	<0.0001
AIC:	522.3028	
BIC:	557.0243	
-2*Log likelihood:	503.8028	

Note(s): **p*-values for the likelihood-ratio test, distributed chi-squared

Table 4.
Estimated utility model
for posts on players'
social media

In Eqs. (2) and (3), the intercept has been left out, while the *ASC*, the alternative specific constant dummy, has been included. *ASC* takes the value 1 if no choice is made, else it equals 0. This is a consequence of including a no-choice option. The coefficient of the *ASC* can be interpreted as the average utility of the omitted attributes, or the utility of the no-choice option. In this way, it expresses the preference to retain the current, status-quo situation (Train, 2002; Boxall *et al.*, 2009; Campbell *et al.*, 2008). Such a status-quo would imply that no investment in sports social media advertisements would be made. An estimated *ASC*-coefficient that is significantly negative (positive) implies a “disproportional” status-quo aversion (preference) (Kontoleon and Yabe, 2003).

Moreover, Eqs. (2) and (3) contain (linear) variables which are made continuous for the discrete attributes *followers*, *visibility* and *price*. This results in a more realistic analysis, as these variables are continuous in reality too. Moreover, sensitivity tests made clear that these variable conversions had no qualitative impact on the estimations. Another advantage is that these attributes now only require one coefficient to be estimated, which is a prerequisite for an unambiguous determination of the relative WTP for specific attribute level changes. For the same reason, interaction terms were not included in the model either.

Subsequently, the coefficients are to be estimated separately for club and player social media advertisements. These estimations are also performed in JMP Pro 13, based on the responses, i.e. the preferred options from each choice set gathered from the Qualtrics output. To this end, a maximum likelihood estimation is carried out, based on a logit specification while taking into account the following condition for the coefficients of each discrete attribute *k* (with L_k levels) (JMP, 2018; Kessels, 2016):

$$\forall k : \sum_{l=1}^{L_k} \beta_{k,l} = 0. \quad (4)$$

4. Results and discussion

Tables 3 and 4, respectively, contain the estimates of the model coefficients from Eqs. (2) and (3) for posts on clubs' and players' social media. Except for visibility, the identified attributes of advertisement posts have a significant impact on the utility of advertising companies. Moreover, the signs of the coefficients are as expected. More followers, leading to potentially more social media post engagements, and longer visibility generate more exposure, which increases utility.

Additionally, a better performance of the club or the player on the pitch increases utility as well. The negative sign of the price coefficient is a confirmation of the negative slope of the demand function. Finally, the no-choice ASC is significantly negative for both models, confirming that the target audience is sufficiently willing to invest in sports social media advertisements.

Another question to be asked is “which social media platform generates the highest utility for the respondents?” Independently of whether clubs or players are considered, companies slightly prefer Instagram over Facebook, although this difference is not significant (Wald test p -values are 0.74 and 0.53 for clubs and players respectively). *Coelho et al. (2016)* highlight that more intense interactions between customers, companies and clubs or players are possible on Instagram. For the fans, entertainment, rewards, social influence and searching for information are the main motivations to interact with sports entities on Facebook, whereas only the first three motivations are important on Instagram (*Machado et al., 2020*). Oppositely, Twitter is less attractive for advertisements, due to its character limitation and the lower number of total users.

Another way of illustrating this information is by looking at the probability that a social media channel is used, all other attributes equal (*ceteris paribus*). This can be calculated using the logit specification. The probability that channel h is chosen from the H alternative channels with all other attributes equal, is given by:

$$\Pr(h) = \frac{e^{U_h}}{\sum_{s=1}^H e^{U_s}} = \frac{e^{\beta_{1,h}}}{\sum_{s=1}^H e^{\beta_{1,s}}} \quad (5)$$

Applying this formula to social media of clubs and players yields the probabilities given in *Table 5*. Two results emerge. First, it is confirmed that Instagram is slightly more popular than Facebook. This relative preference is larger for player social media than for clubs. This could be explained by the fact that players publish more personal content like pictures and videos on the better suited channel of Instagram. Second, Twitter is by far less popular for sports social media advertisements involving clubs and players, although the disfavour for Twitter is the strongest for player posts.

