



The most likeable soccer players and the least likeable hockey players are in greater demand

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Abstract

This study explores how athletes' likeability affects their popularity in fantasy leagues, analyzing data from the 2015–16 seasons of the Premier League and the National Hockey League with 11,000 users. Surveys were used to gauge athlete likeability, and models revealed that highly likeable soccer players and less likeable hockey players attract more demand. To enhance the fan experience, clubs can proactively address players' public image, but it's crucial to prioritize athletes' character over likeability. Clubs can also incorporate these values into their communication strategies, emphasizing the importance of athletes as role models.

Keywords Physical appearance · Consumers' preferences · Decision making · Fantasy sport · Multiuser Internet games

JEL Classification J24 · J44 · L83

1 Introduction

In economic theory, a worker's wage is ideally determined by their marginal product (Clark 2005); however, practical challenges often hinder the precise measurement of a worker's output in real-world scenarios (Weisbrod 1989). Consequently, employers may seek

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alternative ways to assess a worker's value. Over time, a range of characteristics have been explored, from fundamental factors like education (Spence 1973) to more complex ones like race (Becker 1957), or gender (Goldin and Polachek 1987). Yet, this approach can cause inequalities among workers, some of which may be justifiable as the aforementioned education, while others may be uncomfortable and discriminatory. One such factor is the physical appearance of the worker (Hamermesh and Biddle 1994) which has been intensively researched since the 1990s (Kukkonen et al. 2024).

The economic literature has primarily concentrated on two facets of the labor market. In numerous domains, research has demonstrated that a better look provides a better chance of getting a job (Galarza and Yamada 2017) or gaining a better wage (Biddle and Hamermesh 1998; Borland and Leigh 2014), thereby perpetuating certain societal inequalities. It is crucial to discern whether workers' performance can be adequately observed, as this can prove highly challenging in certain fields, rendering physical appearance merely a proxy variable for performance.

Nevertheless, there are areas where performance can be measured very accurately and is publicly available (Kahn 2000; Palacios-Huerta 2023). One such area is professional sport that is closely monitored by the media, and the performance of athletes is recorded and compared. In order to be accepted, athletes must demonstrate superior performance (Gius and Johnson 1998). However, in the age of mass media and social networks, fans may also pay considerable attention to physical appearance. In some settings, this may be irrelevant, such as sports betting or fantasy sports,¹ which is the main environment examined in this paper.

In this study, the impact of physical appearance on the popularity of soccer and hockey players in fantasy sports leagues, where performance metrics are clearly observable and critically important, is investigated. The fans themselves state that their goal is to win (Davis and Duncan 2006; Dwyer 2011). This research question is significant because it explores a context in which performance is easily quantifiable and seemingly the most relevant factor for popularity, unlike other industries where attractiveness might serve as a proxy for performance due to less precise performance measurements (Deryugina and Shurchkov 2015a). By examining a setting where player performance is transparent and measurable, novel insights into how physical attractiveness still influences popularity are provided. This suggests that even in domains where performance should supposedly dominate, attractiveness can play a crucial role, thus contributing to the broader discourse on inequality and the factors that drive popularity in various industries. Specifically, this paper aims to demonstrate the influence of likeability on the demand for athletes in soccer and hockey, examining how physical attractiveness affects their likelihood of being chosen in fantasy sports leagues and whether there is a significant difference in this impact between the two sports.

Past research shows links between behavioral manifestations within fantasy sports and actual fan preferences in the real world (Bryson and Chevalier 2015; Kotrba 2019). Just as athlete performance is essential in the real world (Franceschi et al. 2023), fantasy sports users report that the most important factor in the game for them is winning the contest (Davis and Duncan 2006). Thus, the influence of likeability and physical appearance can

¹ Fantasy sports is a form of interactive online gaming where users create virtual teams composed of real-life athletes from a specific sport. Participants compete against each other based on the statistical performance of their chosen athletes in real-world games, earning points and winning based on their team's collective performance.

introduce behavioral biases that deviate decision-making from optimal paths in fantasy sports (Smith et al. 2006). This inequality within fantasy leagues can mirror broader economic disparities and potentially foster discrimination. An indirect example of the link between fantasy league demand and athlete wages could be paper by Kotrba (2019), which shows that there is more demand for superstar athletes and those athletes have higher wages. Also, athletes who are more likeable or better-looking may attract more fans and generate additional marketing revenue for sports franchises. However, focusing too much on likeability can overshadow the athletes' actual skills. To keep things fair and give everyone a fair chance, athletes should be judged mainly on their performance, not their physical appearance, thereby reducing the risk of reinforcing existing inequalities.

The reason for the examination of these two team sports is their widespread popularity; soccer and hockey are the most popular team sports in the Czech Republic (Janák 2009). At the same time, the popularity of these sports provides accessibility of data on the direct demand of fantasy sports fans.

In this research, we report all measures, manipulations, and exclusions. Two datasets have been utilized. The first is from a fantasy soccer league relating to the English Premier League (EPL) and the second dataset is from a fantasy hockey league based on the National Hockey League (NHL). Both leagues were played by fans from the Czech Republic. The users of a fantasy league have a limited budget; they select athletes for their virtual teams and try to obtain as many points as possible for the real performance of the selected athletes. Finding the best athletes at an affordable price requires much effort, and as a consequence the users may behave according to heuristics (Kotrba 2019). An evaluation of the athletes' likeability was added to these datasets. This likeability evaluation was obtained through a questionnaire survey working with photographs of the athletes. The two datasets from the fantasy leagues and the data from the survey are described in the section Survey of likeability and Fantasy league data.

