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Risk in Sports and Challenges for Sports Organizations

Edited by
Hannes Winner, Michael Barth and Martin Schnitzer

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Contents

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Editorial

Editorial: Special Issue "Risk in Sports and Challenges for Sports Organizations"

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Keywords: sports economics; sports management; risk taking in professional sport; risk taking in organizing (mega) sports events; implications of risk taking in sports organizations; risk management in sports organizations; risk taking after the COVID-19 pandemic

Most people will agree that skiing down the Streif—one of the world's most dangerous alpine downhill ski slopes—at nearly 90 miles per hour is quite a risky business. However, what about the risk-taking behavior of people organizing sports events, such as the aforementioned ski races, or those managing the respective sports organizations? Or what about political decision makers involved in Olympic bids and referendums? Individual risk-taking behavior is omnipresent in sports management and has therefore become a central topic of research in sports science and sports economics. However, the effects of individual risk-taking behavior on the organization of sports in general—and on the design of sports organizations and the behavior of their members in particular—have been little studied so far. This Special Issue attempts to fill these gaps by providing a collection of articles on risk taking in sports. "Risk Taking in Sports and Challenges for Sports Organizations" covers a wide range of topics, which can be subdivided into three main categories: (1) risk taking in elite sports, (2) risk taking in organizing sports events, and (3) risk through exogenous shocks.

The first set of contributions deals with *risk taking in elite sports*. In this context, Morales and Schubert (2022) examined the principles of good governance in North American professional sports leagues. They explored the need for reforms that leagues must undertake to comply with core governance dimensions in order to reduce the risk of being unprepared for ethically sensitive issues. This Issue also encompasses three articles on various risks in professional soccer. Barth et al. (2022) analyzed the key retirement transition and adjustment outcomes of former professional players from a social science and long-term perspective. By examining risk relationships in the first division of French men's soccer, Scelles and Llorca (2021) examined the impact of president longevity and owner geographic orientation on a team's performance and on the effectiveness of dismissing a leader. Finally, Hamsund and Scelles (2021) investigated how fans perceived the video assistant referee in the English Premier League and found differences between various fan groups, especially in respect to different age groups.

Two articles in this Special Issue are dedicated to a topic that is not only relevant to individual risk-taking behavior but also represents a potential risk for sports organizations: doping and anti-doping regulations in sports. In an explorative study, Blank et al. (2021) interviewed Austrian athletes and their coaches to gain insights into their knowledge and perception of existing (legal) anti-doping rule violations. Doping is also the topic of Pitsch's (2022) contribution; however, unlike the article mentioned above, he focused on recreational sports. Referring to Stigler and Becker's theory of rational addiction in general—and more specifically to its central element of consumer capital—Pitsch (2022) asked whether a doping decision could be based on the desire to increase the benefits of

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competing, to secure a benefit that had already been achieved in the past, and to prevent diminished benefits; in other words, he examined whether doping could be understood as a technique to minimize the risk of losing one's benefits gained from consuming sports.

The articles of Könecke and de Könecke and de Nooij (2022), Newham et al. (2022), and Lintumäki et al. (2022) can be included in the topic of *risk-taking in organizing sports events*. Könecke and de Könecke and de Nooij (2022) analyzed the individual risk management that politicians have to contend with due to their involvement in Olympic bids and referenda. Newham et al. (2022) showed a risk in e-sports in the context of the possibility that players might switch from a buy-to-play to a free-to-play model, taking the game Overwatch as an example. When it comes to the link between sports and risk, the COVID-19 pandemic and its consequences must also be taken into consideration. In this regard, Lintumäki et al. (2022) showed the power of fans in risk management; they found that soccer fans were willing to support their favorite teams by helping them to overcome the financial difficulties caused by this unforeseen operational risk.

The remaining three articles of this Special Issue fall into the category of *risks through exogenous shocks*. Bazzanella et al. (2021) showed how organizers of sporting events, particularly cycling competitions, dealt with the COVID-19 pandemic. Using data from three different German professional sports leagues, Huth and Kurscheidt (2022) developed a model for ticket pricing and discussed their results in terms of risk management issues related to the COVID-19 pandemic. Finally, Yamamura (2022) examined how people's childhood experiences with team sports helped them develop non-cognitive skills that later led them to make charitable donations to disaster victims.

Indeed, the broad range of topics covered in this Special Issue demonstrate the many aspects through which sports and risk (management) are linked. At the same time, the articles highlight the necessity of a differentiated view on sports and risks and thus warn against the unjustified extrapolations of results. Such extrapolations might be seen as a central risk for sports science (which is still a relatively new field) and sports economics research—a challenge which might also, however, open up interesting lines of inquiry for future research.

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Article

How the Covid-19 Pandemic Influenced the Approach to Risk Management in Cycling Events

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Abstract: The COVID-19 pandemic has taught us to live in social isolation and has brought an important element of social life, the events industry, to a complete standstill. In resurrecting the events industry, the most urgent focus is on managing the risk of any crowd-control measures with a view to reducing to zero the danger of the virus spreading. This research focuses on the main issue of the impact of the coronavirus disease 2019 (COVID-19) on the organization of sports events (SEs), and in particular, cycling competitions. This study, therefore, aims to provide deeper insights into (a) the measures introduced to face the health emergency situation in cycling events, (b) the comparison of these measures with previous experiences in similar SE contexts, and (c) the possible evolution of organizational models for cycling events in the post-pandemic era. Fifteen semi-structured interviews with cycling athletes, managers, and officials constitute the methodological basis for this study. The results show that countermeasures have been taken that are effective in dealing with pandemic characteristics and are likely to be applied in the future, while others will be phased out or used again only when necessary. This study enhances scientific knowledge by analyzing a renewed approach to risk management for SEs, with a specific focus on pandemics and medical risks. Finally, the study shows that cycling events need to adapt the specifics of such a new approach to the standards projected on future scenarios for which the COVID-19 pandemic has paved the way.

Keywords: sports events; Covid- 19; risk management; SARS-CoV-2; cycling events; organization; crisis

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1. Introduction

The biennium 2020–2021 will be remembered as a period that marked history, and as a watershed moment for all humanity. The coronavirus pandemic 2019 (COVID-19), the first in recent history, has subjected the world to a transversal shock affecting all aspects of human actions and forcing humanity to fundamentally rethink or eliminate previous behavioral patterns and models (Westmattelmann et al. 2020). The social distancing imposed by the rapid and dangerous spread of COVID-19 has not spared sport. The new coronavirus has paralyzed the entire world of sport, causing a complete global halt to sports competitions at all levels, including the XXXII summer Olympic Games in Tokyo, which represent the maximum expression of sport and its values (Patsantaras 2008). This case, as well as other major mass events, including cycling events, have been hit hard by this sudden wave.

Guaranteeing the safety and surveillance of major SEs has become considerably more complex (Giulianotti and Klauser 2010). In the past, various "dangerous" events (Blumberg et al. 2016) have indeed impacted the organization of SEs. They have however, never reached the gravity and scope such as that triggered by COVID-19.

Major cycling events (professional, amateur and touristic) generally adopt the approach of combining the participation of large groups of people with the involvement of the media and other stakeholders (Bowles et al. 2006; Pelzer 2010). It is, therefore, necessary to consider the impact of events on tourist destinations (Chalip and McGuirty 2004) and in particular the effects of possible cancellations or changes in management, for example, due to the sudden onset of a pandemic. After the first global lockdown, some events, and in particular the American professional leagues (Dove et al. 2020) immediately organized themselves to ensure that they would not miss the entire 2020 season; "buffer" solutions were put in place which cannot, however, be seen as a definitive solution even in the post-pandemic period (McHill and Chinoy 2020). The scientific literature on risk management and mitigation in relation to SEs (Fuller and Drawer 2004; Leopkey and Parent 2009) is facing a new challenge with the global pandemic as a new type of global health risk has appeared in the SE system.

Taking a closer look at cycling events in terms of the pandemic, scientific literature has proposed so-called protective "bubbles". These measures effectively mean that the subjects involved in the event (teams, staff, etc.,) are separated in groups that are continuously monitored and isolated from external contacts (whose health is neither controlled nor necessarily safe) during the course of the event, forming a large "bubble". Although the bubble system has produced good results, it has not managed to completely eliminate the risk of contagion with COVID-19. During the Giro d'Italia 2020, various teams were forced to withdraw after numerous participants tested positive for Covid-19 (Hytner and McLaughlin 2020). This has seen the creation of a very important and new event role known as "COVID-19 Coordinator". This operative takes on fundamental responsibilities in the first organizational phase, is an expert in infectious diseases and is designated by the Local Organizing Committee (LOC).

Although more research has been carried out into the security governance of SEs in recent years (Ludvigsen and Parnell 2021; Whelan and Molnar 2018), gaps remain in risk-management approaches especially in relation to health risks (Ludvigsen and Hayton 2020). We have, therefore, conducted an investigation into the organizational risk management of SEs with a specific focus on the effects of the pandemic emergency on the organizational processes involved in cycling events (professional and amateur). By means of qualitative semi-structured interviews, we aimed to address the following research questions: (a) What measures have been introduced to tackle the health emergency situation at cycling events? (b) How do the new measures differ from previous experiences in similar SE contexts? and (c) What is the possible evolution of organizational models for cycling events in the post-pandemic era?

Several factors, interests, and stakeholders are affected by the cancellation or postponement of an event and it is the task of the experts to balancing them to find a way out of this blind ally. Studying the application of risk management in the context of SE organization (Fuller and Drawer 2004; Leopkey and Parent 2009), therefore, provides a basis for mitigating potential risks when staging outdoor, dynamic cycling events in the new post-pandemic age.

2. Theoretical Background

2.1. Literature Review

Event studies have evolved as an important area of research in recent years, drawing on several foundational disciplines and constituting an interdisciplinary field of research (Bowdin et al. 2011; Getz and Page 2020). A more specific scientific niche considers the phenomenon of event tourism, which attempts to interpret definitions, managerial aspects, and implications (Getz 2013). Some authors (Getz 1998; Hall 2001; Higham and Hinch 2003) have also defined the meaning of SEs with a view to giving a clearer and more complete description, distinguishing between recurring and one-off events etc. Gratton et al. (2000) as well as Barget and Gouguet (2007) identify different types of sports events, differentiating them on the basis of certain characteristics.

Until the outbreak of the COVID-19 pandemic, SEs played a major role on a global scale. Assessing from different angles, the impact and multiple implications of SEs have been the subject of several studies (Parent and Smith-Swan 2013; Preuss 2013; Masterman 2014).

The issue of risk management at SEs has become increasingly important, both from a theoretical point of view and in terms of the managerial implications (Leopkey and Parent 2009), especially following the terrorist attack of 11 September 2001.

For the purposes of this research, it is crucial to have a complete overview of the ways in which risk management is evaluated by the organizers of SEs as well as the many other stakeholders.

In addressing the issue of risk in major sporting events, we have often found a link to the legacy of the event (Parent and Smith-Swan 2013; Whelan and Molnar 2018). Especially in the context of major events, the issue of legacy plays a substantial role (Preuss 2015). The literature review by Thomson et al. (2013) provides clarity regarding the different definitions. A clear development in recent decades has been the growing concept of environmental, social, and economic legacies (Chappelet 2012; Minnaert 2012; Preuss 2015). To understand the importance of risk management in relation to the legacy of SEs, it is essential to comprehend what the term actually means. In his definition of legacy, Chappelet (2012) adds the dimension of intentionality.

If we consider a negative legacy, we can assume it is the result of intentionality but looking at the six dimensions that Preuss (2015) illustrates, we can assume that a negative SE legacy has consequences for multiple stakeholders. Consequently, it is necessary to extend the concept of legacy to leverage (Chalip 2004) and define it as all actions aimed at optimizing the results of a positive legacy or at least reducing the risks of a negative legacy (Parent and Smith-Swan 2013).

Risk management at events is a relatively well-researched topic. An essential contribution to the understanding of this sensitive subject comes from the studies included in the Event Management Body of Knowledge (EMBOK), where risk analysis is found within the processes identified in the EMBOK model (Rutherford Silvers 2008; Bowdin et al. 2011; O'Toole 2011; Goldblatt 2014). Berlonghi (1990) assumes that the objective of risk management is to prevent and even eliminate loss or damage by "making events as safe and secure as possible".

Among the many risk factors taken into account by recent studies (Rutherford Silvers 2008; Leopkey and Parent 2009), this research focuses on the medical emergency caused by the COVID-19 pandemic. In Table 1, we note that the literature to date has underestimated the pandemic's impact on event-related risks. A pre-pandemic study pointed out that "risk management is central to protecting health and safety" (Windholz 2016), encouraging the careful observation of regulations at all levels by event organizers, working in close cooperation with all event stakeholders to develop a model that can facilitate the effective sharing of risk-management responsibilities according to each stakeholder's ability.

The COVID-19 pandemic, which is still ongoing on a global scale, has nevertheless allowed us to take a look at some recent studies (Barbosa et al. 2020; Garcia-Garcia et al. 2020; Schnitzer et al. 2020; Wong et al. 2020; Rico-González et al. 2021) that offer some analysis and provide partial answers or solutions. Initial recommendations by Wong et al. (2020) included measures to control local spread through public awareness, the encouragement of personal hygiene, and the postponement or cancellation of large-scale public events. This was the case, for example, for the Tokyo Summer Olympic Games, originally planned for the summer of 2020. There is also an "ethical" risk to be considered, another consequence of COVID-19. This is the fact that many athletes have completed or are finishing their suspensions for doping and will be able to participate in all those competitions postponed because of the pandemic (Garcia-Garcia et al. 2020).

Table 1. Elaborated summary of previous event-related risk and risk-management issues highlighted in the scholarly literature (Leopkey and Parent 2009).

Author	Risk Issues/Areas/Topics
Chang and Singh (1990)	People (e.g., employees, athletes, volunteers) Public (e.g., spectators, local community) Property (e.g., equipment, facilities) Financial/legal risk Safety and security (e.g., physical hazards) Television revenue risk (i.e., loss of revenue) Political (e.g., international terrorism, threats, demonstrations)
Getz (2005)	Financial risk (e.g., loss of revenue, theft, legal issues, unanticipated costs) Management risk (e.g., goal displacement, takeovers, management failures) Health and safety hazards (e.g., accidents, medical issues, threats, emergencies) Environmental risk (e.g., pollution, natural disasters)
Frosdick and Walley (1997)	Spectator/Crowd risks (e.g., poor seating, ticketing issues) Commercially related risk (e.g., to advertisers and sponsors) External disruption risk (e.g., noise and projectiles from event) Safety and security risk (e.g., venue condition)
Bjarnason and Cannell (1999)	Workers, proper documentation, good communication practices, valid insurance, secure facilities, equipment, emergency medical services, action plans
Chappelet (2001)	Corporal risk (e.g., related to quality and density of people) Material risk Environmental risk Fraud risk Meteorological risk Image/public relations risk
Peterson and Hronek (2003)	Nature Human incidents (e.g., crime, vandalism, hooliganism, terrorism)
Appenzeller (2005)	Ticket sales, sponsor services, athlete services, hospitality, operations, concessions, support services, advertising, promotions, media relations

Today, we are in the middle of the pandemic, and major events are still applying contingency plans by trying out new "temporary" organizational models. Public opinion sees vaccines as a possible solution to this pandemic. However, set in a different historical context, Parent and Smith-Swan (2013) addressed the question of whether imposing the vaccine on all participants and stakeholders of a sporting event would constitute a violation of their personal freedoms. As Ludvigsen and Hayton (2020) claim, it is very difficult at this stage to give concrete answers to the many questions relating to risk management which have been raised by the COVID-19 pandemic among scholars and practitioners involved in sporting events. The present study is likewise intended to offer a summary and representation of the stakeholders' point of view in light of recent discussions that have implications for both researchers and professionals.

2.2. Past Cases of Dangerous Diseases Impacting on SEs

Recent experiences of mass SEs that have taken place regularly, successfully, and safely, despite the presence of serious and global health emergencies, can be found in the literature (McCloskey et al. 2020): the Winter Universiade in Serbia during the 2009 Influenza A (H1N1) epidemic (Loncarevic et al. 2009), the SEs held in Africa during the Ebola epidemic between 2014 and 2015 ("African Youth Games" in Botswana, "All Africa

Games" Republic of Congo, "Africa Cup of Nations" in Equatorial Guinea) (Blumberg et al. 2016), and the 2016 Rio Olympics threatened by the spread of the Zika virus.

The approach adopted to manage the health risks at these events can be taken as a useful reference for the purposes of comparison with the COVID-19 pandemic. It is interesting to note how the events took place in safe conditions in all these cases thanks to a combination of several factors (Loncarevic et al. 2009; Blumberg et al. 2016):

- Adequate prevention and information campaigns in the months before the event.
- Effective coordination of resources and authorities: creation of specific crisis management committees and teams of doctors and expert operators working 24/7 throughout the national territory.
- An effective system of alerting and tracking travelers and athletes, operating before and during the event.
- Precise and clear rules for the treatment of suspected and positive cases with the purpose of isolating infected people in specific and equipped areas at the event sites.

These measures were successful in containing the spread, thus avoiding the cancellation of the aforementioned events. In Serbia, 13 cases were recorded before the event, due to returning travelers. At the end of the Games, 7 cases were confirmed (six athletes and a volunteer). The clinical history of these cases showed that only four of them were attributable to a contagion that occurred during the event. Even during the Rio Olympics, the number of infections relating to foreign delegates was close to zero. Several studies (Rodriguez-Valero et al. 2018) that analyzed the phenomenon, claim that the causes of minimal spread can be found not only in environmental factors (as the season was not favorable to mosquitoes), but also in the measures adopted to control and track the suspected cases and possible symptoms. In particular, it was highlighted that adequate countermeasures against insect bites, correct eating habits, correct management of the delegates' movements, and the reports held by the delegations allowed infections to be contained, thus guaranteeing adequate levels of safety during the sports competitions. Accurate information and awareness, combined with the timeliness of the intervention, therefore proved to be decisive in ensuring that the event and the economic, sports, and social interests associated with it; were not compromised (Vancini et al. 2016).

These cases show how an emergency can be managed with an adequate mitigation plan that includes targeted prevention, accurate identification of the risks and custom-fit methods and measures. An effective risk-assessment and management model in each of these cases, therefore, meant that the SEs were able to take place in acceptable safety conditions.

2.3. Project Management and Risk Management in SEs

SEs are organizational challenges characterized by complexity, time restrictions, and their predetermined life cycle from start to finish (Parent and Ruetsch 2021).

As a complex and multi-relational context, the interests of many stakeholders (for example, athletes, officials, volunteers, spectators, authorities, sponsors, residents, and media) need to be considered conjunctly (Cuskelly et al. 2006). The creation of sports events is a natural field in which project management methods and techniques are essential in the definition and planning of the different phases (Cserháti and Szabó 2014; Pielichaty 2017). Goldblatt (2014) highlighted the importance of applying project management theories and techniques to the event sector mainly to define the processes and objectives of the project itself, whereby the utilization of a project management system helps to establish a systematic approach to all kinds of events. Successfully managing the complexity of a sporting event entails identifying and dealing with potential risks that may threaten the event. For the development and success of a sporting event, the application of respective risk-management techniques is decisive (Spengler et al. 2006).

A typical risk-management process therefore encapsulates two main phases, one strictly prodromal to the other: (1) the risk-assessment phase (Fuller and Drawer 2004; Rutherford Silvers 2008); (2) the subsequent risk-treatment phase—actual risk management

(Rutherford Silvers 2008). The first phase is the heart of the entire process, which aims at focusing on the approaching risk situation and at defining the organization's position toward internal and external risk factors. The risk-assessment phase is characterized by its high level of technicality. Once this phase has been completed, the risk treatment is carried out. The second phase is characterized by decision-making—based on the results of the risk assessment, specific actions and measures are selected and implemented with a view to managing the risk (Rutherford Silvers 2008; Leopkey and Parent 2009). The impact assessment of the implemented measures will produce a residual risk-assessment phase where a new risk estimate is made. The process is completed with a residual risk-reporting phase.

The process of risk management can be implemented as part of a best practice management system within the sports and leisure sector (Fuller and Drawer 2004). In the organization of SEs, the outlined process is applied to various cases (Parent and Smith-Swan 2013). In particular, the macro areas of risk identified in the scholarly literature can be traced back to the following: (a) legal risks, (b) risks to health and safety, (c) compliance risks, (d) decision-making risks, (e) security risks, insurance risks, and (f) risks and emergency management. For the purposes of this work, it is the health risks that must be investigated.

In terms of cycling events, the COVID-19 pandemic has forced the complete rescheduling of national and international fixtures generating effects that have never been seen before (Grix et al. 2020). The Tour De France has maintained and strengthened its role as a benchmark for the entire system, having been delayed only by a few weeks. All other events on the "UCI World Tour" circuit have, however, been rescheduled and moved to fall 2021. These measures have generated a unique temporal overlap of events that are traditionally located at very different times of the year, and which strongly shape their identity. This new perspective represents a challenging testing ground for the world of sports management. Numerous factors, interests, and stakeholders are affected by the cancellation or postponement of an event.

Based on the current circumstances, this study gives detailed insights into the application of risk management in SE organization (Fuller and Drawer 2004; Leopkey and Parent 2009) which is a requirement for mitigating the risks of outdoor and/or dynamic cycling events at their source in the new pandemic scenario. The objectives of the study at hand can, therefore, be summarized by (a) focusing on the measures introduced to face the health emergency situation in cycling events, (b) comparing these measures with previous experiences in similar SE contexts, and (c) the possible evolution of organizational models for cycling events in the post-pandemic era.

3. Methodology

3.1. Overview

In order to assess the impact of a complex phenomenon, such as a pandemic, it is necessary to analyze the concrete effects it has produced and the countermeasures put in place, so that possible applications and future consequences may be deduced. Starting with the current Covid-19 pandemic, this work aims to investigate and explore possible future scenarios. We adopted a combination of an inductive and a deductive approach, where we related codes (categories and concepts) to each other (Mayring 2014). The lack of historical data relating to phenomena of the same type and scope led us to adopt a qualitative approach by conducting semi-structured interviews (Ciucci 2012). Ritchie et al. (2014) stated that one of the most distinctive features of qualitative research is that the approach allows issues to be identified from the perspective of the study participants while gaining an understanding of the meaning and interpretations that they give to behavior, events or objects. Furthermore, the use of a qualitative social research technique, based on a broad-spectrum vision, allows the problem to be grasped not only in its objective dimension, but also in terms of the impact it has on relationships between subjects and stakeholders (Ritchie et al. 2014).

3.2. Research Setting, Participants, and Procedure

In an effort to find answers to the three research questions—(1) What measures have been introduced to address the health emergency situation at cycling events? (2) How do the new measures differ from previous experiences in similar SE contexts? and (3) What is the possible evolution of organizational models for cycling events in the post-pandemic era?—fifteen experts in the field of cycling events (the selection process was reviewed by two experts) participated in guided semi-structured interviews in person (data collection from June 2020 to October 2020). We adopted a procedure for recruiting respondents (Rapley 2004) that followed the snowball technique (Scott 2000). In Appendices A and B, we have detailed information concerning the questions and samples. The research area was located in Italy: all the experts interviewed were Italian and the cycling events studied took place in Italy during the 2020 season. To create an adequate research sample, the profile of the interviewees was selected to include a full spectrum of experiences, several fields, and different professional figures: from parts of the National Federation to event managers and ex-professional riders. The most frequently represented professional area was "Organization Management" with seven people interviewed.

Overall, the interviews comprised ten questions and covered the following topics: (1) event management (four questions), (2) risk management (three questions), and (3) sport tourism (three questions). All questions were designed as open questions allowing a wide range of personal answers. Appendix A provides an overview of the interview guideline.

The average length of the interview was over 40 min. Different contact tools were used (Skype©, phone, Whatsapp©, written form).

In terms of process validation, two of the authors had experience in sports event management and, therefore, evaluated both the interview layout and the content validity. The sampling technique started with a list of people who were considered to be significant. During the course of the interviews, respondents were asked to name other people they considered important for investigating the research topic. The authors adopted the concept of saturation (Glaser and Strauss 1967; Guest et al. 2006), and the sample was completed when the last person interviewed named other people who had already been interviewed (Appendix B).

After interviewing the participants, the interviews were transcribed in Italian and then translated into English. Each session was digitally recorded and transcribed. To ensure the quality and reliability of transcriptions and translations, a professional language editor fluent in English and Italian was consulted during the translation process. Subsequently, the data were analyzed on the basis of qualitative content analysis (Mayring 2014; Neuman 2003). The data analysis led to categorization through an open-coding process. A member of the research team coded the transcripts using Microsoft Excel© (v. 16.50). Afterwards, the authors compared codes, discussed the patterns in the data and identified the main themes that emerged from the responses given in the interviews. The following five categories (macro areas) were extracted: (1) type of event, (2) level of activity, (3) stakeholders, (4) measure of mitigation, and (5) future applications. The aim of the macro-area filter was to identify the principal and relevant information linked to the research questions. Within these five macro areas, additional macro-categories and sub-categories were identified (moving from general to particular) for a more accurate classification. An identification code was then assigned to each macro-area in order to highlight, in the transcription of the interviews, the relevance of the data obtained from the interviewee in relation to a specific thematic area. Table 2 provides an overview of the macro-areas, macro-categories, and sub-categories. The relevant sections of the interviews, analyzed with the three-layer filter scheme, were put into these categories to arrive at a final result by paraphrasing and summarizing the interviewees' answers. The most frequent and relevant concepts and opinions were reported in interview quotes to highlight the most critical points and findings of the analysis.

Table 2. Processing data filters.

Macroarea	Type of Event (Code MA1)	Level of Activity Practice (Code MA2)	Stakeholders (Code MA3)	Measuring Mitigation (Code MA4)	Future Applications (Code MA5)
MACRO CATEGORY	Single day, stage races	Professional, amateur, tourist	Sponsors, institutions, voluntary associations	Impact on organizational costs, degree of effectiveness in containing infections	Measure capable of lasting in the future, measure abandoned after the pandemic
SUB CATEGORY	Three-week major tours, minor stage races, one-day races	High-level professional competitions, youth competitions, territorial promotional events	visibility in the media, Opportunities to meet and network at events, contact with fans	Measuring mitigation on the competition site, for the athletes, the organizational staff, and the host structures	Standard measure for all events, suitable and effective only for some

Through the multiple points of view that emerged from the professional areas analyzed and the different levels of activity explored (professional, amateur and touristic), it is possible to gain a panoramic view of the first Covid-19 response in the world of cycling events.

4. Findings

The interview outputs show the main critical issues encountered in dealing with the pandemic emergency. The varied spectrum of subjects and professional areas represented provide a general overview of the effects of the pandemic on the "cycling system". The opinions of the interviewed stakeholders produced general agreement on the main actions and measures adopted. Among the common elements found, there was clearly a lack of certainty and secure prospects in the short and medium term.

The following summarizes the main outputs of the interviews for each macro area:

Macro area 1: Type of event

The first macro area aims to understand the possible and specific problems COVID-19 has generated, classifying them on the basis of event type: one-day races and stage races.

In the case of one-day races, it is easier to manage the event and the people around it. By comparison the time dilation typical of stage races represents a risk factor and considerable organizational complexity that could have a great impact for the organizers. Creating and maintaining isolation for hundreds of people for three weeks significantly increases both cost and responsibility. These conclusions were confirmed by the testimonies of the interviewees:

> "Stage races require greater measures and controls, compared to the past—the athletes were isolated with single rooms and all the equipment was continuously sanitized". (I-13)

In terms of the organizers' responsibilities, it also emerged that the prevention of infections cannot extend beyond the typical start and finish areas of the race or stage:

> "The division into areas of the site of race, however, excessive responsibilities cannot be placed on the organizer outside—these spaces: start area, finish area". (I-2)

A further difference to be found with respect to the type of race relates to the award ceremonies. In the case of stage races, they tend to be longer due to the different jersey rankings that often change many times during the event.

In general, these procedures have been simplified and carried out in accordance with the anti-contagion rules provided by the protocols.

Macro area 2: Level of practiced activity

In the second macro area, the information was classified by examining the effects of COVID-19 on the practice of the sport, based on the level of activity carried out. This investigation perspective was necessary because the needs of professional cycling events are very different from those of amateur cycling and cycle-tourism.

The opinions of the interviewees reveal a shared and general concern for the increase in costs and a reduction in economic resources. These concerns are even stronger in relation to youth activity:

> "I unfortunately believe that youth cycling, which does not have the same resources as professionalism, will be heavily penalized by the reduction in funds and the number of racing". (I-10)

The high-level professional system, though in difficulty, represents an elite of the movement which, as such, enjoys the greatest attention and protection. The youth movement, on the other hand, does not have comparable resources and is often entrusted to organizers moved more by passion than by concrete economic returns. There is a real risk that an entire generation of athletes, potential professionals, and future champions, will be compromised.

Among the insiders, there is also a common desire not to distance cycling, a popular sport par excellence, and separate athletes from its fans. While respecting the rules and protocols, this factor is considered to be of great importance:

> "Cycling is a popular sport that brings champions close to the people, this element must not be lost even in this harsh reality that COVID-19 requires us and, above all, in the future". (I-15)

The amateur sector, has seen the spread of alternative event formulae, which are simpler and come with fewer competitive connotations.

> "I am in favor of alternative event formulas, at an amateur level, but without distorting the typical and most exciting elements of cycling as a sport". (I-7)

The most enterprising and courageous organizers have chosen, where possible, to stage their events by implementing formats that are compatible with social distancing rules even if it means welcoming a smaller number of members and being burdened with higher costs.

In terms of touristic cycling activities, there is general consensus that cycling is an excellent means of promoting a territory, while encouraging economic growth and social cohesion:

> "I believe that the sport tourism impact is fundamental aspect of a sporting event, we must not underestimate but rather seek strongly, the link and synergies with local administrations". (I-14)

Many of the interviewees stressed that, in the absence of competitions, new life can be breathed into this sector—allowing the safe practice of sports while safeguarding the economic benefits for the sporting event's host location. In this sense, great importance is given to the ability of the accommodation sector to deliver:

> "I believe that the development of sports tourism is closely linked to the adequacy of accommodation facilities and tourist staff (. . .)" (I-9)

Macro area 3: Stakeholders

Any organization relates to external subjects capable of influencing their own assessments and choices. Stakeholders represent a fundamental variable for the organizer of a sporting event. By virtue of this assumption, the third macro area refers specifically to all the implications that the pandemic has had in terms of the relations between the various subjects who have economic or other interests in the event.

A leading role is played by sponsors and commercial partners: professional teams as well as race organizers draw most of their resources from sponsorships. The interviews revealed a state of general suffering, as the economic crisis caused by the lockdown has forced companies to revise their spending budgets:

> "We experienced dramatic moments during the lockdown, cycling teams get the most of their income from sponsorships and in a time of crisis these are the first costs that companies cut, especially if they are not able to generate significant visibility". (I-12)

However, the sponsors who have made important investments in events (especially professional ones) have not failed to fulfill their obligations, demonstrating how cycling, even in a moment of crisis such as the present one, remains an attractive stage for companies. In this sense, the emphasis was placed on visibility:

> "The absence, or limited spaces, of the exhibition and meeting areas within the events, due to the rules of distancing, I believe it will come to a cut in sponsorships—given the lower visibility offered, which must always be guaranteed as much as possible, and to the possibility of networking at events which cannot be completely eliminated". (I-8)

Without this dual aspect, there is a risk of investors fleeing:

> "I believe that even in the presence of limitations, teams and companies must be guaranteed opportunities for networking during events: the development of business to business relationships is fundamental for the economic resources of the sponsorship system". (I-13)

A positive factor is also to be found in the renewed confidence among the sponsors in the sector, which has seen no significant decreases:

> "Fortunately, however, many companies remained because being linked to the sector, they had a direct interest strategic to maintaining the partnership". (I-12)

Various subjects interviewed affirmed that, in terms of commercial partnerships and sponsorships, cycling would need to develop new forms of entertainment with innovative products, television and multimedia content to attract investors.

Macro area 4: Measuring mitigation

One of the aspects that the interviews aim to clarify (also for the continuation of short-term activities for the 2021 sports season) is the effectiveness of the mitigation measures provided by the national and international protocols, which create the so-called "bubble" system for staff, athletes, and organizers. The experts' testimonies have been more than positive in this regard:

> "I believe that the current measures are sufficient to protect health and contain the spread of infections". (I-11)

> "The measures contained in the protocols have allowed us to carry out the event in safety, despite having to incur higher costs". (I-15)

The measures adopted during the 2020 season, made it possible, in principle, to stage the events safely. These results are, however, closely related to the type of race performed and the general pandemic situation. While, in the period from August to September, the races (even in stages) took place regularly without encountering any particular problems, the month of October saw the progressive reappearance of infections, which in turn created several problems. At the Giro d'Italia, several riders had to abandon the race and the bubble system came under considerable strain. Other historical races such as the Paris-Roubaix did not take place at all given the serious level of infections in the affected countries.

There was also criticism of some aspects relating to the relaunch of events and the way this was managed: various subjects (organizers, team staff, and institutional subjects) complained about a lack of coordination with regard to certain protocols and the fragmentation of the provisions set out by the local authorities:

> "The measures adopted nationally and internationally were found to be suitable, however, absolute cooperation and coordination between the authorities of the various regions, or nations, is necessary (. . .)" (I-9)

Macro area 5: Future applications

The last macro area turns our gaze toward a long-term scenario. The historic moment we are currently experiencing represents an epochal transition which, as such, is the bearer of potentially irreversible changes. The most challenging research question for this entire

work is to trace a possible evolutionary path in the world of cycling and SEs after COVID-19. The interviews show a strong awareness among stakeholders of the possible need to continue with some measures even after the pandemic has passed:

> "The risk of blocking activities for the team has led to maximum observance of the rules, I believe that some measures and attentions adopted will remain in the future". (I-13)

The measures introduced to contain the spread of the virus could become a tool or, more generally, a different systemic approach to the organization of events with greater spaces, providing more privacy for athletes during the competition:

> "I think it is appropriate that some measures remain in the future as it is right to leave the athletes some privacy before competitions". (I-15)

An opinion shared by most interviewees is that there will be an irreversible shift toward the computerization and digitization of most organizational procedures (registration management, accreditation, delivery of race packages). These tools and processes, which were already in place for several events, were implemented during the pandemic and will most likely become the future standard.

More details about the categorization are shown in Table 3.

Table 3. Categorization and anchor examples.

Macro Area	Anchors	Grade of Sharing
Type of event	"Stage races require greater measures and controls, compared to the past the athletes were isolated with single rooms and all the equipment was continuously sanitized". (I-13);	I: 11, 9, 15, 12
	"The division into areas of the site of race, however, excessive responsibilities cannot be placed on the organizer outside these spaces: start area, finish area". (I-2)	I: 9, 15, 10, 7,
Level of practiced activity	"I unfortunately believe that youth cycling, which does not have the same resources as professionalism, will be heavily penalized by the reduction in funds and the number of racing". (I-10)	I: 2, 9
	"Cycling is a popular sport that brings champions close to the people, this element must not be lost even in this harsh reality that Covid-19 requires us and, above all, in the future". (I-15)	I:11, 3, 15, 13
	"I am in favor of alternative event formulas, at an amateur level, but without distorting the typical and most exciting elements of cycling as a sport". (I-7)	I: 1, 2, 3, 7, 14, 5 not shared: I: 8,10
	"I believe that sports tourism is a consequence natural of the sporting event, we must not underestimate but rather seek strongly, the link and synergies with local administrations". (I-14)	I: 7, 10, 8, 1, 4, 9, 14
	"I believe that the development of sports tourism is closely linked to the adequacy of accommodation facilities and tourist staff (... It makes little sense to create routes without qualified and dedicated technical staff.)" (I-9)	I: 9, 15, 10
Stakeholders	"We experienced dramatic moments during the lockdown, cycling teams get the most of their income from sponsorships and in a time of crisis these are the first costs that companies cut, especially if they are not able to generate significant visibility". (I-12)	I: 3, 5, 8, 9, 13, 12
	"The absence, or limited spaces, of the exhibition and meeting areas within the events, due to the rules of distancing, I believe it will lead?? to a cut in sponsorships given the lower visibility offered, which must always be guaranteed as much as possible, and to the possibility of networking at events which cannot be completely eliminated". (I-8)	I: 4, 10
	"I believe that even in the presence of limitations, teams and companies must be guaranteed opportunities for networking during events: the development of B2B relationships is fundamental for the economic resources of the sponsorship system". (I-13)	I: 4, 10, 15
	"Fortunately, however, many companies remained because being linked to the sector they had a direct interest strategic to maintaining the partnership". (I-12)	I: 15, 13, 3, 8, 9, 11
Measuring mitigations	"I believe that the current measures are sufficient to protect health and contain the spread of infections". (I-11);	I: 11, 2, 4, 7, 8, 9, 14, 15
	"The measures contained in the protocols have allowed us to carry out the event in safety, despite having to incur higher costs". (I-15)	I: 2, 4, 5, 6, 8, 15
	"The measures adopted nationally and internationally were found to be suitable, however, absolute cooperation and coordination between the authorities of the various regions, or nations, is necessary". (I-9)	I: 4, 10, 15, 3
Future applications	"The risk of blocking activities for the team has led to maximum observance of the rules, I believe that some measures and attentions adopted will remain in the future". (I-13)	I: 10, 13, 15 not shared: I: 6
	"I think it is appropriate that some measures remain in the future as it is right to leave the athletes some privacy before competitions". (I-15)	I: 11, 1, 13

5. Discussion

5.1. The Health Risk in a Cycling Race Event

The cited examples (Loncarevic et al. 2009; Blumberg et al. 2016; Rodriguez-Valero et al. 2018) show how SEs were carried out in the past despite the presence of health emergencies. This goal was reached through a complex system of risk assessment and treatment, tested and based on:

- Adequate prevention and information to stakeholders;
- Effective coordination of resources;
- A responsive scheme of alerting and tracking suspected and positive cases with a view to isolating infected people in specific and equipped areas at the event sites.