Figure 3 represents the utility of the levels of the discrete attributes channel and performance as zero-centred utility values for (a) clubs and (b) players. Again, the dominance

Social media channel	Probability (clubs)	Probability (players)
Facebook	39.5%	41.2%
Instagram	42.1%	48.7%
Twitter	18.4%	10.1%
Total	100%	100%

Table 5. Social media channel preference, expressed as choice probabilities

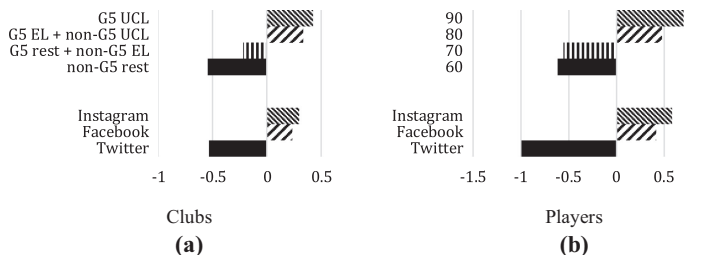


Figure 3. Attribute level utility as zero-centred utility values

of Facebook and Instagram over Twitter is confirmed for both clubs and players. Moreover, the figure shows the impact of performance on the advertiser's utility. For clubs, the highest change in utility is perceived between the categories "G5 rest + non-G5 EL" and "G5 EL + non-G5 UCL". This means that as soon as teams from the major countries play European football, and the smaller countries' clubs take part in the UEFA Champions League, the companies' utility increases a lot due to the large leap in exposure for the advertisers. The same holds for players. The categories "80" and "90" generate much higher utility than the lower ones, implying that the best performing players, who get the most attention and create the most exposure, are best suited for social media advertisements.

In order to check the sensitivity of the model to the received responses, the same model has been re-estimated once omitting the first five and once omitting the last five questionnaires received. As an additional sensitivity test, five random questionnaires were omitted. This did not impact the results qualitatively. Moreover, in order to test the sensitivity to the specification, a model has been estimated with the logarithms of the continuous variables, to account for a potentially decreasing marginal impact of the attributes on utility. The models for clubs and players, which are again of a similar quality as the main models, are given in [Table A1](#). Here also, the conclusions are robust, except for two elements. For the advertisements on clubs' social media, the ASC is only marginally significant, whereas the coefficient of post visibility becomes significantly positive. Visibility should hence not be neglected by the social media managers of clubs and players. As long as the sponsor is given sufficient visibility, brand recognition and recall among the fans of the club or player will increase ([Maricic et al., 2019](#)). Second, Facebook, which offers a large number of options for advertisers, is in these models for both clubs and players slightly more popular than Instagram. Hence, it can be concluded that both social media channels are well suited for sports social media advertisements, more than Twitter.

5. Practical implications and limitations

Clubs and players could wonder which attributes are the most important ones to focus on while managing social media advertisements. Taking the linear model as the base model has the important advantage of providing insights for clubs and players into the relative price setting of the advertisement and the active management of these social media. Based on the utility functions in [Eqs. \(2\) and \(3\)](#), and as explained in [Section 3](#), it is possible to calculate the possible price increase (decrease), with a negative (positive) impact on utility, that goes with a utility increasing (decreasing) change in another attribute's level, in order to keep utility constant. These transformations of utility differences into relative monetary values of both club and player social media posts are presented in [Table 6](#). The outcomes show a club that, for example, a post on its Facebook account could be priced about 178,000 euro more than a post on its Twitter account. Instagram advertisements are even slightly more valuable.

Attribute	Level change	Price increase (clubs)	Price increase (players)
Social media channel	<i>Twitter → Facebook</i>	€178,000	€155,000
Social media channel	<i>Facebook → Instagram</i>	€14,400	€18,400
Number of followers	<i>1,000 followers extra</i>	€3.85	€4.78
Performance	<i>Worst → Third best</i>	€75,900	€7,000
Performance	<i>Third best → Second best</i>	€128,000	€114,000
Performance	<i>Second best → Best</i>	€20,600	€24,900
Visibility	<i>1 hour more</i>	€3,690	€583

Table 6.
Willingness to pay for
attribute level changes

Although this increase might seem high when compared to actual social media values, this can be explained by two effects. First, as shown in the introduction, the WTP of sponsors largely exceeds actual, measured media values. Second, the large price differences included in the survey might also be reflected in this outcome, leading to a potential overestimation (Bech *et al.*, 2011). Nevertheless, this large difference between Instagram and Twitter is also present in analyses made by GumGum (2019). Table 6 moreover shows the relative WTP for a thousand additional followers, which is between 3.85 and 4.78 euro. Moving into the two best categories of performance increases the WTP by more than 100,000 euro.