Since Pierre de Coubertin's² early days, the social influence of sport on the refinement of body and spirit has been emphasized (Kornspan 2007). Thus, athletes were expected to perform well and to conform to the idea of fair play. The current commercialization of sports works with this idea rather than in the background, bringing to the forefront the marketing goals those good-looking athletes can promote. However, athletes can still be agents of enlightenment and opposition against, for example, discrimination or inequality. Therefore, clubs have the opportunity to highlight the moral qualities of athletes, emphasizing that there are more pointed aspects where athletes can serve as moral role models for youth, including such activities as No Room For Racism in Premier League.

Econometric models were created in the section Models. These examine the effect of the athletes' likeability on inclusion into users' squads; this was done separately for soccer and hockey. The results show that users include more likeable soccer players in their squads more often. The opposite outcome occurs among the hockey players, so the users more regularly include those hockey players who received poorer evaluations regarding their likeability. Moreover, users include more likeable hockey players in their squads less often.

Thus, the results show the contrasting importance of likeability in soccer and hockey, which could be rooted in the distinct cultures and fan expectations of each sport. In hockey, where physical toughness and resilience are prized, fans value these traits over players'

² The modern Olympic Games Founder.

appearances, which are often obscured by helmets (Andrew et al. 2009). This emphasis on aggression and performance aligns with fans' desire to witness intense competition, including violence (Wann et al. 2008). Conversely, soccer places a higher value on aesthetics, with players' visible appearances playing a crucial role in their popularity and fan engagement (Dos Santos and Montoro Rios 2016). The visibility of soccer players' faces and their investment in appearance make physical attractiveness a significant factor in shaping fan perceptions (Tokuyama and Greenwell 2011).

2 Physical appearance and inequality

In inequality research, obtaining direct data on behavior or preferences can be challenging, leading researchers to rely on survey data (Dorjnyambuu and Galambosné Tiszberger 2024; Ferreira et al. 2015), which are not always perfect (Kahn 2000; Palacios-Huerta 2023). The sports environment, especially within fantasy sports, offers a unique and valuable platform for studying the preferences and behaviors of the population in social, business, and economic contexts (Dwyer 2011; Losak et al. 2023; Morgulev et al. 2018; Shapiro et al. 2020). It serves as a lens to understand societal views on various industries (Frey and Eitzen 1991). Fantasy sports, in particular, attract users who are passionate sports fans (Bernhard and Eade 2005; Dwyer et al. 2013; Karg and McDonald 2011), providing insights that can be extended to a larger audience of sports enthusiasts (Farquhar and Meeds 2007). Consequently, the sports and fantasy sports environment are an effective setting for exploring issues of inequality, as it mirrors broader patterns and preferences within society.

Physical appearance plays a significant role in reinforcing inequality in society. Research has long shown that an individual's physical appearance impact their social (Webster and Driskell 1983) and economic (Hamermesh and Biddle 1994) status. Studies highlight the influence of physical appearance in various contexts, such as elections (Berggren et al. 2010; Hamermesh 2006), TV game shows (Belot et al. 2012), and charitable giving (Jenq et al. 2015). However, the most substantial evidence comes from the labor market, where better-looking individuals often have an advantage in being hired (Galarza and Yamada 2017; Mobius and Rosenblat 2006; Shtudiner 2020) and securing higher pay (Biddle and Hamermesh 1998; Borland and Leigh 2014; Hamermesh 2011). A clear correlation exists between physical appearance and wealth (Hamermesh and Leigh 2022).

This emphasis on physical appearance leads to discrimination similar to that based on race or gender (Ashenfelter and Oaxaca 1987; Azmat et al. 2006; Becker 1957; Doorley and Keane 2023; Hamermesh et al. 2010). The impact of physical appearance can vary across different races and genders, suggesting an intersectionality in how subsequent inequalities manifest (Bjerk 2009; Parks and Kennedy 2007; Ruffle et al. 2022; Shtudiner and Klein 2020). Studies have shown mixed results on the relationship between physical appearance and performance. Some suggest that physical appearance correlates with performance (Pfann et al. 2000) or intelligence (Kanazawa 2011), while others indicate that this is not always the case (Deryugina and Shurchkov 2015b).

The notion that better physical appearance could signal superior genetic makeup and abilities (Scheib et al. 1999) implies that employers might prefer attractive individuals, believing they will be more productive and thus warrant higher pay. This perspective reinforces inequality by valuing physical appearance over merit and performance. Moreover, good-looking people often experience greater happiness (Hamermesh and Abrevaya 2013)

and increased self-confidence (Mobius and Rosenblat 2006), which can further enhance their skills and labor market outcomes.

Ultimately, while inherent talents play a role in individual success (Trannoy 2019), the undue emphasis on physical appearance perpetuates inequality. Addressing this bias requires a deeper examination of how appearance-based preferences affect opportunities and outcomes in various sectors, particularly the labor market. By focusing on performance rather than looks, we can work towards reducing the inequities driven by superficial judgments.

Although an individual may want to consider only an athlete's performance, they may also be influenced by the athlete's physical appearance. This may only be at an unconscious level and may not be able to distinguish this aspect (Hung et al. 2016).

In the team sports environment, the importance of physical appearance to fan demand has not yet been well explored, with a few exceptions. Two main streams of research examine athlete wages (Ahn and Lee 2014; Berri et al. 2011) and TV viewership (Dietl et al. 2020; Meier and Konjer 2015; Trail and James 2001) as measures of fan demand. While it is understandable for viewership to be influenced by physical appearance, the situation is more complex and potentially problematic when it comes to wages, indicating inequality and possible discrimination. For instance, Berri et al. (2011) show that better-looking quarterbacks receive significant salary premiums. Similarly, Ahn and Lee (2014) find that physical appearance affects the earnings of golfers, potentially due to greater fan interest.