However, it is not easy to apply these solutions to a cycling race, an outdoor event which is dynamic and itinerant in nature and is largely characterized by exposure to multiple risk factors that may affect its regular performance, from meteorological (Dawkins and Stern 2004) and social factors (protests, blocks, barriers) to political ones (authorizations denied by relevant authorities) (Moran 2001).

The interviews showed that, despite the organizers' efforts, contagion can never be a zero-risk. The bubble system, however, which was conceived as an applicator by UCI, allowed the races to be carried out in acceptably safe conditions. This can reasonably lead us to think that this scheme may well represent the starting point for the development of anti-pandemic protocols in cycling events. The organizing team of a cycling event must provide an effective response plan, which can be activated in case of an emergency so that anti-pandemic countermeasures are implemented and the effects of this unexpected event are minimized. While it is certainly difficult, and sometimes impossible, to cope with situations that we define as unpredictable, models and mechanisms may be developed to deal with situations that have little chance of manifesting themselves but still represent an eventuality.

The current organizational management model always provides alternative solutions to ensure the smooth running of competitions, although reality can place the organizers in a difficult situation at any time.

5.2. The Effects of SEs on Tourism

Today, international tourism is among the economic sectors most seriously affected by COVID-19 (Kyrylov et al. 2020). Sport and tourism are a very important economic driver for destinations and their resident communities (Borovcanin et al. 2020). The creation and organization of a high-level sporting event cannot be separated from the deep involvement of a destination and its institutional structure (Masterman 2009). The locational attachment of an event is an element that must guide all managerial, organizational, and above all, promotional aspects. The creation of an image/brand linked to a sporting competition must transmit values and a message that are in keeping with the characteristics of the social context of reference. The more consistent the process, the greater the potential success of the event.

When it comes to sport tourism, cycling is a good discipline that is well suited to promoting destination tourism. Its peculiarity as an outdoor sport that moves and lives within the destination contains enormous potential, which, if well exploited, can lead to exponential growth in the reference community.

These considerations are valid both for professional cycling and for the amateur movement. The major world events of the UCI World Tour circuit have a fascination and appeal mainly linked to the technical aspect and spectacular atmosphere. The real attraction for a fan/tourist is the opportunity to see the athletes in action along the course and at the same time to have the chance to visit a new destination. In this context, it is possible to create more direct benefits for the territory than just destination branding. The major events that bring together thousands of people from all over the world in the Alps are an excellent example of how sport can promote and grow the area, all in full respect of the environment.

The COVID-19 pandemic has changed the patterns and practices adopted by the tourism industry, policymakers, and practitioners, who are being forced to develop new crisis-readiness mechanisms to counteract the current pandemic as well as possible future pandemics. Private and public policy support must, therefore, be coordinated to guarantee capacity building and operational sustainability of the travel tourism sector during the initial post-COVID-19 period (Škare et al. 2021).

5.3. The Dynamic Perspective of Results

The content, evaluations, and opinions emerging from the interviews constitute a solid starting point for answering the research questions that constitute the main coordinates of the work at hand. The field survey, however, which gave a voice to the experts by analyzing the main anti-contagion measures applied and the related criticalities, merely represents a static photograph. To better contextualize the information, it is useful to evaluate the possible interrelationships in a "dynamic" guise, so that it may be implemented in a certain way.

To this end, the five thematic areas, used as a "matrix" for coding the content of the interviews, were related to the main anti-COVID-19 measures as application variables. The aim of this process is to investigate the degree of effectiveness of the individual mitigation measures proposed.

Table 4 illustrates the logical-thematic relationships:

Table 4. Dynamic relationships between anti-covid measures and analysis factors.

Variables		Anti-Covid Measures Adopted or Proposed						
		Reduced and Controlled Access to Areas	**New Health Checks for Athletes and Staff**	**Minimum Contact with Supporters**	**Digitization of Organizational Processes**	**Logistics of Transfers and Accommodation Services Monitored**	**Limited Number of Starters**	**New Event Formats**
Type of event	Grand tours	x	x	x	x	x		
	One-day races	x	just once, not repeated	x	x			x
	Multi-day events on the same site	x	x	x	x	x		x
Level of activity	Amateur	x			x	can change, but the amateur competitions are mostly suspended	x	x
	Professional	x	x	x	x	x		
	Youth categories	x	x	x (necessary measure, but very limited need)	x	x		
	Tourist	not always necessary			x			x
Future application	Yes No		x	x	x			x
Stakeholders acceptance	Elevated Significative Minimum	x	x	x	x	x	x	x
Impact on organizational costs	Elevated Significative Minimum	x	x	x	x	x	x	x
Impact on containment of contagion	Elevated Significative Minimum	x	x	x	x	x	x	x
Introduction	Already present Not yet introduced	x	x	x	x	x		
Effect on sponsors and business partners	Elevated Significative Minimum	x	x	x	x	x	x	x

From the comparison, we highlight several considerations regarding possible anti-contagion measures below:

5.3.1. Reduced and Controlled Access to Areas

The regulation of access and the division of the event site into separate areas were among the first, and most decisive, measures adopted to avoid the spread of the virus in the sports event scene. Experts accepted these measures, despite the consequent increase in organizational costs. The measures were found to have had an excellent impact on the containment of infections. It is difficult to conceive that the stringent access regulations will become permanent once the pandemic has ended. It is very likely, however, that in the event of future emergencies they will become established as a practice. The measures had to be applied transversally with all events having to comply.

5.3.2. New and Repeated Checks on Athletes and Staff

The rigid bubble system, prepared by the UCI as a standard protocol, made it possible to monitor the health of the athletes and team staff, ensuring—with the exception of some foreseeable positive cases—the regular running of the competitions. Its application is currently limited to professional athletes only. The need for repeated checks is greater in the case of stage races, where in addition to the creation of the bubble, its impenetrability must also be guaranteed.

5.3.3. Limited or Inhibited Contact with the Public

The drastic elimination of the spaces in which fans and athletes interact (Bond et al. 2020; Mastromartino et al. 2020) was both necessary and indispensable; the measure was shared and applied without encountering any problems. This need is less pronounced in youth or second tier competitions where the presence of the public is felt to a lesser degree. By its very nature, cycling is a sport that brings people and fans closer together. The measures, though generally accepted—and also confirmed by the interviewees—would not have any meaning in a post-COVID-19 context. In fact, general concern was expressed by the experts that this factor could distance fans and enthusiasts from cycling to the detriment of visibility and interest in this discipline, leading to a loss of important financial resources for the whole system (sponsorships, commercial partnerships etc. . . .).

5.3.4. Digitization of Organizational Processes

The use of new technologies for the management of different event phases has proved to be of transversal benefit and one that was supported by all stakeholders. The simplification or elimination of certain activities to be carried out at the event site (secretariat, registrations etc. . . .) made it possible to create safe gatherings.

5.3.5. Transfer and Accommodation Logistics Monitored

Especially on multi-day journeys, transfers and logistics activities have become much more complex and expensive. It is unlikely that the measures adopted in this regard will remain in the future, unless they are strictly necessary.

5.3.6. Limitations on the Number of Starters

On a professional level, this measure was neither envisaged nor deemed necessary. It will probably gain more traction in the context of amateur competitions (in the first phase of recovery) where athletes turn out in much more significant numbers.

5.3.7. New Event Formats

A widespread desire among the interviewees is to take this pandemic as an opportunity to relaunch amateur cycling by adopting an approach more oriented toward sports tourism. Where, on the one hand, the inability to carry out competitions has led to a natural contraction in the number of events and subscribers, various organizers, have

reinvented their events by introducing different competitive formats (individual time trials, for example) or simple cycles. Meetings are now taking place in compliance with social distancing rules. The pandemic has also become an exceptional catalyst for the rediscovery of the "half" bicycle which today is as functional, ecological and safe as ever.

5.4. Managerial Implications

Based on our research output, we can highlight several managerial implications that should be considered by every sport event professional:

- New expert positions and responsibilities among the organizational staff. These experts are charged with managing an unprecedented type of risk that requires an adjustment and rethinking of the processes of conception, planning, and management of SEs.
- A new concept and structuring of the competition site and the regulation of access might be adopted. Re-thinking logistics and space management, from a more rational and controlled perspective, could continue even after the pandemic. One limitation may be the lack of global standardization of the rules and their timely application. This could allow SEs to be carried out safely, while reducing the extent of infections.
- A "smart" strategy for stakeholder engagement must be chosen and improved: interest in cycling on the part of commercial and technical partners has not faded despite the severe difficulties that companies have had to face due to the virus. However, a new sponsorship and television rights system could be developed, since visibility remains the main attraction for a company sponsoring cycling events. If this fails due to the cancellation of competitions, or a reduction in the audience reached through the media, there is a risk of losing competitiveness in relation to other sports and, therefore, financial resources and investments.
- Even at the amateur and cycling-tourism level, the difficulty of managing traditional competitions during the intermediate phase of COVID-19 forced organizers to explore new solutions. The feedback received from practitioners was very good. The future perspective for the amateur cycling movement should be more inclusive in scope with a re-evaluation of the recreational aspects. Competition should be neither eliminated nor demonized but evaluating "non-competitive" formulae can create value and satisfaction in relation to the impact of a cycling event on amateur athletes. These two souls could coexist within the same event. In terms of promoting a destination among tourists, this aspect could also be considered a winning factor. Following this scheme in the event of future pandemics, it will be easier to switch to a different event formula and save the SE. The future goal for cycling event managers is to create a new and resilient model which, by adopting these measures based on the previous experience of COVID-19, will be able to respond to future health emergencies with a limited impact on stakeholders, athletes and staff.

Future research will need to consider the effects of this pandemic in redefining the planning and management of risks at SEs.

To this end, it will be useful to update the meaning of risk, and also to understand the real economic, social, and environmental impact on SEs, on the context in which they take place, and on tourism destinations.

6. Limitations

The present study provides an interesting perspective of the role of SEs in cycling in the post-pandemic era. However, we would like to highlight several limitations. The sample interviewed comprised participants mainly from Italy. In order to increase the reliability of the results or to make comparisons with other organizational models, the study should be replicated with a different sample. Second, the results should be replicated in different sports disciplines to provide research and management with a wider range of results and implications. Finally, we must consider that the Covid-19 pandemic has had a strong impact on tourism. Current restrictions around the world have prevented travel which may consequently influence attitudes to travel and participation in SEs. Attitudes toward

cycling SEs might be influenced by new factors and behaviors and thus become new stimuli for future research.

7. Conclusions and Future Research

This work had the primary purpose of providing an analytical interpretation of a new phenomenon with unknown effects in the world of sports with a view to identifying the possible scenarios and characteristics of cycling SEs in the post COVID-19 era.

The analysis of the literature showed how, in the past, major SEs have successfully faced health emergencies which, however, have never matched the global challenges posed by COVID-19.

Thus, by examining the measures adopted to counter the COVID-19 contagion, staff involved in the organization of SEs must essentially take note of the emergence of new approaches and responsibilities. These subjects faced an unprecedented type of risk that required a fundamental adjustment and a rethink of the processes of conception, planning, and management of SEs. A new concept and structure for the competition site and the regulation of access could be adopted: adjusted logistics and space management that incorporates a more rational and controlled perspective, could continue even after the pandemic. The creation of a new and specific international standard for the management of competition sites could be a very effective solution in the event of a new pandemic. In any part of the world, standardized rules and their timely application could allow events to be carried out safely, while reducing the extent of infections. The "bubble system" protocol developed by UCI for the relaunch of professional races has proved to be suitable and effective for the safe conduct of the events and in the case of future emergencies, it will probably be refined and re-applied alongside the management rules on the competition site.

The interest in cycling on the part of commercial and technical partners has not faded despite the severe difficulties that companies have had to face due to the virus. However, a rethink of the sponsorship and television rights system would be well advised, since visibility remains the main attraction for a company sponsoring cycling. If this fails due to the cancellation of competitions, or due to a reduction in the potential audience reached through the media, there is a risk of losing competitiveness with respect to other sports and therefore financial resources and investments.

The spaces in which fans and athletes can interact will probably be reduced, though not completely eliminated. The fear of health risks to athletes, with the consequent economic and sporting damage to the entire team, has reached a different level of sensitivity among organizers and team managers. However, in the future, when the current pandemic emergency is finally over, various prescriptive measures will no longer be necessary.

In the amateur sector and cycling-tourism, new concepts should be adopted. The impossibility of being able to compete as before has forced the organizers to explore different organizational methods and solutions, including competitive and non-competitive ones. The future outlook facing amateur cycling cannot be separated from the re-evaluation and strengthening of these aspects. Competition must not be eliminated or demonized, but a non-competitive formula may also create value and satisfaction around an amateur cycling event. These two souls might well be able to coexist within the same event.

Regarding the promotion of a tourist destination, this option could be considered a winning card. The agonist "feels" the event by focusing on his/her sporting performance, while being more likely to build loyalty to the event and the destination. An amateur who exclusively perceives the event as pure enjoyment and fun, will more likely look at the destination superficially.

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Appendix A

Table A1. Overview of the Interview Guideline.

	Section 1. Event management
1	In your opinion, how will logistics and accreditation choices change for major events in the post-Covid era?
2	What measures do you think are appropriate to ensure the health of athletes and all practitioners?
3	Will the situation generated by the pandemic lead, in your opinion, to a limitation of the number of participants, staff and companions admitted to the events, as a standard protocol for cycling?
4	How do you think the prospect of a possible pandemic event capable of blocking the whole system will affect the future assessments of stakeholders (sponsors and other commercial partners)?
	Section 2. Risk management
5	How do you think the approach to risk management in sporting events will change after covid-19?
6	Which tools used in the past could be useful and which ones could have new applications?
7	Do you think that, given the possibility of a new pandemic in the future, is it necessary to include health risk management as a priority for future sporting events?
	Section 3. Sport tourism
8	How is the impact of a sporting event such as a cycling race on the territory planned and managed from a tourism point of view ?
9	How important do you think the legacy of a sporting event is for an organizer gauging the success of the event?
10	What measures do you think are strategic to relaunching cycling tourism (sports and recreational) after covid-19?

Appendix B

Table A2. Chart of Stakeholders Interviewed.

ID Number	Professional Area	Qualification Assigned/Role	Practice Level	Date	Duration	Contacted By
I-1	Organization management	Manager with qualified experience in the sector	Amateur	16 June 2020	1 h 8 min	Microsoft teams call
I-2	Institutional	Unit director	Youth categories and amateur	25 June 2020	47 min	Skype call
I-3	Technical	Coach	Youth categories and amateur	8 July 2020	-	Written compilation
I-4	Institutional	Top manager	Amateur	1 July 2020	33 min	Skype call
I-5	Tourism	Chief Executive Officer of a company operating in the sector	Amateur	14 June 2020	51 min	Skype call
I-6	Academic	Professor with qualified professional experience in the areas covered by the study	Youth categories and amateur	22 June 2020	20 min	Skype call
I-7	Organization management	Organizing committee member	Amateur	19 June 2020	51 min	Zoom call
I-8	Organization management	President of the organizing committee	Amateur	19 June 2020	53 min	Zoom call

Table A2. *Cont.*

ID Number	Professional Area	Qualification Assigned/Role	Practice Level	Date	Duration	Contacted By
I-9	Organization management	Director and manager responsible for the event	Youth categories and amateur	18 July 2020	42 min	Skype call
I-10	Organization management	Sports club and organizing committee President	Amateur	18 July 2020	1 h 8 min	Skype call
I-11	Technical	Ex-pro rider	Professional	13 August 2020	15 min	WhatsApp video call
I-12	Institutional	Area manager	Professional	21 August 2020	-	Written compilation
I-13	Marketing and communication	Area manager	Professional	16 September 2020	28 min	Skype call
I-14	Organization management	President of the organizing committee	Amateur and Professional	21 September 2020	49 min	Skype call
I-15	Organization management	Director and organizational manager	Professional	2 October 2020	26 min	Phone call

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Article

Leader Dismissal or Continuity, President Longevity, Geographic Orientation of Owners and Team Performance: Insights from French Men's Football, 1994–2016

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Abstract: We investigated the impacts of president longevity and the geographic orientation of owners on team performance and on the effectiveness of dismissing the leader. In addition, we considered their impacts on the effectiveness of not dismissing the leader while the same organisation fires them at another time for a similar performance. We also tested the impact of dismissing the leader or not on performance. We explored the aforementioned risk-taking relationships in the first tier of French men's football over the 1994–2016 period (n = 4918 observations). To do so, we used a counterfactual based on the evolution of the team position over the last three games leading to the leader change and estimate linear regression models with fixed team effects. Our findings show that performance improves either after a leader dismissal or not in the same situation, and both president longevity and the geographic orientation of owners impact the effectiveness of dismissing the leader or not. In particular, global- and local-oriented ownerships have a positive impact on the effectiveness of the decision to dismiss the leader or not compared to national-oriented ownership. Practical implications stem from the research, e.g., how organisations with national-oriented ownership can overcome their competitive disadvantage.

Keywords: risk-taking; team performance; leader succession; president longevity; geographic orientation of owners; French men's football

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1. Introduction

Performance is a key subject tackled from many perspectives in management in general (Chau 2019), as well as in sport management in particular (Sotiriadou and De Bosscher 2018). Chau (2019) notes that it is popular to consider performance as a measured outcome or output rather than an intermediate variable. Consistent with this, the present paper looks at performance as a measured outcome, as defined later.

One of the many perspectives relevant to the study of performance relates to the effectiveness of leader dismissal or continuity. Indeed, this topic is a critical risk-taking issue for organisations, with important implications for financial, market and organisational performance (Adams and Jiang 2017; Bragaw and Misangyi 2017; Desai et al. 2016, 2018; Zeitoun and Pamini 2017). Some authors note that while the performance and actions of leaders (usually Chief Executive Officers, CEO) are often scrutinised, boards and owners may also be subject to criticism regarding the effectiveness of their decisions about leader dismissal or continuity (Desai et al. 2016; Elsaid et al. 2011; Hamori and Koyuncu 2015). Such effectiveness may depend on the experience of the board members, in particular the president (chairperson), and the geographic origin and/or orientation of the ownership. The impact on firm performance of director experience is academically well informed (Chen et al. 2017; Field and Mkrtchyan 2017; Kor and Sundaramurthy 2009; Kroll et al. 2008).

The same applies to the impact of foreign ownership (Bürker et al. 2013; Carney et al. 2019) and the geographic orientation of owners (Asmussen and Goerzen 2007; Banalieva and Santoro 2009; Goerzen and Asmussen 2007). Nevertheless, there remains limited empirical research into the impacts of director experience and ownership origin or its geographic orientation on the effectiveness of decisions about leader dismissal or continuity.

In this article, we intend to fill the gap in the literature by examining such impacts. More specifically, we investigated the impacts of president longevity and the geographic orientation of owners on organisational performance and on the effectiveness of dismissing the leader. In addition, we considered their impacts on the effectiveness of not dismissing the leader while the same organisation fires them at another time for a similar performance. We also tested the impact of dismissing the leader or not on performance.

We explored the aforementioned relationships in the football industry, a context well established for examining risk-taking in leader dismissal or continuity and organisational performance (Desai et al. 2016, 2018). Its advantages for the present research are threefold. First, it enables the identification of a clear leader in a club—the manager or head coach, who is then considered as the leader in this paper. Secondly, it provides a clear indicator of organisational performance—the team performance on the pitch or sporting performance, which is the type of performance measured in this paper. Third and finally, it makes it possible to measure such team performance on a regular basis—the outcome at the end of each game played by the club (i.e., more or less every week), which is the way team performance is measured in this paper. We focused on the first tier of French men's football over the 1994–2016 period. We suggest that the French football context is conducive for examining our ideas for two reasons.

First, French football is characterised by a variety of presidents in terms of longevity. Indeed, during the last season covered by the period studied (2015–2016), the late Louis Nicollin was in his 42nd season as president of Montpellier and Jean-Michel Aulas was in his 29th season as president of Lyon, whereas Vincent Labrune and Pierre-Marie Geronimi were only in their 5th season as presidents of Marseille and Bastia, respectively. These differing longevities may impact their knowledge and understanding of professional football, and more specifically their club, e.g., their culture (Ogbonna and Harris 2014). This may affect the effectiveness of their succession decisions.

Second, following the globalisation of the sources of finance in European football towards the end of the 20th century (Andreff and Staudohar 2000), some French clubs have started to incorporate global companies and/or foreign investors in their ownership. This is in contrast to their traditional model based on local ownership (Andreff and Staudohar 2000) and presidents (Schotté 2016), still present in most clubs, whereas some others have national (rather than local or global) owners and/or presidents.

The remainder of this study is organised into several sections. In the following section, we review the literature and offer our hypotheses. Subsequently, we describe the method and data. We then report the results of the study. Finally, we present our discussion, practical implications, limitations and ideas for future research.

2. Literature Review and Development of Hypotheses

2.1. Leader Dismissal or Continuity and Performance

The impact of leader dismissal on firm performance is well researched (Elsaid et al. 2011; Hamori and Koyuncu 2015; Shen and Cannella 2002; Zhang 2008). Some of the aspects investigated in the mainstream literature are relevant to the present research, such as the impact of a departing CEO tenure (Shen and Cannella 2002) and newly appointed CEO experience (Elsaid et al. 2011; Hamori and Koyuncu 2015; Zhang 2008). Shen and Cannella (2002) start their article by stating that in the decades preceding their publication, research on the performance consequences of CEO succession has been extensive but characterised by inconsistent findings and debates about causes and effects. In their own study, the authors find that successor type interacts with post-succession senior executive turnover to influence firm return on assets (ROA). They also show that there is an inverted

U-shaped relationship between departing CEO tenure and post-succession firm ROA, with an inflection point reached when the departing CEO tenure is about 14 years.

Looking at the reasons why some newly appointed CEOs (i.e., those with tenure of three years and less) are dismissed while others are not, Zhang (2008) also addresses the benefits of prior CEOs for hiring organisations. She shows a negative correlation between prior CEO experience and post-succession firm financial performance. Addressing a similar topic, Elsaid et al. (2011) distinguish outside successors who have previous CEO experience (exCEO) and those who have not (non-exCEO). They find that the stock market reacts positively to the hiring of an outsider who is an exCEO. They also show that, compared with firms that hire non-exCEOs, those with exCEOs had higher debt ratios and greater bankruptcy chances pre-succession. However, post-succession, these firms still have worse financial performance. Extending Zhang (2008) and Elsaid et al. (2011); Hamori and Koyuncu (2015) look at the relationship between experience in the CEO position of a different firm and the post-succession financial performance of the firm that they currently lead. They find that experience in the CEO position is negatively related to firm performance.

In the football industry alone, we have identified 35 studies looking at the impact of an in-season leader (i.e., head coach) change on team (i.e., sporting) performance in 14 countries. A total of 32 previous studies in 12 countries were identified in a preliminary paper about France (Scelles and Llorca 2020). The latter study is one of the three additional studies, along with Rocaboy and Pavlik (2020), also about France, and Galdino et al. (2021) wrote about Brazil. A naive approach (NA) consists of comparing team performance before and after a leader change. An alternative approach consists of using a counterfactual or control group (CG) in addition to the treatment group, i.e., no leader change for the same team in another season despite a quite similar performance. A total of 20 studies did not incorporate such a control group, whereas 15 did. Interestingly, the use of a control group enables considering the impact of leader continuity on team performance, compared to a leader change.

Contrasted results were found in the 35 studies identified, including across studies about the same country. Twelve studies (six NA and six CG) found no significant impact/improvement of a leader change on team performance (ritual scapegoat theory). Eleven studies (six NA and five CG) found a significant negative impact (vicious circle theory). Twelve studies (eight NA and four CG) found a significant positive impact (common sense theory). Most of the 15 studies with a control group found a positive impact on team performance of both the treatment group and the control group. This may indicate that team performance improves after a bad run, independently of the change in the leader or not. However, this may also indicate that the decision maker formulates the right choice when dismissing the leader or not. Indeed, it may be the case that, if the leader would not have been dismissed when they had actually been dismissed, team performance would not have improved. Similarly, it may be the case that, if the leader would have been dismissed when they had actually not been dismissed, team performance would not have improved. These aspects are explored further later in the paper. For now, the hypotheses focus only on the impact of a leader dismissal or not on team performance. Hence:

Hypothesis 1a (H1a). *Team performance improves after a leader dismissal.*

Hypothesis 1b (H1b). *Team performance improves when a leader is not dismissed while the same organisation has dismissed the leader in a similar situation at another time.*

We focused on leader dismissal (or not in the same situation) rather than any leader change; therefore, we also had to control for leader quit, i.e., voluntary departure (or not in the same situation). In contrast to leader dismissal that can be planned by the organisation or at least decided when performance is poor, leader quit may be unpredictable and, as such, disturbing for the organisation. At the same time, a leader may quit because performance is poor and they anticipate their future dismissal. In other words, the disturbing effect of

the leader quitting may be counterbalanced by the fact that performance was poor under their leadership. If the leader does not quit in a situation similar (in terms of performance) to when the leader has quitted the same organisation at another time, the disturbing effect of the leader quitting is avoided but performance may remain the same because leadership remains the same. Hence:

Hypothesis 1c (H1c). *Team performance does not change after a leader quit.*

Hypothesis 1d (H1d). *Team performance does not change when a leader does not quit while a leader in the same organisation has quitted in a similar situation at another time.*

2.2. Director Experience, Learning and Performance

The impact of director experience on firm performance is academically well informed (Chen et al. 2017; Field and Mkrtchyan 2017; Kor and Sundaramurthy 2009; Kroll et al. 2008). Interested in the context of market entry, Chen et al. (2017) note that a key variance in board director expertise involves how the directors acquired their expertise. They stress that the appointment of board directors constitutes an inflow of new market know-how into the focal board through two mechanisms: *learning-by-doing* and *learning from others*. Although the present research does not look at market entry, these two mechanisms remain relevant[1].

Drawing from the organisational learning literature (Helfat and Peteraf 2003; Levitt and March 1988); Chen et al. (2017) mention that *learning-by-doing* of the board involves directors building knowledge, skills, and relational capital which are specialised to the focal firm and board context (Castanias and Helfat 2001). According to Chen et al. (2017), this firm-specific board experience enables directors to accumulate tacit knowledge about the firm's strategy, its unique competencies and vulnerabilities, and the specific challenges that the firm faces in its environment. The authors add that, through this experience, directors also gain familiarity about the board members and key executives. Therefore, this experience captures the directorial knowledge of the unique interactions between each firm and its business domain. Based on these elements, it is expected that directors with more firm-specific board experience make more informed choices, with a positive impact on performance.

Nevertheless, *learning-by-doing* may be counterbalanced by *learning from others*. Chen et al. (2017) note that board-level *learning from others* occurs through appointing outside directors who transfer external market know-how and know-who embedded in other firms and industries. However, it can be argued that board-level *learning from others* also occurs for the outside directors who learn from board members and key executives already present in the firm prior to their appointment. In this case, *learning-by-doing* and *learning from others* are mixed together. This specific *learning from others* echoes the idea of outside directors' firm-specific founding experience introduced by Kor and Sundaramurthy (2009). These authors describe it as a source of firm-specific human capital for outside board members through founders who remain on the board after they cease to be involved in the day-to-day operations of the company. This firm-specific experience developed prior to the appointment of the outside directors is actually not limited to founders, but characterises any board members and key executives already present in the firm prior to their appointment. If outside board members are able to learn quickly from those actors, this may counterbalance their lack of firm-specific board experience.

In the football industry in Europe, the key actor when it comes to decide whether to dismiss the leader (i.e., head coach) or not is the president (Kelly and Harris 2010). Based on the elements developed above, it is expected that presidents with more club-specific board experience make more informed choices, with a positive impact on team performance. Nevertheless, the role of football club president induces a strong media presence (Schotté 2016) and direct contact with a range of stakeholders (e.g., shareholders and fans). This is likely to generate much more pressure than simply being a board member. In other words,

experience as football club president may be as relevant, if not more, as club-specific board experience. Based on this, it is expected that more experienced presidents make more informed choices and are more likely to enable their organisations to create the optimal environment for their leaders (Arnold et al. 2012). This is expected to have a positive impact on team performance. However, less experienced presidents may be able to overcome their lack of experience by listening to the advice provided by actors knowledgeable about the club. They may even take advantage of a greater openness to external viewpoints than more experienced presidents.

The elements developed here suggest that the impact of president longevity on team performance and, in particular, the effectiveness of the decision to dismiss the leader or not may depend on a trade-off between *learning-by-doing* and *learning from others*. Our hypotheses are derived from the idea of around 14 years being an inflexion point (Shen and Cannella 2002), as mentioned in the previous subsection. Although these data applied to CEOs rather than presidents in previous research, the reasons provided for CEOs may apply to presidents. Hence:

Hypothesis 2a (H2a). *President longevity has a positive impact on team performance until reaching an inflexion point around 14 years.*

Hypothesis 2b (H2b). *President longevity has a positive impact on the effectiveness of the decision to dismiss the leader or not until reaching an inflexion point around 14 years.*

2.3. Ownership Origin, Geographic Orientation and Performance

The impact of ownership origin and, in particular, foreign ownership on firm performance is well researched (Bürker et al. 2013; Carney et al. 2019). Referring to Dunning (1981) and Caves (2007), Bürker et al. (2013) note the advantages related to foreign ownership stressed by the internationalisation literature. These are linked to the fact that multinational firms possess sophisticated assets which domestic firms lack, including managerial expertise, process and production technologies or brand names. However, the authors also emphasise the existence of a well-developed management literature (Buckley and Strange 2011; Filatotchev and Wright 2011; Tomassen and Benito 2009), stressing the role of assimilation and governance costs incurred by multinational enterprises when operating in a foreign country. Consistent with the contrasting forces influencing the operation of foreign affiliates, their literature review highlights mixed evidence on the productivity consequences of foreign ownership.

In the football industry in Europe, Andreff and Staudohar (2000) note that throughout most of the 20th century, revenues came from local spectators, subsidisers (governments and/or industrial patrons) and sponsors. To characterise this, the authors talk about the *Spectators–Subsidies–Sponsors–Local* (SSSL) model of finance. Nevertheless, they identify a shift for most top-level European professional clubs during the 1980s and even more so in the 1990s. This shift led to a new model of finance based on four pillars (*Media–Corporations–Merchandising–Markets*) and globalised (MCMMG model of finance). This access to global sources of revenue provides top-level European professional clubs with a competitive advantage compared to other clubs (Scelles et al. 2017). This allows them to sustain better team (i.e., sporting) performance as evidenced by their regular presence at the top of their domestic leagues and in the main European club competition, i.e., the UEFA (Union of European Football Associations) Champions League (Scelles et al. 2020a).

Although we agree with a trend towards a move from the SSSL to the MCMMG model (e.g., in French football, see Scelles and Andreff 2017), we argue that there was/is rather the coexistence of both models in European men's football (Andreff 2017). This is true even for top-level European professional clubs, as evidenced by the most recent economic information available (Deloitte 2021). As such, top-level European professional clubs rely both on local and global processes, consistent with the idea of a 'glocalization' of football (Giulianotti and Robertson 2004). Moreover, revenues come not only from the local or global level, but also from the national level, e.g., domestic broadcasters such as Sky UK

for the English Premier League or Canal+ for the French Ligue 1 (Feuillet et al. 2019; Scelles et al. 2020b). In addition, a domestic owner can also be global if its activities are not confined to the domestic territory (e.g., the French film production and distribution company Pathé owning shares in Olympique Lyonnais/OL Groupe since 1999). Thus, the distinction made in the internationalisation literature between domestic and foreign ownership has to be qualified in the context of the football industry in Europe. Indeed, this is the geographic orientation of the organisations and their owners—rather than simply the geographic origin of the latter—and its implications for performance that matters (Asmussen and Goerzen 2007; Banalieva and Santoro 2009; Goerzen and Asmussen 2007). For example, focusing on emerging market multinational enterprises, Banalieva and Santoro (2009) find that a combination of local (country) and global orientations enhances their relative financial performance. In contrast, regional (proximate confines of the country) orientation reduces their relative financial performance.

For the development of our hypotheses, we follow Banalieva and Santoro (2009), although the definition of local is different (territory rather than country) and regional is replaced by national. We suggest that global-oriented ownership may lead to additional managerial expertise. This may translate in a positive impact on team (i.e., sporting) performance. At the same time, the importance of the local dimension in sectors where organisations are historically tied to a territory, as is the case in the European football industry, may lead to local-oriented ownership having a better knowledge and understanding of the organisational culture. This may translate into a positive impact on team performance. Eventually, if national-oriented ownership induces a more limited managerial expertise than global-oriented ownership and a more limited knowledge and understanding of the organisational culture than local-oriented ownership, this may translate into a negative impact on team performance. Hence:

Hypothesis 3a (H3a). *Global- and local-oriented ownership have a positive impact on team performance compared to national-oriented ownership.*

Hypothesis 3b (H3b). *Global- and local-oriented ownership have a positive impact on the effectiveness of the decision to dismiss or not the leader compared to national-oriented ownership.*

3. Method and Data

We tested our ideas with team performance data from games played in the French men's football Ligue 1 over the 1994–2016 period (n = 4918 observations, out of the 7990 games played over the period). We focused on in-season leader dismissals and controlled for leader quits (i.e., voluntary departure). Our models required the use of a counterfactual for each leader change. Thus, we only used the games played by teams with a leader change in the seasons when the change occurred, as well as the games played by the same teams in the counterfactual seasons (i.e., without leader changes despite a similar level of performance as for the seasons with a leader change).

3.1. Counterfactual to Leader Dismissal and Quit

A dummy variable was used for the counterfactual to leader dismissal and quit. It was based on the evolution of the team position in the league table over the last three games leading to the leader change. We calculated the cumulative difference (CD) in the team positions over the same three matchdays between two seasons, one with a leader change after the third matchday and another without a leader change. For example, considering that the team was 15, 16 and 17 before the leader change (occurring after the 26th matchday) and 16, 17, 16 after the 24th 25th and 26th matchdays of a season without leader change. CD is the absolute value of the sum of the differences between both seasons after each of the three matchdays, i.e., CD = $|(15-16)+(16-17)+(17-16)| = |-1| = 1$. We made this calculation between the season with a leader change and several seasons without a

leader change to identify the season without a leader change the closest to the season with a leader change. The criteria for decision were as follows:

- Ee retained only the season(s) with the lowest CD(s), i.e., that/those equalled no more than 9 in absolute value. Among these seasons, we retained only that/those with a difference of no more than 6, 4 and 3 in absolute value for the third, second and last matchdays before the leader change, respectively[2];
- If we had more than one season after the first step, we then retained only the season(s) with a CD of no more than 3 in absolute value. If there were only CDs of more than 3 in absolute value, we retained only the season(s) with the lowest CDs;
- If we had more than one season after the second step, we then observed whether these seasons had a similar evolution as the season with a leader change in terms of positions over the last three matchdays. We then chose the season without a leader change with the closest positions to the season with a leader change. The idea is that a quite similar CD between a season with a leader change and two different seasons without leader change may be associated with two types of evolution in positions for those two seasons without leader change. For example, such evolution in positions for the season without leader change can be quite similar to the season with a leader change (e.g., CD = 0 with 1, 0 and -1 for the third, second and last matchdays, respectively). However, the evolution in positions for the season without leader change can also be not as similar as the season with a leader change (e.g., CD = 0 with 3, 0 and -3);
- If several seasons without a leader change met the expectations above, we chose the season without a leader change the nearest in time to the season with a leader change, ideally with the same leader. Another criterion was the same number of matchdays as the season with a leader change (34 matchdays over 1997–2002 vs. 38 matchdays over 1994–1997 and 2002–2016).