When the price of the advertisement has already been fixed, the number of followers is the best suited variable to be managed actively (De Vries *et al.*, 2012). When the on-field performance declines, the club or player could try to attract additional followers to offset the utility decrease for the advertiser. Or else, a club or player could wonder how many additional followers are required on Facebook to equal the utility of a post on Instagram. Table 7 contains the required number of additional followers, for both clubs and players. These calculations are made in a similar way as the relative WTP calculations. Utility needs to be kept constant by compensating the utility decrease (increase) due to the deterioration (improvement) of another attribute, with the required, calculated increase (decrease) in the number of followers, which in turn increases (decreases) utility again.

The results confirm that for clubs in small countries, playing in the UEFA Champions League is not only important from a prize-money point of view, but also for the value of their social media advertisements, given the visibility this competition generates. For teams from the G5 countries as well, playing European football is important for the attractiveness of their social media. Similarly, the best performing players realise large benefits in terms of their social media advertisement values as well. Every assist, goal, save or successful defensive action, especially when it leads to trophies, increases the exposure and hence the value of these players' social media for advertisers.

In conclusion, when taking decisions on pricing, social media managers should take into account that companies value Facebook and Instagram much higher than Twitter advertisements, given the latter's structural limits. Moreover, as long as sufficient visibility is guaranteed, it is advised to consider this element less in the pricing decision, since its impact is limited. The number of followers has a much larger influence on the value and should be actively managed, especially to serve as a buffer against (temporary) disappointing on-field performances.

The major limitation of the presented approach is that the base price of at least one social media post with its own characteristics should be inferred, before all absolute prices are known. Such absolute prices cannot be derived from a discrete choice analysis. The base price or absolute WTP is moreover strongly context dependent. However, the advantage of the presented methodology is that it can be replicated by every club or player wanting to value their social media posts for advertisements. The described discrete choice methodology allows them to calculate the relative WTP for changes in social media advertisement characteristics in their specific markets, in which they already should have an idea of at least

Attribute	Level change	Extra followers (clubs)	Extra followers (players)
Social media channel	<i>Instagram → Facebook</i>	3.73 M	3.84 M
Performance	<i>Best → Second best</i>	5.36 M	5.21 M
Performance	<i>Second best → Third best</i>	33.2 M	23.8 M
Performance	<i>Third best → Worst</i>	19.7 M	1.46 M

Table 7.
Follower increases
required to compensate
for other attribute level
deteriorations

one current price of a “base” post. The other posts’ value can then be based on the combination of this base price and the relative WTP calculations.

6. Conclusions and future research

Social media are well suited for two-sided, interactive and customer-oriented RM purposes, since they offer convenient and direct links with customers and other stakeholders at a low cost. Sports clubs and players have been using their social media to post content of their sponsors and other advertising companies, as part of sponsorship agreements or as separate deals. Such posts imply great value as part of the advertising companies’ RM strategy. However, up to now, it has been unclear which factors or attributes influence the value of such posts and especially to what extent.

This paper fills this gap through a discrete choice analysis, leading to an empirical estimation of the utility sponsorship managers derive from a post advertising their company on football clubs’ and players’ social media. More followers, better on-field performance and a lower price significantly increase the advertising company’s utility. The chosen social media channel has a significant influence as well, since Facebook and Instagram are preferred over Twitter, due to the latter’s limited degrees of freedom for advertisers. These results offer useful insights for practitioners. The empirical estimations allow social media managers of clubs and players to derive the companies’ relative WTP for changes in the characteristics of an advertisement on their social media. This information can be used to optimise pricing decisions when social media posts are sold or included in sponsorship packages.

The results of this paper offer some avenues for future research. First, for this research to be as broadly applicable as possible, the selected attributes and levels, such as price, followers and even social media channels were chosen to apply as much as possible to both small and big European football clubs. Future research could further build on the approach and findings of this paper and focus on smaller clubs, with lower numbers of followers and sponsors with smaller budgets. Moreover, given the increasing importance of being present on Chinese social media, this factor could be included in a follow-up study as well. Second, it can be argued that social media posts are part of a larger campaign of social media advertisements, e.g. Ronaldo who regularly posts content of Nike. Although it is possible to multiply the value of one individual post by the number of posts included in a campaign, it would be interesting to look into the value of entire campaigns in future research. Such value might differ from the sum of its elements, since the marginal value of additional posts can be expected to be decreasing. This is a consequence of the fact that the marginal effect of exposure to advertisements on consumer behaviour is decreasing (Tellis, 2009). Third, the literature deemed a fit of image between sponsor and sponsee crucial for successful sponsorships. The impact of this factor could not be measured objectively in this analysis. However, follow-up research could use case studies or in-depth interviews to analyse in detail the impact on sports social media advertisements. In such a research approach, no arbitrary measurement of fit in levels (e.g., from very high to very low) would be required. Fourth, the interaction between club and player social media might create additional value. In the era of fluid fans, who tend to easily switch between favourite teams as their favourite players make a transfer, quantifying this value might be relevant for clubs and players in relation to contract negotiations, as these entities can create value for one another. In a similar way, small clubs and players can benefit from connecting with strong international brands, as this might increase the value of their own brand too. Finally, since the analysis in this paper focused on the content supply side, future research could analyse the impact of specific content in sports social media advertisements on the target audience’s behaviour and the ROI for the investing company. Here too, the fit of image needs to be researched. In order to take the aesthetics of the advertisement into account, Chou *et al.* (2020) describe useful suggestions for further research.