Trail and James (2001) demonstrate that the physical attractiveness of baseball players motivates consumers to watch Major League Baseball games and increases merchandise purchases. Meier and Konjer (2015) examine TV viewership of tennis and find that women watch fewer matches featuring more attractive female players, while male attractiveness does not affect them. Men, on the other hand, watch more matches with attractive female players but fewer with attractive male players. Additionally, Dietl et al. (2020) find that facial symmetry positively impacts viewership for female matches but has no significant effect on male matches.

Other studies also explore the impact of athletes' physical appearance in various contexts. Dreber et al. (2013) illustrate this phenomenon in chess, showing that male players tend to adopt riskier strategies against more attractive female opponents, whereas female players' strategies are not influenced by their opponents' physical appearance. Furthermore, Chan et al. (2022) investigate the relationship between attractiveness and players' likelihood of receiving nominations or the esteemed Player of the Month award. They find that in an environment where performance is well-documented, attractiveness does not significantly influence these awards.

This research examines other, but also very popular, sports – soccer and hockey. Wages of athletes have been explored in the hockey environment in previous research (Vincent and Eastman 2009) and appear to be mainly influenced by performance, the performance of co-workers, and game position. This is similar to the soccer environment. The main factor is the performance, but there is also racial discrimination (Lehmann and Schulze 2008) and the ability to play with both legs (Bryson et al. 2013). However, the main difference in this research is that direct users' preferences are being examined and wages are not taken into account.

This research contributes to the literature on the influence of appearance on fan popularity, extending beyond the traditional focus on wages (Ahn and Lee 2014) or TV viewership (Dietl et al. 2020). In the context of fantasy sports, where the primary goal for users is to win the contest (Davis and Duncan 2006), the impact of appearance on fan perceptions becomes even more evident. While performance is a well-measurable factor in fantasy

sports and sports in general, fan perceptions are also shaped by other aspects, including physical appearance. Therefore, the results of this paper do not account for additional factors that may affect athletes' compensation, such as marketing revenue. This approach aims to better capture the relationship between fans' perceptions of performance and the concurrent influence of appearance.

Our paper makes a substantial contribution by combining direct data on the demand for athletes in the fantasy sports environment, with a specific focus on two sports that have been relatively understudied in terms of appearance-related research. This unique approach allows us to bridge the gap between the sports environment and consumer behavior, going beyond the superficial aspects of fantasy leagues and aesthetics. By examining the broader topic of how consumer preferences shape behavior in economics and business, our work gains value and importance. We uncover the interesting connections between preferences and behavior, providing constructive insights into consumer dynamics. This comprehensive perspective contributes to a deeper understanding of consumer behavior in a broader context, extending our understanding of appearance-driven research and adding to the literature.

3 Survey of likeability

The research was designed as a survey in which each respondent (characterized by their gender, age, and experience with fantasy league) could assess 50 photographs of athletes according to the likeability of those athletes. Data were collected by the CAWI approach (Computer-Assisted Web Interview) in February 2018.

The photographs were randomly generated by a computer, thereby ensuring an even number of assessments among the athletes included. For the research, responses were included in the analysis only if the respondent stated their gender and reported their ages as between 18 and 75 years. It was assumed that respondents claiming an age higher than 75 mistakes.

The main factor measured in the survey is likeability. It is acknowledged that likeability is only a part of physical appearance, which is also discussed in the paper. To maintain transparency, the paper uses the term "likeability" when referring to the measured variable and "physical appearance" when discussing appearance in general.

The scale ranged from 1 to 5, with 1 indicating "very likeable", 2 "rather likeable", 3 neither likeable nor unlovable", 4 for "rather unlovable", and 5 for "very unlovable". The original survey was in Czech. The setting of the precise question was not an easy process as in the Czech Republic homophobic tendencies are a complication (Takács and Szalma 2011). A low response rate was to be expected given that male respondents were being asked about the attractiveness of male athletes. Four out of five men stated that they would not answer such a question. Thus, in order to obtain a representative sample, the specific terms in the scale were chosen to motivate men to answer as well as women.

The second question asked whether the respondent was familiar with the athlete in the photograph. The options of answers were "Yes, I know him by name", "Yes, I know his face", and "No, I do not know him". This question aimed to detect a possible influence of the respondent's familiarity with the athlete on their assessment. The goal was to have respondents rate likeability independently of their familiarity with the athlete. The final distribution of responses shows that this effort was effective. Overall, 94.8% of respondents (93.6% for soccer and 95.4% for hockey) did not know the player, 3.1% knew him by face

Table 1 Likeability ratings based on familiarity when divided by sport

Familiarity	Likeability	Both	Soccer	Hockey
Yes, I know him by name	very likeable	19%	18%	20%
	rather likeable	38%	38%	37%
	neither likeable nor unlovable	27%	27%	26%
	rather unlovable	12%	13%	12%
	very unlovable	4%	5%	4%
Yes, I know his face	very likeable	10%	10%	10%
	rather likeable	43%	40%	46%
	neither likeable nor unlovable	31%	33%	29%
	rather unlovable	13%	14%	12%
	very unlovable	3%	3%	3%
No, I do not know him	very likeable	6%	8%	6%
	rather likeable	30%	32%	29%
	neither likeable nor unlovable	35%	33%	36%
	rather unlovable	23%	22%	24%
	very unlovable	6%	6%	6%

The numbers show the percentages of each survey response

(3.5% for soccer and 2.8% for hockey), and only 2.1% knew him by name (2.9% for soccer and 1.7% for hockey). This indicates that the vast majority of responses were independent of familiarity with the athlete. Table 1 provides a more detailed description of the relationship between a respondent's knowledge and their rating of the athlete's likeability.