Sometimes none of the seasons of the same club had a CD sufficiently close to the season with a leader change (i.e., no more than 9 in absolute value). Sometimes the same team-season was used several times as counterfactual. In this case, only those matches for which the counterfactual dummy alternatively took the values of 1 (from the matchday just after a leader change in a season with a leader change) and 0 (before the matchday with a leader change in a season with a leader change) were retained several times. Sometimes it was not possible to find a counterfactual leader change that did not happen because the club with a leader change was present in Ligue 1 for just one season. This is consistent with the idea that younger firms are systematically exposed to higher risks of market exit in professional football (liability of newness in organisational ecology; Oberhofer et al. 2015)[3].

It is worth noting that we could have relied on average points per game and their evolution instead of position. However, average points per game are impacted by the numbers of wins, losses and draws during a given season in football. This is due to a game with a win/loss allocating more points than a draw (3 vs. 2 points). Relying on average points per game would have made comparisons between seasons complicated. In addition, the same average points per game can correspond to a very different position, depending on the seasons and their competitive balance (e.g., when comparing a season with all teams being balanced vs. another season with a few teams far better than the others).

Our approach differs from Van Ours and Tuijl (2016); Besters et al. (2016); Scelles and Llorca (2020), who used cumulative surprise (CS). CS is based on "match surprise", i.e., the difference between the actual and expected number of points for a match, based on the odds of the bookmakers (Stadtmann 2006). CS is the sum of all "match surprises" since the start of the season. Van Ours and Tuijl (2016, p. 596) note that "If this cumulative surprise sinks below a certain threshold, then continuation of the cooperation between club and head-coach might become doubtful." We favoured a different approach in this paper due to betting odds being not available prior to the 2000–2001 season and our willingness to include seasons prior to 2000–2001. This is due to the Buffet law introducing a new ownership form in 1999, namely, the professional sport limited company ("sociétés

anonymes sportives professionnelles", SASP) form. This allowed a private partner to own the entire capital of a club and receive dividends (Scelles et al. 2018). All French football clubs gradually transitioned from voluntary associations to companies. This evolution impacted their ownership and management. These dimensions are paramount to the present research; therefore, we decided to include seasons prior to 2000–2001 in order to be able to discuss the impact of the change[4].

A limitation related to our approach could be that expectations from one year to another are not automatically the same for a team. As such, it might be the case that two quite similar situations in terms of team position and its evolution are associated with two different levels of CS. For example, it could be associated with a negative level when the leader was dismissed (with the hope that the situation would improve following the dismissal). Conversely, it could be associated with a level close to 0 when a leader was not dismissed (with a better acceptance that the team position was representative of its sporting level that specific season). If the limitation underlined here was true, it would be expected that the counterfactuals with our approach would not be significant. Indeed, no improvement should have occurred after a leader was not dismissed. However, the counterfactuals with our approach had a significant positive impact on team performance, meaning that the latter improved after a leader was not dismissed.

3.2. Models and Variables

We estimated linear regression models explaining team performance at game level:

$$y_{ijk} = x_{ijk}\beta + \eta_i + \varepsilon_{ijk} \quad (1)$$

where y_{ijk} represents the performance indicator of team I in game j of season k; x_{ijk} are potential determinants of the performance; β is the vector of parameter estimates; η_i is the team fixed effects used to account for the (unobserved) quality of a team; and ε_{ijk} is the error term.

Contrary to Van Ours and Tuijl (2016); Besters et al. (2016); Scelles and Llorca (2020), we did not use team-season fixed effects. They capture the impact of both leaders when a change occurred. As such, they set a benchmark for performance based on results achieved under both regimes. The weights varied when an in-season dismissal occurred. For example, a very early dismissal will mean that the new leader is essentially judged on the benchmark of their own performance. In the present research, the benchmark is set through the position of the team in the league table at the end of the previous season, as mentioned below.

Team performance was measured as the goal difference between both teams at the end of the game. Goal difference has been theoretically shown as the mathematically optimal measure of a football team performance (Heuer and Rubner 2009; Heuer et al. 2011). More specifically, Heuer and Rubner (2009) find that goal difference displays a minimum sensitivity on statistical effects compared to the number of points. In particular, the authors show that the random component in the final ranking is somewhat smaller when using goal difference rather than the number of points.

Leader Dismissal and *Leader Quit* took the value of 1 for games played with the new leader after a leader dismissal and quit, respectively.

Interim took the value of 1 for games played with an interim leader, i.e., after the leader dismissal or quit but before the arrival of the new leader (when the latter was not in charge right after the previous leader dismissal or quit).

Counterfactual for Leader Dismissal (i.e., leader not dismissed for a similar level of performance for a team having dismissed its leader during another season) and *Counterfactual for Leader Quit* (i.e., leader not quitting for a similar level of performance for a team where the leader has quitted during another season) took the value of 1 right after the last game when the leader should have been in charge.

President Longevity was measured through the number of years as president prior to the current season and its square (*President Longevity*^{2}). To assess the impact of *President*

Longevity on the effectiveness of the decision to dismiss the leader or not, we also tested a number of variables based on the interaction between *President Longevity* or *President Longevity*^{2} with *Leader Dismissal* or *Counterfactual for Leader Dismissal.*

Ownership Orientation was measured through three dummy variables with local, national and global orientation each taking the value of 1. To assess the impact of *Ownership Orientation* on the effectiveness of the decision to dismiss the leader or not, we also tested a number of dummy variables based on the interaction between the three dummies for *Ownership Orientation* and *Leader Dismissal* as well as *Counterfactual for Leader Dismissal.*

We also used three control variables specific to the football industry. The first control variable was a dummy variable for *Home Advantage*, taking the value of 1 when a team plays at home. The second control variable, *Competitor Position*, represents the position of the opponent in the league table before the game. The third control variable, *Position Last Year*, represents the position of the team in the league table at the end of the previous season.

Overall, 15 variables were dummy variables, However, because the dependent variable, six model variables and two control variables were not dummy variables, we estimated linear regression models rather than qualitative variables econometrics (Gourieroux 1989).

3.3. Data

We collected our data from various internet sources accessed for the last time on 26 July 2021: lfp.fr, racingstub.com/games, transfermarkt.com, oddsportal.com, football-data.co.uk and the French version of Wikipedia. Over the 1994–2016 period, 103 team-seasons changed their leader (i.e., 4.68 teams changing their leaders per season in average). Figure 1 provides information about the number of teams with a leader change per season. The two seasons 2004–2005 and 2015–2016 had the highest number of teams with a leader change (10). Interestingly, these two seasons preceded important increases in TV rights in 2005–2006 and 2016–2017 (Feuillet et al. 2019; Scelles et al. 2020b). It might mean that there was more pressure on teams to remain in Ligue 1, with the consequence that leaders were more likely to be dismissed.

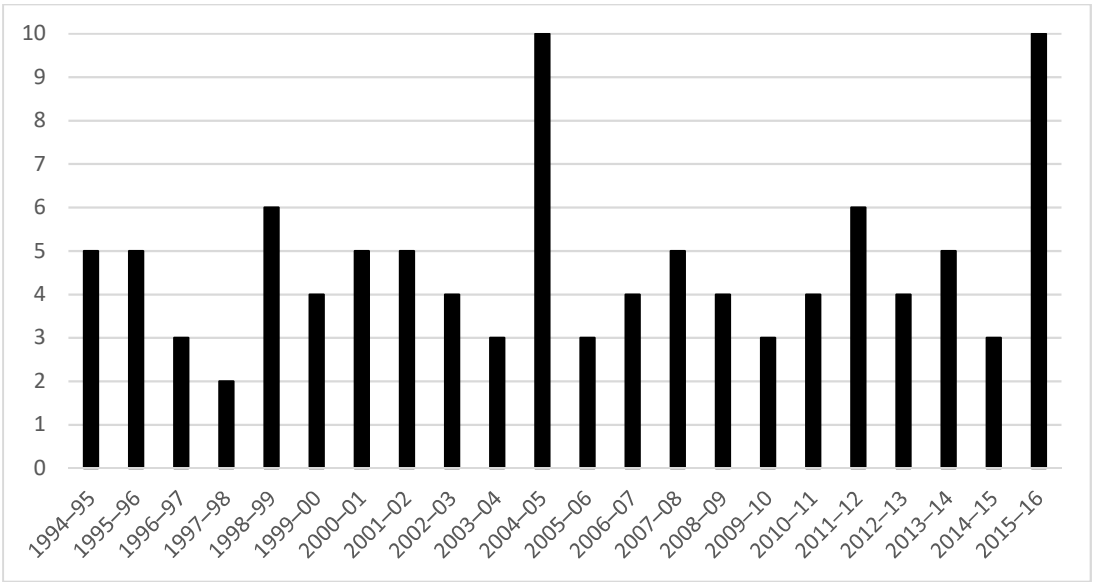

Figure 1. Number of teams with a leader change per season in Ligue 1 over the 1994–2016 period. 20 teams per season, except over the 1997–2002 period (18 teams).

Table 1 provides information about the mean and standard deviation for each of the variables used in the analysis.

Table 1. Variables used in the analysis: means and standard deviations (n = 4918).

	Mean	Standard Deviation
Goal Difference	−0.22	1.58
Home Advantage	0.51	0.58
Competitor Position	10.19	5.67
Position Last Year	11.47	6.06
Dismissal	0.22	0.42
Quit	0.05	0.22
Interim	0.002	0.05
Counterfactual—Dismissal	0.20	0.40
Counterfactual—Quit	0.05	0.21
Longevity	7.56	9.46
Longevity^2	146.72	300.87
Dismissal * Longevity	1.73	5.54
Dismissal * Longevity^2	33.64	166.65
Counterfactual—Dismissal * Longevity	1.46	5.06
Counterfactual—Dismissal * Longevity^2	27.76	125.52
Local	0.70	0.46
National	0.11	0.32
Global	0.19	0.39
Dismissal * Local	0.16	0.37
Dismissal * National	0.02	0.15
Dismissal * Global	0.04	0.20
Counterfactual—Dismissal * Local	0.14	0.35
Counterfactual—Dismissal * National	0.01	0.12
Counterfactual—Dismissal * Global	0.04	0.21

4. Results

Table 2 provides the results of the team fixed effect regressions conducted to test our hypotheses. No heteroscedasticity was identified in our models; therefore, the results were not corrected. The three control variables had a significant impact on performance, with the expected sign, whereas interim had no significant impact.

H1a and H1b predict that performance improves after a leader dismissal or not in the same situation, whereas H1c and H1d predict that performance does not change after a leader quit or not in the same situation. Model 1 confirms H1a, H1b and H1c, but not H1d. This may indicate that performance improves after having been poor, except with an unplanned quit of the leader, which disturbs the organisation.

H2a predicts that president longevity has a positive impact on performance until reaching an inflexion point. Model 2 does not confirm H2a (no significant impact of *Longevity* and its square), which may indicate that the trade-off between *learning-by-doing* and *learning from others* described in the literature review has a counterbalanced effect.

H2b predicts that president longevity has a positive impact on the effectiveness of the decision to dismiss the leader or not until reaching an inflexion point. Model 2′′ confirms a significant positive impact of *Longevity* when interacting with *Dismissal* as well as with *Counterfactual—Dismissal*. It also confirms a significant negative impact of *Longevity*^{2} when interacting with *Dismissal* as well as with *Counterfactual—Dismissal*, consistent with the idea of an inflexion point. It is reached after 22 years with *Dismissal* and 12 years with

Counterfactual—Dismissal. In the latter case, this is not far from the 14 years identified by Shen and Cannella (2002) in another context. Overall, these results confirm H2b.

Table 2. Results of the team fixed effect regressions (dependent variable: goal difference).

	Model 1	**Model 2**	**Model 2′**	**Model 3**	**Model 3′**
Home Advantage	0.663 *** (0.037)	0.663 *** (0.037)	0.663 *** (0.037)	0.663 *** (0.037)	0.663 *** (0.037)
Competitor Position	0.040 *** (0.004)	0.040 *** (0.004)	0.040 *** (0.004)	0.040 *** (0.004)	0.040 *** (0.004)
Position Last Year	−0.019 *** (0.005)	−0.019 *** (0.005)	−0.016 *** (0.005)	−0.018 *** (0.005)	−0.018 *** (0.005)
Dismissal	0.231 *** (0.056)	0.232 *** (0.056)		0.235 *** (0.056)	
Quit	0.129 (0.105)	0.119 (0.105)	0.063 (0.105)	0.14 (0.105)	0.142 (0.106)
Interim	0.041 (0.454)	0.046 (0.454)	−0.040 (0.453)	0.046 (0.454)	0.046 (0.454)
Counterfactual—Dismissal	0.248 *** (0.059)	0.251 *** (0.059)		0.245 *** (0.059)	
Counterfactual—Quit	0.504 *** (0.108)	0.515 *** (0.110)	0.458 *** (0.109)	0.491 *** (0.108)	0.500 *** (0.109)
Longevity		−0.001 (0.010)	−0.010 (0.011)		
Longevity^2		0.0002 (0.0003)	0.0003 (0.0003)		
Dismissal * Longevity			0.032 *** (0.013)		
Dismissal * Longevity^2			−0.001 * (0.0004)		
Counterfactual—Dismissal * Longevity			0.069 *** (0.016)		
Counterfactual—Dismissal * Longevity^2			−0.003 *** (0.001)		
Local				ref.	ref.
National				−0.146 (0.197)	−0.133 (0.209)
Global				0.116 (0.098)	0.065 (0.109)
Dismissal * Local					0.192 *** (0.067)
Dismissal * National					0.182 (0.170)
Dismissal * Global					0.424 *** (0.126)
Counterfactual—Dismissal * Local					0.241 *** (0.069)
Counterfactual—Dismissal * National					0.276 (0.203)
Counterfactual—Dismissal * Global					0.259 ** (0.126)
Constant	−0.588 *** (0.100)	−0.585 *** (0.102)	−0.501 *** (0.099)	−0.710 *** (0.143)	−0.700 *** (0.143)
Observations (Teams)	4918 (29)	4918 (29)	4918 (29)	4918 (29)	4918 (29)
R^2	0.122	0.122	0.122	0.122	0.123

Notes: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$. Standard errors are displayed in brackets.

H3a predicts that global- and local-oriented ownership have a positive impact on performance compared to national-oriented ownership. Model 3 does not confirm H3a since both local- and national-oriented ownership have no significant impact compared to global-oriented ownership.

H3b predicts that global- and local-oriented ownership have a positive impact on the effectiveness of the decision to dismiss the leader or not compared to national-oriented ownership. Model 3′ confirms H3b because both global- and local-oriented ownership have a significant positive impact when interacting with *Dismissal* as well as with *Counterfactual—Dismissal*, whereas national-oriented ownership has no significant impact when interacting with *Dismissal* as well as with *Counterfactual—Dismissal*.

5. Discussion and Conclusions

In this paper, we examined the impacts of leader dismissal (or not in a similar situation), as well as president longevity and geographic orientation of owners on team performance. We tested our ideas in the context of French football organisations. Our empirical findings contribute to the literature on the effectiveness of risk-taking in leader succession. They inform not only the impact of a leader dismissal on team performance, but also some variables likely to affect the effectiveness of the decision to dismiss the leader or not.

5.1. Leader Dismissal or Continuity and Performance

Our findings support the hypothesis that performance improves after a leader dismissal. At the same time, they also support the hypothesis that performance improves after a leader dismissal that does not happen (control group), i.e., the leader is not dismissed in a situation similar to when the leader has been dismissed at another time. These findings are consistent with some other studies which have tested the impact of a leader dismissal on team performance in football with a control group in the English, German and Dutch contexts (Besters et al. 2016; Heuer et al. 2011; Van Ours and Tuijl 2016), as well as in the French context (Scelles and Llorca 2020). Nevertheless, further tests by the authors in the latter context showed that the control group was not significant anymore when controlling for expected performance.

The significant positive impact of the control group on performance questions the assumption that a leader dismissal has a positive impact compared to situations when the leader is not dismissed. However, the findings discussed here do not inform whether there are some factors affecting the impact of a leader dismissal or not on performance. Given that the president and the owners are the two stakeholders likely to have the most weight in the decision to dismiss the leader, it was worth investigating whether different types of presidents and owners affect the impact of a leader dismissal or not on performance.

5.2. President Longevity, Leader Dismissal or Continuity and Performance

To assess the impact of different types of presidents on the impact of a leader dismissal or not on performance, we looked at president longevity. The hypothesis was that a longer longevity generates a better knowledge of the organisation and its environment, leading to better decisions. At the same time, when the longevity reaches a certain point, the president may stop to question the evolutions encountered by the organisation and its environment, negatively impacting decisions. These elements may not only affect decisions, but also the working environment for the leader and the employees, with a direct impact on team performance.

Our findings do not support the hypothesis that president longevity has a positive impact on performance until reaching an inflexion point. In the Results section, we suggest that the trade-off between *learning-by-doing* and *learning from others* described in the literature review (Chen et al. 2017; Kor and Sundaramurthy 2009) may have a counterbalanced effect.

In contrast, our findings support the hypothesis that president longevity has a positive impact on the effectiveness of the decision to dismiss the leader or not until reaching an inflexion point. For the interaction between president longevity and leader dismissal, the inflexion point is reached after 22 years. For the interaction between president longevity and the control group for leader dismissal, the inflexion point is reached after 12 years. This is quite consistent with the 14 years found as an inflexion point by Shen and Cannella (2002) in another context. Although organisational cultural perpetuation is important in football organisations, it can hinder organisational change (Ogbonna and Harris 2014). This can ultimately have a negative impact on organisational performance.

5.3. Geographic Orientation of Owners, Leader Dismissal or Continuity and Performance

To assess the impact of different types of ownership on performance, we looked at the geographic orientation of owners, with a distinction between local, national and global orientation. The hypothesis was that local-oriented ownership has a better knowledge of the local environment. This was anticipated as a key factor for organisations historically tied to a territory such as football organisations. It was also expected that global-oriented ownership leads to additional managerial expertise. As such, local- and global-oriented ownerships were supposed to have a positive impact on performance, compared to national-oriented ownership. This hypothesis was an adaptation of Banalieva and Santoro (2009)'s findings on emerging market multinational enterprises to football organisations.

Our findings do not support the hypothesis that global- and local-oriented ownership have a positive impact on performance compared to national-oriented ownership (no significant impact), contrary to Banalieva and Santoro (2009). This suggests that even football organisations with access to global funding do not perform better than the others, despite their additional income. However, it must be noted that our sample only relied on the team-seasons with a leader change, or without a leader change but a performance more or less similar to the team-seasons with a leader change. These seasons are among the poorest for global-oriented organisations in terms of performance. As such, the conclusion that teams with global-oriented ownership do not perform better than those with local or national ownership has to be qualified. When it comes to explaining why local-oriented ownership has no significant impact on performance compared to national-oriented ownership, a reason may be that the additional income coming from a national-oriented ownership compensates the lower knowledge of the local environment.

Our findings support the hypothesis that global- and local-oriented ownerships have a positive impact on the effectiveness of the decision to dismiss the leader or not compared to national-oriented ownership. This is more consistent with Banalieva and Santoro (2009). This may confirm that the quality of the decisions made by football organisations are based on a trade-off between knowledge of the local environment (favouring local-oriented ownership) and managerial expertise (favouring global-oriented ownership).

5.4. Practical Implications

We suggest that there are four main practical implications that stem from our work.

First, both dismissing the leader (football head coach in our paper) or not dismissing them have a significant positive impact on performance. This highlights that there is not a single decision that can be made about the leader when performance is lower than expected. Instead, it is necessary to understand the context and history of the organisation, as well as the relationships between the leader and their employees, in order to inform such a risky decision.

Second, presidents having been in charge for a certain period of time are more likely to dismiss the leader or not without a positive impact on performance. They may consider that they have been in charge over a sufficiently long period to be able to make an informed decision alone, or do it to show to others that they are the ones in charge. However, the findings do not support the relevance of this approach. The implication is that presidents

should listen to others when being faced with the decision to dismiss the leader or not, whatever their longevity.

The third implication is also related to presidents having been in charge for a certain period of time being more likely to dismiss the leader without positive impacts on performance. Nevertheless, it applies to owners instead of presidents. This implication is that owners should consider the longevity of the president and how it impacts their choices when deciding whether to dismiss them or not.

Additionally, global- and local-oriented ownerships have a positive impact on the effectiveness of the decision to dismiss the leader or not compared to national-oriented ownership. The implication is that organisations with national-oriented ownership should ensure that they are open to managers with global experience and expertise, as well as local actors understanding the local environment.

5.5. Limitations and Future Research

We acknowledge that this paper has a number of limitations, opening the door to future research.

First, we assumed a trade-off between *learning-by-doing* and *learning from others* when interpreting our findings for president longevity. A more qualitative approach based on case studies in different organisations would help confirm such a trade-off and better interpret our findings.

Second, although the president is usually the main decision maker when it comes to dismiss the leader or not in the context studied (football), board members are also important actors (Mangena et al. 2012). Unfortunately, it was not possible to gather information related to board members that could be used in this study. As for the first limitation, a more qualitative approach may help understand the relationships between the president and the board members, and their impact on the decision to dismiss the leader or not in different organisations.

Third, the distinction between local-, national- and global-oriented ownerships may miss the existence of intermediate types based on two or three geographic levels of orientation, consistent with the idea of 'glocalization' (Giulianotti and Robertson 2004). A finer analysis may reveal more types of ownership.

Fourth, some of the answers provided in the paper could be deemed ambiguous, e.g., when the results are not similar in the main model with "cumulative difference" (Table 2) and the alternative model with "cumulative surprise" (Table S1). A different model and other statistical tests might give more unambiguous answers.

Finally, the French football context is very specific, which questions the generalisability of the findings. However, the ideas to look at president longevity and geographic orientation of owners—with a distinction between local/national/global rather than local understood as national/regional (proximate confines of the country)/global—may provide relevant findings in other contexts.

Supplementary Materials: The following are available online at https://www.mdpi.com/article/10.3390/jrfm14090439/s1, Table S1: Results of the team fixed effect regressions with cumulative surprise (dependent variable: goal difference).

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Notes

1 *Learning-by-doing* has already been applied to the football manager, see, e.g., Kelly (2008).

2 The reader may wonder why we did not choose a difference of no more than 3 in absolute value for the third and second matchdays before the leader change. The rationale is that teams can be very close from each other. As such, a difference of more than 3 positions can correspond to a difference of no more than 1 or 2 points. We acknowledge that the exact position is a main trigger for a leader change, explaining why we did not accept a difference of more than 3 positions for the last matchday before the leader change. However, we allowed for a less restrictive setting for the third and second matchdays before the leader change.

3 In another article not specific to sport focused on the economic effects of mergers and acquisitions, Furlan et al. (2016) used a continuous treatment approach including a control group. The inclusion of a control group in addition to the treatment group is consistent with the method applied in the present paper.

4 As a robustness check, we also tested our models with CS instead of CD, applying the same approach as Van Ours and Tuijl (2016); Besters et al. (2016); Scelles and Llorca (2020)Scelles and Llorca We could not find betting odds prior to the 2000–2001 season; therefore, such tests were made over the 2000–2016 period instead of 1994–2016. Most results with CS are consistent with those obtained with CD. They are available as Supplementary Material (Table S1).

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Fans' Perceptions towards Video Assistant Referee (VAR) in the English Premier League

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Abstract: The video assistant referee (VAR) in association football was developed to help on-field referees judge potentially game-changing decisions correctly by reviewing video evidence in real time. VAR was implemented by the English Premier League (EPL) ahead of the 2019/20 season. Despite its potential benefits, VAR also presents the risk of not being well perceived by fans. This article aims to investigate fans' perceptions towards VAR in the EPL. Total of 1350 EPL fans from different age groups above 18 years old completed an online survey on their opinion of VAR and changes they felt would make VAR better. The majority of fans were happy for VAR to continue being used in the EPL, but expressed that changes need to be made in terms of how VAR is being used by on-field referees and to assess certain situations. All age groups were generally positive towards the idea of using technology in the EPL to support referee decisions and provide more information to in-stadium fans, but younger age groups showed significantly more positive perceptions than their older counterparts. Implications include advice for the EPL to make changes according to fans' opinions and to develop frameworks for making changes with fans as stakeholders in mind.

Keywords: video assistant referee (VAR); fans' perceptions; English Premier League; changes; age groups

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1. Introduction

The video assistant referee (VAR) in association football is a tool developed by the Royal Dutch Football Association (KNVB) to help on-field referees judge potentially game-changing decisions correctly by reviewing video evidence from multiple angles immediately after situations have taken place (KNVB n.d.). After a successful testing period, VAR was approved by The International Football Association Board (IFAB) by unanimous vote on 3 March 2018 (IFAB 2018). After initial testing in domestic cup competitions, the English Premier League (EPL) implemented VAR into the league ahead of the 2019/20 season, with the intention that VAR would only be used to correct clear and obvious errors such as missed incidents, penalty decisions, incidents that may warrant a red card and incidents where a player's identity has been mistaken (Premier League 2019a). In its first season, VAR has been used in all of the 380 games played out in the 19/20 EPL-season and has seen 109 goals affected by the use of VAR (Johnson 2020), of which some decisions have been deemed controversial. Examples include three controversial penalty decisions in round 34, which prompted a suggestion from former footballer Tim Cahill to add a former player to the VAR team to help the referees better understand player movements (BBC 2020).

From a business and managerial perspective, it is important to understand how fan experience is affected by VAR. Fans may be subject to an "illusion" of how VAR affects time expenditure in a game. According to Augste and Cordes (2016), more than 30 minutes of playtime in a game can be lost due to time spent doing throw-ins, free kicks and goal kicks, but due to this "always" being a part of the game, no one really notices unless it is an obvious attempt to waste time. Reviewing VAR evidence does not take up anywhere

near the same time of a game when compared to set pieces, but since this a rather new phenomenon, fans attending in the stadium tends to notice it more, especially in stadiums where big screens are not installed, as the consumers often do not know what situation is being reviewed, causing confusion and frustration whenever a VAR situation takes up a few minutes (Spitz et al. 2021). This confusion and frustration might be reduced as stadium attendees will gradually get used to the presence of VAR in football, but as it stands, watching the game from home provides a much better opportunity to understand what is happening during a VAR review, and why, when compared to stadiums without big screens. These elements underline the risk of VAR not being well perceived by fans, at least for those attending in stadium. This risk may lead to the subsequent risk of fans being less willing to attend games in stadium, which may have a negative economic and financial impact on clubs.

Despite the importance of understanding how VAR affects fan experience, this topic has received limited academic attention. In line with this gap in the literature, the aim of this research was to investigate fans' perceptions towards the use of VAR in the EPL. The overarching question was: How do fans perceive the way VAR is used in the EPL? Two subsequent research questions were formulated: Do fans perceive that VAR has a more positive impact on some dimensions than others in the EPL? (research question 1); 2. Does age impact fan perceptions on the use of VAR in the EPL? (research question 2). The first research question aimed to help decision-makers understand what the benefits of VAR are from the fans' perspective, be able to communicate on these benefits, and prioritise areas for further improvement based on the dimensions perceived by fans as having a less positive impact. The second research question was constructed based on the assumption that younger fans may be more open to the use of a technological tool such as VAR, due to the technology-driven nature of their generation (Yim et al. 2021). In a context where sport marketing practitioners are concerned about decreasing fan attendance in future generations and among Millennials (Yim et al. 2021), it is important to understand how they perceive the use of tools such as VAR.

2. Literature Review

2.1. How VAR Modifies the Game

The current literature on VAR mostly focuses on the impact of the technology on the game itself, which can eventually affect fan experience. Lago-Peñas et al. (2019) showed that the introduction of VAR into the German Bundesliga and Italian Serie A had seen more time being added in the first half of games, as well as reduced the number of offside-calls, fouls and yellow cards. Their findings suggested that VAR did not have a substantial effect on football. This is supported in Errekagorri et al. (2020), who used data from the Spanish La Liga and found that more VAR checks equalled more goals and that total distance covered by players decreased when there was more than one VAR check. They also found evidence that total playing time had increased in games with two or three VAR checks, but that effective playing time decreased when there were several VAR checks in a game. However, they also specified that these changes did not significantly impact the games. These studies utilised concrete statistical data from a large sample of matches and did not take the "human" factor into account in how the technology affects consumers, including in-stadium fans. A study conducted on the Chinese Super League (CSL) drew comparisons between games with and without the presence of VAR and found that offside calls and fouls had dropped significantly, as well as a significant increase in total minutes played, concluding that the home advantage observed before VAR had decreased (Han et al. 2020). The findings of this study were in contrast to the findings in both Lago-Peñas et al. (2019) and Errekagorri et al. (2020), but only shared a methodological approach to Lago-Peñas et al. (2019). Errekagorri et al. (2020) did not use data from before VAR was implemented, but rather used grouped data according to the number of VAR interventions during the games, not differentiating between the type of VAR intervention (offside, penalty, red card, etc.).

The only research paper where VAR in the EPL was mentioned is in Ludvigsen (2020), who predicted that VAR would be welcomed by some fans, but would also be subjected to criticism due to VAR being a tool that removes many contentious decisions that fans typically enjoy debating, hence making EPL football predictable. Video refereeing in other sports has been criticised heavily (Nafziger 2004). However, Nafziger (2004) argued that the potential legal consequences of a referee refusing to use the technology may cause additional controversy and the decision-aid technology should therefore be utilised as intended. The idea of introducing video refereeing into football was present long before the technology was developed, and it was envisioned that the technology would disrupt the flow and pace of the game of football, rather than improving it (Svantesson 2014; Nafziger 2004). These ideas seem to reflect some of the perceptions of players and experts after the introduction of VAR into football, but it is important to note that the technology is being recognised as effective by some, and that the time-consumption is worth it if decisions are made correctly as a result (Martin 2018; BBC 2018). However, the law-makers responsible for VAR have stressed that the technology should only be used for clear and obvious errors, and the referee should generally rely on their own interpretation and only use the technology in very ambiguous situations (BBC 2019). The opinion that referee-decisions should be based on their own interpretation is reported by multiple authors (Nlandu 2012; Svantesson 2014), and seems to be a key argument towards the use of decision-aid technology in sport. In Singh (2012), it was argued that introducing line-technology would be too expensive and impractical to implement at all levels of football. GLT is only present in some of the biggest football leagues in world football and is yet to expand to include "smaller" football leagues (Hawk-Eye).

2.2. Consumer Perceptions towards Decision-Aid Technology

Football fans have a strong and emotional connection to the objects that produce the content they consume, such as football teams and players (Samra and Wos 2014). A fan is a consumer of organised sports (Hunt et al. 1999), and come in many different forms depending on their level of devotion. The loyal fan will spend significant time and money on following their sport, team or athlete, while the casual spectator will spend less money and feel less connected to a specific entity in sport, hence why the loyal fan is more important to sport organisations (Mastromartino et al. 2017). The most important consumer group for the business of a sport club is the fan due to the fact that without them, there would be no demand for televised sport, and it would be a difficult task for sport clubs to attract sponsors if no one was there to see their product (Da Silva and Casas 2017). Understanding fan behaviour is crucial for sport organisations to ensure that they can evolve alongside the ever-evolving wants and needs of sport fans (Dwyer et al. 2016). Research on fan experience suggests that noise and crowd size are the most important factors when fans are assessing their own in-stadium experience (Wilkie 2008). However, as more factors that may affect crowd experience are added into sport, such as decision aid technology, it is necessary to conduct new research on crowd experience with these factors in mind. According to Singh (2012), removing the enjoyment that fans feel when debating contentious goals might reduce atmosphere with the introduction of decision-aid tools such as Goal Line Technology (GLT).

The amount of research on consumer perceptions towards decision-aid technology in sport is very limited and only two research papers were deemed relevant for direct comparison with this research. They may provide some useful insight into the general perceptions of consumers and include Winand and Fergusson (2018), who explored consumer perceptions towards the introduction of GLT into football and Stoney and Fletcher (2020), who explored consumer perceptions towards the use of the Television Match Official (TMO) in rugby. The findings of Winand and Fergusson (2018) were that fans trusted the GLT technology when used and supported the use of it, but also that fans did not enjoy the use of GLT due to the technology eliminating the tension surrounding a contentious decision, hence reducing the satisfaction of fans due to their enjoyment of debating such

contentious decisions. They also found that fans did not support the idea of adding further aid-decision tools into football, recommending that key stakeholders are consulted when considering adding or changing rules of decision-aid technology that may affect their experience. These findings imply that the idea of introducing VAR into football is opposed by fans, depending on how it affects their viewing experience.

Research on consumer perceptions towards the use of the TMO in Rugby Union games uncovered that football fans did not take issue with the use of the technology, but rather with how information was relayed to them in-stadium (Stoney and Fletcher 2020). The findings of this article suggest that fans will have a better experience when information is relayed to them as decisions are being made, and not just after. The current system in Rugby Union games is similar to how the EPL conducts VAR checks, with fans being informed of what is being checked through information on big screens in the stadiums, with replays being played to inform in-stadium fans on overturned decisions (Premier League 2019b).

2.3. Differences between Age Groups

Research on consumer perceptions towards use of decision-aid technology looking at the impact of age groups is very rare at this point in the literature. Both Winand and Fergusson (2018) and Stoney and Fletcher (2020) included age groups in their sample description but did not report any difference in opinion between age groups. This suggests that there might not be any difference in opinion from a young to an older fan, but this is unclear due to the lack of research available. One could argue that millennials should be more likely to accept technological changes in football due to the technology-driven nature of their generation (Yim et al. 2021). Younger adults tend to use a wider spread of technological inventions than older adults (Olson et al. 2010), but older adults are generally open-minded when presented with an opportunity to learn using and understanding modern technology (Vaportzis et al. 2017). These findings should be considered relevant when discussing technology in football and may be the reason for why previous research on perceptions towards decision-aid technology in sport has not uncovered any differences across age groups.

3. Methodology

3.1. Research Method and Data Collection

A quantitative approach was used in this study. More specifically, a survey was conducted with football fans (n = 1353 respondents). The use of a survey is considered a standard research method due to the regular need of reaching out to mass target populations, in this case sport fans, and how surveys are useful to describe characteristics, perceptions and the behaviour of the target populations (Andrew et al. 2020). The wish to make a generalisable description about the perceptions of a particular population, being the football fans, makes the choice of a deductive approach logical due to the questionnaire containing closed questions with set answer options. This fits the characteristics described in Janzen et al. (2015), who stated that a deductive approach assumes that a sound measurement of values are rooted in a theory that is predetermined. This approach ensures high predictability as well as producing results that can be easily interpreted (Veal 2018).

The survey method matched the usage of a Likert scale in similar research such as Winand and Fergusson (2018) and Stoney and Fletcher (2020), who both used a 7-point Likert scale rather than the 5-point scale which was used for this study. A 7-point scale was deemed excessive for this study. According to Revilla et al. (2013), 5-point Likert scales should produce better quality of data. Moreover, a 7-point Likert scale is considered more suitable to use in projects where the participants are mostly students due to the assumption that students have higher cognitive ability than members of the general public (Weijters et al. 2010). This makes a 5-point Likert scale more suitable for this study since it did not reach out to just students, but anyone who watches football and is above 18 years of age. The Likert scale is considered a strong tool to use in surveys due to its widespread

use, making it a comfortable tool for researchers and respondents, as they are likely to have encountered the design in previous surveys (Cooper and Johnson 2016). According to Ponto (2015), the usage of a survey can be useful to explore consumer patterns, in this case fans' perceptions towards the addition of VAR into EPL football, and how this addition will affect their behaviour in the future.

Due to the authors wishing to produce generalisations of a population, a quantitative method of using an online questionnaire was considered a logical choice. Questionnaires are, however, limited by their predetermined questions and limited answer options (Bell et al. 2019). A different approach might have uncovered more information from participants who possess more knowledge than others, but using interviews was deemed too time-consuming and not consistent with the objective to produce generalisations. An online questionnaire was considered to be the most effective method to acquire a large sample group, consistent with the findings of Duffy et al. (2005), who suggested that an online questionnaire would be more attractive than interviews for participants due to its convenient nature. With this method, participants can complete the questionnaire when they see fit, rather than having to plan a specific time to be interviewed.

3.2. Participants

Participants were recruited through social media platforms, specifically Facebook and Twitter. A social media post was posted in Norwegian and British Facebook groups dedicated to EPL fans of no specific team-affiliation, as well as on Twitter, where there were no geographical filters present. Participants were informed of the nature and purpose of the study as well as inclusion criteria, which were that they followed EPL actively and were above 18 years of age. If interested, participants were provided with a link to the survey, provided they met the inclusion criteria. Preliminary and post-completion statements were included to inform the participants of the purpose of their participation as well as inform them on their right to withdraw from the study.