Note

1. As an illustration, one could think of the colour (attribute) of a car, which could be white or blue (level).

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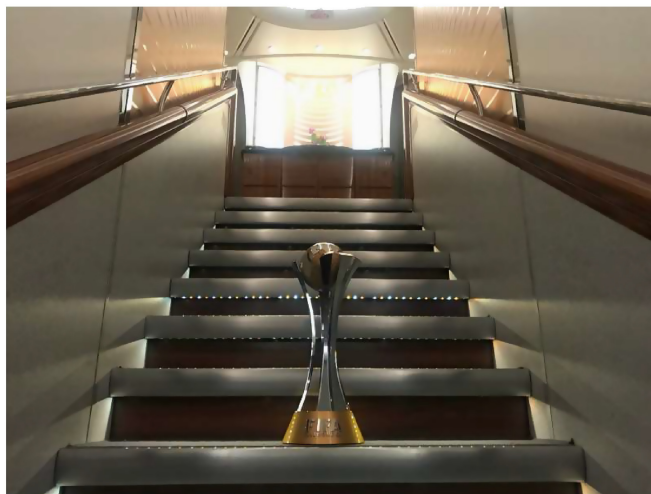
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Start of the questionnaire:

Dear respondent,

Thank you for your interest in this research about the economic value of social media advertisement in sports. In what follows, you will be asked to participate in a discrete choice experiment. The questionnaire exists of two parts, one for clubs and one for players. In each part, you will be asked to fill out 10 choice sets, always consisting of choice A and choice B. Please indicate which of these two hypothetical advertising packages you find most interesting to promote your brand or products on social media channels of football clubs and football players. If none of the two choices appeals to you, you may select the 'No choice' option. Please note that all data will be collected anonymously.

The post below gives an example of the considered social media advertising posts.



Real Madrid C.F. 🇬🇧 🇺🇸 @realmadriden · 17 dec. 2017

🏆 🌐 🌱 #RMCWC

We're on our way back to Madrid with the Club World Cup and @emirates!

#HalaMadrid

Tweet of Real Madrid CF (@realmadriden) on 17 December 2017,
<https://twitter.com/realmadriden/status/942263190364311553>.

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(continued)

Instructions for club related choice sets:

Please read the instructions below carefully before starting the questionnaire.

We start with football clubs. An advertising package is defined by a number of characteristics. The two choices that will be shown, differ based on the options that are assigned to these characteristics. An overview of the characteristics and their options is presented below:

1. **Medium:** the social media channel on which your company can advertise.
Options: Facebook, Instagram, Twitter
2. **Amount of followers:** the amount of followers the club has on the considered medium.
Options: 100 000, 1 million, 10 million, 50 million
3. **Price per post:** the price your company pays per advertisement post on the social media channel of the club.
Options: 10 000 euros, 50 000 euros, 100 000 euros, 250 000 euros
4. **Hours visible:** the amount of hours that the post is visible on top of a follower's newsfeed or the homepage of the club's medium.
Options: 6, 12, 24
5. **Performance:** a brief explanation about the options for performance is presented below:
 - **G5 UCL:** these are clubs from the so-called G5, the five biggest European leagues (England, Spain, Italy, France, Germany), that play in the Champions League.
Examples for the 2017/2018 season: Real Madrid, Chelsea
 - **G5 EL/Non-G5 UCL:** these are clubs from the G5 that are active in the Europa League OR clubs from smaller European leagues that are active in the Champions League.
Examples: Villarreal, SL Benfica, Anderlecht
 - **G5 rest/Non-G5 EL:** these are clubs from the G5 that do not play European football OR clubs from smaller European leagues that are active in the Europa League.
Examples: Bordeaux, Hamburg, Vitesse
 - **Non-G5 rest:** these are clubs from smaller European leagues that do not play European football.
Examples: Antwerp, FC Utrecht, V. Setubal

Instructions for player related choice sets:

Please read the instructions below carefully before continuing.