The values in Table 1 show that there are some differences between the ratings of likeability based on familiarity, which was expected. At the same time, the differences between the two sports do not appear to be very large. However, the most important point in this regard remains the fact that the vast majority of athlete likeability ratings were made without familiarity, and thus should not fundamentally affect the use in subsequent models.

Figures 1, 2, and 3 display histograms comparing the different categories of ratings based on the respondents' familiarity with the athlete. The data show that respondents who are familiar with the athlete tend to have more polarized opinions on the athlete's likeability, resulting in a higher number of responses in categories 1, 2, 4, and 5. In contrast, respondents who do not know the athlete are more likely to rate them in category 3. However, these differences are not substantial. Additionally, the figures indicate a relatively consistent normal distribution of responses, confirming the appropriateness of the data. It is also important to note that the number of responses in familiarity categories 1 and 2 is significantly lower than in category 3, where respondents are unfamiliar with the athlete.

In the models, all of the answers were used to widen the variability of responses on single athletes. However, in the Appendix, it is shown that the results of models which used only the assessments in which the respondent did not know the athlete in question or knew him only visually are comparable to the results of the models. This shows the independence of the created variable about likeability, which therefore represents only the impression of a photograph and is not influenced by the respondent's previous knowledge of the athlete.

The survey was sent to Facebook groups of students at Czech universities and groups of Czech sports fans. Students are generally more inclined to complete surveys, and the sports fans might be interested in the research topic. This is not a fully representative

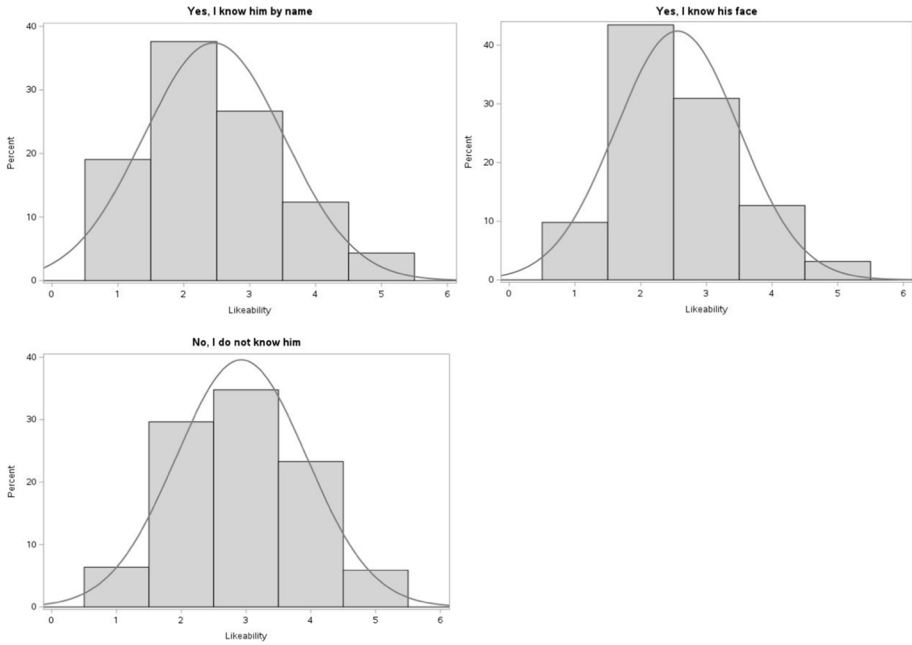


Fig. 1 Histogram of respondents' assessments of the athlete by their familiarity with him. Data from both sports

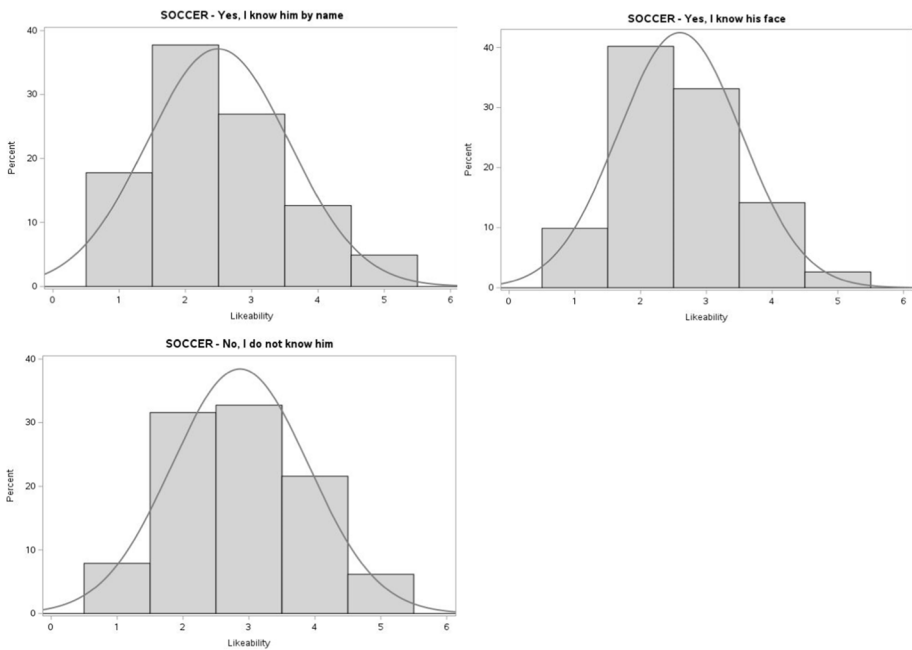


Fig. 2 Histogram of respondents' assessments of the athlete by their familiarity with him. Data from soccer