The sample size was 1353, of which 305 were aged 18–23, 360 aged 24–29, 405 aged 30–39, 200 aged 40–49 and 83 above 50 years of age. Of the entire sample size, 1350 participants completed all 15 questions, while 3 participants did not answer the final question for reasons unknown and were excluded from the study. No participants asked to be removed from the survey after completion. The authors' university ethics guidelines state that participants should be at least 16 years of age. However, having only adults participating in this study was deemed desirable as to avoid any potential conflicts in terms of the need to acquire parental permission for non-adults. Age of majority for most EU countries is 18 (FRA n.d.). For this reason, only people over 18 years of age were allowed to participate in the study. Consent forms were not included in the survey, as consent is implied when returning a questionnaire, also according to the university ethics guidelines. Due to the inclusion criteria and the large sample size, the results should be generalisable for a larger population (Queirós et al. 2017).

3.3. Survey Contents

The authors' university online survey system, Jisc, was used to construct and perform the survey. This tool was considered suitable due to the simplicity it offered in constructing, distributing, and analysing an aesthetically pleasing survey that was easy for respondents to navigate around and answer questions without any advertisement or other potentially distracting content present on the screen. The survey started with a preliminary question that asked the participants to choose their age group, of which the range was explained in the participant section. The 15 statement questions that followed explored different issues with VAR in the EPL, with all 15 questions addressing both research questions 1 and 2. The questionnaire can be viewed in its entirety in Table S1 in the Supplementary Material. The absence of peer-reviewed literature on VAR made replication of previous research impossible, hence why most questions were constructed in reference to common themes identified by observing perceptions displayed by different fan groups across social media

platforms. These questions covered aspects such as fairness (Q1), understanding (Q2), time needed (Q3 and Q11), different dimensions relevant to the review of decisions (Q4, Q5, Q8, Q10, Q13 and Q14), impact on fans' interest (Q6), supplement to goal-line technology (Q7) and potential removal until perfected (Q15). Two other questions were constructed in reference to how other sports use video refereeing. These questions included the presence of a screen in stadia like in rugby (Q9), and the opportunity to protest decisions based on technology like in tennis (Q12). No time limit was set to complete the survey other than that it was completed before the closing date.

3.4. Data Analysis

The gathered data were prepared and validated using the data validation tool in Microsoft Excel. The countif-function was used to check for missing data. Data were further analysed using Microsoft Excel for the purpose of calculating mean values and standard deviations across age groups and responses for each question. All of the participants answered the same 15 questions, which provided the means to conduct comparisons both between questions involving the same participants through one-way analyses of variance (ANOVAs) with repeated measures and dependent groups (research question 1), as well as between age groups for each question through one-way ANOVAs with independent groups (research question 2). IBM's Statistical Package for the Social Sciences (SPSS) 26 was used to perform one-way ANOVAs. Figure 1 displays the overall data analysis process.

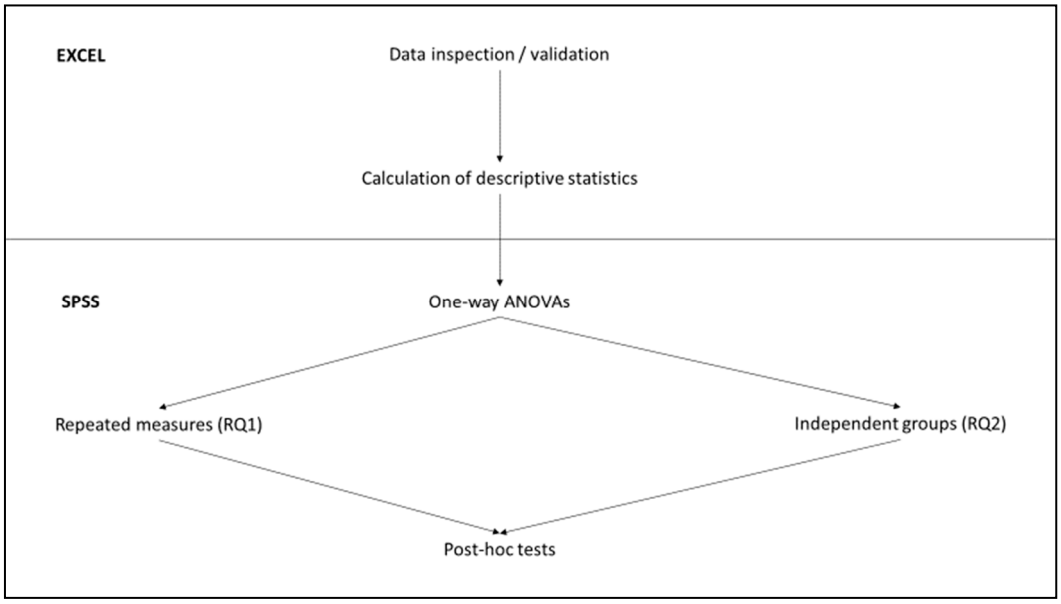

Figure 1. Overall data analysis process.

4. Results

4.1. Overview

The means and standard deviations for the 15 survey questions are presented in Table 1, with the different items ranked from the highest to the lowest average mean score. Overall, the results show that the participants agreed that changes need to be made on how VAR is used, with nine survey items displaying a mean value over 3. However, when conducting one-way ANOVAs with repeated measures and dependent groups to compare items between each other, it is worth noting that there are significant differences at the 5% level between each item except items 8 and 3, as well as items 13 and 12, in support of a positive answer to research question 1 (results available upon request). This means that the EPL could confidently prioritise the changes to be made (or the features to be retained) based on fans' perception. Table 1 also provides the results of the one-way

ANOVAs with independent groups to compare age groups for each survey questions, with the identification of significant differences for eight out of the 15 questions. Tukey's range tests for Post-Hoc analysis were performed for all items to uncover between which age groups significant differences lie (available upon request). These Post-Hoc tests unveil some significant differences with one-tailed tests for two questions where no significant difference was originally identified through the ANOVAs, meaning that overall 10 out of the 15 questions show significant differences between age groups, in support of a positive answer to research question 2. Figure 2 provides an overview of the results.

Table 1. Survey items sorted by mean values, with standard deviations and differences between age groups.

Question	Rank	Mean	Standard Deviation	Difference between Age Groups (p-Value)
The addition of VAR has made the Premier League less fair.	14	2.31	0.917	0.462
I find it difficult to understand how VAR works.	11	2.81	1.178	0.435
VAR situations take up too much time of a Premier League game.	6	3.55	1.152	0.001 *
The on-field referee should always review VAR evidence when a potentially match-changing decision has to be made.	4	3.78	1.229	0.064
The VAR team for each matchday should consist of several expert referees who are making decisions together, rather than relying on the individual interpretation of just one expert referee.	2	4.05	0.982	0.003 *
The introduction of VAR has made me less interested in watching Premier League football.	15	1.94	1.141	0.838
VAR should be used if and when there is suspicion that the goal-line technology (Hawk-Eye) has failed to perform its task(s).	1	4.29	1.021	0.000 *
The Premier League should change how VAR assesses offside situations.	5	3.56	1.103	0.073
VAR screens should be mandatory in every Premier League stadium to ensure that fans inside the stadium are thoroughly informed on why a VAR decision is made.	3	3.97	1.035	0.000 *
VAR should be able to review evidence from past situations at any time during a game and potentially penalise actors of the game who have broken the rules without being caught.	8	3.18	1.336	0.128
The introduction of VAR in the Premier League has made goals less enjoyable due to almost every goal potentially being subjected to a VAR review.	7	3.48	1.225	0.000 *
Each team should be given a few opportunities per game to protest VAR decisions that have been made without the on-field referee reviewing video evidence, prompting a formal review by the on-field referee.	10	2.97	1.356	0.000 *
The on-field referee should be able to review VAR evidence post-match to penalise actors of the game who have broken the rules during a match without being caught.	9	3.02	1.330	0.000 *
VAR should be used for more than just clear and obvious errors.	12	2.71	1.263	0.234
VAR should be removed from the Premier League until the system is perfected.	13	2.49	1.307	0.000 *

Note: Significant differences at the 5% level are highlighted with *.

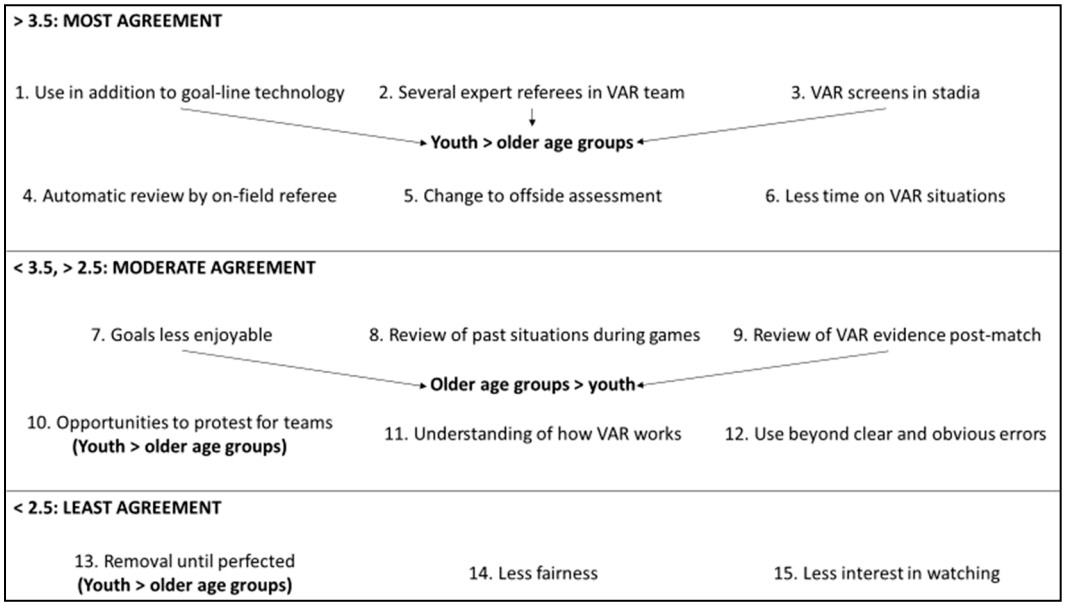

Figure 2. Overview of the results.

4.2. Items for Which Fans Suggest a Need for Change (Mean > 3.5)

The first-ranked item in Table 1 shows that fans agree that VAR should be used if the Hawk-eye technology has failed to do its job. The agreement was stronger for younger participants. The age group of 24–29 showed the same feelings as age 18–23 ($p = 1.000$) but significantly stronger positive feelings compared to the three oldest age groups of age 30–39 ($p = 0.002$), age 40–49 ($p = 0.000$) and age above 50 ($p = 0.000$). These results suggest that younger fans are more positive than older fans of the use of VAR in addition to GLT and implies that the EPL should use VAR if Hawk-Eye fails to perform its task if they are to adhere to the opinion of younger fans on how VAR is used.

The second-ranked item shows that fans agree more than one expert referee should share responsibility in the VAR room during matchdays. This is consistent with the idea that subjectivity amongst referees is a problem that VAR has helped reduce, but not eradicate (Ugondo and Tsokwa 2019). No research has been conducted to see how subjectivity affects referees in the VAR room, but it is safe to assume that the phenomenon can occur with referees regardless of where they are situated. Results show that fans agree that there should be more than one referee in the VAR room, but also significant differences between age groups, as age 18–23 showed more positive perceptions towards the idea of more than one expert referee in the VAR room than age 30–39 ($p = 0.003$) and age above 50 ($p = 0.045$). Although significant differences were evident, these results should not be misunderstood, as all age groups did display positive perceptions towards having more than one expert referee in the VAR room. The youngest age group did agree more than other groups, but they were also above or very close to a mean value of 4.0, which means "agree".

The third-ranked item shows that fans agree that big screens should be mandatory in every EPL stadium. Although the participants generally agreed that big screens should be mandatory, there were significant differences between age groups, which showed that the age group 18–23 was significantly more positive towards the idea of installing big screens in EPL stadiums compared to age 30–39 ($p = 0.037$), age 40–49 ($p = 0.000$) and age above 50 ($p = 0.040$). Additionally, age 24–29 was significantly more positive towards the idea compared to age 40–49 ($p = 0.001$). The findings from this item also suit the perceptions described in Yim et al. (2021), who stated that younger generations are generally more technology-driven than older generations and prefer to consume sport products through the use of technology. Besides, there is a stronger agreement from fans that big screens should be mandatory in every EPL stadium over most of the items relevant to how and the scope VAR should be used. This suggests that big screens are a more important factor.

The fourth-ranked item shows that fans mostly agree that the on-field referee always should consult VAR evidence when a potentially match-changing decision has to be made. There were no significant differences of opinion between age groups for this item with a two-tailed test, although the youngest age group of 18–23 displayed generally more positive perceptions towards the idea (mean = 3.92) than those aged above 50 (mean = 3.52), and the difference is significant with a one-tailed test ($p = 0.034$). Although these results show that fans like the idea of the on-field referee taking the final decision on potentially match-changing decisions, it is important to note that this likely would cause additional time-consumption with VAR.

The fifth-ranked item shows that the participants rather tipped in favour of agreeing that offside situations should be assessed differently rather than a neutral stance. Despite not showing any significant differences across age groups with the one-way ANOVA, Post-Hoc tests uncovered that there was a significant difference between the youngest age group of 18–23 and the oldest age of above 50, with the oldest group being more negative towards the prospect of amending the way VAR assesses offside situations ($p = 0.049$). The oldest group is also more negative than the age groups of 24–29 and 30–39, with significant differences with a one-tailed test (respectively $p = 0.027$ and $p = 0.035$).

The sixth-ranked item shows that fans were rather agreeing that VAR takes up too much time of an EPL game. There were significant differences present between age groups 18–23 and 24–29, where the younger group felt significantly less negative towards time-consumption ($p = 0.028$) as well as the age group above 50 feeling significantly less negative towards time-consumption compared to age groups 24–29 ($p = 0.011$), 30–39 ($p = 0.049$) and 40–49 ($p = 0.025$). These results suggest that the youngest and the oldest group are the ones who feel the least that time consumption with VAR is a problem, tipping towards a neutral standpoint (18–23 mean = 3.40 and above 50 mean = 3.21). This implies that these fans would rather see more time spent if the result is that the decision is made correctly.

4.3. Items for Which Fans Are More Neutral towards a Change (Mean 2.5 to 3.5)

The seventh-ranked item asked participants whether their enjoyment of goals reduced due to the possibility that every goal potentially can be reviewed and ruled out. The results show that the participants were slightly closer to a neutral stance than agreeing, meaning that they did not agree that goals were less enjoyable due to the introduction of VAR. The age group of above 50 showed significantly more positive perceptions towards enjoyment of goals with VAR than ages 18–23 ($p = 0.000$), 24–29 ($p = 0.001$) and 30–39 ($p = 0.000$). There were differences compared to age 40–49 as well, not significant with a two-tailed test but significant with a one-tailed test ($p = 0.037$).

Items ranked eight and nine were developed based on the idea that video evidence may emerge post-event or post-match to show the infringements of players and managers that went unnoticed at the time they occurred or during the game. Item eight shows results that suggest a neutral stance towards the use of VAR to review past events of a match, with no significant difference between age groups. Similarly, item nine shows a neutral stance towards the use of VAR post-match, but significant differences were found between the youngest age group 18–23 who showed significantly more negative perceptions towards the use of VAR post-match to penalise players/managers who had done something wrong compared to ages 30–39 ($p = 0.023$), age 40–49 ($p = 0.000$) and age above 50 ($p = 0.022$), as well as age group 24–29 with a one-tailed test ($p = 0.036$).

Item ranked 10 explores the idea of giving each team the opportunity to contest decisions to prompt VAR reviews and shows neutral results, but significant differences between age group above 50 and the groups of age 18–23 ($p = 0.000$), age 24–29 ($p = 0.000$) and age 30–39 ($p = 0.023$), as well as age 40–49 with a one-tailed test ($p = 0.043$). These results show very large mean differences, with the youngest age group 18–23 averaging a mean score of 0.795 higher than the above 50 group. These findings suggest that the younger age groups are more positive of the idea of letting teams contest decisions, but

their mean (3.18) is still well within the neutral spectrum and does not imply that this should be an addition into the game.

Item ranked 11 shows that members of every age group do not struggle to understand how the VAR technology works, with no significant difference present between age groups. The fact that fans understand how the technology works should be considered positive for the EPL, as it suggests that the fans have been thoroughly informed on VAR. It is important to note that these results do not represent VAR decisions, but rather the technology itself. This means that even if a consumer understands how VAR is used to assess offside- penalty- and yellow/red card-decisions, it does not mean that they will agree with the decisions due to subjectivity. Especially in-stadium fans will be unlikely to just sit quietly and agree with referee decisions against their team, even if they are correct, as they feel a responsibility to help their team by distracting the opposition and influencing the referee to judge in their team's favour (Wolfson et al. 2005).

Item ranked 12 was based on a potential change to VAR supposed to be only used for clear and obvious errors. This is because the reality of VAR being only used for clear and obvious errors has been ambiguous at best during the debut season of VAR in the EPL. The EPL has defined clear and obvious errors as situations where the on-field referee requests assistance due to not having caught/understood a situation properly (Premier League 2019b), including situations that went completely unnoticed by the referee. Yet, the term still remains unclear due to numerous controversial decisions made during the 19/20 season. These decisions cast doubt about whether all errors judged were really clear and obvious, and whether all clear and obvious errors were judged. This prompted EPL referee Mike Riley to admit that some clear and obvious errors were not judged the way they were supposed to due to lack of judgement based on little experience (Sky Sports 2019b). This then birthed the idea that perhaps VAR should be used for more than just clear and obvious errors, as to avoid confusion for referees. Results showed that fans were tipping in favour of a neutral standpoint, with no significant differences between age groups, suggesting that the current usage of VAR is suitable in the eyes of fans.

4.4. Items for Which Fans Suggest No Need for a Change (Mean < 2.5)

Item ranked 13 presented a radical proposition to the participants by asking if VAR should be removed until the system had been perfected. Mean values suggest that fans are more in favour of keeping VAR, but there were significant differences present, showing that age group 18–23 was significantly more towards a neutral standpoint than age groups 24–29 ($p = 0.004$), 30–39 ($p = 0.001$), 40–49 ($p = 0.000$) and above 50 ($p = 0.000$). Additionally, age group 24–29 was significantly more towards a neutral standpoint than age above 50 ($p = 0.044$). Age group 30–39 was also significantly more towards a neutral standpoint than age above 50 with a one-tailed test ($p = 0.034$). These findings suggest that the older the participants were, the less interested they were in removing VAR from the EPL. This shows that despite its flaws, fans consider VAR to be working to some extent, or they would have asked for it to be removed. The fact that fans support the continued use of VAR implies that the EPL has been successful in adding VAR into the league, and it is now important for the referees to get fewer decisions wrong and to optimise the reviewing process to make fans feel more involved and informed.

The results of item ranked 14 were inverted due to this item being the only question that did not involve a change or raising an issue, meaning that it was positive in nature. The results show that fans disagreed that fairness had been reduced with VAR, with no significant difference between age groups. These results suggest that VAR has succeeded in the eyes of consumers in terms of reducing major errors in making the EPL fairer, and that the technology indeed works. However, these results are not representative of actual statistics, and therefore should be completed with more evidence that VAR has made the EPL fairer as they only showcase fans' perception of fairness with VAR.

Item ranked 15 and last shows that the addition of VAR has not made fans less interested in watching EPL football, with no significant difference between age groups,

meaning that there is a consensus across all ages from 18 to above 50 that they are still very interested in watching EPL football. The question now becomes what changes will be made to make the usage of VAR more enjoyable for fans, or rather less annoying by consuming less of the allocated 90 minutes of a game to review evidence and getting decisions right the first time.

5. Discussion and Conclusions

5.1. Comparison between Related Results

Some items in the survey provide the means for comparison between them. Such items include items nine and 10 in Table 1. Item nine stated that VAR should be able to review evidence and advice punishments at any point during a game, while item 10 stated that the on-field referee should be able to review VAR evidence after the game and then issue punishments. Video evidence has been used post-match to review past incidents long before the introduction of VAR, for example to investigate the statements made by players during the infamous racism-incident between former Liverpool player Luis Suárez and former Manchester United player Patrice Evra (The FA 2012). The idea was therefore to measure fans' perceptions towards investigating video evidence during the game to penalise actors of the game by a red card for such things as racist comments with item nine. Alternatively, for item ten, the idea was to measure fans' perceptions towards using VAR for the same purpose but post-match, with the on-field referee being responsible for making decisions. Although participants were close to a neutral standpoint for both items, there was a significant difference between these items ($p = 0.000$), as item nine was more agreeable than item 10 for participants.

These results imply that fans are more favourable of punishments during the game than after the game. If a serious foul play has gone unpunished during the game, it is likely to be resolved by The Football Association (FA) after games. However, the idea of letting VAR take action at any point of a game seems to be more attractive for fans. As previously discussed, this could potentially be match-deciding, if perpetrators were allowed to be caught and punished during the game and not after, for incidents that originally went unnoticed. With the number of cameras and microphones inside a football stadium, racist remarks or other violations that the referee did not hear or see might be caught on tape and can in theory be used to issue cards. If for example an incident of racism occurs, an actor of the game would be sent off if the referee heard it. Thus, it can be argued that VAR should be used for the situations that the referee did not see or hear, similar to how it is used if someone uses violence without being spotted by the referee.

Items four and six in Table 1 also provide the means for comparison. Item four asked for the participants' views on use of VAR monitors by on-field referees, and item six revolved around consumer perceptions towards time consumption with VAR. When compared, the results show a significant difference ($p = 0.000$), with fans agreeing that VAR takes up too much time (mean = 3.55), but still want referees to use VAR monitors (mean = 3.78). The question on time consumption preceded the question on usage of VAR monitors. As such, the risk of the participants "forgetting" the question of time consumption in between questions should be quite low.

5.2. Comparison with Previous Research

The findings in this study show some similarities to the findings of Winand and Fergusson (2018). The authors found evidence that fans favoured the use of Hawk-Eye's GLT in football, similar to how the participants in this study stated that: they thought the EPL had become fairer as a result of VAR; they were slightly in favour of the continued use of VAR; they did not lose any interest in watching the EPL due to the addition of VAR. There were, however, differences in fans' perceptions towards the factor of enjoyment between the studies. Winand and Fergusson's (2018) findings stated that fans enjoyed football less due to GLT reducing the amount of contentious decisions. Although not measured specifically, certain items in this study measured how the experience of fans felt affected

by VAR. This was specifically the case for the item measuring how fans experienced goals when they knew that there could always be a VAR review to overturn it right after. The results showed that fans were slightly towards a neutral standpoint. This is in contrast to how the participants in Winand and Fergusson (2018) felt that contentious goal decisions would be reduced in number due to the addition of GLT, which would lead to a reduction in enjoyment. Their study also found evidence that fans did not welcome future decision-aid technology. This was not measured in this study, but the results do show that fans are happy with how VAR is being used and are not in favour of removing it. This suggests that the perceptions against more decision-aid technology in Winand and Fergusson (2018) might have switched towards being in favour of the technology. This might, however, be due to the fact that VAR has been a part of football for a few years now, and it is evident that it is here to stay. Therefore, fans might rather just accept it for what it is and not waste any energy on protesting the technology.

Another study that measured fans' perceptions towards decision-aid technology was Stoney and Fletcher (2020). These authors explored how the use of TMO technology affected the experience of in-stadium fans in Rugby Union. Although our survey is not exclusive to in-stadium fans, some of the perceptions can be compared. In Stoney and Fletcher (2020), rugby fans stated that their in-stadium experience would be enhanced if they were better informed during TMO decisions. These findings are supported in this study, with the finding that fans displayed positive perceptions towards having big screens for VAR reviews present to keep them thoroughly informed on what is happening. Although a different sport, the in-stadium experience should be comparable across sports, as the sport fans have a different range of needs and wants, regardless of which sport they follow (Samra and Wos 2014).

Both Winand and Fergusson (2018) and Stoney and Fletcher (2020) did not report any difference in opinion between age groups. By contrast, the present study unveiled significant differences between age groups in 10 out of 15 items. Overall, the findings were supportive of the younger age groups being more in agreement of using VAR than older age groups, consistent with the technology-driven nature of their generation (Yim et al. 2021). However, there were exceptions, with older age groups showing more positive perceptions towards enjoyment of goals with VAR, as well as the use of VAR post-match to penalise players/managers who had done something wrong.

5.3. Implications

Implications from this study include recommendations about how VAR can be used further in the EPL. The results show that the highest agreements from fans were that: VAR should be used to assist in situations where Hawk-Eye's GLT fails to perform its tasks; VAR teams should be expanded to include more than one expert referee; big screens should be installed in every stadium; the on-field referee should always review VAR evidence when a potentially match-changing decisions must be made; the way VAR judges offsides should undergo a change. The EPL might consider these items as priorities upon which to act when considering the impact of VAR on fans. Nevertheless, they might encounter certain perceptions that can counterbalance the need for change.

Making big screens mandatory for EPL clubs might be crucial in ensuring fan enjoyment. Yet, it is important to consider that fans will have different experiences over the course of a season depending on the team they support. For the 19/20 season, Liverpool's Anfield and Manchester United's Old Trafford were the only two stadiums without big screens (Sky Sports 2019a). Although the participants agreed that screens should be mandatory, some participants may be fans of Liverpool or Manchester United and might not want to see their stadium undergo drastic changes. By contrast, other supporters of the same two teams may feel that their experience was worsened due to the lack of big screens during VAR reviews. It would certainly make sense for arguably the two biggest clubs in English football to do what they can to aid in-stadium fans in getting information during VAR checks. This would be consistent with the findings of Stoney and Fletcher (2020) on how

fans report having a worse experience when they are not getting information when video evidence is being reviewed. However, it is important to note that the inclusion criteria for this study did not include fans having to frequently attend games. This means that a large portion of the sample might be attending games less or more frequently. The results of this item also found evidence of younger fans being significantly more positive towards screens than older age groups, although all groups were generally positive. These findings imply that the EPL need to consider future consumers when developing recommendations and regulations. The young age groups of this study will be the ones attending stadiums for the next decades, and their perceptions are likely to be passed on to younger generations (Šramová 2017). If attending games does become less enjoyable due to lack of information in-stadium, people might choose to watch games from home.

Perceptions towards how VAR is used to assess offside situations show that the current system does not function optimally in the eyes of the fans. However, it must be acknowledged FIFA's (Fédération Internationale de Football Association) stated intent on changing the VAR protocol for the EPL. This became evident in early August of 2020 when they passed a new protocol which addressed multiple concerns. This protocol includes intentions of: increasing the on-field referee's use of the review area; enforcing the rules of penalty kicks by retaking saved penalties if the goalkeeper is off his line or a player is inside the box before the kick is taken; encouraging linesmen to keep their flags down for offside situations that are not crystal-clear, to avoid ruining potential goal-scoring opportunities (Premier League 2020). This means that some of the implications from this study are already in the process of being changed. It shows that its findings are consistent with observations FIFA have done themselves. Additionally, the results showed that fans are towards a neutral stance on the negative side when asked if VAR should be used for more than just clear and obvious errors. These results suggest that FIFA should not add more parameters for VAR. This seems like the way to go in terms of keeping VAR simple and to avoid unnecessary confusion for referees, fans, players, and managers, as it has proven to do on numerous occasions in its debut season in the EPL.

Even though fans feel that VAR takes up a bit too much time of an EPL game, the perceptions towards how the tool is used carry more weight for fans. This should be considered important for FIFA and the EPL in developing VAR further. It is, however, important to note that these findings only represent one stakeholder group, being the fans. Organisations like FIFA and the EPL will rely on feedback from more than one group of stakeholders when developing VAR further. However, with fans being the stakeholders that pay for match tickets, merchandise and television subscriptions, their opinions should be deemed very important when considering changes to the game of football.

5.4. Limitations and Directions for Future Research

The choice of conducting a quantitative survey to create generalisations of a population was considered to be the best method for this study. However, the ability to answer some of the questions explored in the results and discussion sections was limited due to the nature of the study. These questions would undoubtedly provide more immersive results through qualitative interviews where fans could answer more freely. Another limitation might have been the wording on certain questions, which were intended to be linked to each other. This might have happened with items three and four in Table 1, which were intended to be linked through measuring perceptions towards usage of VAR monitors by on-field referees and time consumption with VAR. However, it is recognised that the question on usage of VAR monitors could have included a note on time consumption to establish a link between the questions. Future researchers should consider this if they want to compare these factors.

Another limitation of this study was the timing of the project. Data collection commenced during COVID-19, and none of the EPL clubs allowed for fans in-stadium during the time of data collection. It was evident during this time that fans wanted to be given the opportunity to visit stadiums again. These feelings might have overshadowed some

of the negative perceptions towards VAR at the time. Lack of tracking of geographical location of participants was also identified as a limitation. Participants were recruited through social media, and geographical location was not a part of the inclusion criteria. This means that the results could not be compared based on nationality or geographical location, which might have shown certain differences. The social media post included an invite to the survey and was shared in English and Norwegian on Twitter, as well as in both English and Norwegian Facebook groups dedicated to EPL fans. This means that a large portion of the sample may have consisted of Norwegian and English fans. Yet, is not possible to say for certain due to most of the participants being recruited via Twitter where there were no geographical filters present. Future research should include sample groups based on specific geographical locations or include a question where respondents answer their nationality to make such comparisons possible. This also applies to gender to observe whether there are any significant differences between different genders.

The final limitation was that the only stakeholder group explored in this study was the fans. Other key stakeholders include players and managers. A recent study has found that managers are more likely to publicly agree with VAR decisions when they favour their club, while they often question or disagree with VAR decisions when they go against their club (Chen and Davidson 2021). Future research should include these stakeholders to measure for differences. Those stakeholders might have a completely different experience than fans due to their ability to communicate with the team of referees during games and receive information. In other words, it should be deemed fair to assume that a study on the different actors of the game would provide a more immersive look into the subject of VAR.

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Article

Doping Sanctions in Sport: Knowledge and Perception of (Legal) Consequences of Doping—An Explorative Study in Austria

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Abstract: Anti-doping rule violations (ADRVs) can lead to sports-related and legal sanctions, thus, being knowledgeable is important. Research into this knowledge and how athletes and their support personnel (ASP) perceive the control mechanisms and the appropriateness of (legal) sanctions is still scarce. This explorative study aimed to examine the knowledge and perception of existing (legal) sanctions in Austria, by distributing a questionnaire to Austrian athletes and ASP covering the topics of knowledge related to legal and sports-related consequences associated with a specific ADRV presented in a case study, their trust and satisfaction with specific agencies (based on the European Social Survey (ESS)) and perceived efficiency and effectiveness of the doping control system. Data were analyzed descriptively. All respondents (N = 59) agreed on a ban from sport to be appropriate. Knowledge about legal consequences and the trust in the judiciary and the sport governing bodies was moderate (6.82 out of 10). Perceived appropriate consequences were on average higher than the likely sanctions to be faced. Future prevention should include trust building measures in the institutions and the control system, improvement in terms of access to law and education for the target group and critical reflection on the existence of social norms. Furthermore, the implementation of risk management aspects should be part of future approaches.

Keywords: anti-doping; legal; consequences; ADRV; athlete; athlete support personnel; risk management

1. Introduction

Besides promoting peoples' health, "sport has an educational dimension and plays a social, cultural and recreational role" (European Commission 2007, p. 3). However, crime and misconduct in sport are not infrequent and the continuing problem of doping can be considered as such. Doping should not only be considered from a micro-level perspective as being unfair and a threat to athletes' health. It should also be considered from a meso and macro level perspective as it also poses a risk for the respective sport (federation) and (major) event organizers as doping cases in a certain sport and/or during a specific event can also negatively affect the public image and perceived trustworthiness of that sport (Engelberg et al. 2012) and/or event. In this context, risk management plays a major role for stakeholders in terms of identification, evaluation and prioritization of the risks to avoid cases like that, for example, during the 2014 Sochi Winter Olympics, when a doping

scandal resulted in Russia's credibility for hosting future sport events being questioned on an international level (Makarychev and Medvedev 2019).

Even though often referred to as the use of specific prohibited substances and methods listed by the World Anti-Doping Agency (WADA) (WADA 2021c), the definition of doping comprises far more than this. Doping, as defined by the World Anti-Doping Code (WADC), comprises the occurrence of any anti-doping rule violation (ADRV) set out in articles 2.1 to 2.11 of the WADC. Rule violations do not only include the use of prohibited substances and methods (articles 2.1 and 2.2), but also any possession or trafficking of such (articles 2.6 and 2.7) as well as the matter of complicity in terms of assisting, encouraging, aiding or covering up an ADRV (article 2.9) (WADA 2021c). Anti-doping rules are basically sport rules in terms of governing conditions under which sport is played. Athletes and other persons (i.e., natural persons as well as organizations or entities) who are part of the game are bound by these rules and thus, must know about and follow these rules (WADA 2021c). Non-compliance can lead to sports-related sanctions, including disqualification or suspension, mainly aiming at ensuring fair play in sport and acting as a deterrent against doping (Dunn et al. 2012; Mazanov et al. 2012). In some countries (e.g., Germany and Austria) additional sanctions beyond the world of sport are embedded in criminal as well as civil law. In Austria, more systematic legal sanctions for specific doping behavior beyond sports-related sanctions have been implemented in 2007 (Anti-Doping-Bundesgesetz 2007). The legal sanctioning of doping is considered to act as a greater deterrent than sports-related sanctions alone and thus, might increase the so-called 'price' of doping (Sumner 2017). However, the deterrent effect can only unfold if these rules are known and if the trustworthiness of the control and sanctioning system reaches a certain level (Mulder et al. 2009). Yet, the system of consequences for ADRVs is highly complex and is aligned to more than just the rules set out in the WADC, especially in a criminal and civil law context, in which strict procedural rules govern proceedings, including rules of evidence. This might lead to the outcome that athletes (or athlete support personnel (ASP)), who on first sight committed the same ADRV face completely different legal consequences. Hence, the enforcement system could be perceived as not fully trustworthy and comprehensible, undermining its deterrent effect.

1.1. Consequences of Doping

In the interest of fair sports and protecting athletes' health, any ADRV needs to result in consequences. More specifically, only if legally binding anti-doping rules are derived from the World Anti-Doping Code (WADC) (WADA 2021c) and the eight International Standards (WADA 2021b) will the anti-doping rules be taken seriously and produce comprehensive deterrent effects. The framework of these consequences is rather complex, since it does not only include sports-related (ban from sport) effects, but also legal (civil and/or criminal) as well as social effects (e.g., loss of trust, isolation).

1.1.1. From a Sports-Related Perspective

The WADC is the fundamental document upon which doping prevention is based and indicates the basic framework for sports-related consequences of any ADRV. In detail, articles 10 and 11 of the WADC refer to sanctions against individuals and teams (WADA 2021c, p. 63ff). All code signatories (currently 727; including 206 national Olympic committees and 96 international Olympic federations) (WADA 2021a) commit themselves to comply with the rules and regulations set out in the WADC and shall "establish rules and procedures to ensure that all athletes, athlete support personnel or other persons under the authority of the signatory and its member organizations are informed and agree to be bound by anti-doping rules in force of the relevant anti-doping organizations" (WADA 2021c, p. 17). Simply summarized, consequences for individuals and teams (including athletes and their ASP) range from disqualifications and cancellation of results to periods of ineligibility to participate in sport and financial consequences (WADA 2021c). A very important fact in this regard is that for articles 2.1 and 2.2 of the WADC, the concept of strict liability applies, whereas it is not

necessary that "intent, fault, negligence, or knowing use on the athlete's part be demonstrated by the anti-doping organization in order to establish an anti-doping rule violation" (WADA 2021c, p. 176).

1.1.2. From a Legal Perspective

Besides sport federations under private law and sovereign states, international organizations such as the Council of Europe, the European Union and the United Nations Educational, Scientific and Cultural Organization (UNESCO) have addressed the issue of doping in sport. In 1990, the Anti-Doping Convention of the Council of Europe (Council of Europe 1989) entered into force, followed in 2002 by its Additional Protocol (Council of Europe 2002). Following these actions at international level, member States first officially committed themselves to anti-doping work in their own countries. According to the 2003 Copenhagen World Conference Against Doping in Sport, national governments declared they would take further actions against doping together with WADA; a commitment that led to the UNESCO International Convention Against Doping in Sport (UNESCO 2005) in 2005. Sovereign nations are now obliged to implement commonly agreed regulations into national law. In March 2017, 189 governments signed the UNESCO International Convention Against Doping in Sport. The implementation of the rules and regulations laid out in the current WADC usually fall under the responsibility of the national anti-doping organizations (NADO) and are supported by international standards aiming to harmonize specific technical and operational parts of the anti-doping program. Nations do possess a quite extensive scope of action and primarily focus on financial, pedagogic and preventive measures, whereas considerable sports-related sanction-power remains with sports federations.