The following choices consider football players. The same characteristics are used, only performance is measured differently. Below you find the overview again:

1. **Medium:** Facebook, Instagram, Twitter
2. **Amount of followers:** 100 000, 1 million, 10 million, 50 million
3. **Price per post:** 10 000 euros, 50 000 euros, 100 000 euros, 250 000 euros
4. **Hours visible:** 6, 12, 24
5. **Performance:** this characteristic is related to the recent form of the player and is expressed as a score with a maximum of 100.
Options: 60, 70, 80, 90

An example will illustrate this performance indicator. When Jamie Vardy played in the lower divisions of English football with Leicester City, he was assigned a score of about 60. After promotion to the Premier League and scoring his first goals, this increased to 70. When Vardy was Leicester City's top scorer during their Premier League winning season, his outstanding form resulted in a score of about 90. In his current form however, as a decent striker in an average Premier League team, his score would fluctuate around 80.

Factor	Clubs		Players	
	Estimate	<i>p</i> -value*	Estimate	<i>p</i> -value*
Social media channel		<0.0001		<0.0001
> [Facebook]	0.3298		0.5315	
> [Instagram]	0.2388		0.4786	
> [Twitter]	-0.5686		-1.0926	
Log (number of followers)	0.1995	<0.0001	0.4029	<0.0001
Log (price per post)	-0.4132	<0.0001	-0.7478	<0.0001
Performance		<0.0001		0.0004
> [Worst]	-0.6910		-0.5381	
> [Third best]	-0.1348		-0.3984	
> [Second best]	0.3243		0.3232	
> [Best]	0.5015		0.6133	
Log (visibility)	0.3740	0.0229	-0.0001	1.0000
No-choice ASC	-2.0591	0.0599	-3.8979	0.0026
AIC:	664.1505		503.0969	
BIC:	699.3721		537.8185	
-2*Log likelihood:	645.6768		484.5969	

Note(s): **p*-values for the likelihood-ratio test, distributed chi-squared

Table A1.
Estimated logarithmic
utility models for posts
on clubs' and players'
social media

About the authors

Matteo Balliauw graduated as a Business Engineer from the University of Antwerp (Faculty of Business and Economics) in 2014, obtaining the Dean's Award for the Best Master Student in Business Engineering. His Master's Thesis was awarded the ORBEL Thesis Award 2014, issued by Operations Research Belgium. In 2020, he obtained his PhD from the University of Antwerp, which deals with maritime and port economics, applying financial valuation methods such as Real Options to this sector and incorporating technological developments and innovations of the business in his research. As a sports economist at the University of Antwerp, Matteo applies a wide range of qualitative and quantitative methodologies in the fields of sports marketing, sports economics, sports management and sports finance. Matteo moreover co-organised two colloquia to present the conducted sports research in 2017 and 2018. Both were attended by international sports organisations, sports players and commercial organisations. In 2019, Matteo also joined the Royal Belgian Football Association as data strategist and analyst, where he moreover coordinates the RBFA Knowledge Centre. Matteo Balliauw is the corresponding author and can be contacted at: matteo.balliauw@uantwerpen.be

Evy Onghena graduated as a doctor in Applied Economics at the University of Antwerp in 2013. Her doctoral research dealt with the cost structure and the expansion and cooperation strategies of the Big Four integrators FedEx, UPS, DHL and TNT Express. As a post-doc member of the Department TPR, she continues her scientific research in the domain of air transport economics, with a focus on air cargo economics. As from August 2019, Evy became Market Intelligence Advisor at the Port of Antwerp. Before, she was course coordinator for the courses "Economics of Strategy", "Air Transport Economics and Business" and "Transport Modelling" at C-MAT (Centre for Maritime and Air Transport Management). She is still teaching the last one. She has also been teaching at the Faculty of Applied Economics at the University of Antwerp. Next to teaching, she has been involved in the Centre of Excellence on "Sustainable Transport and Logistics", and she was Scientific Director of the Flemish Policy Research Centre on Commodity and Passenger Flows.

Simon Mulkens graduated in 2018 from the University of Antwerp as a Business Engineer. During his education, Simon also studied at HEC Montréal (Canada), Universidad Carlos III de Madrid (Spain) and attended a summer school at the UIBE Business School in China. Moreover, Simon was involved in a number of academic student projects, such as a project applying economies in the Corporate Social

Responsibility sector. His thesis dealt with the value of sports social media for advertising companies. This research was presented to a large number of international sports organisations and players. His current research interests include business, finance, sports and marketing. In his research, Simon applies a wide range of methodologies, such as discrete choice analysis, conjoint analysis, regression analysis and operations research.

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