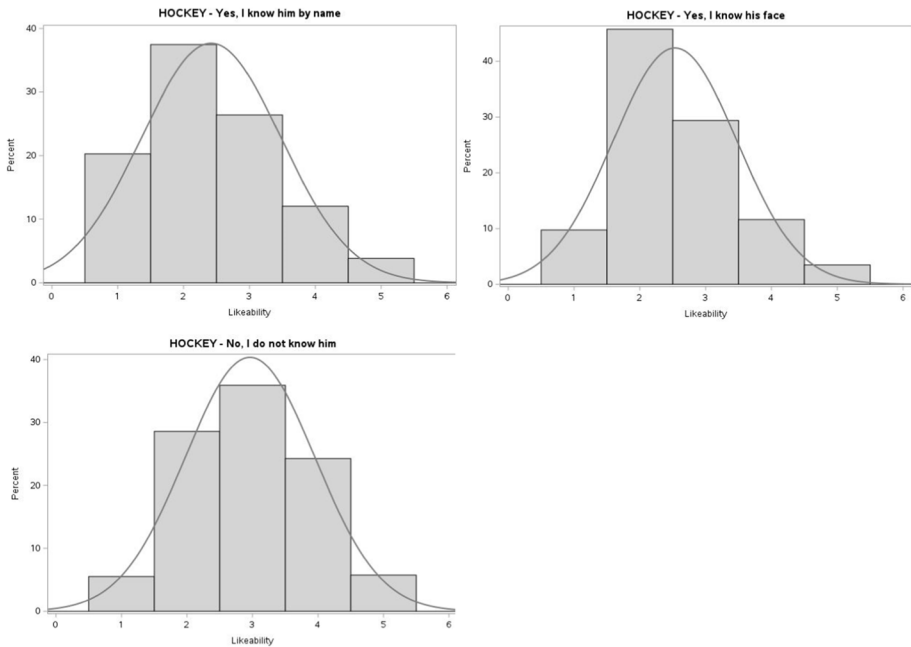


Fig. 3 Histogram of respondents’ assessments of the athlete by their familiarity with him. Data from hockey

Table 2 Demographic-based average likeability among survey respondents divided into sports. A lower number corresponds to a higher level of likeability

Segment	Soccer	Hockey	Soccer vs Hockey
All	2.868	2.953	-0.085
Age 18 – 25	2.860	2.948	-0.088
Age 26 – 30	2.836	2.933	-0.097
Age 31 plus	2.935	2.967	-0.032
Men	2.923	2.956	-0.033
Women	2.792	2.944	-0.152
Do not know fantasy sport	2.859	2.971	-0.112

sample of common fantasy league users (Dwyer and Drayer 2010; Fantasy Sports & Gaming Association 2019). A total of 1,531 respondents participated in the survey, 515 of whom were men and 1,016 women. There is a substantially higher number of female respondents than would be usual. Thus, to sustain the representativeness of the selection considering that the composition of fantasy sports users is two men per one woman (Fantasy Sports & Gaming Association 2019), a random sample of 258 respondents was chosen from among the women participants. Therefore, the final sample for analysis includes the answers of 773 respondents. The results of those models are similar to those of the models used in the main part of this paper, thus confirming the conclusions. Therefore, the answers of respondents concerning likeability seem to be stable and consistent. This similarity in partial samples of responses in models confirmed the stability and independence of the variable about likeability. Thus, the sample is considered to be appropriate.

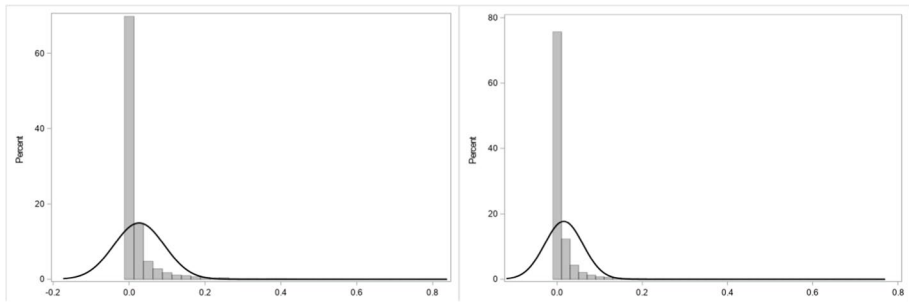


Fig. 4 Histogram of athlete inclusion in the squad expressed as a percentage. Soccer is on the left and hockey on the right

Considering all of the respondents' answers regardless of their previous knowledge of the respective athlete, soccer players were assessed as being more likeable. For the comparison of the overall assessment and the assessments concerning the demographic categories see Table 2. The comparison of the assessments concerning the participants' previous familiarity with the athletes are in the Appendix.

A total of 536 of the respondents were between 18 and 25 years of age, 119 between 26 and 30, leaving 118 respondents in group 31 and above. A total of 130 of the participants had played a fantasy league, 267 had not played one, and 376 did not even know what a fantasy league was. Each photograph of an athlete received about 15 assessments. The number of assessments of each photograph in models in the Appendix is about 30.

4 Fantasy league data

The original datasets are reduced according to the accessibility of the photographs of the athletes on the official websites of the EPL and NHL. The athletes without available photographs could not be assessed in the survey; thus, they could not be a part of the final datasets for the models. These are mainly athletes who did not take part in any of the matches in question. In this fantasy league settings, athlete photographs were not displayed directly in the athlete list or user squad. Instead, users had to click on an athlete's profile to view the photograph. This allowed users to decide whether to view the athlete's details. However, since most users also examine other characteristics in the athlete's profile (Smith et al. 2006), it is likely that these details were frequently accessed. The datasets linked to the fantasy leagues based on the EPL and the NHL come from the 2015–16 season. Approximately 11,000 users participated in these two leagues.