In some countries, e.g., Austria, national legal consequences go beyond these rules. Austria ratified the Council of Europe Anti-Doping Convention in 1991 and consequently founded the Austrian Anti-Doping Committee (ÖADC), which was responsible for the anti-doping program until the establishment of NADA Austria in 2008. The UNESCO Anti-Doping Convention became effective in Austria only in 2007 (Anti-Doping-Bundesgesetz 2007)—first as part of the National Anti-Doping Law (NADL) and later by reforming the National Sport Funding Law (Bundes-Sportförderungsgesetze 2013). The foundation of NADA Austria, a private limited company, is a direct result of the NADL. It now takes on the responsibility of implementing the anti-doping program. In addition to the NADL, the Austrian Medicines Law (Arzneimittelgesetz 1983) as well as several provisions in other laws refer to the anti-doping program (e.g., provisions regulating the trafficking of medical substances with the intent to be used as doping substances). Thus, sanctions included in the WADC such as disqualification of results, ineligibility, provisional suspensions, financial consequences, public disclosure or public reporting directly apply to Austria. In addition, sanctions anchored in different national laws may emerge. In detail, national sport federations that do not comply with an extensive catalogue of obligations deduced from WADA regulations will lose national funding. Moreover, following a change in national law in 2008, the NADL and the Austrian criminal law have been reformed and became effective in 2010. The new NADL accepts the wording from the WADC 2009 and includes more extensive sanctions for athletes and support personnel who commit doping offences. Additionally, paragraph 147 section 1a of the Austrian Criminal Law (Strafgesetzbuch 1974 in its current version) now regulates doping under serious fraud to be sanctioned with a prison sentence up to 3, or 1 to 10 years (if damages caused exceed EUR 300,000).

1.1.3. From a Societal Perspective

An implicit rationale for anti-doping legislation is that doping damages the public image of sport and that this, in turn, poses a severe risk and might have serious consequences for the sporting industry (Engelberg et al. 2012) and sport management organizations. Therefore, a prison sentence as a possible consequence for an ADRV cannot be considered

as a solely legal and/or sports-related consequence on an individual basis, but also shows an effect on society and sport itself. Thus, next to sports-related and legal consequences, social consequences on an individual level that include loss of income and thus threaten existence, but also cause humiliation, social stigma and bad reputation (Dimeo and Møller 2018) need to be considered as well. These social consequences, often underestimated, seem to have an even greater deterrent effect compared to the abovementioned legal or sports-related consequences (Huybers and Mazanov 2012; Overbye et al. 2014). Therefore, they should especially be considered against the background of the strict liability rule that generally increases the possibility that an athlete without the intention to cheat or commit an ADRV also faces these consequences. In such a case, the strict liability rule can have a "dehumanizing effect" (Dimeo and Møller 2018, p. 117) and can sometimes lead to depression or even suicide (Dimeo and Møller 2018). On an organizational level, societal consequences should also not be underestimated. As stated above, the public image of the specific sport is threatened by doping, and the continuous reporting of doping cases in almost every major sport event might undermine the public support for anti-doping legislation, which could possibly be perceived as untrustworthy and inefficient. Thus, the conclusion of Engelberg et al. (2012) that policy makers will need to ensure that anti-doping legislation maintains strong public support might become a challenging task and poses a major risk also for sport management organization at all levels.

1.2. The Role of Knowledge, Trust and Legitimacy

There is a great extent of research that only focuses on identifying the risk of and protective factors against doping behavior with the aim to integrate these into preventive measures (for details, refer to, for example, Ntoumanis et al. (2014) and Blank et al. (2016)). Knowledge has been identified as a risk (if lacking) and protective (in terms of preventing inadvertent doping) factor very early on (Laure and Binsinger 2007; Laure et al. 2004; Peters et al. 2009; Wanjek et al. 2007). Thus, the different systems oblige any professional athlete and ASP not only to comply with the rules and regulations presented in the WADC as well as with laws and regulations of a specific country, but also to have sufficient knowledge to enable them to do so. In detail, athletes and ASP must be "knowledgeable of and comply with all applicable anti-doping policies and rules", and athlete support personnel must especially "use their influence on athlete values and behavior to foster anti-doping attitudes" and "not use or possess any prohibited substance or prohibited method without valid justification" (WADA 2021c, p. 136f). Not knowing about the rules and regulations can lead to an inadvertent ADRV potentially followed by the abovementioned consequences. Moreover, the mere fact of missing knowledge itself could already be considered as non-compliant, negligent behavior especially regarding ASP.

Another reason why the state of knowledge was included in anti-doping research and prevention from very early on was the assumption of its deterrent effect. Knowledge of the anti-doping framework itself is expected to prevent athletes and ASP from breaking doping rules, because of the awareness of potential severe consequences of ADRVs. However, research mainly focused on knowledge about prohibited substances and methods and their side effects was found to be negatively associated with doping intentions and susceptibility (Blank et al. 2016; Ntoumanis et al. 2014). To the best of our knowledge, the current anti-doping research has not assessed possible associations between the knowledge about consequences of ADRVs and attitudes towards anti-doping rules and behavior. This gap is also reflected in current prevention programs, as they predominantly include information about the prohibited list and associated health effects, the doping control procedure or sports-related consequences of ADRVs (for example WADA's anti-doping e-learning platform (ADeL). Most of the programs do not include information on consequences of doping that exceed sports-related sanctions, such as criminal and/or civil law consequences.

An important factor in the effectiveness and efficiency of the anti-doping system is the concept of trust in the testing authority (Overbye 2016, 2017). Effectiveness describes the fact of producing the intended result (Oxford University Press n.d.), while efficiency refers

to the quality of doing something without wasting time or money (Oxford University Press n.d.). Trust and belief that deviant doping behavior might be detected (effectiveness) and that potentially doped athletes are included in doping controls (efficiency) are significant components in the effectiveness of deterrent effects. This concept is also associated with perceived legitimacy of anti-doping measures, meaning that it is also important how effective goals of set policies are reached—for example, how successful testing measures are (Mena and Palazzo 2012). Up to now, the effects of sanctions have not been as well researched as other areas in doping prevention (Overbye and Wagner 2014) and it is not entirely clear whether and under which circumstances they work effectively as a deterrent. Overbye (2017) showed that being selected for doping control is only perceived as a deterrent by 40% of athletes, whereas 75% consider the likelihood of being detected as a significant deterring factor. Other studies on doped athletes found that these athletes did not perceive the existing detection systems as a credible threat to deter them from doping (Kirby et al. 2011; Moston et al. 2015; Pappa and Kennedy 2012). In addition, in a study with English professional football players, one-third of the players had not been tested within the past 2 years, and only 40% considered it likely they would be tested in the upcoming year (Waddington et al. 2005). Thus, there might be an obvious risk that doped athletes will not be included in doping controls, possibly being considered as an indicator for an inefficient system.

Besides trust in anti-doping authorities and measures, the universal trust in authority also plays a role for sanctions to act as a deterrent in general (Mulder et al. 2009). In addition, sanction severity acts as moderator and more severe sanctions exert a more sustainable effect on morality than mild sanctions (Mulder et al. 2009).

1.3. Research Gap and Study Aims

Given the literature and the regulatory framework for doping in sport, it appears that the topic is highly complex. Even though there seems to be a clear theoretical framework, in practice, particularly criminal and civil law consequences depend on several factors (e.g., strict procedural rules, rules of evidence), which might even increase the level of complexity. Furthermore, sports-related consequences also depend a lot on evidence, as sanctions can be reduced and/or completely removed if "the athlete or other person can establish both no significant fault or negligence" (WADA 2021c, p. 70). Thus, different procedural rules and standards of proof might lead to the fact that athletes (or ASP) committing an apparently identical ADRV face completely different consequences (McNamee and Tarasti 2011). At all levels—athletes, organizations, public—this could result in a decreased level of trust in and perceived legitimacy of the anti-doping system, while at the same time the deterrent effect of the system itself might be undermined. This may occur not due to any weakness in the system itself, but rather due to a lack of knowledge and awareness about the complexity of the system. Nevertheless, although even experts in the field view the system as rather complex, WADA obliges professional athletes and ASP to be aware of all the rules, regulations and respective consequences set out in the WADC.

Currently, there exists a gap in research into knowledge about doping sanctions and how athletes and especially their support personnel perceive the control mechanisms as well as the appropriateness of subsequent (legal) sanctions. Additionally, Sullivan et al. (2015) and Peters et al. (2007) report a lack of knowledge of coaches on a range of anti-doping issues. Engelberg and Moston (2015) found that their interviewed coaches were familiar with testing procedures but lacked knowledge about specific doping products and more advanced doping procedures as, for example, the whereabouts systems. According to them, this is not entirely surprising as the legislation is highly complex and differs nationwide depending on how countries implement the 'general' parts of the code (WADA 2021c). To date, research in Austria has analyzed the level of knowledge related to prohibited substances and methods as well possible related side-effects (Blank et al. 2014a, 2014b, 2014c, 2015) but not in relation to consequences of ADRVs, from either a sports-related perspective or from a legal perspective. However, given the relevance of

and high expectations placed upon the factor knowledge as outlined above, as well as the complexity and potential severity of consequences, any gap should not be underestimated. In Austria, there have been several especially compelling doping cases over the past years including Torino 2006 and Seefeld 2019—in all of which Austrian athletes and ASP have not only been handed sports-related sanctions but have also been faced with civil and criminal law consequences.

Thus, the main aim of this explorative study is to investigate the state of knowledge of Austrian athletes and ASP in terms of legal and sports-related consequences associated with an ADRV. Furthermore, we aimed to investigate how athletes and ASP perceive the appropriateness of existing sanctions and how they rate their trust and satisfaction in and with the organizations commissioned with the enforcement of anti-doping rules. The overall aim is not to generalize these results but to consider this explorative study as a starting point to disclose and raise important issues that warrant further research. In detail, these findings are expected to support the development of the current theory by adding information on the current state of knowledge, trust and perceived appropriateness of anti-doping measures, as will be discussed. Moreover, as doping generally threatens the integrity of sport and also poses a risk for the respective sport (federation) and (major) event organizer, we further strive to develop managerial implications with a special focus on trust building measures, how to improve the access to law and education, if necessary, and to consider the role of social norms in the overall process of doping-related consequences. In the end, we expect to support the continuous effort to improve anti-doping education and communication strategies for athletes and ASP in Austria by providing these possible implications. Due to the novelty of this research, no a priori hypotheses are defined, and results will be used to propose potential hypotheses about the importance of this kind of knowledge and whether it is even possible to comply with the WADC in terms of being knowledgeable in view of such a complex phenomenon.

2. Materials and Methods

2.1. Design

This explorative research study follows a quantitative cross-sectional approach, using a paper–pencil questionnaire including a case study that was distributed to athletes and ASP alike. Participants were recruited during the certificate course 'Doping and Doping Prevention' (only addresses ASP) that is offered by the principal investigator's institute, as well as students of sport sciences attending either the class 'Doping and Doping Prevention' or 'Sports Law' (attended by athletes and ASP). Questionnaires were handed out before the respective class(es) took place and participation was voluntary. To ensure content validity, the questionnaire and especially the case study was developed based on current literature and in consultation with legal experts familiar with professional sport, a sport physician, as well as a health and a sport scientist. It was pre-tested with ten respondents including professional athletes, coaches and lawyers with experience in sports law at the level of the Court of Arbitration of Sport (CAS). Based on their feedback, the questionnaire was amended as necessary.

2.2. Questionnaire

The questionnaire consisted of four parts:

1. Case Study: The case study described a situation where the athlete was found to have taken a substance on the WADA prohibited list, which was offered to him by an ASP under the pretext that 'everyone else is taking it'. Based on a case study, the respondents were asked to answer different questions regarding the consequences of doping for both the athlete and the ASP. Possible consequences were presented separately according to the sanctioning authority (i.e., sports-related sanctions (ban from sport), criminal law consequences (imprisonment, financial penalty), civil law consequences (claim for damages) and no consequences at all. In addition, respondents were asked to give their opinion regarding the appropriateness of the possible consequences for

the athlete and the ASP. The case study was developed together with experts from law (sports-related and non-sports related), sport science and anti-doping science to ensure content validity. It was pre-tested with a sample of athletes (n = 4) to ensure misunderstanding due to weak wording could be ruled out. No changes were proposed; thus, the initial version was used. The final case study is available from the corresponding author upon request.

2. Trust and Satisfaction: Questions taken from the validated European Social Survey (2017) were used as a basis to investigate respondents' general levels of trust, and their trust in public entities specifically, adding the judiciary as well as different national and international sport governing bodies. Additionally, respondents were asked to indicate their satisfaction with the work and performance of these sport governing bodies (including doping prevention). Answers were assessed on a 10-point Likert scale (0 = do not trust at all/not satisfied at all—10 = completely trust/completely satisfied). Data were analyzed on a single-item basis; thus, no reliability measure was needed. Items were also pre-tested with a sample of athletes (n = 4) to ensure misunderstanding due to weak wording could be ruled out. No changes were proposed; thus, the initial version was used.
3. Effectiveness and Efficiency of Doping Control System: Four single items rated on a 10-point Likert scale (0 = do not trust at all—10 = completely trust) were used to assess the degree to which the respondents perceived the national and international in-competition (IC) and out-of-competition (OOC) testing system to be effective and efficient. To prevent misunderstanding of the terms 'effectiveness' and 'efficiency', they were operationalized using the following examples: doped athletes will be identified as such based on laboratory analyses and vice versa (effectiveness), and potentially doped athletes will be subjected to doping control measures (efficiency). All variables were analyzed on a single-item basis; thus, no reliability measure was needed. Items were also pre-tested with a sample of athletes (n = 4) to ensure misunderstanding due to weak wording could be ruled out. No changes were proposed; thus, the initial version was used.
4. Additional information: The questionnaire included additional sociodemographic questions on age, gender, level of sport and role (e.g., athlete, coach, physician, etc.).

2.3. Procedure

Before participation, respondents were informed about the content of the study. Participation in the study was voluntary and required informed consent. After providing written informed consent, the questionnaire was distributed by the study team. Respondents returned their questionnaire via a closed box that was only opened by the study team after the data collection period. Respondents could withdraw from the study at any time without explanation and without any consequences until the data were anonymized. A member of the study team who was not engaged in the data collection process entered the data in SPSS. Data analysis was performed in an anonymized manner. The study was approved by the ethics board of the principal investigator's university (RCSEQ GZ 1981/16).

2.4. Presentation of Data and Statistical Analysis

Data were analyzed and presented descriptively using IBM Statistical Package for the Social Sciences (SPSS), Version 26. Respondents were classified as athletes, ASP or both, and data were analyzed accordingly. Respondents who did not indicate whether they were ASP or an athlete were omitted from the dataset as they could not be assigned to any group. Given the sample characteristics and size as well as the aims of the study, data were analyzed in an explorative way to define potential hypotheses to be tested in future studies. Thus, only descriptive analyses were performed. Trust and satisfaction levels were categorized in four groups based on the mean values ($0 \leq$ mean < 0.25 no

trust/satisfaction; 0.25 $\leq$ mean < 0.5 low trust/satisfaction; 0.5 $\leq$ mean < 0.75 moderate trust/satisfaction; 0.75 $\leq$ mean < 1 high trust/satisfaction.

3. Results

3.1. Sociodemographic Characteristics

In total, 95 respondents participated in the study. Of those, 36 had to be excluded as respondents did not specify whether they were ASP or an athlete and thus could not be allocated to any respondent group and were omitted from the dataset. Consequently, the total sample size for this explorative study was 59 respondents (20% athletes, 50.8% ASP (coaches, sport scientists, physicians and physiotherapists) and 28.8% represented both, athlete and ASP). They had a mean age of 30.9 $\pm$ 9.9 years and 22% (n = 13) were females.

Athletes competed regionally (n = 6), nationally (n = 3) and internationally (n = 3). ASP were responsible for athletes competing regionally (n = 4), nationally and internationally (n = 10) as well as both nationally and internationally (n = 5). For further analyses of the respective consequences, respondents were grouped into athletes (n = 12), ASP (n = 30) and both (n = 17).

3.2. Consequences of Doping

Descriptive data of the respondents in terms of what consequences athletes and ASP would have to face following the presented scenario are outlined in Table 1.

Table 1. Consequences for ADRVs presented in the case study.

	Consequences for the Athlete % (n)			**Consequences for the ASP % (n)**		
	Athletes	**ASP**	**Both**	**Athletes**	**ASP**	**Both**
Ban from sport	100 (12)	100 (30)	100 (17)	91.7 (11)	83.3 (25)	76.5 (13)
Criminal law (imprisonment)	16.7 (2)	10 (3)	5.9 (1)	25 (3)	26.7 (8)	17.6 (3)
Criminal law (financial)	58.3 (7)	40 (12)	14.2 (7)	50 (6)	36.7 (11)	52.9 (9)
Civil law (damages)	33.3 (4)	70 (21)	88.2 (15)	16.7 (2)	33.3 (10)	29.4 (5)
No consequences	0 (0)	6.7 (2)	5.9 (1)	8.3 (1)	10 (3)	11.8 (2)

Table 2 shows the responses to the open-ended questions (presented by category) in terms of the consequences for doping for the athlete and the ASP in the case study and contrasts those answers with respondents' opinions on what they perceived to be an appropriate consequence.

3.3. Trust in and Satisfaction with Organizations and Testing Program

Trust in the judiciary was on average at 6.83 $\pm$ 2.2 (out of 10). Respondents displayed the highest trust and satisfaction levels with NADA Austria, whereas the International Olympic Committee (IOC) was perceived as least trustworthy and had the lowest level of satisfaction. Trust in effectiveness and efficiency of in-competition (IC) testing (nationally and internationally) was generally higher compared to that in out-of-competition (OOC) testing. Overall, higher levels of trust in effectiveness and efficiency of the testing system were expressed for the national testing system. Detailed information is outlined in Figures 1 and 2. Results are presented for the entire sample as no differences between the groups were detected.

Table 2. Responses regarding consequences the athlete and ASP in the case study had to face.

Consequences for the Athlete		
Responses	**Comment (n)**	**Perceived Appropriate Consequence (n)**
Ban from Sport	Lifelong ban (1)	6 months (3) 1 year (1) 2 years (9) 3 years (3) 4 years (4) 8 years (1) 10 years (1) Lifelong (11)
Criminal and civil law	Depending on income (1) Compensation (1) Cost of hearing (1) depending on contract (6) Compensation (13)	Fine (14) Jail (2 years) (2)
No consequences	It is not OK	Not at the first time of doping
Other comments	Exclusion of squad/federation (2) Loss of workplace if state funded (1) Public announcement (2) Compensation (4)	Integration in doping prevention (1) Fairness classes (1) Other
Consequences for the ASP		
Responses	Comment (n)	Perceived Legitimate Consequence (n)
Ban from sport	Same as athlete (1) Lifelong ban (3)	2 years (2) 4 years (2) 10 years (1) Lifelong (16)
Criminal and civil law	Compensation (3) Exclusion (1) Ban (1)	Fine (16) Jail (1–3 years) (7)
No consequences	It is not OK (1) Austrian judiciary too weak (1) Self-responsibility of athlete (2)	Not Applicable
Other comments	Salesperson of PED—jail (1) Charge by athlete (1) Loss of license (2) Lifelong ban (2) Public announcement (1) Exclusion from federation (10)	Education (2) Loss of coaching license (20)

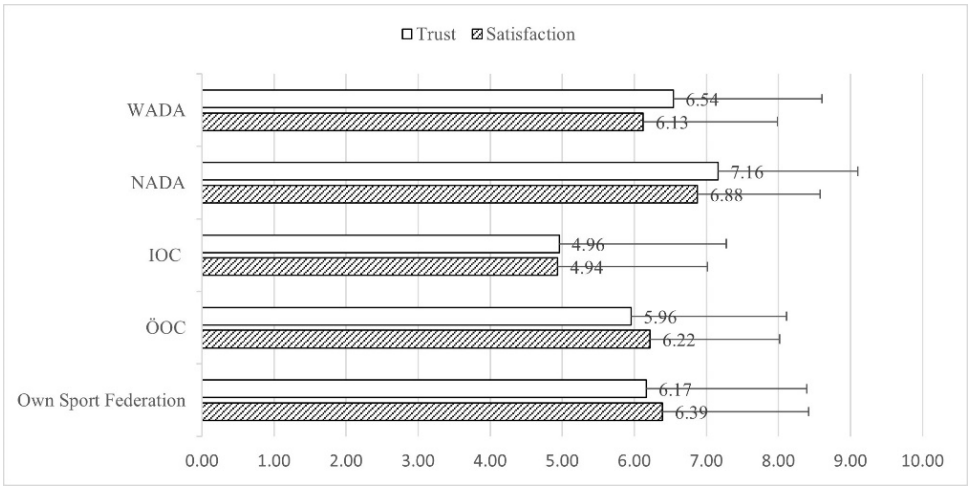

Figure 1. Trust in and satisfaction with organizations. Note: WADA = World Anti-Doping Agency, NADA = National Anti-Doping Agency, IOC = International Olympic Committee, ÖOC = Austrian Olympic Committee.

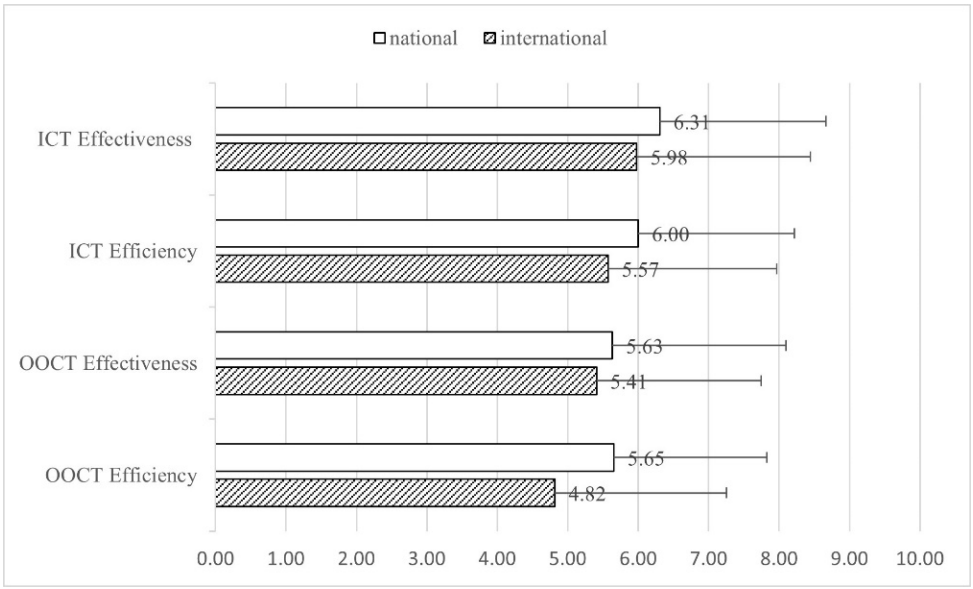

Figure 2. Trust in and satisfaction with organizations. Note: WADA = World Anti-Doping Agency, NADA = National Anti-Doping Agency, IOC = International Olympic Committee, ÖOC = Austrian Olympic Committee.

4. Discussion

4.1. Summary

Analyzing previous literature, several gaps have been identified, including the knowledge of anti-doping rule violations (ADRVs) resulting in sports-related and legal sanctions. Research into this knowledge and how athletes and their support personnel (ASP) perceive the control mechanisms and the appropriateness of (legal) sanctions is still scarce. In an attempt to fill these research gaps and provide new insights, this explorative study aimed to provide new insights concerning knowledge and perception of existing (legal) sanctions by Austrian athletes and ASPs. Results covered knowledge related and sports-related consequences associated with a specific ADRV, revealing trust in and satisfaction with specific agencies (based on the efficiency and effectiveness of the doping control system). More importantly, results show that all respondents agreed on a ban from sport to be appropriate. Additionally, knowledge about legal consequences and the trust in the judiciary and the

sport governing bodies was moderate, while perceived appropriate consequences were on average greater than the likely sanctions.

4.2. Theoretical Implications

4.2.1. Case Study Results

To the best of our knowledge, this study is the first to evaluate the current state of knowledge of (legal) consequences of ADRVs in Austria. Given the severity of the ADRV exemplified in the presented case study, the consequences for the athlete would most likely include a 4-year ban from sport (given it being the first ADRV). In addition, civil law consequences in the form of claims of damages (e.g., by sponsors or the organizer) as well as criminal law consequences (including jail) based on the Austrian 'serious fraud paragraph' are likely. For ASP, consequences would also include a 4-year ban from sport for their first ADRV. Criminal law consequences based on the 'possession and passing on of prohibited substances paragraph' as well as civil law consequences in the form of claims of damages would also be likely.

4.2.2. Knowledge of (Legal) Consequences Based on the Case Study

Overall, responses in terms of consequences for athletes and ASP were similar to the above-outlined description. The exception was that nearly 11% (in view of ASP) and 5% (in view of athletes) stated the ADRV presented in the case study should not result in any consequence. Regarding consequences for the athlete, all respondents answered that the athlete should face a ban from sport following the description of the ADRV in the presented case study, and half estimated criminal law consequences to be likely, which is true for Austria. For our case study, both are very likely consequences, indicating a sufficient knowledge of possible consequences for an ADRV by our respondents. Interestingly, when asked about potential civil law consequences, such as claim for damages by sponsors, athletes and ASP differed in their answers, as only about one-third of athletes affirmed such consequences compared to 70% of ASP, and even 88% of the 'ASP and athlete' group.

Our results indicate that respondents are informed about sports-related consequences (i.e., ban from sport) but lack knowledge about further (legal) consequences. Legal systems are only fully functioning when their norms are accepted and supported by most people addressed (Andenaes 1966; Schwartz and Orleans 1967). Besides, preventive effects should prevail over sanctions. However, the precondition for this is knowledge and acceptance of norms. Thus, our finding is unsatisfactory as Sumner (2017) states that additional legal consequences generally act as greater deterrent than sports-related consequences alone. However, the deterrent effect only works if athletes and ASP are aware of these consequences. In the case of our respondents, this preventive effect might be lost. A similar lack of knowledge about consequences of doping behavior was detected in another study in an Australian sample of athletes and ASP: The most common answer was a ban from sport; however, this was only articulated by 35.8% of athletes and 35.9% of ASP. Possible criminal sanctions were only articulated by 2.1% of ASP and none of the athletes. This lack of knowledge of legal sanctions might not only undermine the deterrent effect, but also increase the risk of unintentional doping, for example due to taking contaminated nutritional supplements (Chan et al. 2019; Martínez-Sanz et al. 2017). Even though the strict liability rules do not apply in a civil and criminal law context, athletes and ASP should be knowledgeable about potential consequences to better protect themselves.

4.2.3. The Role of Trust in the Deterrence Strategy

Trust in the control system and responsible organizations are hypothesized to act as an additional moderator in the deterrent effect (Overbye 2016, 2017). Our respondents showed a moderate level of trust and satisfaction with sport governing bodies responsible for anti-doping, and a moderate level of trust in the Austrian judiciary system enforcing civil and criminal anti-doping rules. This finding is emphasized by open comments stating that there should be no consequences for the ADRV presented in the case study as the 'Austrian

judiciary is too weak' and it is within the responsibility of each athlete/ASP. Combining this specific comment with the overall moderate level of trust in sports governing bodies entrusted with the execution of anti-doping rules, it can be concluded that there is potential for improving the level of trust and acceptance. Possible implications will be outlined below.

Next to trust, the concept of legitimacy is also hypothesized to support the preventive effect of deterrence and testing-based anti-doping strategies (Donovan et al. 2002; Jalleh et al. 2014). Regarding legitimacy, the effective fulfilment of the goals a policy sets out plays a significant role (Mena and Palazzo 2012). Thus, in terms of anti-doping, the perceived effectiveness and efficiency of the doping control system (i.e., testing) seem to play an important role as well. Similar to trust in the institutions, results of our study show a moderate level of trust in the effectiveness and efficiency of the doping control system (OOC and IC). Effectiveness and efficiency seem to be even lower if referring to international IC and OOC testing. In addition to the lack of knowledge, this finding might further undermine preventive effects of the deterrence strategy. In line with this, Overbye (2017) could show that only 40% of the athletes perceived the risk of actually being selected for doping control as a deterrent. In addition, in other studies with doped athletes, the existing detection systems were not perceived as a credible deterrent to doping (Kirby et al. 2011; Moston et al. 2015; Pappa and Kennedy 2012). Thus, improving trust in the control system, by, for example, globally implementing the rules in a harmonized way to increase the preventive deterrent effect, might be a better idea compared to spending increasing amounts of money on testing.

4.2.4. Perceived Appropriateness of (Legal) Consequences

Considering the perceived appropriateness, many of the respondents called for bans from sport that are much longer than they currently are in view of a first ADRV (as presented in the case study). For clarification, a first time ADRV usually results in a four-year ban from sport in addition to possible further criminal- and civil-law related sanctions. For ASP, respondents perceived that an appropriate consequence for the ADRV presented in the case study would be a loss of the coaching license and a lifelong ban from sport but also imprisonment. Interestingly, some of the open-ended comments indicated that rule-breakers should be obliged to complete specific educational and fairness-related prevention programs. Additional research regarding the perceived appropriateness of legal consequences is needed and might provide further insight into why the perceived appropriate consequences were overall more severe than the actual consequences athletes and ASP would most likely face following the presented ADRV. Based on our findings it would be of great interest to evaluate in future studies whether the level of trust in the sport governing bodies as well as that in the efficiency and efficacy of the doping control system are associated with the severity of perceived appropriate consequences for an ADRV.

4.3. Managerial Implications

Taking a management perspective, our results demonstrated challenges that the anti-doping system in general but also the organizations responsible for anti-doping face. To deal with these challenges, the following implications with respect to risk management and future anti-doping work in Austria can be drawn.

4.3.1. Trust-Building Measures in the Institutions and Control System

A lot of money is spent each year on the execution of doping tests (Maennig 2014; Kraushaar Martensen and Møller 2016; WADA 2020), but without sufficient trust in the work of the responsible organizations, the deterrent effect is questionable, and the money spent in vain. Thus, to increase the trust and confidence in the governing institutions and in the control system, an information-based prevention campaign on the organizations' responsibilities and doping prevention work might be a good approach. In addition, more transparency in terms of how OOC doping controls are distributed and the publication of

exact numbers of international testing activities could also increase the level of trust in the testing system. Additionally, risk management is an important topic for sport (federations) and (major) event organizers that fear the impact of unfortunate events such as doping cases. The question is what can be done to decrease the threat of doping cases and therewith bad press and a loss of image. One option could be to increase the overall test contingent and have more targeted tests ahead of major sport events, which might be a way to increase trust and transparency. Nevertheless, even with the best risk management, the uncertainty remains that despite all precautions there might be a positive doping case at the event. Thus, in addition to testing, a clear contingency plan in case of a positive doping case during an event should be included in the risk management strategy to reduce the negative effects. In the case of Seefeld and their crisis management during the FIS Nordic World Ski Championships in 2019, a clear contingency plan including coordinated and corporate public relations management could have helped a lot to decrease the negative effects, including unwanted consequences for the event organizer, the hosting city as well as the image of the sport and the event.

4.3.2. Access to Law and Education

As the state of knowledge of legal consequences showed substantial potential for improvement, the access to law of the target groups (athletes and ASP) should be considered. Appropriate education should be integrated into primary preventive measures, as only acceptance and profound understanding of legal norms and their consequences can influence actual behavior. These approaches should aim to guarantee that athletes and ASP systematically understand the legal framework and are able to differentiate between civil and criminal sanctions. Available online material of NADOs often does not include a basic module for transferring pertinent knowledge on legal consequences to athletes and ASP. Moreover, educative initiatives should also include content regarding sports-related and, in the case of Austria, legal consequences. Regarding knowledge about legal rules, including their application and the respective consequences of violation, there is evidence that highlighting the possible damage to reputation ensuing from a positive doping test has the greatest deterrent effect (Masucci et al. 2019; Overbye 2016). However, as shown by this study, the application of the different rules and consequences was poorly understood, and thus should be better integrated in educative measures. This is especially important given the complexity of the rules and the strict liability principle. In Austria, a 5-day certificate course on doping and doping prevention in sport includes 120 min of legal education for the participants—which is, to the best of our knowledge, the only course in Austria including legal aspects at all. Even though still limited in time, such an approach could enhance preventive effectiveness and increase compliance with the rules and should be adopted in all countries with doping sanctions embedded in national criminal law. Easily accessible online learning tools would support these efforts. In sum, if responsible organizations invest more money in education, the deterrent effect of the testing system, including the possible sanctions, might be enhanced. In the long run, this might lead to fewer unintentional doping violations, which in turn would save time and money relating to solving individual cases. These assumptions would need to be verified in future studies.

4.3.3. Consideration of the Existence of Social Norms

In the context of doping prevention, it is necessary to differ between legal and social norms. Legal norms are defined as a type of command issued by the sovereign, namely general and public orders backed up by the danger of sanctions (Science Direct 2020). In contrast, social norms are informal rules that govern behavior in specific groups and societies (Stanford Encyclopedia of Philosophy 2018). In sport, both types of norms operate side by side and may also have the power to influence each other. While the legal sanctioning mechanisms can be attributed to the legal system, individual sports have their own (social) norms that can also influence or sanction the handling of doping. Cialdini (1989) and Cialdini et al. (1989) assessed these social norms and were able to show that it is

important to distinguish between injunctive norms (what most others say should be done) and descriptive norms (what most others actually do). As Donovan et al. (2002) conclude, the latter appear to have more influence than the former; thus, it is of high relevance to focus on the descriptive norms to actually change behavior.

Legal norms may have the power (especially due to their sanctioning/preventive character) to influence and also shape social norms and vice versa. Considering this, one can assume that if doping is socially sanctioned in the respective group of sports descriptive norms (following Cialdini et al. 1989), the acceptance of respective legal norms might also occur. This leads to the conclusion that doping prevention should not solely be based on legal norms but should additionally recognize the impact of social norms.

Hence, it is not enough if legal norms are integrated in educative prevention as long as doping is socially accepted in some sports. To work on the potential power of social norms, and respectively descriptive norms, it seems promising to open a transparent discussion about the moral decision to turn to doping (Negro et al. 2018). This should be based on examining ethical obligations that athletes and their social group carry (Gleaves et al. 2014), which could then lead to a fundamental rethinking of the moral community.

Since these moral communities can be characterized by social integration and a set of shared beliefs about morality that shape members' behavior (Durkheim 1992), Bowers and Paternoster (2016) as well as Macedo et al. (2017) propose to focus on these communities to implement and foster a more ethical and effective anti-doping strategy.

Besides, trust in executing bodies is increased if the social norm of doping is accepted in some sport. National and international federations as well as sport clubs might be interested to investigate the social norms regarding doping in their sports, and if it is the case that doping seems to be socially accepted, invest money to change that—preferably by education.

4.3.4. Limitations and Future Research

Although this study provides interesting findings concerning knowledge and perceptions of existing (legal) sanctions in Austria among Austrian athletes and ASPs, future research should consider the study's limitations in order to create more sophisticated knowledge on this highly relevant topic. Firstly, the sample size is rather small and thus, results cannot be generalized. However, it was not the aim of the study to generate representative findings, but rather to provide initial insights into the knowledge of legal and sports-related consequences associated with ADRVs based on an explorative approach. Secondly, the selection process possibly led to a selection bias leading to positively skewed results in terms of knowledge. Respondents were all participants of either a university class in sports law or of a voluntary course on doping and doping prevention. Thus, one could expect a special interest and hence, a possibly increased knowledge about doping and its consequences. Thirdly, due to the missing data and excluding of datasets, there were only 12 respondents (out of 59) that solely represented the role of an athlete. Additionally, 17 had two roles—athlete and ASP. Even though we expect the respondents with two roles to be able to describe the athlete's perspective, their answers cannot be considered unbiased, thus there is a skewed distribution with respect to athletes and ASP. Researchers who might be interested to test specific hypotheses based on our results should try to balance the sample between athletes and ASP (without double roles). Fourthly, even though the survey was pre-tested, we can also not be sure whether all respondents understood what is meant by civil and criminal law consequences, although we tried to be very specific in the questionnaire by providing examples. Fifthly, parts of the items were self-designed by the authors of the study and future research using this instrument will be needed to support its validity and reliability. Last, but not least, socially desired responding and thus an overestimation, especially of the perceived appropriate consequences, cannot be excluded.

5. Conclusions

Our results covered knowledge-related and sports-related consequences associated with a specific ADRV, revealing trust and satisfaction with specific agencies and perceived efficiency and effectiveness of the doping control system. More importantly, knowledge about legal consequences and the trust in the judiciary and the sport governing bodies was moderate and perceived appropriate consequences were on average greater than the likely sanctions. Concluding, future prevention should include measures to build trust in the institutions and the control system. In detail, providing more and more transparent information about testing and anti-doping education, nationally as well as internationally, introducing increased target controls prior to major events and develop doping-related contingency plans if the worst case happens, might be worthwhile approaches. Moreover, improvement in access to law education seems to be an important factor to increase the related knowledge of the stakeholders. Finally, a critical reflection on the existence of social norms that should not mistakenly be equated with legal norms seems necessary. As the former seem to play an important role in doping prevention, they should be an essential part of anti-doping education.

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Institutional Review Board Statement: The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Institutional Review Board (or Ethics Committee) of UMIT TIROL (RCSEQ) (protocol code RCSEQ GZ 1981/16, approved on 17 November 2016.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Original data will be provided by the corresponding author upon reasonable request.

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Conflicts of Interest: The authors declare no conflict of interest.

Case Study: Professional athlete A is a member of an Austrian federal sports association that applies the world anti-doping code in its exact wording. After a cold, A has the feeling to be fallen far behind the other athletes in training. Someone out of the coaching team (e.g., coach, physiotherapist, sport scientist, doctor, masseur, etc.), called ASP, offers A a prohibited substance PS (listed as specified substance on the prohibited list of WADA 2018), which should help to get back to the "good old" form. A is not sure, if the offered substance PS is prohibited. Up to this situation, A has never legally come into contact with doping. A trusts ASP in this respect. Besides, according to his information the substance is taken by many other athletes in the federation F. After taking it, success is quickly achieved again—even at major international sporting events. A continues to take the substance PS. PS is also easily available on the Internet, so that A can subsequently obtain it himself. A is tested positive for PS at an international competition in Austria and has no therapeutic exemption (TUE) for PS.

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Childhood Sporting Experience and Charitable Donations to Disaster Victims

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Abstract: I investigated how people's childhood experiences of involvement in team sports helped them develop non-cognitive skills, which later prompted them to make charitable donations to disaster victims. I independently collected individual-level data from approximately 7000 observations in 2016. The instrumental variable (IV) method was used for the estimations. In the specification of the IV model, sporting experience and informal education in childhood were used as exogenous IV. I found that (1) sporting experiences cause people to have positive subjective views of reciprocity, (2) team sports experience has a larger effect on people than individual sports experience, and (3) the above lead people to donate to disaster victims of enormous disasters such as the Great East Japan Earthquake.

Keywords: donation; natural disasters; informal school curriculum; childhood sporting experience; social capital

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1. Introduction

Unexpected exogenous shocks, such as natural disasters, cause people to have great difficulty in adjusting to the heat-rending situation. Natural disasters have a devastating impact on economic conditions (Yamamura 2013, 2015b). The degree of the impact varies according to the social and economic status of the people, which increases income inequality (Masozera et al. 2007; Sawada and Shimizutani 2008; Zoraster 2010; Miljkovic and Miljkovic 2014; Yamamura 2015b; Howell and Elliott 2019; Cordoba and Uliczka 2021). To a certain extent, people can cope with the economic losses inflicted by disasters through market mechanisms. For instance, damage from a disaster can be partially covered if one has insurance. Suppose people hold a large number of collateralizable assets before a disaster. They can be free from a binding borrowing constraint and thus maintain their consumption levels by borrowing (Sawada and Shimizutani 2008). However, some people cannot rely on market mechanisms to lessen the damage if they are too poor to insure against disasters and do not have assets. Hence, the government is expected to grant living allowances and housing subsidies to victims of disasters and create jobs to mitigate the shock to employment.

However, there is a possibility that some victims cannot be supported by the government, partly because they cannot satisfy the requirements of the formal rule. Some informal reciprocal mechanisms are required to supplement the role of the market and government in aiding such victims (Hayami and Godo 2005; Rajan 2019). Various studies have shown that natural disasters influence individuals' perceptions and behaviors to foster social capital (Yamamura 2010, 2014; Yamamura et al. 2015), thus enhancing community mechanisms. Citizens must engage in voluntary behavior to mitigate the risk of damage incurred by disasters (Yamamura 2016). Existing studies have found that charitable giving increases with inequality aversion (Derin-Güre and Uler 2010; Yamamura 2012). Recent natural disasters in Japan were so devastating that these led to a nationwide appeal for help from people across the country. Consequently, this has led to a massive surge in donations directed toward these areas (Yamamura et al. 2022). Hence, charitable donations

can be anticipated to take a role in the monetary support of those who confront the harsh realities in the aftermath of a disaster. Some anonymous benefactors trigger a virtuous cycle if paying it forward is contagious and bears ripple effects in the society. The creation of the virtuous cycle is pivotal to bringing resurgence of the economy. It is worthy to explore what type of people assume a leading role in the mechanism, which boosts the charitable donation to cope with the disaster when neither government nor market function effectively.

Many works are related to the issue of the formation of non-cognitive skills in the field of behavioral and education economics (Hryshko et al. 2011; Fehr et al. 2008; Algan et al. 2013; Heckman et al. 2010a, 2010b, 2013). This paper investigates how childhood experiences form non-cognitive skills influencing charitable donation. This study hypothesized that childhood experience forms the mind of mutual aid, which enhances charitable donations to victims of disasters. In 2016 and 2017, I collected individual data from all over Japan through an Internet survey. The subsample includes approximately 7000 observations.

This study contributes to the study of charitable giving by bridging childhood sporting activities and non-cognitive skills in terms of behavioral economics. Following previous work (Yamamura and Tsutsui 2019), this study used types of experience and education in the period of primary school children as exogenous instrumental variables (IV) to control for the endogeneity of the proxy variable of reciprocity. This approach captures non-cognitive skills while examining the mechanism of charitable giving. The major finding of this analysis was that sporting experiences and informal education developed non-cognitive skills. This, in turn, enhances charitable giving in areas damaged by earthquakes in Japan. Findings using these data support this hypothesis. However, estimation results obtained under the specific Japanese society and sports club system where primary school pupils have opportunity to enter local sports club such as baseball and football outside school.[1]

The structure of the remainder of this study is as follows. Section 2 explains the setting and design of data collection. In addition, the description and basic statistics of variables are introduced. Section 3 describes the empirical method and the identification strategy which is employed. In Section 4, results of estimations are shown. A conclusion is offered in the final section.

2. The Setting and Data

2.1. The Setting

Several large-scale earthquakes have hit Japan with magnitudes of six or more in recent times. After entering the century, the Great East Japan and Kumamoto earthquakes occurred in 2011 and 2016, respectively. In the Great East Japan Earthquake, there were over 15,200 deaths, while the total damage to property and capital stock was estimated to be approximately USD 20,000–30,000 billion (Sawada 2011). Compared with the Great East Japan Earthquake, the damage from the Kumamoto earthquake was estimated to be smaller. Nevertheless, 228 people died owing to the earthquake, and approximately 200,000 homes were destroyed or suffered partial destruction (Cabinet Office, Government of Japan 2017). Japanese families are generally different from those of the Western countries partly because of cultural difference (Georgas et al. 2006).

2.2. The Data Collection Process

I commissioned the Nikkei Research Company, which have had much experience in conducting academic research, to conduct an Internet survey of individuals' charitable behavior three months after the Kumamoto earthquake that hit the southern part of Japan in July 2016. Nikkei Research Company recruited 12,176 people to complete the questionnaire.

To investigate the influence of childhood experiences on charitable behaviors, we conducted a follow-up survey on the same individuals in July 2017. This follow-up survey was explicitly designed to include questions aimed at eliciting the following information about the respondents' childhoods: sporting experiences, frequency of eating breakfast, and information on the respondent's educational curriculum, such as working and learning

together in primary school. From the sample, in addition to charitable behaviors for the Great East Japan Earthquake that occurred in 2011 and the Kumamoto earthquake, I collected basic economic and demographic data such as the respondents' and their parents' educational backgrounds, the respondents' gender, age, household income, number of siblings, and view about reciprocity.

I obtained 9130 observations during the follow-up survey. Of those, 7107 individuals participated in both the 2016 and 2017 surveys. Thus, the retention rate was approximately 75%. In the sample, males and females comprised 46% and 54%, respectively. This is similar in gender split to that collected in the 2015 Japan Census. The number of observations drops slightly in our estimations as some respondents replied that they "do not remember" their experiences during their childhood period in the questionnaire. As a result, it might be the case that we have more observations from younger generations as they are more likely to still remember childhood experiences, which could potentially result in a measurement error bias.

However, let us pay careful attention to the fact that the valid response rate that we received for questions on childhood experiences is about 80%. This tendency is almost observed for the same across all age groups. Hence, this alleviates concerns about possible measurement error bias. In addition, an information technology survey in 2015 on indicates that around 90% of the working-age population in Japan are web-users. This alleviates the concerns of selection bias of web-users being different from the rest of the population in our sample.[2] However, it should be noted that the ages of people in the Internet survey are from 18 to 67, and so the ages of some respondents exceed the age range of the working population.

2.3. Characteristics of the Data

Table 1 lists the descriptions and basic statistics of the key variables used for the estimates.

Table 1. Descriptions about variables and its statistics.

Variables	Description	Mean	Max	Min
EAST DISASTER	Equals 1 if the respondent has donated to the Great East Japan Earthquake, otherwise, 0	0.60	1	0
KUMAMOTO DISASTER	Equals 1 if the respondent has donated to the Kumamoto earthquake, otherwise, 0	0.42	1	0
RECIPROCITY	If someone does me a favor, I am prepared to return it 1 (strongly disagree) to 5 (strongly agree)	4.21	5	1
BREAKFAST HABIT	Frequency of eating breakfast during primary school age (about 6–12 years old) 1 (very rare) to 5 (every morning)	4.70	5	1
EDUCATION	Respondent's schooling years	14.7	18	9
FATHER EDUCATION	Father's schooling years	12.8	18	9
MOTHER EDUCATION	Mother's schooling years	12.2	18	9
TEAM SPORTS	It equals 1 if the respondent participated in team sports during primary school age (about 6–12 years old), otherwise, 0	0.24	1	0
INIDIVIDUAL SPORTS	It equals 1 if the respondent participated in individual sports during primary school age (about 6–12 years old), otherwise, 0	0.12	1	0

Table 1. *Cont.*

Variables	Description	Mean	Max	Min
AGE	Respondents' age	45.5	67	18
AGE SQUAREARE	Square of Respondents' age	2211	4356	324
BROTHER	Number of brothers	0.66	6	0
SISTER	Number of sisters	0.65	6	0
MALE	Equals 1 if the respondent is male, otherwise, 0	0.46	1	0
GROUP LEARN	It equals 1 if there was a task in which students worked together as a group in primary school, otherwise, 0	0.43	1	0

Note: Sample is used in estimations for Columns (2) and (4) for Tables 2 and 3.

Table 2. Baseline estimation about determinants of charitable donation (OLS model): Dependent variable is EAST DISASTER and KUMAMOTO DISASTER.

	(1) EAST DISASTER	(2) EAST DISASTER	(3) KUMAMOTO DISASTER	(4) KUMAMOTO DISASTER
RECIPROCITY	0.11 *** (19.7)	0.10 *** (18.0)	0.08 *** (11.3)	0.08 *** (10.9)
BREAKFAST HABIT	0.02 *** (5.14)	0.02 *** (2.84)	0.02 *** (3.09)	0.01 (1.24)
EDUCATION	0.01 *** (3.75)	0.005 (1.57)	0.003 (0.89)	−0.003 (−0.92)
AGE	0.01 ** (2.64)	0.01 ** (2.25)	0.01 (1.64)	0.006 (1.12)
AGE SQUARE	−0.04 (−1.00)	−0.04 (−0.92)	−0.04 (−0.84)	−0.03 (−0.44)
MALE	−0.09 *** (−7.91)	−0.09 *** (−7.91)	−0.05 *** (−4.36)	−0.05 *** (−4.03)
FATHER EDUCATION		0.004 (1.50)		0.004 (1.45)
MOTHER EDUCATION		0.003 (0.99)		0.003 (1.14)
BROTHER		0.03 *** (3.56)		0.007 (0.68)
SISTER		0.02 (1.54)		0.002 (0.24)
Income dummies, Constant	Yes	Yes	Yes	Yes
R-square	0.09	0.08	0.05	0.04
Observations	7015	5825	7015	5825

Notes: *** and ** denote statistical significance at the 1% and 5% levels, respectively. The t-values were calculated based on robust standard errors clustered by residential prefecture. "Yes" means that variables are incorporated as independent variables. For the convenience of the reader's interpretation, the coefficient of AGE SQUARE was multiplied by 1000. Seventeen income dummies were incorporated as independent variables, although their results have not been reported.

Table 3. Estimation about determinants of charitable donation (IV model): dependent variable is EAST DISASTER and KUMAMOTO DISASTER.

	Second Stage Results			
	(1) EAST DISASTER	**(2) EAST DISASTER**	**(3) KUMAMOTO DISASTER**	**(4) KUMAMOTO DISASTER**
RECIPROCITY	0.43 *** (7.83)	0.40 *** (5.48)	0.48 *** (6.96)	0.48 *** (5.59)
BREAKFAST HABIT	−0.01 (−0.99)	−0.005 (−0.53)	−0.02 ** (−2.28)	−0.02 * (−1.92)
EDUCATION	0.01 *** (2.85)	0.005 (1.27)	0.002 (0.56)	−0.003 (−0.63)
AGE	0.002 (0.65)	0.003 (0.73)	−0.001 (−0.21)	−0.003 (−0.37)
AGE SQUARE	0.02 (0.52)	0.02 (0.48)	0.03 (0.54)	0.06 (0.74)
MALE	−0.05 *** (−3.16)	−0.05 *** (−3.99)	−0.005 (−0.26)	−0.01 (−0.72)
FATHER EDUCATION		0.003 (0.77)		0.002 (0.58)
MOTHER EDUCATION		0.007 * (1.80)		0.007 * (1.95)
BROTHER		0.02 ** (2.43)		−0.001 (−0.08)
SISTER		0.004 (0.36)		−0.01 (−1.10)
	First Stage Results Endogenous Variable: RECIPROCITY			
	Exogenous IV			
TEAM SPORTS	0.13 *** (5.62)	0.96 *** (4.02)	0.13 *** (5.62)	0.96 *** (4.02)
INDIVIDUAL SPORTS	0.07 ** (2.38)	0.04 (1.43)	0.07 ** (2.38)	0.04 (1.43)
GROUP LEARN	0.15 *** (8.33)	0.14 *** (6.43)	0.15 *** (8.33)	0.14 *** (6.43)
	Other IV			
BREAKFAST HABIT	0.89 *** (10.2)	0.07 *** (5.88)	0.89 *** (10.2)	0.07 *** (5.88)
EDUCATION	0.005 (0.11)	−0.005 (−0.07)	0.005 (0.11)	−0.005 (−0.07)
AGE	0.02 *** (3.85)	0.03 *** (3.06)	0.02 *** (3.85)	0.03 *** (3.06)
AGE SQUARE	−0.18 *** (−2.68)	−0.18 *** (−2.68)	−0.18 *** (−2.68)	−0.18 *** (−2.68)
MALE	−0.12 *** (−5.44)	−0.10 *** (−5.06)	−0.12 *** (−5.44)	−0.10 *** (−5.06)

Table 3. *Cont.*

	First Stage Results Endogenous Variable: RECIPROCITY			
	Exogenous IV			
FATHER EDUCATION		0.003 (0.56)		0.003 (0.56)
MOTHER EDUCATION		−0.01 ** (−2.48)		−0.01 ** (−2.48)
BROTHER		0.02 (0.09)		0.02 (0.09)
SISTER		0.03 ** (2.65)		0.03 ** (2.65)
Under-identification (Robust chi-square stat)	158 $p = 0.00$	82.0 $p = 0.00$	158 $p = 0.00$	82.0 $p = 0.00$
Weak-identification (Cragg-Donald F stat)	35.6	21.9	35.6	21.9
Stock-Yogo critical value 5% maximal IV relative bias	13.9	13.9	13.9	13.9
Over-identification (Hansen J-stat)	1.36 $p = 0.51$	1.34 $p = 0.51$	1.31 $p = 0.52$	1.34 $p = 0.51$
Observations	7015	5825	7015	5825

Notes: ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The z-values were calculated based on robust standard errors clustered by prefecture. The other control variables in Table 2 are also included in the first and second stages of the model. For the convenience of the reader's interpretation, the coefficient of AGE SQUARE was multiplied by 1000.

The proxy variables for charitable behaviors are EAST DISASTER, which is 1 when respondents contributed to the Great East Japan Earthquake, otherwise, 0. KUMAMOTO DISASTER is defined in the same way for the Kumamoto earthquake

The following statements captured the degree of reciprocity, RECIPROCITY, a non-cognitive skill, with responses ranging between 1 (strongly disagree) and 5 (strongly agree): If someone does me a favor, I am prepared to return it.

This statement was used to test how participants understood the importance of cooperation and interdependence. childhood experiences are derived from formal and informal education and social experiences. The "hidden curriculum" can be considered as informal education in the school (Ito et al. 2020). To take an example, the curriculum contains GROUP LEARN, which has 1 for subjects who experienced group work in primary school, and 0 for those did not experience it. Many studies have provided evidence that sports experiences improve life outcomes in adulthood (Rees and Sabia 2010; Pfeifer and Cornelißen 2010; Lechner 2009; Lechner and Sari 2015; Cabane et al. 2016). Therefore, the respondents' sporting experiences is incorporated when they were school-aged children. The sporting experiences can be classified into two types: First, team sports experiences such as football, basketball, and baseball. Second, individual sports such as athletic sports, boxing and Judo. From team sports experiences, children are able to learn importance of teamwork, cooperation and so interpersonal relationship to achieve the purpose, which is also critical over the course of life (Yamamura and Tsutsui 2019). Through sports activities, children have opportunities to have a relation with players from other schools and communities. Taking part in sports exhorts children to learn how to interact and interexchange with players from strange regions. Accordingly, sporting activities erase their boundaries between their schools and communities and strange ones. As a result of experiences from participating in sports, people come look at the world with a broader field of vision. I used

a dummy, TEAM SPORTS (INIDI SPORTS PRIM), which is 1 if the respondent took part in team (individual) sports during primary school and 0 if one did not participate.

3. Method and Identification Strategy

In Figure 1, the black arrow from childhood experience to non-cognitive skills indicates that non-cognitive skills were formed in childhood. The black arrow from non-cognitive skills to charitable donation means that non-cognitive skills lead people to contribute to charitable donation in adulthood. However, this channel was concealed behind the shaded arrow, in which childhood experience directly influenced charitable donation. I plan to empirically investigate the channel indicated by the black arrows using an individual-level dataset.

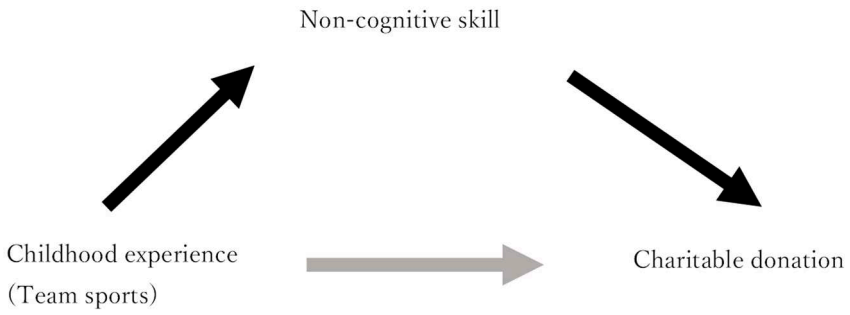

Figure 1. Mechanism by which childhood experiences cause persons to donate via the formation of non-cognitive skills. Notes: The shaded arrow exhibiting the direct effect, which is generally weak; childhood experiences are therefore appropriate for IVs.

3.1. Baseline Model

In the baseline model, the estimated function takes the following form, enabling us to assess non-cognitive skills in relation to charitable donations:

$$\begin{aligned} &\text{EAST DISASTER (or KUMAMOTO DISASTER)}_i \\ &= \alpha_0 + \alpha_1 \text{ RECIPROCITY}_i + \alpha_2 \text{ BREAKFAST HABIT} + \alpha_3 \text{ EDUCATION}_i, \\ &+ \alpha_4 \text{ AGE}_i + \alpha_5 \text{ AGE SQUARE}_i + \alpha_6 \text{ MALE}_i + X_i \text{ B} + u_i. \end{aligned} \quad (1)$$

The key variables were non-cognitive skills. We have contained RECIPROCITY. I infer that the ability to understand the benefits of mutual dependence is necessary for dealing with unexpected incidents such as natural disasters. Living an ordered life is important, particularly for children. Regular breakfast consumption performs a critical role in developing a sound body and mind during childhood. Sound eating habits seem to foster non-cognitive skills, hence the inclusion of BREAKFAST HABIT. Therefore, the coefficients of the non-cognitive skill variables, such as RECIPROCITY and BREAKFAST HABIT, are expected to be positive. I contained an independent variable to divide human capital into non-cognitive and cognitive skills. Charitable behavior may be related to age, and the relationship is potentially nonlinear. Therefore, I added AGE and its square, AGE SQUARE.

Xi represents the vector of the control variables, and B represents the vector of their coefficients. FATHER EDUCATION and MOTHER EDUCATION, parents' educational backgrounds, are incorporated to capture childhood family conditions. Furthermore, an individual's redistribution preferences depend on the existence of siblings and their gender (Yamamura 2015a). Charitable donations can be considered voluntary income redistribution; BROTHER and SISTER are incorporated. In addition, as control variables, I incorporate 17 income dummies, although their results are not reported in Tables 2 and 3.

Endogeneity bias possibly occurs in the baseline model because the causality between charitable behaviors and non-cognitive skills is unclear. Charitable behavior and the degree of reciprocity can be determined simultaneously by unobserved circumstances. Moreover,

the third group of factors may determine the dependent and key independent variables. The error term, including the third factor, is correlated with the key independent variables in this function. This, inevitably, causes endogeneity bias. Childhood experiences were used as an exogenous IV to conduct an IV model estimation to control for this.

3.2. Identification Strategy

It is widely acknowledged that early childhood education performs a crucial role in developing non-cognitive skills, which contributes to entail desirable consequences in adulthood (Heckman et al. 2010a, 2010b, 2013). To put it more specifically, many works have investigated how and the extent to which specific features of education form preferences and worldviews (Aspachs-Bracons et al. 2008; Hryshko et al. 2011; Milligan et al. 2004). Teaching practices in schools are observed to change students' beliefs; there is a positive causal relationship between "working in groups" and students' belief in cooperation and trust (Algan et al. 2013; Ito et al. 2020). Informal school curricula during childhood are unlikely to enhance charitable behavior directly. However, informal curricula only affect charitable donations through a channel in which these experiences influence non-cognitive skills. In Japan, group work curricula foster non-cognitive skills such as mutual reciprocity (Ito et al. 2020). Hence, group work is adopted in some schools but not in others.

The worldview seems to be fostered during childhood through exchanges with children from unfamiliar schools and communities. Children learn and develop value from experiences outside the closed personal relationships within a school. Many studies have shown that sports perform a vital role in forming cognitive and non-cognitive skills (Rees and Sabia 2010; Pfeifer and Cornelißen 2010; Lechner 2009; Lechner and Sari 2015; Cabane et al. 2016). Children who participate in team sports learn to improve their team performance through communication with team members. Through cooperation between team members, students learn the way of improving team performance. Playing with children who participated in other schools and towns provided opportunities for interchange with children who had learned from different school cultures. As a result of the experiences, the children obtained know-how of bridging a network with unfamiliar and strange groups, which extended the reciprocal relationship.

Following the argument above, I present the function in the first-stage estimate of the IV model to determine non-cognitive skills exogenously. The form of estimated function is formulated as follows.

$$\begin{aligned} \text{RECIPROCITY}_i = \beta 0 + \beta 1\ \text{TEAM\_SPORTS PRIM}_i + \beta 2\ \text{INDI\_SPORTS PRIM}_i \\ + \beta 3\ \text{GROUP\_PRIM}_i + Z_i\ C + e_i. \end{aligned} \quad (2)$$

What has been discussed thus far about informal school curricula leads me to expect the coefficients of GROUP_PRIM to be positive. Childhood sports experiences have been observed to form non-cognitive skills through social learning. Hence, coefficients of the TEAM_SPORTS PRIM and INDIVIDUAL SPORTS are anticipated to show the positive sign. Team sports are more likely to help children learn about interpersonal cooperation in overcoming their opponents than individual sports. Thus, the absolute value of the coefficient of TEAM_SPORTS PRIM are predicted to be larger than that of INDIVIDUAL SPORTS. Simultaneously, childhood sporting experiences are unlikely to be directly associated with charitable donations after children become adults. Thus, the proxy variables for sporting experiences can be considered exogenous IV. In the first and second stages of the IV model, the control variable vectors are represented by Zi, and C is the vector of their coefficients.

4. Results

4.1. Basic OLS Model

Table 2 shows the estimated results of the baseline OLS model. Looking results reveals that the coefficient of non-cognitive skills, RECIPROCITY, shows positive sign and statistical significance at the 1% level. This means that people who consider mutual benefit important tend to contribute toward charitable donations to victims of the massive

earthquake. Coefficient's sign of BREAKFAST HABIT is positive and statistically significant at the 1% level, except for Column (4). These results are consistent with this hypothesis.

Concerning the control variables, the coefficient of EDUCATION is positive and statistically significant only in Column (1). The sign of AGE is positive and statistically significant in Columns (1) and (2), whereas AGE SQUARE is not statistically significant in any column. Other variables that capture childhood conditions, such as FATHER EDUCATION, MOTHER EDUCATION, BROTHER, and SISTER, are not statistically significant, except for BROTHER in Column (2). MALE shows a negative sign and statistical significance at the 1% level, meaning females are more likely to donate. The R-squared value was less than 0.1 in all columns. The model's explanatory power is not strong, even though the key variables RECIPROCITY and BREAKFAST HABIT are significantly associated with EAST DISASTER and E_KUM.

4.2. IV Model

In Table 3, the results estimated by the IV Model are exhibited. In Table 3, all OLS model control variables are incorporated, even though the estimates of income dummies are not reported. In the first stage, it is critical to check its validity based on the under-identification test, weak identification test, and over-identification test. These results demonstrate the validity of the estimates. The coefficients of TEAM SPORTS and INDIVIDUAL SPORTS indicate positive signs in all columns. The 1% statistical significance of TEAM SPORTS can be seen in all columns, whereas the statistical significance of INDIVIDUAL SPORTS is not observed in Columns (2) and (4). Furthermore, the coefficients of TEAM SPORTS are larger than those of INDIVIDUAL SPORTS in all columns. This suggests that team sports generally have a greater effect on positive views about reciprocity than individual sports. The coefficients of GROUP_PRIM show a positive sign and statistical significance in all columns. Overall, these findings align with our predictions that childhood experiences and education positively influence non-cognitive skills.

Turning to other variables' results in the first stage, the sign of BREAKFAST HABIT is positive and statistically significant at the 1% level in all columns. Regularly eating breakfast during childhood forms non-cognitive skills, consistent with my inference. AGE and AGE SQUARE showed positive and negative results, respectively. These are statistically significant at the 1% level. This indicates that people become more likely to have a reciprocal view as they age, although their marginal effects decrease. Therefore, non-cognitive skills depend not only on childhood conditions but also on experiences throughout life. A significant negative sign of MOTHER EDUCATION indicates that a highly educated mother reduces the reciprocal view. In other words, this implies that less-educated mothers place more importance on human interaction in traditional society. A significantly positive sign of SISTER indicates that the existence of sisters leads people to place more importance on reciprocity. However, BROTHER scores did not show any statistical significance. Hence, there is a gender difference in sibling effects.

The second-stage results in Table 3 show that the coefficient of RECIPROCITY shows positive signs and statistical significance at the 1% level. Therefore, even after controlling for endogeneity bias, non-cognitive skills formed in childhood lead people to contribute toward charitable donations to victims of massive disasters. Overall, the estimation results support the inference shown in Figure 1.

Regarding the control variables, there are several differences between Tables 2 and 3. The significant positive sign of BREAKFAST HABIT disappeared in all the columns of Table 3. The effects of BREAKFAST HABIT in the first and second stages together indicate that BREAKFAST HABIT has a positive effect on charitable donation by forming non-cognitive skills. This finding is consistent with our inferences. The SISTER score did not show statistical significance in the second stage. Hence, sisters lead people to contribute to charitable donations by forming reciprocal views. The signs of MOTHER EDUCATION become significantly positive in Columns (2) and (4) of Table 3, despite being insignificant in Columns (2) and (4) of Table 2. As shown in the first stage, there was a correlation between

RECIPROCITY and MOTHER EDUCATION. Hence, collinearity problems occurred in the OLS model, and therefore, the standard errors of the MOTHER EDUCATION increased. However, in the second stage of the IV method, collinearity is thought to be controlled, resulting in MOTHER EDUCATION's statistical significance. This indicates that highly educated mothers lead their children to contribute to the donation, although the effect of MOTHER EDUCATION is not through forming a reciprocal view.

As a limitation of this book, we did not scrutinize the mediating factors. To take an example, experience of bearing hardship in the past exhorts people to support others who are in distress. People possibly become more charitable donators to disaster victims if they had a direct or vicarious experience of such a disaster. As family factors, we examine effect of parents' educational background and number of siblings. However, more detailed information such parenting style is not included in the dataset. People who reared in disadvantage households are less inclined to gain returns to college (Cunha and Heckman 2007; Heckman 2000). Parenting style is reflected in the number of books in a house for their children, which plausibly increases the returns to education. In a study of European countries, books in a house are observed to exert long-lasting positive impact on labor productivity (Brunello et al. 2017). In comparison to other countries, a Japanese mother is more inclined to stay close to her child to reduce distance between herself and her child (Georgas et al. 2006). A mother casts indulgent eyes on her child's dependency. Consequently, Japanese college students come to expect their parents to understand them to a very large extent (Muramoto 2003). Such an image of family relationship is stereotyped and widespread in Japanese society. It is plausibly argued that the intimate family relationship forms non-cognitive skills. Considering these works together, parental care early in life improves the cognitive skills as well as non-cognitive ones. However, these issues are beyond the scope of this study. Further, a lack of data did not allow us to explore the mechanisms.

5. Conclusions

This study has empirically examined why people contribute charitable donations to cope with natural disasters, which are unexpected incidents, by considering childhood experiences. I examine the influence of such skills on charitable donations through the channel of non-cognitive skills formed in childhood. Learning experiences from childhood sporting experiences in the past are uninclined to be associated with charitable donation; nevertheless, the experience is thought to form non-cognitive skills. I have treated childhood sporting experiences and education as exogenous IVs that are expected to render reciprocal help, which is a kind of a non-cognitive skill. I controlled for cognitive skills measured by years of schooling and parents' educational backgrounds to distinguish between cognitive and non-cognitive skills. I found the following through the estimations: (1) team sporting experiences and group learning in childhood leads to forming positive views about reciprocity, (2) the effect of team sports experience is larger than that of individual sports, and (3) greater non-cognitive skills lead people to contribute toward charitable donations to victims of natural disasters.

What is observed in results as above leads me to argue that group learning in class and experiences exhort children to interact with strange and unfamiliar ones through participation in sports. Then, this leads people to put importance on reciprocity to cope with unexpected incidents such as natural disasters. The contribution of this paper is to suggest that the experience which enhanced interpersonal exchange in childhood is useful to relieve people under emergent situations where neither market nor government function well. If we can leverage childhood sporting experiences, we can motivate people to cope with natural disasters.

I used the data independently gathered in this analysis. However, the data are limited to Japan, and thus what I argue here may not be applicable to citizens in countries with different historical and cultural background. It is necessary to examine how the findings of this study can be applied to different societies, especially in Western countries. The IV

method is appropriate for controlling endogenous bias, although the validity of exogenous instruments is not entirely secure. Apart from quantitative analysis, it is valuable to conduct research by qualitative approach. Experimental approach is required to scrutinize whether childhood sporting participation is related to charitable giving in the future. Family factors such as parenting style are a vital factor to form non-cognitive skills. However, because of lack of data, family factors cannot be scrutinized, although educational level and number of siblings are considered. What is more, there are plausibly various mediating factors. These are remaining issues for further studies.

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Institutional Review Board Statement: Ethical review and approval were waived for this study. The survey used in this study falls outside the scope of the Japanese government's Ethical Guidelines for Medical and Health Research Involving Human Subjects, and there are no national guidelines for social and behavioral research in Japan. Therefore, our study was conducted in accordance with the Ethical Principles for Sociological Research of the Japan Sociological Society, which does not require an ethical review.

Informed Consent Statement: Informed consent was obtained from all the subjects involved in the study. All survey participants gave their consent to participate in an anonymous online survey by the Nikkei Research Company. The authors did not obtain personal information regarding the participants. After being informed about the purpose of the study and their right to quit the survey, the participants agreed to participate. They were provided with the option, "I don't want to respond", for questions. Completion of the entire questionnaire was considered to indicate the participants' consent.

Data Availability Statement: The data presented in this study are available upon request from the corresponding author.

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Conflicts of Interest: The author declares no conflict of interest.

Notes

1 After entering junior high school, circumstance generally changes. Junior high school students more likely to join school sports club than local sports club.

2 Data is available from the official website of the Statistics Bureau, Ministry of Internal Affairs and Communications: http://www.soumu.go.jp/johotsusintokei/statistics/statistics05.html (accessed on 5 April 2018).

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Article

Season Ticketing as a Risk Management Tool in Professional Team Sports: A Pricing Analysis of German Soccer and Basketball

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Abstract: Ticket sales remain a significant source of revenue in professional team sports. However, season ticket revenue, as an effective risk-reducing instrument, is rarely analyzed in the literature. This study aims to determine, from a price and product perspective, the extent to which different factors affect season ticket prices. Using three different professional German sports leagues, a ticket-pricing model was developed as the empirical model. Consistent with other pricing studies, an ordinary least-squares (OLS) model and a Tobit model were fit. The results indicate that different season ticket rights, type of season ticket, club league membership, fan club membership, club stadium utilization rate, club sporting performance, and club market size have significant negative or positive impacts on season ticket price. Whereas, for example, a reserved seat in the stadium has a positive impact, the population of the club's city has a negative impact. Based on the results, club managers should consider all traditional season ticket rights and season ticket discounts when calculating season ticket pricing. These and further implications are discussed with respect to the risk management issues of season ticket pricing in light of the COVID-19 pandemic and differences in local market constellations of professional team sports clubs.

Keywords: season tickets; pricing; product design; professional team sports; football; basketball; sports finance; Tobit model; OLS model; COVID-19; Europe

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1. Introduction

In European professional sports, sports clubs' primary source of revenue has traditionally been gate receipts (Andreff 2009; Fried et al. 2008). In the leading European football leagues, media and commercial revenues are currently higher than ticket revenues. However, especially for clubs in minor football leagues or other sports leagues, tickets remain a significant source of revenue (Huth 2014). While a match day ticket allows the holder to attend a certain game, a season ticket is valid for several games—e.g., all home matches of the regular season—played by a sports club (Huth 2012). Previous research on sports tickets has focused, inter alia, on the pricing of match day tickets (e.g., Alexander 2001; Boyd and Boyd 1998; Coates and Humphreys 2007), the impact of assets on ticket sales (e.g., Brown et al. 2006; Lawson et al. 2008), customer satisfaction with (season) tickets (e.g., Beccarini and Ferrand 2006; McDonald 2010; McDonald et al. 2013; O'Reilly et al. 2008), and ticket sales strategies (e.g., Bruggink and Eaton 1996; Drayer and Martin 2010; Drayer et al. 2012; Iho and Heikkilä 2010).

The topic of season tickets, however, is rarely analyzed in the sports economics and sports finance literature. This lack of research is surprising, considering the major role that season tickets play (Wakefield 2006) in generating substantial direct and relatively low-risk revenues for sports clubs (McDonald 2010). The example of Germany's 1st Football Bundesliga shows that, on average, clubs sell more season tickets (60 percent) than match day tickets (40 percent) (Deutsche Fußball Liga 2013). Indeed, in North American sports

leagues, sellouts and waiting lists for season tickets are the rule rather than the exception (Boyd and Boyd 1998; DeSerpa 1994). Surprisingly, season tickets are normally sold at a discount. This discount amounts to, on average, 27.52 percent in Germany's 1st Football Bundesliga (Huth 2014), even though this league had an average stadium utilization rate of more than 90 percent (Statista 2015) in the pre-COVID-19 age. These two examples show that many sports clubs could increase their profits by raising their season ticket prices (Boyd and Boyd 1998).