The models according to both soccer and hockey have the same dependent variable and main explanatory variables considering the likeability of the athletes. Control variables vary between the sports due to the differences in the fantasy league rules. The dependent variable for the models of both soccer and hockey is the percentage of squads into which the athlete in question was chosen. This approach reflects the fact that a different number of users participated in each round. It is also in a logarithmic form, following previous research (Bryson and Chevalier 2015; Kotrba 2019). The reason for this is that the percentage of soccer players and hockey players selected is skewed, as seen in Fig. 4. Figure 5

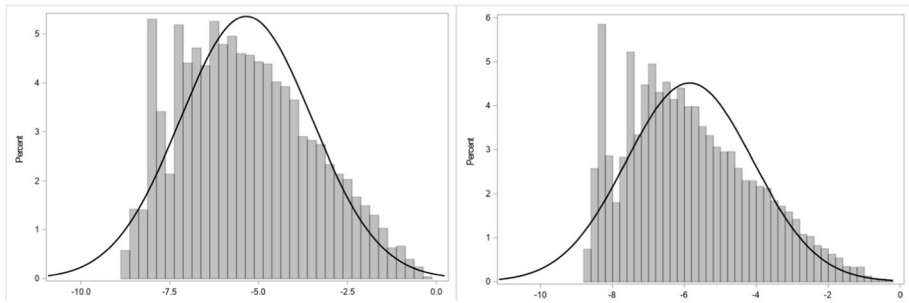


Fig. 5 Histogram of athlete inclusion in the squad expressed as a percentage in log-form. Soccer is on the left and hockey on the right

Table 3 Number of athletes in a given category for given independent dummy variables

Variable	Soccer	Hockey
Good likeability (2 or lower)	19	23
Bad likeability (4 and above)	7	20
Czech	2	21
Slovak		6
Goalkeeper	46	85
Defender	153	294
Midfielder	192	
Forward	104	567

show that using logarithms improved the normal distribution. For the descriptive statistics see Table 4.

The likeability of an athlete as the main researched variable was chosen. This approach is following the previous literature that deals with beauty (Ahn and Lee 2014; Hamermesh and Biddle 1994). The likeability was assessed on a scale of 1–5 where 1 is the most likeable and 5 is the least likeable (Ahn and Lee 2014; Hamermesh and Biddle 1994). Two sets of models were compiled. The first operates with likeability as a continuous variable (Ahn and Lee 2014). In the second set, dummy variables were determined for the most and the least likeable athletes (Hamermesh and Biddle 1994). Athletes described as most likeable were given an average assessment of 2 or lower, while athletes with an average assessment of 4 and above were defined as the least likeable. For the descriptive statistics of the continuous variable, see Table 3 and for the number of athletes in relation to dummy variables of likeability, see Table 3.

Athletes’ performance is evaluated in accordance with the rules established by specific fantasy leagues. These rules can be found in the Appendix for further clarification, highlighting the presence of comprehensive guidelines. The performance is included as current, short-term, and long-term corresponding to previous literature (Kotrba 2019). The reason for this is the gradual forgetting of the users (Bryson and Chevalier 2015), the inclusion of the development of performance, and other potential influences. Athletes with higher performance will certainly be in greater demand. For the descriptive statistics of the short-term and long-term performance, see Table 4.

Table 4 Descriptive statistics for continuous variables divided into sports

Variable	mean	minimum	maximum	s. d
Soccer				
Demand (log-form)	-5.346	-8.714	-0.185	1.860
Short-term performance	1.984	-6.000	24.000	2.744
Long-term performance	1.890	-0.700	9.486	1.446
Likeability	2.857	1.833	4.417	0.482
Hockey				
Demand (log-form)	-5.850	-8.685	-0.269	1.766
Short-term performance	5.707	-16.000	48.000	6.427
Long-term performance	5.678	-1.805	22.686	3.873
Likeability	2.951	1.625	4.500	0.477
Percentage of matches played	0.782	0.250	1.000	0.182

The number of points that an athlete receives in a particular round of observation represents current performance which aims to filter out unobservable factors like injuries, disciplinary penalties, additional news from coaches, and others (Kotrba 2019). The users could invest their effort to find this information.

The number of points that an athlete gained in the final match before the observation represents short-term performance (Bryson and Chevalier 2015). The values are time-shifted by one round beside current performance.

An arithmetic mean of the athlete's average performance for half of the season preceding the observed match and of the average performance in the previous five and ten matches (Kotrba 2019) represents long-term performance.

Control variables are added to the model. The variable for Czech and Slovak nationality is derived from the preference for individuals of the same nationality, as described in the preceding literature (Wilson and Ying 2003). Both the models for soccer and hockey include variables to mark the field position of the athletes. For the numbers of athletes in specific categories see Table 3.

The soccer fantasy league links one round at a time in the EPL. In contrast, each of the hockey fantasy league rounds consists of several NHL matches. Therefore, another control variable is added to the model based on the hockey fantasy league. This variable represents the percentage of matches in which a hockey player could possibly start in the respective round of the fantasy league. The maximum is set by the NHL club that played the most matches in the fantasy league round in question. The variable for the athletes of this club takes a value of 1. Its descriptive statistics are in Table 4.