This study aims to determine, from a price and product perspective, the extent to which different factors affect season ticket prices. In this context, the role of season ticket discounts and different monetary and nonmonetary season ticket rights for season ticket holders were particularly considered. For the present study, three different leagues were selected to facilitate comparisons among different market situations. The considered leagues were chosen because they had different stadium utilization rates, from very high (1st Football Bundesliga, 93 percent) through intermediate (Basketball Bundesliga, 84 percent) to low (2nd Football Bundesliga, 59 percent), and, therefore, different supply and demand markets. This is particularly important in the context of the COVID-19 pandemic representing a fundamental business risk, as sports leagues are currently faced with larger free capacities in their stadiums due to lags in returning attendance demand after spectator lockdowns (Huth and Kraus 2021). For this reason, this question should be considered in any study conducted at this time.

This paper broadens the literature considerably. To the best of our knowledge, no previously published study has focused empirically on season ticket pricing and rights for season ticket holders. To date, studies on sports season tickets have primarily concentrated on predicting season ticket renewal, including churn rates (Katz et al. 2019; Lee et al. 2020; McDonald 2010; McDonald et al. 2014; McDonald and Stavros 2007) and satisfaction among season ticket holders (Beccarini and Ferrand 2006; McDonald et al. 2013; Won and Lee 2022). This first empirical exploratory study of season ticket pricing thus provides several useful insights into relevant factors for season ticket pricing. In addition, the findings may help sports clubs develop more customized season ticket arrangements and, therefore, achieve better supply and demand matching. The findings also illuminate what season ticket rights should be offered to create an attractive product for both sports clubs and season ticket holders. This could become particularly important in the post-COVID period, as initial data indicate that the demand for tickets has decreased since the pandemic compared with the period before it (Huth and Kraus 2021). Thus, it is even more important for clubs to design a product that is tailored to fit the current situation in the form of season tickets.

This paper is structured as follows: The following section provides a short description of the economics of season tickets. Subsequently, key aspects of sports ticket pricing are presented. Next, the method used in this study is presented in terms of the empirical model, data collection, and data description. Then, key findings are discussed and interpreted in the Results Section. A concluding section then discusses the key implications of the paper.

2. Characteristics of Season Tickets

A season ticket can be assigned to a subscription market in which customers allocate—mostly contractually—the majority of their business to one provider for a certain period of time (Dawes 2014). In this sense, a season ticket is quite similar to other subscription market products, such as newspaper subscriptions, phone services, and insurance (Sharp et al. 2002). In this context, Simmons (2006) explains that season ticket holders usually have particularly close emotional, temporal, and financial links to their preferred sports club. Lee et al. (2020) and McDonald (2010) add that season ticket holders are the most loyal and involved among sports club supporters. McDonald and Stavros (2007) illustrate that, in extreme cases, a season ticket is purchased for altruistic reasons to help ensure a club's financial survival. Season tickets are normally marketed at the beginning of the new season by sports clubs (McDonald 2010; Simmons 2009).

Regarding the economic aspects of season tickets, consumers buying them must bear a valuation risk. Neither weather conditions (Borland and MacDonald 2003; Iho and Heikkilä 2010; Parlasca 1993), nor the team's playing quality and performance (Simmons 2009) can be evaluated at the time of purchase. Simultaneously, season ticket holders' risk can be identified as a key advantage from sports clubs' point of view, as sports clubs generate a major portion of ticket revenues before a new season starts, allowing them to invest in and plan for the professional squad or other assets (McDonald 2010). This financial advantage also has a risk-minimizing benefit for sports clubs. Revenues from season tickets are guaranteed regardless of the sports club's future sporting success. By selling a large portion of available seats as season tickets, clubs do not experience lost revenues in the case of underperformance. Season ticket revenues are thus somewhat decoupled from a club's sporting performance, whereby financial risk decreases and planning security increases (Huth 2012). Customer loyalty is an additional advantage because, in addition to club membership, season tickets can be considered a long-term customer loyalty instrument (Simmons 2009), which reduces the risk of the season ticket holder changing team affiliation. Additionally, sports clubs receive extensive customer data that can be used for numerous other research areas, such as specialized offers in cooperation with a club's sponsors (McDonald 2010). In fact, from the perspective of clubs in Germany's 1st and 2nd Football Bundesliga, planning security, and, therefore, less financial risk, is the greatest benefit, ranking ahead of customer loyalty, stadium utilization, and club support (Huth 2014).

A key disadvantage of season tickets, however, is the accorded discount. Based on a complete utilization of the stadium, season ticket sales reduce ticket revenues. The discount is given because season ticket holders underwrite a certain part of the mentioned risk (Simmons 2006). Therefore, the season ticket discount can be considered a risk premium for season ticket holders' accepted risk. In addition, Salant (1992) argues that for the holder, a season ticket also constitutes an insurance contract in the form of a renewable option for preferable regular-season seating and access to highly valued playoff games. Therefore, season ticket holders are willing to pay a certain risk premium. In addition to emphasizing the risk argument, Beccarini and Ferrand (2006) illustrate that the season ticket discount positively influences season ticket holders' satisfaction.

Compared with match day tickets, season tickets often contain additional property rights (DeSerpa 1994; McDonald and Stavros 2007). Property rights theory distinguishes four kinds of rights: (1) the right to use the good (*usus*), (2) the right to formally and materially modify the good (*abusus*), (3) the right to retain the returns of the good's use (usus fructus), and (4) the right to sell the good completely or partially (Alchian and Demsetz 1972; Pejovich 1976). The right to use is relevant for season ticket holders because they have the right to attend all the home matches of a given club. Additionally, the right to sell is relevant if a season ticket holder is unable to attend a game and is inclined to sell the ticket for that match to another person. The two other rights are more or less irrelevant for season ticket holders because a season ticket does not generate financial returns, such as dividends, and is not modifiable because the club, not the customer, defines its conditions. These rights are reserved by sports clubs. The season ticket holder does have the opportunity to sell tickets for special games profitably on the secondary market, thus making the third right also potentially relevant. However, many clubs are now punishing such sales of tickets above the official price.

Concerning season ticket rights, the right to attend a certain number of matches, e.g., all home matches of a season, is the fundamental right of a season ticket holder. This bundling of matches provides three major advantages for season ticket holders. First, they have the convenience of buying one season ticket instead of several match day tickets. Second, they are charged lower transaction costs. Third, they have the guarantee of attending the top games against the league's best or most prestigious clubs. Clubs also grant a certain number of additional season ticket rights, such as the right to a reserved place in the stadium, the right of preemption for special matches (e.g., playoff games or (inter)national cup competitions), the option to repurchase for the next season and discounts in the fan

shop. Sports clubs commonly grant the right of entry to all home games, the right to a reserved place in the stadium, a purchase option for special matches, and the option to repurchase for the next season (Huth 2014). Season ticket rights can be classified into monetary and nonmonetary rights. Nonmonetary season ticket rights bear the advantage that clubs can offer them without incurring high additional costs. Some of these rights, such as the option to buy additional tickets for special matches or the renewal period for season tickets, can be offered completely cost free. In contrast, monetary season ticket rights cost a club a certain amount of its real return. These rights mostly concern discounts on the season ticket itself, on merchandise in the fan shop, or on stadium magazines. However, these discounts can also be considered to promote sales because they can stimulate demand for other club products and services.

In contrast to match day ticket pricing (e.g., Noll 1974; Scully 1989; Forrest et al. 2002), quantitative pricing has not been the subject of any study to date. DeSerpa (1994), however, theoretically discusses the rationality of ostensibly low season ticket prices. Although many games sell out in different sports, the seller prices below the myopic short-term demand price to give fans a reason to purchase season tickets. DeSerpa (1994) also notes that underpriced season tickets are optimal if fans prefer to attend only a portion of the ticketed games and to resell the tickets for the remaining matches. Season tickets must be priced sufficiently low so that holders are able to at least recoup their initial investment after assuming the transaction costs of resale.

The additional offered rights also represent a certain value that must be quantified. Season ticket rights such as the right of preemption for special matches can be interpreted as a kind of option right. The season ticket holder has the option—but not the obligation—to buy tickets for special matches. In financial mathematics, these options are evaluated by various option-pricing models, such as the Black–Scholes model (Black and Scholes 1973) and the binominal model of Cox et al. (1979). Therefore, every offered (season ticket) right has a certain value. However, additional season ticket rights can be evaluated differently by their holders, and in extreme cases, no supplemental right may be attractive to its holder.

Concerning both season ticket discounts and season ticket rights, previous research indicates that no correlation or a weak correlation exists between the number of rights and the season ticket discount offered by sports clubs (Huth 2014). Therefore, a low discount does not compensate for a large number of rights, or vice versa. However, the findings indicate that less competitive clubs offer more season ticket rights than more competitive clubs.

3. Empirical Model, Methods, and Data

3.1. Empirical Model

A ticket pricing model was developed for the empirical model. Different regression models were selected for the analysis. In line with other pricing studies (e.g., Alexander 2001; Paul and Weinbach 2013; Salaga and Winfree 2015), an ordinary least-squares (OLS) model, followed by a Tobit model (Greene 2003), was calculated. However, no zero values for the season ticket price exist in the present dataset. A subsample was created by separating the survey participants according to their responses regarding whether they had ever bought a season ticket. Thus, the subsample contains only participants who have (ever) purchased a season ticket. Additionally, when the dependent variable is season ticket prices, there is no upper limit truncation, as is habitually seen when attendance is used as the response variable; thus, the venue capacity constraint is avoided (Salaga and Winfree 2015). Hence, the Tobit model can be considered an alternative to the OLS model, especially with regard to OLS regression results.

OLS and Tobit regressions focusing on the season ticket price (PRICE) and the logarithm price (LNPRICE) as dependent variables were run. The log-linear form of the second dependent variable LNPRICE was used to avoid misspecification problems (Gerrard et al. 2007). In line with the early empirical work of Demmert (1973), Noll (1974), and Schofield (1983), demographic, sport- and team-specific, and economic variables were

considered. Additionally, the survey participants' preferences for different season ticket rights were considered.

The general form of the model with season ticket prices (the actual price or the log price) as the dependent variable is as follows:

$$\begin{gathered}DEP = \beta_0 + \beta_1 DISCOUNT + \beta_2 ALLGAMES + \beta_3 SEAT + \beta_4 REPURCH + \beta_5 PREEMP + \\ \beta_6 GATE + \beta_7 PTRANS + \beta_8 PARK + \beta_9 PRESENT + \beta_{10} STORE + \beta_{11} MAG + \\ \beta_{12} SPONS + \beta_{13} TRANSFER + \beta_{14} INVIT + \beta_{15} FRIEND + \beta_{16} YEARS + \\ \beta_{17} MEMBERC + \beta_{18} MEMBERFC + \beta_{19} MEMBERU + \beta_{20} AGE + \beta_{21} AGE2 + \beta_{22} SEX \\ + \beta_{23} EDU + \beta_{24} INC + \beta_{25} STAND + \beta_{26} DFL1 + \beta_{27} DFL2 + \beta_{28} UTIL + \beta_{29} SUCC + \\ \beta_{30} POPUL + \beta_{31} GDP + e\end{gathered}$$

3.2. Data Description and Measurement

As mentioned above, two dependent variables were considered. First, PRICE measures the season ticket price most recently paid by participants in the survey. Alternatively, LNPRICE is the log of PRICE.

The independent variables in the regression models were as follows: First, fifteen typically monetary and nonmonetary season ticket rights, including season ticket discounts, were considered. For their selection, season ticket flyers of all the considered sports clubs were analyzed, and fifteen possible season ticket rights were identified. To consider the role of the link between fans and clubs, which Simmons (2006) identified as important, four club-link-related variables were selected. Participants indicated whether they were club members (MEMBERC), fan club members (MEMBERFC), or Ultras group members (MEMBERU). YEARS indicates the number of years that season ticket holders have held season tickets. Additionally, five categories of sociodemographic data on participants were considered in the analysis: their age (AGE), age squared (AGE2), sex (SEX), highest educational level (EDU), and net income (INC). Participants' real per-capita income (INC) was used because previous research has found that income is an important economic determinant of demand and attendance decisions (Bruggink and Eaton 1996; Feehan 2009).

Additionally, the type of season ticket (STAND) was selected to control for the monetary difference between standing and seating season tickets. Second, DFL1 and DFL2 controlled for whether a season ticket was valid in the 1st Football Bundesliga (DFL1) or 2nd Football Bundesliga (DFL2); the Basketball Bundesliga was the omitted category. In addition, clubs' stadium utilization (UTIL) and success in the previous season (SUCC) were considered. Teams with high stadium utilization and success were expected to have higher season ticket prices because these clubs have more power to charge higher prices. Previous studies indeed indicate that good sporting performance boosts subsequent attendance (Feehan 2009; Simmons 1996). Finally, two macroeconomic variables were considered to control for a club's market size and potential. Wilson and Sim (1995) and Schmidt and Berri (2001) underline the relevance of market size. Market size is usually described using the population of a club's hometown (POPUL) (Simmons 2009), whereas market potential is described using the local GDP of a club's city or region (GDP). The data were collected from the German Federal Statistical Office (Statistisches Bundesamt 2015).

In addition to a general regression that included all three selected leagues and both types of season tickets (seating and standing), regressions that split the survey data into the three leagues and two types of season tickets were conducted. Table 1 gives an overview of the two considered dependent variables and the 31 selected independent variables.

Table 1. Overview of variables.

Variable	Description	Scale
	Dependent variable	
PRICE	Price of season ticket (in EUR)	Metric
LNPRICE	Logarithmic price of season ticket	Metric
	Preference(s) for season ticket rights	
DISCOUNT	Season ticket discount (5-point scale)	Ordinal
ALLGAMES	Guarantee to see all matches live (5-point scale)	Ordinal
SEAT	Reserved seat in the stadium (5-point scale)	Ordinal
REPURCH	Option to repurchase for next season (5-point scale)	Ordinal
PREEMP	Right of preemption for special matches (5-point scale)	Ordinal
GATE	Special entrance for STH (5-point scale)	Ordinal
PTRANS	Ticket for public transport (5-point scale)	Ordinal
PARK	Parking area for STH (5-point scale)	Ordinal
PRESENT	Special present for STH (5-point scale)	Ordinal
STORE	Special discounts in fan shop (5-point scale)	Ordinal
MAG	Special price for stadium magazine (5-point scale)	Ordinal
SPONS	Special discounts with club's partners (5-point scale)	Ordinal
TRANSFER	Transferability of season ticket (5-point scale)	Ordinal
INVIT	Invitations to specific events (5-point scale)	Ordinal
FRIEND	Free entrance to friendly matches (5-point scale)	Ordinal
	Season ticket holder club-related variables	
MEMBERC	Club member (1 = yes; 0 = no)	Nominal
MEMBERFC	Fan club member (1 = yes; 0 = no)	Nominal
MEMBERU	Ultras group member (1 = yes; 0 = no)	Nominal
YEARS	Period of holding season ticket (in years)	Metric
	Sociodemographic data	
AGE	Age of participant (six categories)	Ordinal
AGE2	Age^2	Metric
SEX	Sex of participant (0 = male; 1 = female)	Nominal
EDU	Highest educational level of participant (seven categories)	Ordinal
INC	Net income of participant (six categories)	Ordinal
	Fixed-effects variables	
STAND	Standing season ticket (1 = standing; 0 = seating)	Nominal
DFL1	1st Football Bundesliga (1 = 1st DFL; 0 = other)	Nominal
DFL2	2nd Football Bundesliga (1 = 2nd DFL; 0 = other)	Nominal
UTIL	Stadium utilization (in %)	Metric
SUCC	Club's sporting success (league position)	Metric
POPUL	Population of club's city	Metric
GDP	Local 2012 GDP of club's city (or region)	Metric

3.3. Data Collection and Descriptive Results

As mentioned above, a comparative approach was chosen to track season ticket pricing under different league market conditions. Three leagues were selected according to the criterion of stadium utilization. This approach was used to find three leagues with different stadium utilization rates and, therefore, different market situations to consider different ticket markets with potentially different pricing models. The selected leagues were the 1st and 2nd Bundesliga in football, Germany's preferred sports, and the 1st Bundesliga in basketball, a sport with growing popularity.

In the present study, data from a standardized online questionnaire were combined with different secondary data sources. Accordingly, some variables were collected from club-related data sources, such as stadium utilization rates and clubs' individual rankings during the previous season. Macroeconomic data were collected from the official homepages of clubs' home cities and from official data obtained from the German Federal Statistical Office. As noted above, neither the study, nor the data collected were affected by the COVID-19 pandemic. Thus, a market environment that was as "normal" as possible and that was not influenced by an extreme situation can be assumed. The data were collected in the 2014/15 season.

Other variables were collected via a standardized online questionnaire to reduce cost and time factors (Li et al. 2008; Wright 2005). Another advantage of this approach was that season ticket holders from all the considered sports leagues across Germany were able to participate (Bartlett 2005). The questionnaire tool *Qualtrics* was used for online sampling. The questionnaire had four major parts. First, the participants were filtered by the criterion of being a season ticket holder or nonholder to prevent nonholders from answering the central questions, which focused on season ticket rights. Afterwards, season ticket holders were questioned about the league and the club for which they purchased their season tickets. Season ticket holders' relationship with the chosen clubs was also analyzed. They declared whether they were club members, fan club members, or Ultras group members. Additionally, the participants were asked how long they had held season tickets. These questions aimed to elucidate the relationship between season ticket holders and clubs. The next part—the focus of the study—asked the participants to evaluate season ticket rights according to their subjective judgements via 5-point Likert scales (from 1 = do not agree to 5 = fully agree) to assess their attitudes or, rather, preferences (Jones 2015; Revilla et al. 2014). Sociodemographic data on the respondents were collected in the survey's final section.

In total, $N = 1076$ football and basketball fans participated in the online survey, and 762 of these participants had held a season ticket in the past. The link to the survey was distributed in various club forums and via social media (e.g., Facebook). The distribution of respondents over the three analyzed leagues was approximately uniform (1st Football Bundesliga with a share of 28 percent, 2nd Football Bundesliga with 35 percent, and Basketball Bundesliga with 36 percent). Thus, the comparative study approach is also reflected in the sampling. In all, 45 percent of season ticket holders bought a standing season ticket; thus, the present sampling more or less represents the real allocation of standing and seating season tickets.

Table 2 shows the summary statistics for the variables used in the regression analysis.

The mean price paid for a season ticket by the survey participants was EUR 236.84. Notably, the highest mean season ticket price was identified for the 1st Football Bundesliga (EUR 286.02), followed by the Basketball Bundesliga (EUR 250.53), and the 2nd Football Bundesliga (EUR 180.36). Independent of the league, the mean paid standing season ticket cost was EUR 149.65, and the mean seating season ticket cost was EUR 309.21.

The highest-rated season ticket rights were the guarantee to see all matches live in the stadium (ALLGAMES) and the right of preemption for special matches (PREEMP). The results also indicate season ticket holders' preference for the season ticket discount, which was rated the third-most-important season ticket component. Analyzing differences in preferences among the three leagues, a Kruskal–Wallis test (Kruskal and Wallis 1952) indicated that evaluations of season ticket rights significantly differ in most cases. REPURCH, for example, is especially relevant for the 1st Football Bundesliga's season ticket holders. Considering the high average stadium utilization rate, this result is logical because the season ticket limit is exhausted for most clubs in the 1st Football Bundesliga.

Table 2. Summary statistics.

Variable	Mean	SD	Min	Max	Mean DFL1	Mean DFL2	Mean BBL
PRICE	236.84	125.68	50	782	289.54	181.86	253.71
LNPRICE	5.337	0.510	3.912	6.662	5.541	5.09	5.43
DISCOUNT	4.356	0.939	1	5	4.30	4.23	4.45
ALLGAMES	4.713	0.694	1	5	4.84	4.60	4.73
SEAT	4.142	1.130	1	5	4.10	4.04	4.34
REPURCH	4.283	0.968	1	5	4.56	4.21	4.26
PREEMP	4.491	0.822	1	5	4.56	4.62	4.38
GATE	3.140	1.290	1	5	2.77	3.27	3.21
PTRANS	3.540	1.342	1	5	3.72	3.69	3.21
PARK	2.733	1.341	1	5	2.41	2.59	3.12
PRESENT	2.734	1.341	1	5	2.36	2.67	2.99
STORE	3.059	1.279	1	5	2.68	2.99	3.31
MAG	2.471	1.168	1	5	2.43	2.53	2.43
SPONS	2.661	1.203	1	5	2.31	2.59	3.01
TRANSFER	4.083	1.058	1	5	3.98	3.92	4.35
INVIT	3.001	1.214	1	5	2.62	2.85	3.38
FRIEND	3.227	1.200	1	5	2.95	3.23	3.37
MEMBERC	0.472	0.499	0	1	0.75	0.62	0.17
MEMBERFC	0.364	0.481	0	1	0.38	0.39	0.31
MEMBERU	0.077	0.267	0	1	0.12	0.11	0.39
YEARS	5.915	3.684	1	15	6.36	6.25	5.14
AGE	2.827	1.278	1	6	2.87	2.94	2.98
AGE2	9.626	8.224	1	36	9.11	10.11	10.79
SEX	0.190	0.393	0	1	0.14	0.11	0.31
EDU	4.434	1.327	1	7	4.61	4.22	4.36
INC	2.988	1.426	1	6	3.13	3.04	3.10
STAND	0.447	0.498	0	1	0.48	0.59	0.29
DFL1	0.281	0.450	0	1	-	-	-
DFL2	0.337	0.473	0	1	-	-	-
UTIL	80.617	20.141	32.4	100	95.1	57.3	90.8
SUCC	10.748	4.138	1	18	10.87	10.72	10.65
POPUL	560,889.2	784,113.4	12,785	3,375,000	494,309	911,908	298,675
GDP	44,212.67	15,915.77	19,108	105,059	44,387	39,240	48,501

4. Results and Discussion

4.1. General Results

A variance inflation factor (VIF) test was performed on each regression to test for multicollinearity. The results indicate that none of the VIF values for the regression models exceeds 4.63, except for the variables AGE and AGE2. This value is under the threshold of 10 (Baum 2006; Beckham et al. 2012; Wooldridge 2013), indicating no issues with multicollinearity. Therefore, no variables were excluded from the regression analyses. Additionally, robust standard errors were specified in the OLS models with PRICE as the dependent variable based on significant Breusch–Pagan/Cook–Weisberg and White (1980) test results.

The analysis below focuses on the results of the semilog OLS regressions. The results of the semilog Tobit regressions are presented in Appendix A for comparison. Table 3 presents the estimation results for the different regression models. The * notations denote statistical significance at the 10 (*), 5 (**), and 1 (***) percent levels.

Table 3. OLS regression model with LNPRICE.

	Dependent Variable LNPRICE					
Variable	**ALL**	**BBL**	**BULI2**	**BULI1**	**STANDING**	**SEATING**
DISCOUNT	−0.0211	0.0056	−0.0257	−0.0559	−0.0589	−0.0416
	(0.013)	(0.024)	(0.018)	(0.027)	(0.015)	(0.020)
ALLGAMES	−0.0021	−0.0076	0.0005	−0.0225	**0.0963** *	−0.0653
	(0.018)	(0.033)	(0.024)	(0.049)	(0.023)	(0.027)
SEAT	**0.0705** ***	**0.0857** *	**0.0825** *	**0.1001** **	**0.0922** *	**0.1097** ***
	(0.012)	(0.023)	(0.017)	(0.021)	(0.013)	(0.021)
REPURCH	0.0375	0.0719	0.0196	−0.0033	−0.0663	**0.0828** **
	(0.014)	(0.023)	(0.021)	(0.034)	(0.016)	(0.023)
PREEMP	−0.0335	−0.0147	−0.0446	−0.0223	−0.0417	−0.0189
	(0.015)	(0.025)	(0.026)	(0.032)	(0.019)	(0.022)
GATE	**−0.0574** **	0.0487	**−0.0910** **	**−0.1264** **	−0.0647	−0.0700
	(0.010)	(0.018)	(0.015)	(0.022)	(0.013)	(0.015)
PTRANS	−0.0319	−0.0563	−0.0182	−0.0184	−0.0477	−0.0117
	(0.009)	(0.015)	(0.014)	(0.018)	(0.012)	(0.013)
PARK	0.0368	0.0404	0.01193	**0.1099** *	0.0520	0.0404
	(0.010)	(0.018)	(0.017)	(0.022)	(0.014)	(0.014)
PRESENT	−0.0013	0.0024	0.0785	−0.0378	0.0630	−0.0177
	(0.013)	(0.021)	(0.020)	(0.031)	(0.017)	(0.18)
STORE	0.0226	−0.0354	0.0865	−0.0330	−0.0278	0.0416
	(0.013)	(0.022)	(0.019)	(0.028)	(0.016)	(0.018)
MAG	−0.0180	−0.0259	**−0.1107** **	0.0620	−0.0700	0.0065
	(0.013)	(0.022)	(0.019)	(0.027)	(0.017)	(0.018)
SPONS	**0.0594** **	**0.0887** *	−0.0819	**0.1289** *	−0.0417	**0.1128** **
	(0.013)	(0.021)	(0.020)	(0.029)	(0.017)	(0.017)
TRANSFER	−0.0066	0.0218	−0.0128	0.0213	0.0220	−0.0172
	(0.011)	(0.024)	(0.016)	(0.022)	(0.014)	(0.017)
INVIT	0.0102	−0.0284	0.0566	0.0082	0.0153	0.0110
	(0.012)	(0.021)	(0.019)	(0.027)	(0.015)	(0.018)
FRIEND	−0.0344	−0.0627	0.0194	−0.0956	0.0105	−0.0810
	(0.011)	(0.020)	(0.015)	(0.024)	(0.014)	(0.016)
YEARS	0.0225	**0.1129** **	0.0465	−0.0866	−0.0674	**0.0814** **
	(0.003)	(0.006)	(0.005)	(0.007)	(0.005)	(0.004)
MEMBERC	0.0379	0.0609	0.0229	0.0192	**0.1004** *	0.0126
	(0.026)	(0.055)	(0.035)	(0.052)	(0.031)	(0.039)
MEMBERFC	**−0.0974** ***	−0.0438	**−0.1610** ***	**−0.1262** ***	−0.0359	**−0.1634** ***
	(0.024)	(0.043)	(0.038)	(0.047)	(0.031)	(0.035)
MEMBERU	0.0017	−0.0174	−0.0205	0.0075	−0.0060	0.0118
	(0.041)	(0.102)	(0.059)	(0.071)	(0.042)	(0.084)
SEX	−0.0031	0.0162	0.0087	−0.0163	−0.0456	0.0382
	(0.029)	(0.043)	(0.054)	(0.063)	(0.040)	(0.041)
AGE	0.1671	**0.4974** **	0.2927	−0.3466	0.0815	**0.3900** *
	(0.045)	(0.074)	(0.075)	(0.094)	(0.063)	(0.065)
AGE2	−0.0981	**−0.3871** *	−0.2385	**0.3466** *	0.0135	−0.3076
	(0.007)	(0.011)	(0.011)	(0.014)	(0.010)	(0.009)
EDU	−0.0130	−0.0465	−0.0247	0.0299	−0.0084	−0.0298
	(0.009)	(0.016)	(0.014)	(0.019)	(0.012)	(0.012)
INC	**0.1471** ***	**0.1788** ***	**0.1385** ***	**0.1341** **	**0.2501** ***	**0.1523** ***
	(0.010)	(0.019)	(0.016)	(0.020)	(0.013)	(0.015)
STAND	**−0.569** ***	**−0.4635** ***	**−0.6518** ***	**−0.7096** ***		
	(0.027)	(0.052)	(0.043)	(0.050)		
DFL1	**0.2069** ***				**0.2382** ***	**0.3019** ***
	(0.034)				(0.045)	(0.049)
DFL2	0.0546				**−0.2591** ***	**0.2177** ***
	(0.048)				(0.059)	(0.073)

Table 3. *Cont.*

	Dependent Variable LNPRICE					
Variable	**ALL**	**BBL**	**BULI2**	**BULI1**	**STANDING**	**SEATING**
UTIL	**0.1374** ***	**0.2411** ***	0.0597	0.0652	−0.0848	**0.3235** ***
	(0.001)	(0.003)	(0.001)	(0.005)	(0.001)	(0.002)
SUCC	**0.0833** ***	0.0262	0.0463	0.0672	**0.1432** ***	**0.0802** *
	(0.003)	(0.007)	(0.007)	(0.006)	(0.004)	(0.005)
POPUL	**−0.2205** ***	**−0.1268** ***	**−0.2972** ***	−0.0670	**−0.1712** ***	**−0.3423** ***
	(1.78×10^{-8})	(4.26×10^{-8})	(2.61×10^{-8})	(8.28×10^{-8})	(2.36×10^{-8})	(2.57×10^{-8})
GDP	−0.0284	−0.0495	−0.0593	−0.0033	−0.0613	−0.0416
	(7.23×10^{-7})	(1.91×10^{-6})	(9.66×10^{-7})	(2.35×10^{-6})	(8.69×10^{-7})	(1.10×10^{-6})
Constant	**4.970** ***	**3.738** ***	**5.257** ***	**5.566** ***	**4.915** ***	**4.463** ***
	(0.161)	(0.342)	(0.022)	(0.636)	(0.200)	(0.247)
N	762	277	269	216	345	417
R^2	0.6808	0.6389	0.6998	0.6937	0.3658	0.4965
Adjusted R^2	0.6673	0.5965	0.6634	0.6460	0.3052	0.4574

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The results presented and discussed below should be viewed with the caveat that the perspectives of economic actors, represented by the dependent and independent variables, may differ or overlap. One reason for this is that survey data are combined with secondary data sources, for instance, on stadium utilization, sporting success, and local GDP. These variables tend to somewhat reflect the management perspective of the clubs' representatives. In contrast, most variables are censored data provided by the responses of the survey participants, thus clearly reflecting the demand-side perspective. However, while it is set by the clubs, the price is evaluated both from the supply and demand sides of the market.

The results show that three season ticket rights are significant in the general model ALL over all the leagues and ticket types. Specifically, SEAT, which is the most significant season ticket right, and SPONS have a significant and positive influence on season ticket prices. In contrast, GATE significantly decreases LNPRICE. None of these variables causes additional costs, and all can be classified as nonmonetary rights from a sports club's perspective. In contrast, sports clubs could benefit from an economic point of view, especially given the significance of SPONS. The significant and positive impact of SPONS on LNPRICE may be surprising, given that SPONS received only a substandard rating of 2.66 in the survey. The results suggest that sports clubs and their sponsors—especially for seating season tickets in the 1st Football Bundesliga and Basketball Bundesliga—have the opportunity to provide special offers to season ticket holders. Therefore, clubs can give their sponsors additional value for their sponsorship by having direct access to season ticket holders. Sports clubs may receive additional monetary benefits from this direct and exclusive access to clubs' most involved supporters.

Considering the high ratings for DISCOUNT, ALLGAMES, SEAT, REPURCH, PREEMP, and TRANSFER, it is interesting that only SEAT is significant in all the calculated regressions. While ALLGAMES and DISCOUNTS are classified and quantified as the most important rights granted by season tickets, both variables—with one exception, i.e., ALLGAMES in the STANDING regression model—are nonsignificant in the regression models. Therefore, they are important for season ticket holders, but they have no direct impact on season ticket prices. This result is extremely surprising, considering that sports clubs especially promote season ticket discounts in their season ticket flyers. A possible explanation may be that both rights are deeply anchored in season ticket holders' perceptions. These rights are expected and are not unusual for season ticket holders. However, ALLGAMES is slightly significant and increases LNPRICE in the STANDING model to a slightly greater degree than SEAT. ALLGAMES is also the seventh-strongest variable in this model. Thus, it is concluded that the initial right of a season ticket holder to see all matches live is important, at least in the standing area. Given that the supply of standing places is

fewer than that of seats, this result is understandable. Considering the high demand for standing season tickets in the 1st Football Bundesliga, it is surprising that ALLGAMES is not significant in the BULI1 model. However, both ticket types are considered, and, therefore, both influenced ALLGAMES in the BULI1 model. Focusing on pairwise correlation, none can be identified between ALLGAMES and LNPRICE in the 1st Football Bundesliga, whereas a slightly positive and significant correlation of 0.1019 exists between the two variables in the STANDING model. This finding statistically supports the results.

In contrast to ALLGAMES, REPURCH is only significant in the SEATING model. Similar to ALLGEAMES, it is surprising that REPURCH is not significant in the BULI1 and STANDING models, given that the high demand for season tickets in the 1st Football Bundesliga reflects regular sellouts. Furthermore, pairwise correlation indicates a weak but significant correlation of 0.1840 between the two variables in the SEATING model.

4.2. Findings Regarding the Season Ticket Rights Variables and Sociodemographic Data

SEAT is significant, increasing ticket prices in all the calculated regressions and revealing that season ticket rights have the highest impact on LNPRICE in the SEATING model. This result is supported by the fact that SEAT is measured using the mean value and is the third-highest-valued right for season ticket seating holders. That said, this right plays only a minor role for standing season ticket holders. A Kruskal–Wallis test statistically confirms this difference, a result that is expected, given that a reserved seat or place in the stadium can be considered a highly specific right conveyed by seating season tickets. This right is particularly valuable, for example, for those who always want to sit next to family members or friends. It is not equally relevant in a stadium's standing area, where a certain spot within the area is more important. Accordingly, some clubs separate their standing areas into several sections. Thus, for some season ticket holders, a certain section—but not a special place—in the standing area is relevant.

PARK is significant only in the 1st Football Bundesliga. This result is understandable because the 1st Football Bundesliga attracts many visitors who travel by car to the games. However, the parking area is also limited around new stadiums. For example, Munich's Allianz Arena offers 9800 parking places for a maximum stadium capacity of 75,000 (Allianz Arena 2015). Parking rights for season ticket holders of the 1st Football Bundesliga may be an interesting additional benefit. However, parking can be an additional revenue source (Coates and Humphreys 2007). By offering parking rights to season ticket holders, clubs will lose a portion of their potential parking revenues, provided that they do not integrate parking prices into season ticket pricing. Alternatively, clubs can offer season ticket holders an option to park in a dedicated area for a certain fee. In this way, clubs will not have to forego any of their parking revenues.

4.3. Findings Regarding the Season Ticket Holder Club-Related Variables

Of the four considered season ticket holder club-related variables, only MEMBERFC is highly significant in most of the regression models, being associated with decreases in season ticket prices. This result is explained by the fact that MEMBERFC receives an additional discount on season tickets. Interestingly, only MEMBERFC—and not the other two memberships, which also offer an additional discount—is significant. This effect is the sixth highest in the general model ALL and, therefore, has an impact on LNPRICE. Regarding YEARS, this variable has a significant and positive impact on LNPRICE for basketball and on seating season tickets in general. In the medium to long term, these season ticket holders are willing to pay more for their season tickets.

Considering also the high and positive impact of AGE, which is the strongest variable in both models, this finding is understandable. Older season ticket holders who have purchased season tickets for many years have a greater willingness to pay than do younger season ticket holders. However, correlation analysis illustrates that only a weak or medium correlation (0.3256) exists between YEARS and AGE. It is remarkable that AGE is, on the one hand, only significant in two regression models, while on the other hand, it is the strongest variable in both models. More specifically, older season ticket holders have an extreme positive impact on season ticket prices. With basketball often perceived as a young person's sport, this result is most notable for basketball clubs. Less surprising, however, is the important role of AGE in the SEATING model. Typically, older supporters prefer seating over the standing area, while younger supporters prefer to stand.

In accordance with conventional theory (Simmons 2009), participant net income has a highly significant and positive impact on ticket prices in all seven regression models. In fact, INC is the only participant-related variable that is significant in all the models, exerting the fourth-highest impact on LNPRICE in the general model ALL, as well as a high impact in all the other models. In general, a high income increases participants' willingness to pay more for a season ticket. Therefore, a positive income effect can be identified. Hence, clubs seem to have a certain opportunity to raise ticket prices gradually in higher pricing categories to skim additional payment reserves. In contrast, neither SEX nor EDU is significant in the general model ALL. As a result, in season ticket sales, the approach can be the same for both female and male supporters. Additionally, EDU has no impact on LNPRICE, which is somewhat surprising because a certain correlation may be expected between participants' income and their educational level (De Gregorio and Lee 2002; De Wollf and van Slijpe 1973). However, only a weak pairwise correlation of 0.256 can be identified in this study. A notable limitation, however, is that INC was measured only ordinally and not metrically, which could lead to a certain bias in this variable.