5 Models

The models are built to best identify the relationship between likeability and demand among fantasy sports users. This is not an easy task, as the likeability of athletes can be correlated with many other factors. However, the great advantage of the fantasy sports environment is the ability to capture performance very accurately. Therefore, the following strategy is adopted. First, only likeability is included as an independent variable. In the next model, performance is added as the most important influence on demand, and this is

Table 5 The econometric models (pooled OLS) measuring the impact of likeability on demand for soccer players

	(1)	(2)	(3)	(4)	(5)	(6)
Likeability	-0.279***	-0.073***	-0.107***			
Good likeability				0.780***	0.432***	0.280***
Bad likeability				-0.431***	0.197**	-0.115
Current performance		0.078***	0.086***		0.078***	0.086***
Short-term performance		0.108***	0.108***		0.107***	0.108***
Long-term performance		0.740***	0.805***		0.740***	0.805***
constant	-4.548***	-6.899***	-7.148***	-5.372***	-7.128***	-7.477***
Controls	N	N	Y	N	N	Y
Adjusted R ²	0.0052	0.5380	0.6144	0.0074	0.5398	0.6145
Observations	15,607	15,607	15,607	15,607	15,607	15,607

Dependent variable is demand for soccer players in log-form. Significance levels: * p<0.10, ** p<0.05, *** p<0.01

Table 6 The econometric models (pooled OLS) measuring the impact of likeability on demand for hockey players

	(7)	(8)	(9)	(10)	(11)	(12)
Likeability	0.156***	0.137***	0.115***			
Good likeability				-0.474***	-0.202***	-0.187***
Bad likeability				0.532***	0.476***	0.218***
Current performance		0.019***	0.023***		0.019***	0.023***
Short-term performance		0.052***	0.052***		0.052***	0.052***
Long-term performance		0.231***	0.262***		0.231***	0.262***
constant	-6.309***	-7.973***	-9.049***	-5.852***	-7.573***	-8.711***
Controls	N	N	Y	N	N	Y
Adjusted R ²	0.0017	0.4557	0.5842	0.0033	0.4560	0.5837
Observations	18,727	18,727	18,727	18,727	18,727	18,727

Dependent variable is demand for hockey players in log-form. Significance levels: * p<0.10, ** p<0.05, *** p<0.01

done in all three variants. Finally, control variables are included. This procedure aims to test the stability and robustness of the effect of likeability on demand.

Dummy variables for likeability, nationalities, and game positions are time-invariant, thus a method of pooled ordinary least squares was utilized. The results coefficients are in Table 5 for soccer and in Table 6 for hockey.

First, the results for soccer are examined. The continuous variable related to likeability is significant at 1% in all models. Similarly, the direction of the dependency remains the same, showing that the more likeable a soccer player is, the more in demand he is. This shows the stability of this influence. In model 3 with performance and controls, the coefficient of the variable takes a value of -0.107, which means that if a player has a worse likeability rating by 1 on the scale, the percentage of squads in which he was included decreases by a factor of 0.899.

The dummy variable related to good likeability is significant at 1% in all models and the positive direction of the dependence is the same, showing the stability of the influence. Its coefficient takes the value of 0.280 in model 6 with performance and controls. If the soccer player is one of the most likeable ones, the percentage of squads in which he has included increases by a factor of 1.323.

In comparison, the dummy variable related to bad likeability is not as stable. The variable is significant at 1% in model 4, where neither performance nor other controls are included, and its effect is negative. In model 5, where performance is added, the variable remains stable at 5%, but the direction of the dependence is positive. In model 6, with additional controls, it is not statistically significant. This shows the uncertainty of the effect for the least likeable soccer players.

Better likeability is associated with the higher inclusion of soccer players in the squads. In particular, this effect is evident in most likeable soccer players. On the other hand, the least likeable soccer players are not treated differently.

In the situation with hockey, the continuous variable related to likeability is significant at 1% in all models. Similarly, the direction of the dependency remains the same, showing that the less likeable a hockey player is, the more in demand he is. This shows the stability of this influence. In model 9 with performance and controls, the coefficient of the variable takes a value of 0.115, which means that if a player has a worse likeability by 1 on the scale, the percentage of squads in which he has included increases by a factor of 1.122.

The dummy variable related to good likeability is significant at 1% in all models and the negative direction of the dependence is the same, showing the stability of the influence. Its coefficient takes a value of -0.187 in model 12 with performance and controls. If the hockey player is among the most likeable ones, the percentage of squads in which he has included decreases by a factor of 0.829.

The dummy variable related to bad likeability is also significant at 1% in all models. The direction of the dependence is same and positive. Its coefficient takes a value of 0.218 in model 12 with performance and controls. If the hockey player is among the least likeable ones, the percentage of squads in which he has included increases by a factor of 1.244.

Thus, the users select more hockey players with lower likeability and fewer hockey players with higher likeability.

However, it is important to stress the fact that the influence of likeability is not among the most important in the model. The overall performance of a player is, naturally, one of the fundamental influences. A fantasy league user has to primarily watch the performance of the individual players to become successful; it is an essential factor. The most important seems to be the influence of long-term performance, followed by the influence of short-term performance, and lastly the influence of current performance. The sequence is the same for both soccer and hockey.

6 Discussion

The influence of likeability appears to have opposite effects in soccer and hockey, highlighting the distinct characteristics and fan bases of the two sports. Hockey emphasizes physical strength, with players enduring intense competition and frequent brawls, reflected in their protective equipment. Fans might see less likeable hockey players as tough and resilient, traits highly valued in the sport. Evidence from previous research supports this idea. For example, Andrew et al. (2009) show that hockey fans want to see violence. More

generally, Wann et al. (2008) show that fans' motivations for attending games are different for sports with a higher aggression component than for more aesthetic sports.

On the other hand, fans place a much higher value on aesthetics in a soccer environment. This is shown, for example, by Dos Santos and Montoro Rios (2016), who show that aesthetics is an essential part of influencing stadium attendance. Tokuyama and Greenwell (2011) also come to a similar conclusion using soccer as an example. It shows that the culture of soccer centers more on physical appearance. Soccer players invest heavily in their appearance, from elaborate hairstyles to personal fashion brands, unlike hockey players, whose helmets obscure their looks. This visibility makes physical appearance a more significant factor in soccer, leading fans to associate good looks with success.

The helmets mentioned above, combined with the hardness requirements of hockey, seem to be one of the most likely explanations for the observed phenomenon. However, no further support could be found in the literature and further research in this direction is certainly worthwhile. In general, it can probably be concluded that helmets in hockey obscure players' faces, reducing the impact of their physical appearance on fan perceptions. This means that fans are less likely to form opinions based on looks and more on the players' on-ice performance and toughness. In contrast, soccer players' faces are fully visible during games, making their physical appearance a more significant factor in their overall likeability and fan engagement. This visibility allows fans to connect more personally with players, often elevating those who maintain a polished and appealing appearance.

The dominant role of all types of performance in the model confirms the assumption that fantasy sports users prioritize winning the contest above all else, focusing on the most crucial factor. This observation is also consistent with previous literature (Bryson and Chevalier 2015; Davis and Duncan 2006; Dwyer 2011; Kotrba 2019).

Also, the influence of a control variables is shown as significant³ which again is consistent with previous papers. This applies to nationality (Kotrba 2021; Wilson and Ying 2003), field position (Bryson and Chevalier 2015; Kotrba 2019), and number of matches per round in the NHL.

7 Conclusion

This paper examined the influence of the likeability of soccer and hockey players on the demand for them in fantasy sports. It appears that there is a significant difference between soccer and hockey according to the fans' demands. The most likeable soccer players and the least likeable hockey players are in greater demand. While the athletes' performance should be the only truly important factor for choosing squads for a fantasy league, the users often ease their process of decision-making by using heuristics, which can be also seen in the results of the other variables not related to performance.

Previous literature shows that likeability influences athletes' salaries (Ahn and Lee 2014; Berri et al. 2011) and TV-viewership (Dietl et al. 2020; Meier and Konjer 2015; Trail and James 2001), which should be instruments for the fans' demand and performance (Berri et al. 2011; Williams et al. 2010). Thus, the findings of this paper are in line with the previous literature, although in the case of hockey players the influence of likeability is, surprisingly, reversed.

³ The coefficients are not shown in Tables 5 and 6 for clarity.

The next logical step in this research is to test the inverse relationship between physical appearance and demand for hockey players using different data. Utilizing NHL hockey players' wages would be particularly appropriate. This step would further examine whether the preferences and heuristics identified in fantasy leagues also apply more broadly in other substantial areas. If the wage results confirm this trend, it would highlight an intriguing phenomenon in hockey involving inequality of opportunity based on physical appearance. Potential connections could then be explored with other sports that emphasize the hardness of their players. Similarly, it would make sense to examine other sports that focus on aggression and require helmet use. American football is a logical example.

Fans often experience their investment in sports as deeply rewarding and meaningful (Shtudiner et al. 2022). Through understanding the motives for sports consumption, soccer clubs can provide a targeted experience or service to fans to further stimulate economic growth. With proper marketing fans should participate more often in purchasing products or services associated with the sport (Stander and Van Zyl 2016).

Considering possible further improvements to this research, the datasets could benefit from the addition of the athletes' prices in the fantasy leagues. Only a small number of the prices are available from the soccer fantasy league, however, and even these are only from the first few rounds. Unfortunately, the data on price are completely absent in the case of the hockey fantasy league. Therefore, to ensure the comparability of both sports, the price does not appear in the models for soccer. The inclusion of price could improve and refine the models, although it should be noted that the users included the price in their decision-making anyway. The athletes' price was set and the users had a limited budget. Therefore, it was not possible to acquire only the best and most expensive athletes. The fantasy league authors aim to set the price to match the users' demand to ensure that the users' squads would differ and make the game more interesting. Thus, a flaw of this paper resides in the impossibility of direct quantification of the prices. However, if the price were set precisely in line with demand, its coefficient in the model would be 0, so the price would have no influence. Regrettably, it is not possible to verify if that is the case.

It is possible to suggest that it would be better to reach out directly to fantasy league users to quantify the athletes' likeability from their points of view. However, this approach would complicate the objectivity of the likeability assessment, as the users are often familiar with many of the athletes and they are influenced by their relationship with them. Therefore, they might include other characteristics in their assessments apart from likeability. A false notion of likeability could arise from the connection of the athletes with better performance. The objectivity is clearer when the respondent is unfamiliar with the athlete. Also, the contact information of fantasy league users was not accessible, so it would have been impossible to reach them in any case. It might be possible to reach some fantasy sports users, but this would dramatically reduce the number of respondents in addition to the complication in the direct assessment of the likeability of familiar athletes, as indicated above.

By investigating the influence of athlete likeability on demand in fantasy leagues, we analyze a fascinating aspect of consumer behavior that transcends the realm of sports. Our research provides valuable insights into the intricate interplay between consumer preferences, social perception, and decision-making processes. Understanding how individuals' likeability judgments affect their choices has implications beyond the sports industry and can inform a wide range of consumer-related contexts. Our study demonstrates the significance of considering subjective factors such as likeability in understanding and analyzing consumer dynamics.

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Author contribution Vojtěch Kotrba and Luis F. Martinez conceptualized the entire research process. Mirka Strnadová devised the survey and conducted it. Vojtěch Kotrba and Mirka Strnadová analyzed the data. Vojtěch Kotrba constructed the models and authored the original main manuscript. Mirka Strnadová, Luis F. Martinez, and Pedro Brinca carried out the review and edited the text. Luis F. Martinez and Pedro Brinca supervised the entire project. Vojtěch Kotrba prepared the revisions of the manuscript. Luis F. Martinez and Pedro Brinca provided critical comments on the revisions.

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Data availability The data that support the findings of this study are openly available at <https://data.mendeley.com/datasets/yw7wfnf2ht/draft?a=b456cedc-9816-4e16-a8f1-7842d777c31f>

Declarations

Conflict of interest None.

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