4.4. Findings Regarding the Fixed-Effects Variables

Whereas DFL1, UTIL, and SUCC have a significant positive impact on season ticket prices, STAND and POPUL decrease them. DFL2 and BIP are nonsignificant in the general model ALL, whereas DFL2 is highly significant in both the STANDING and SEATING regression models. STAND has the highest impact on LNPRICE of all the considered independent variables in all the models in which STAND was considered. As expected from the different pricing in the standing and seating areas, a standing season ticket has a negative impact on LNPRICE. Independent of the league, season ticket holders paid twice the price of a standing season ticket (EUR 149.65) for a seating season ticket (EUR 309.21) on average. This price difference affects the dependent variable LNPRICE considerably and expectably.

In addition to STAND, DFL1 has a highly significant and positive impact, i.e., the third-highest impact of all the variables in the general model ALL, on season ticket prices. This result is also expected, given that the average season ticket price—valid for both standing and seating areas—is higher in the 1st Football Bundesliga (EUR 286.02) than in the Basketball Bundesliga (EUR 250.53). Interestingly, both DFL1 and DFL2 have a positive impact on seating ticket prices. Considering the average seating season ticket prices, this result is surprising because the Basketball Bundesliga's season ticket holders pay EUR 292.82, whereas season ticket holders for the 2nd Football Bundesliga pay only EUR 255.70. However, DFL2 increases LNPRICE only in the SEATING model. In contrast, LNPRICE is negatively influenced by DFL2 in the STANDING model. Therefore, DFL2 has a negative impact on the STANDING model and a positive impact on the SEATING model.

The club-related variables UTIL and SUCC, with the second in accordance with Feehan (2009) and Simmons (1996), have highly significant positive effects on ticket prices in the general model ALL, whereas UTIL has a stronger impact on LNPRICE than does SUCC. UTIL is also significant in the BBL model, in which it is the fourth-strongest variable, and the SEATING model, in which it is the third-strongest variable, while SUCC is significant

in both ticket type models. According to the results of the general model, successful clubs and/or clubs that have a high stadium utilization rate can set season ticket prices slightly higher than clubs with less sporting success or lower utilization rates. Interestingly, this comparative advantage is not statistically verifiable in the league models, as UTIL is highly significant only in the Basketball Bundesliga. A possible explanation could be that football clubs, compared with basketball clubs, price season tickets more in the inelastic range of the demand curve because revenues from tickets are not as relevant for them. As demonstrated by Coates and Humphreys (2007), sports clubs accept inelastic ticket prices to raise revenues from other sources. The Basketball Bundesliga has nearly no television revenues, so a club's revenues depend on commercial and ticket revenues. Therefore, ticket revenues are more relevant for sports clubs in the Basketball Bundesliga than they are for clubs in the other examined leagues. Additionally, pairwise correlations between LNPRICE and both club-related variables indicate a weak correlation in the different league models. Thus, a link is identified between these variables in the bivariate analysis, although this link is not verified in the multivariate analysis. As expected, the correlation between LNPRICE and UTIL is the highest in the Basketball Bundesliga.

Finally, the considered macroeconomic variable POPUL indicates that with an increasing population, season ticket prices notably decrease. POPUL is the second-strongest variable in the general model and plays a significant role in all seven regression models, with the exception of the 1st Football Bundesliga. Considering the market size hypothesis and previous findings (e.g., Schmidt and Berri 2001; Wilson and Sim 1995), this result is surprising. According to the market size hypothesis, a large population should increase the potential demand for sports goods and services (Feehan 2009; Késenne 2008). This effect is especially strong for successful sports clubs, which can invest more in talent than smaller clubs (El-Hodiri and Quirk 1971; Quirk and Fort 1992; Buraimo et al. 2007). Subsequently, clubs can skim higher prices more effectively in larger markets. The results of the present study do not identify market size as a relevant factor. A possible reason for this finding could be that the competition with other forms of entertainment—in other words, substitute leisure activities (Alexander 2001; Simmons 2009)—is higher in cities with larger populations than in small cities, where a first-league sports club is a major source of pride. Késenne (2008) adds that preferences and social stratification can also affect (ticket) demand. Consequently, local monopolies are more developed in smaller cities. Based on these findings, the second explanation seems more plausible to account for this result than the market size hypothesis. In contrast to POPUL, GDP is not significant in all the models. Therefore, a high local GDP does not, in contrast to season ticket holders' net income, affect season ticket prices. This finding is supported by pairwise correlation, which does not identify a link between the two variables.

5. Conclusions

This study aimed to identify factors that influence season ticket prices. The findings indicate that three season ticket rights generally have a significant impact on season ticket prices and that GATE has a negative impact and should not be considered a season ticket right. Special gates for season ticket holders are, in reality, more the exception than the rule. The two significant and positive season ticket rights (SEAT and SPONS) are—from a club's perspective—nonmonetary rights. Sports clubs may therefore benefit economically from integrating sponsors into their season tickets to obtain higher sponsoring revenues. Hence, if they do not already do so, sports clubs should integrate these rights into their season tickets and prioritize them in their season ticket sales campaigns. In addition, surprisingly, of the four season ticket rights (SEAT, PREEMP, ALLGAMES, and REPURCH) that were offered by more or less all the sports clubs in the analyzed leagues, only SEAT is significant in all the models. In contrast, PREEMP is nonsignificant in all the regressions, whereas ALLGAMES is only significant for standing season ticket holders, and REPURCH is only significant in the SEATING model. Therefore, reassessing whether sports clubs should still offer these rights would be worthwhile. However, a descriptive analysis showed that

all traditionally offered season ticket rights are important for season ticket holders, even though this result was, for the most part, not confirmed by the regression analysis. The season ticket discount is also valuable to season ticket holders. Therefore, all traditional season ticket rights and season ticket discounts should be considered and advertised in a club's season ticket sales campaign.

However, the current discount of more than 27 percent in the 1st Football Bundesliga may not be appropriate, considering that season ticket sellouts are standard for several sports clubs. In sports clubs with high stadium utilization rates, seating season tickets in medium to high price classes should be priced higher in the future to skim a greater portion of potential ticket revenues. This strategy is also supported by the significant role of season ticket holders' income in season ticket purchasing. As previous findings illustrate, INC is one of the most important factors in increasing season ticket holders' willingness to pay. Therefore, season ticket holders with a high income may be willing to pay higher season ticket prices. However, in accordance with practices regarding inelastic match day ticket pricing and the previously mentioned arguments for season ticket discounts of Beccarini and Ferrand (2006) or Simmons (2006), it is advisable to offer a discount. In this way, season ticket holders will still have an incentive to buy season tickets. In addition, the sports clubs must wait to see how the number of spectators may change in the post-COVID period. Due to changed habits (e.g., more family time, more personal active sport activities), a significant and not risk-free change in people's leisure time behaviors can be expected for the clubs. In this light, discounts should only be revised when and if the situation in the sports leagues has returned to normal.

Generally, successful sports clubs with a high utilization rate have greater potential than others to raise their season ticket prices. Such an increase should be approached prudently, however, given that a high stadium utilization rate is important for sports clubs (Huth 2014) to sell supplementary goods and services in their stadiums (Coates and Humphreys 2007). Sports clubs located in larger cities should also consider substitutes in such competitive local markets that may place market shares at risk; thus, the common market size hypothesis may not entirely hold true. Sports clubs in larger cities should therefore first identify competition in their local markets and then determine their price structures. They should also bear in mind that by selling season tickets, they can increase their planning security, bringing considerable added value and increasing their overall financial protection.

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Appendix A

Table A1. Results of Tobit regression with LNPRICE.

	Dependent Variable LNPRICE					
Variable	**ALL**	**BBL**	**BULI2**	**BULI1**	**STANDING**	**SEATING**
DISCOUNT	−0.0211	0.0056	−0.0257	−0.0559	−0.0589	−0.0416
	(0.012)	(0.023)	(0.017)	(0.025)	(0.014)	(0.019)
ALLGAMES	−0.0021	−0.0076	0.0005	−0.0225	**0.0963** *	−0.0653
	(0.018)	(0.031)	(0.023)	(0.045)	(0.022)	(0.026)
SEAT	**0.0705** ***	**0.0857** *	**0.0825** *	**0.1001** **	**0.0922** *	**0.1097** ***
	(0.011)	(0.022)	(0.016)	(0.020)	(0.012)	(0.020)
REPURCH	0.0375	0.0719	0.0196	−0.0033	−0.0663	**0.0828** **
	(0.014)	(0.022)	(0.020)	(0.032)	(0.016)	(0.022)
PREEMP	−0.0335	−0.0147	−0.0446	−0.0223	−0.0417	−0.0189
	(0.015)	(0.023)	(0.024)	(0.030)	(0.018)	(0.021)
GATE	**−0.0574** **	0.0487	**−0.0910** **	**−0.1264** **	−0.0647	−0.0700
	(0.010)	(0.017)	(0.014)	(0.021)	(0.012)	(0.014)
PTRANS	−0.0319	−0.0563	−0.0182	−0.0184	−0.0477	−0.0117
	(0.009)	(0.015)	(0.013)	(0.017)	(0.011)	(0.012)
PARK	0.0368	0.0404	0.01193	**0.1099** **	0.0520	0.0404
	(0.101)	(0.017)	(0.016)	(0.020)	(0.013)	(0.014)
PRESENT	−0.0013	0.0024	0.0785	−0.0378	0.0630	−0.0177
	(0.013)	(0.020)	(0.019)	(0.029)	(0.017)	(0.017)
STORE	0.0226	−0.0354	0.0865	−0.0330	−0.0278	0.0416
	(0.012)	(0.021)	(0.018)	(0.026)	(0.016)	(0.018)
MAG	−0.0180	−0.0259	**−0.1107** **	0.0620	−0.0700	0.0065
	(0.012)	(0.021)	(0.018)	(0.025)	(0.016)	(0.017)
SPONS	**0.0594** **	**0.0887** **	−0.0819	**0.1289** **	−0.0417	**0.1128** **
	(0.012)	(0.019)	(0.018)	(0.027)	(0.016)	(0.017)
TRANSFER	−0.0066	0.0218	−0.0128	0.0213	0.0220	−0.0172
	(0.011)	(0.022)	(0.015)	(0.021)	(0.013)	(0.016)
INVIT	0.0102	−0.0284	0.0566	0.0082	0.0153	0.0110
	(0.012)	(0.020)	(0.017)	(0.025)	(0.014)	(0.017)
FRIEND	−0.0344	−0.0627	0.0194	−0.0956	0.0105	−0.0810
	(0.011)	(0.019)	(0.015)	(0.022)	(0.013)	(0.015)
YEARS	0.0225	**0.1129** ***	0.0465	−0.0866	−0.0674	**0.0814** **
	(0.003)	(0.056)	(0.005)	(0.006)	(0.004)	(0.0043)
MEMBERC	0.0379	0.0609	0.0229	0.0192	**0.1004** **	0.0126
	(0.025)	(0.051)	(0.033)	(0.048)	(0.030)	(0.038)
MEMBERFC	**−0.0974** ***	−0.0438	**−0.1610** ***	**−0.1262** ***	−0.0359	**−0.1634** ***
	(0.023)	(0.041)	(0.036)	(0.043)	(0.029)	(0.034)
MEMBERU	0.0017	−0.0174	−0.0205	0.0075	−0.0060	0.0118
	(0.041)	(0.096)	(0.056)	(0.066)	(0.040)	(0.080)
SEX	−0.0031	0.0162	0.0087	−0.0163	−0.0456	0.0382
	(0.028)	(0.041)	(0.051)	(0.059)	(0.038)	(0.039)
AGE	0.1671	**0.4974** **	0.2927	**−0.3466** *	0.0815	**0.3900** **
	(0.044)	(0.070)	(0.071)	(0.087)	(0.060)	(0.063)
AGE2	−0.0981	**−0.3871** **	−0.2385	**0.3466** **	0.0135	−0.3076 *
	(0.006)	(0.010)	(0.010)	(0.013)	(0.010)	(0.009)
EDU	−0.0130	−0.0465	−0.0247	0.0299	−0.0084	−0.0298
	(0.009)	(0.015)	(0.013)	(0.018)	(0.012)	(0.012)
INC	**0.1471** ***	**0.1788** ***	**0.1385** ***	**0.1341** **	**0.2501** ***	**0.1523** ***
	(0.010)	(0.018)	(0.015)	(0.019)	(0.013)	(0.015)
STAND	**−0.569** ***	**−0.4635** ***	**−0.6518** ***	**−0.7096** ***		
	(0.026)	(0.049)	(0.040)	(0.046)		
DFL1	**0.2069** ***				**0.2382** ***	**0.3019** ***
	(0.033)				(0.043)	(0.047)
DFL2	0.0546				**−0.2591** ***	**0.2177** ***
	(0.047)				(0.056)	(0.070)

Table A1. *Cont.*

	Dependent Variable LNPRICE					
Variable	**ALL**	**BBL**	**BULI2**	**BULI1**	**STANDING**	**SEATING**
UTIL	**0.1374** ***	**0.2411** ***	0.0597	0.0652	−0.0848	**0.3235** ***
	(0.001)	(0.003)	(0.001)	(0.005)	(0.001)	(0.002)
SUCC	**0.0833** ***	0.0262	0.0463	0.0672	**0.1432** ***	**0.0802** *
	(0.003)	(0.006)	(0.007)	(0.006)	(0.004)	(0.005)
POPUL	**−0.2205** ***	**−0.1268** ***	**−0.2972** ***	−0.0670	**−0.1712** ***	**−0.3423** ***
	(1.74×10^{-8})	(4.03×10^{-8})	(2.46×10^{-8})	(7.66×10^{-8})	(2.25×10^{-8})	(2.47×10^{-8})
GDP	−0.0284	−0.0495	−0.0593	−0.0033	−0.0613	−0.0416
	(7.08×10^{-7})	(1.81×10^{-6})	(9.11×10^{-7})	(2.18×10^{-6})	(8.28×10^{-7})	(1.05×10^{-6})
Constant	**4.970** ***	**3.738** ***	**5.257** ***	**5.566** ***	**4.915** ***	**4.463** ***
	(0.153)	(0.301)	(0.021)	(0.585)	(0.191)	(0.24)
N	762	277	269	216	345	417
McFadden's R^2	0.773	0.767	0.984	0.814	1.102	0.633
McKelvey and Zavoina's R^2	0.681	0.640	0.701	0.695	0.366	0.497

Note: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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The Consequences of a Switch to Free-to-Play for Overwatch and Its Esports League

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Abstract: Videogames and their business models have evolved significantly over time, with consumers preferring a shift towards free-to-play (F2P) without any initial purchase, as evidenced in the popularity of Fortnite, Warzone and others. The aim of this research is to establish the viability of a switch from a buy-to-play (B2P) to a F2P model for the game Overwatch and the impact on its associated esports. The relevant literature within the subject area was identified. A framework was then developed to determine whether a switch to F2P would be successful for Overwatch, based on the criteria seen as significant within the literature identified. These criteria represent a mix of quantitative and qualitative approaches, and a mix of styles, with some being more descriptive with biographical elements of the author's experience, and others being more analytical. The main conclusion drawn from the analysis undertaken is that Overwatch would be well suited for a switch to F2P. The sequel to Overwatch, Overwatch 2, is due to release in the near future, which would have opened the possibility of Overwatch being free, while Overwatch 2 is paid. However, Overwatch 1 is confirmed to be shutting down completely. It is also concluded there would be a likely increase in player numbers, and that a switch to F2P is likely to improve the problematic esports scene associated with Overwatch.

Keywords: Overwatch; business model; free-to-play; buy-to-play; esports

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1. Introduction

Overwatch is a first-person team-focused shooter-based game released in 2016 with large player base (50 m players towards the end of 2019; Valentine 2019) and an esports community. The game was not designed specifically for esports but has since embraced it, using a league-based system with franchising, high-level branding, and professionalism. Overwatch League is the associated group managing the elite level of gameplay, with teams being permanently linked with a specific city and players being assured a salary and benefits based on team performance (OverwatchLeague.com 2020). In 2016, the year Overwatch launched, Twitch announced that it was the most popular game on the platform, as outlined by Curtin (2017). In the following years, Richman (2021) underlines that the game sustained its success, reaching 35 m players in 2017, then peaking at around 50 m players in 2018. However, only around 800,000 people played Overwatch concurrently in June 2021 (TechACake 2021). Besides, Twitchtracker.com (n.d.) reports that Overwatch is currently the 27th most watched game with 2.63 m viewers, including 1.55 m viewers for the Overwatch League finals 2020, while it was 3rd in January 2018 (TechACake 2021). This means that, since its launch, Overwatch has suffered from a decline, leading to its current position. These points are confirmed by Das (2021) who argues that a lack of new content is causing the "death" of the game and a severe reduction in viewership.

Overwatch has faced suggestions it should convert from a buy-to-play (B2P) to a free-to-play (F2P) model, under pressure from other free games such as Fortnite and Valorant. For example, Holt (2020) argues that due to a lack of future content development,

the planned sequel not being released imminently and a potential stagnation of profit sources, Overwatch should embrace a F2P model. Broadly speaking, three different options for monetisation exist within the videogame industry: B2P, F2P and pay-to-play (P2P) (Massarczyk et al. 2019). B2P is a conventional system where players would make an initial investment then expect to play without any further significant investment (Coldewey 2019). F2P costs nothing for players initially but often offers players options for in-game items like characters or cosmetic items (Varghese 2022). P2P is the last of the popular business models used, often employed by massive multiplayer online (MMO) games, where a monthly or yearly subscription is paid to access a game which then updates its content periodically, although sometimes an initial purchase is required too (Asavei et al. 2016). This model is decreasing in popularity, with its peak being around 2010 where Blizzard estimated they had 12 million subscribers for World of Warcraft, which is the most popular P2P game. Since then, there has been a decline to 4.59 m in 2022 (Statinvestor n.d.). For this reason, P2P is not considered as a viable potential option for Overwatch in the current study.

It must be noted that Overwatch has been given away for free in the past. McWhertor (2020) explains that Overwatch was given away by Boston Uprising, one of its esports teams, for a few months. This was short lived and cancelled early "due to high demand". In addition to this, Overwatch has had multiple free weekends where "you may access Overwatch as though you owned the game" (Blizzard Inc. 2021). Both of these are examples where the game has been given away for free. However, both are not examples of the game being fully F2P. The F2P weekends are time-limited, with a requirement to purchase the game to continue with the progression unlocked. Furthermore, these weekends would only be focused on those currently without the game, where a switch to a F2P system would affect all players. The handout of copies by Boston Uprising, similarly, was small in scope, and stopped prematurely without the intention to be a full scale F2P transition.

The initial popularity and recent decline of Overwatch, as well as the potential remedy of fully moving from B2P to F2P (as opposed to the short lived or time-limited attempts in the past) provide the motivation of the present research. This article explores B2P and F2P as the two potential options for Overwatch going forward, along with the implications and effects on Overwatch League as the associated esports to Overwatch. The aim of this article is to examine whether Overwatch would benefit from a transition to F2P through the identification of relevant criteria for assessment, and the potential implications that such transition would have on its associated esports. Three subsequent research questions are formulated:

RQ1: What are the criteria that should be included in the assessment of the switch of business model for a videogame?
RQ2: Based on these criteria, would Overwatch benefit from a switch from B2P to F2P?
RQ3: What would be the impact on Overwatch League?

These are important issues as Overwatch and its associated esports represent a significant population of players and viewers, and a change of business model would impact this population. Furthermore, developing a framework to assess relevant criteria based on recent, appropriate, and complementary sources can also open the door to extend findings and discussion of this article to other videogames and their associated esports. Thus, in terms of contributions, this article intends to inform the relevance of a switch of business model for Overwatch, while providing a framework for future assessment that may help decision-making for other videogames.

The switching of business model is something any firm will consider extensively whether it is related to video games or not. Making decisions like this inherently hold a significant amount of risk. Risk and business/economic model in esports have already been tackled, respectively, in relation to governance (Peng et al. 2020) and economic peculiarities (Scelles et al. 2021). In the case of Overwatch, there are motivations as to why a switch of business model would be beneficial. Johnson et al. (2022) suggest that, while the switching of business model is not something to be undertaken lightly, there are steps to be taken to identify when the switching of a business model should take place which help mitigate

this risk. They suggest that switch should occur when significant change is needed to four different areas of an existing model: the customer value proposition, profit formula, key resources, and key processes. If all these areas require change, it is less risky to engage with a switch in business model. The authors also find that there are a number of situations where it is conducive to switch business models to mitigate risk. There are a couple of examples here which could be applied to Overwatch and the situation it finds itself in, namely the need to fend off low-end disruptors, and the need to respond to a shifting basis of competition. The videogame industry is growing in size, with for example a 50% increase in the number of developers in the UK from 2021 to 2022 (GameCentral 2022), and the US video game market is expected to grow from $30.4 bn in 2021 to $48.2 bn in 2027 (Wood 2022). This has the effect of both introducing lower-end disruptive companies, and shifting competition for Blizzard and Overwatch, which motivates making a decision to address the shifting landscape. There are inherent risks in either decision made. If Blizzard were to maintain its current business model, players could move away from the game, ultimately causing its failure. Alternatively, if Blizzard were to switch to a F2P it would signal a significant upheaval in its current processes.

The rest of the paper is organised as follows. The next section describes the materials and methods, enabling the identification of relevant sources leading to a framework for assessing the relevance of a switch of business model. These sources are then applied to Overwatch in the results section, including the impact of a switch of business model on Overwatch esports league. The framework and findings are subsequently discussed, including the generalisation of the application of the framework to other videogames, further critical discussion of the main results and consideration of the process to transition to a new business model. Finally, the last section concludes.

2. Materials and Methods

In order to inform the relevance of a switch of business model for Overwatch, relevant criteria need to be used. This can be done through identifying the literature having considered such criteria. This justifies the sequential methodological approach chosen in the present research, starting with the identification of relevant literature about the criteria to be assessed when evaluating videogame business models; then applying these criteria to Overwatch; comparing the outcomes reached with different criteria; and finally making a recommendation based on the comparison of the outcomes.

More specifically, this paper adopts a case study approach examining Overwatch and the potential for a switch to F2P. It employs mixed methods to evaluate whether or not the switch is meaningful from a business perspective. First, a thematic review is undertaken on Overwatch and on video game business models, identifying relevant research in the area. This is then explored in the context of Overwatch and its current system. Some of the literature selected has qualitative elements (Luton 2013), while other literature has quantitative elements (Seidl et al. 2018; Massarczyk et al. 2019), which results in the mixed methods approach when these quantitative frameworks are used to evaluate Overwatch. Their identification as suitable sources followed a precise search process in line with the expectations of a scoping review (Peters et al. 2020). The methodology for creating a framework of analysis begun with Google Scholar, ScienceDirect and Web of Science, which were used to create a catalogue of relevant literature. The search terms used included esports, esport, free-to-play, videogames and business model, with Boolean searching employed (for example, "videogames" + "business model") to align with the scope of the review, i.e., the identification of literature informing about F2P in esports that can be applied to the specific case of Overwatch. Because esports are a recent topic, no restriction was set for the date range. A five-step process was followed to obtain the final results forming the basis to build the model used for analysis: initial search (1); removal of duplicates (2); removal of records considered not appropriate based on the review of their abstract (3), their brief review (4), and finally their in-depth review (5). For steps 3 and 4, the criteria for removal were the content considered not relevant and/or the methods not suitable. For step 5, they were the content considered not relevant to Overwatch and/or F2P

and/or B2P. Figure 1 displays the overall process, as well as the associated number of records for each step.

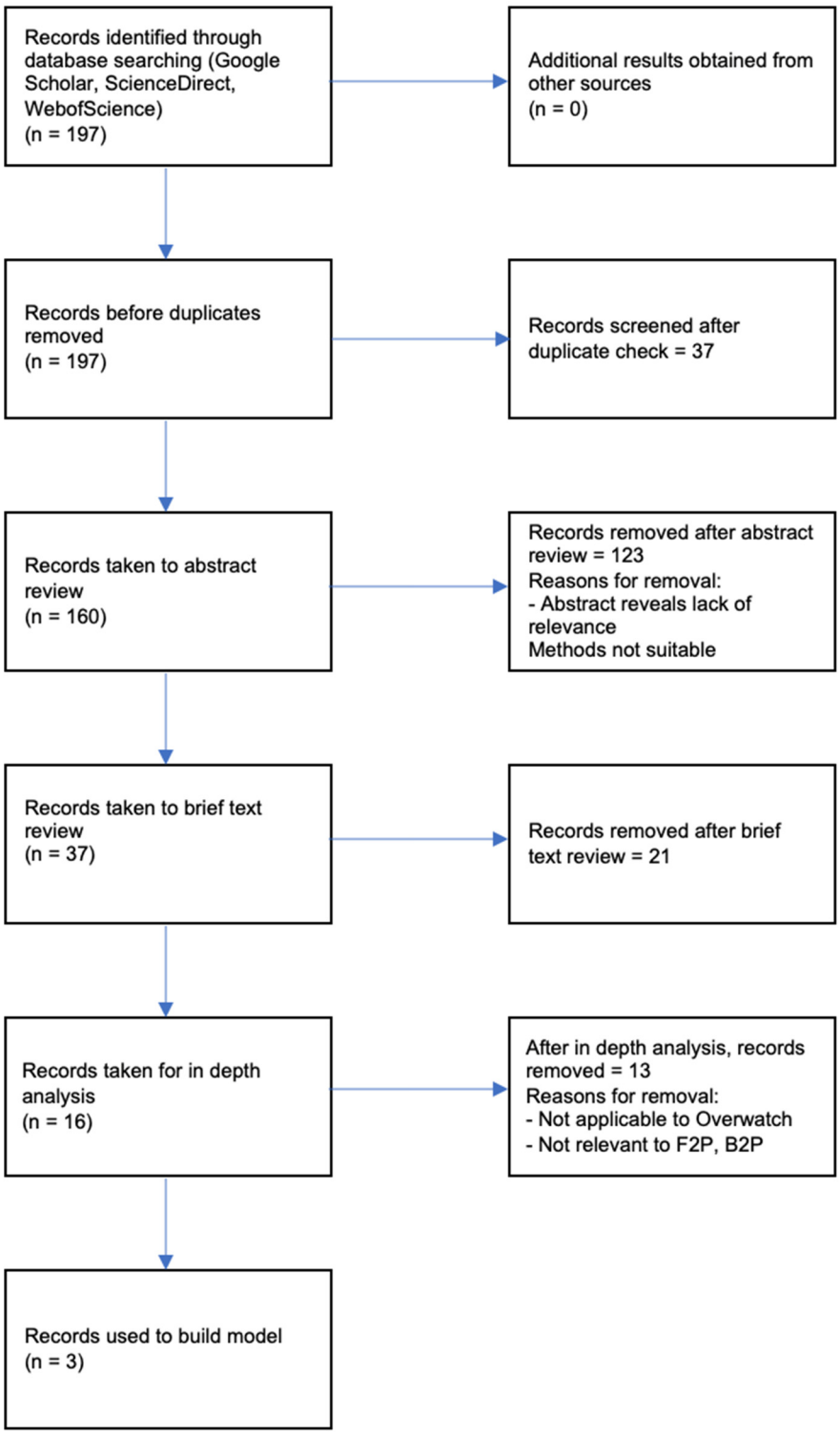

Figure 1. Process used, and associated number of records for each stage.

The design of the framework used in the present study is necessitated by the area of research being relatively new, particularly when contemplating areas around esports. Based on a review of the literature, there appears to be a paucity of research investigating the switch between business models in esports. Consistent with this, the amount of literature

produced as a result of searching was not extensive. This necessitated the model being limited to the three sources used, as they were among the limited number of sources at the time. The use of three separate sources is designed to incorporate different viewpoints and approaches to the analysis of F2P. The framework will be applied by considering each source individually before assessing whether a switch is well advised or not through comparison the outcome reached with each of the three different models. Instead of describing the elements to consider here and eventually applying them to Overwatch in the results, both their description and application are done in the latter section. This is to prevent redundancies between both sections, unavoidable if the application is separated from the description.

3. Results

3.1. Application of Massarczyk, Winzer and Bender: The Pros and Cons of F2P vs. B2P for Overwatch

Massarczyk et al. (2019) explore the potential business models a publisher could pursue based on what model best fits each game, and which model promises the best financial returns. This paper can be considered significant as one of the only examples of trying to survey the whole industry and the variety of available models. The advantages and disadvantages of the three most prominent models are considered, while also developing a ranking system to establish a method of comparison. It is argued that despite increasing complexity, more competition and development costs increasing, prices for video games remain stable, meaning videogames struggle to break even (Massarczyk et al. 2019). However, this method presents some issues. The "self-developed evaluation system" lacks a level of analysis, with generalised statements made without providing examples or evidence, such as "In the B2P model, only one-off revenues are generated, there is no possibility of current income (valuation = 0)" (Massarczyk et al. 2019, p. 483). Nevertheless, the system provides valuable insight into the nature of the business models outlined. As such, it is taken forward.

The point is made that regular payments are better than one-off payments, which is a negative for Overwatch's current model, as it relies on a B2P model with one initial payment. This payment has varied, averaging around £11.50 depending on the platform considered (PC/Xbox/PlayStation) (PriceSpy.com n.d.). While these payments are always one-off, it could be argued that Overwatch has a system closer to that of a F2P game already. It has a heavy focus on regular cosmetics being added to the game, encouraging players to spend money on in-game currency. However, this system has been accused of being "out of touch" due to focusing on randomised lootboxes rather than a battle pass-like system seen elsewhere. This is where boxes are opened, and currency is spent to purchase items and additional boxes. Overall, it could be seen that Overwatch and its obtainment of payments would lend itself to a F2P model with some adjustments.

The second consideration by Massarczyk et al. (2019) is about customer data. This is seen as valuable due to the ability to cross-sell to existing users, and to sell data to third parties. Given Overwatch is a B2P model, it would not be valued highly due to minimal customer data being collected due to minimal information. On the other hand, it is hard to determine potential gains or changes to be made with regard to customer data with a switch between B2P and F2P or P2P. As such, it is difficult to assess whether a switch to F2P would be a positive move on the customer data dimension.

Another criterion explored by the authors is compulsory permanent internet connection, where a user would have to stay connected while using the game. The authors give three reasons for this being beneficial: software piracy can be prevented, additional content can be provided more easily, and individual behaviour can be recorded (Massarczyk et al. 2019, p. 484). Overwatch does not require connection, but all its central modes are focussed on player vs. player interaction, which does require online connection. In this regard, Overwatch is well suited for a F2P model, as it is usually accepted part of the 'free' content is a permanent internet connection.

The next criterion considered by Massarczyk et al. (2019) is the in-game shop, which is an area to be seen as both a strength and a weakness for Overwatch. Its lootbox-based system is popular, and by 2019 had generated over $1 bn in revenue (Moncav 2019). The system has a link with Overwatch's esports system, with a different currency available to purchase for team-specific skins, while the currency is also earned when watching matches in Overwatch's esports league. On the other hand, the lootbox system is often accused of being a form of gambling, or at least to encourage it, and it is often argued that a B2P system should not need lootboxes (Parker 2020). Based on this, Overwatch would be again well positioned for a switch to F2P.

Ongoing costs are considered due to the importance of how long it makes economic sense to continue operation of a game. There will be a time where ongoing costs outweigh ongoing revenues, and this will vary depending on the type of game, and the payment model employed. As explained by Massarczyk et al. (2019, p. 485), "In a single-player video game, there is no "real" economic lifespan, as such a game could usually be played on almost "indefinitely". This is then split into three sub-criteria, namely ": (a) provision of servers for continuous gaming, (b) provision of patches, and (c) provision of further content".

Considering these three sub-criteria, Overwatch is perhaps in a strong position to offer strong server availability as it runs on a platform alongside other games which are among the most popular (Call of Duty, World of Warcraft, StarCraft). Thus, there is likely some synergies to be gained. Provision of patches is something which has not been an issue with Overwatch, with regular patches and patch notes, and a test server to iron out issues. Nevertheless, the regular provision of content is a problem, with the developer working towards a sequel rather than continuing development, causing discontent (Holt 2021). There are cosmetic updates issued regularly. Overall, Overwatch sits between F2P and B2P rather than seeming a classic B2P system, meaning that a switch to F2P would not be as radical as one may initially think.

Advertisement is the final consideration for Massarczyk et al. (2019), as in-game advertising can generate additional revenue, thus potentially improving profitability. Nevertheless, there could be issues in terms of player acceptance, and advertisement may interrupt the flow and intensity of the game. Overwatch does not have in-game advertisement. However, it is uniquely positioned to offer advertising via its esports league, which has high-end sponsors and high-profile owners. Furthermore, it has a potential to gain more players and buyers of the game through the publicity gained, and more high-level players to join the esports. On the other hand, it could be questioned how much revenue Overwatch gains from its esports system, and it has some acknowledged issues such as those outlined by Castello (2020). Advertisement may result in an overall positive impact, depending on the success of Overwatch League.

Each of the six elements outlined by Massarczyk et al. (2019) are summarized and applied to Overwatch in Table 1. Overall, they support a move to F2P, with four supportive elements vs. two unknown.

Table 1. Application of Massarczyk et al. (2019) to Overwatch.

Element	Application to Overwatch	Support a Switch to F2P?
Obtainment of payments	Currently one payment collected at initial purchase, with optional in-game purchases. No ongoing subscription-based payments	Yes–system in place to obtain payments via in-game purchases
Customer data	Some data likely to be connected, but extent unknown	Unknown
Compulsory permanent internet connection	Compulsory internet connection for multiplayer	Yes
In-game shop	Set-up will potentially change from lootbox to battle pass system (Searl 2020) which would support a F2P model	Yes, more so if a battle pass system
Ongoing cost	All three criteria outlined are fulfilled	Yes
Advertisement	Advertising depends on the success of Overwatch League	Unknown

3.2. Application of Luton: Additional Pros of F2P and Whether They Could Apply to Overwatch

One of the most comprehensive statements around the F2P structure in videogames is developed by Luton (2013), who provides a well-constructed account around the business considerations of F2P games that are complementary to the ones provided by Massarczyk et al. (2019). Much justification can be drawn for the research being conducted. A few examples are given, specifically related to mobile gaming but still applicable: "When in-app purchases finally made their way to the App Store, we tested the waters by adding a few purchasable themes to Scoops (our most profitable game at the time) and making it free. Again, people thought we were crazy, but the game ended up making the same amount of revenue as when it was a for-purchase game and generated ten times the audience" (Luton 2013, p. 8). This shows how a shift from a P2P to a F2P model can create opportunities. The point is also made that "having a much larger fan base and exponentially larger word-of-mouth marketing for our games because they are free are valuable benefits" (Luton 2013, p. 9). Justification is also offered for how to encourage players to come back, how to monetise, and how to understand and serve players. These characteristics have implications for this paper as they can be used to establish the suitability for Overwatch pivoting to a F2P system.

Luton (2013) considers F2P games in an informal, casual way, but aims to synthesise knowledge about F2P and explain how the system works. In doing so, he indicates areas of concentration and consideration which can be related to Overwatch, namely: Economic considerations, Gameplay, Monetization, Analytics, Marketing. Each of these elements are considered and related, looking at the context outlined by Luton (2013) and applied directly to Overwatch. This method lacks a degree of scientific rigour, with no consideration given to bias, methodology, analysis or interpretation of the author's own presented results, with a more subjective tone adopted. This, however, seems to be the aim, with a focus on an informal tone presenting more as an instructional guide to F2P than a full scientific analysis. Despite this subjectivity, it was decided to retain the criteria identified for the present analysis due to their complementarity with the two other sources and methods selected.

Economic considerations around F2P are about how to make profit out of a free product. The point is made that advertising, product placement and merchandise are all key to making profit, but in-app purchases are "king of them all" (Luton 2013, p. 11). In this way, Overwatch is well positioned to capitalise, as already raised previously. It does not offer any of the first three sources of finance in its core game, but the esports system is well positioned to offer at the least a high level of advertising and merchandising, with less emphasis on product placement.

Gameplay is also suggested as a key component of F2P. The aim is to keep players coming back, via three levels of incentives: minute-to-minute loops of repeatable actions, hour-to-hour loops of gameplay, and day-to-day with motivations and goals keeping players interested such as rewards and upgrades. This system relies on four elements: social, competitive, achievement and exploration. While it is difficult to judge the exact measure of players that return to Overwatch either in the short or long term, these four elements can all be seen in Overwatch. The competitive element of the game relies on social communication and grouping up, they are shown to all players in their season rank, the achievement is contained within the gaining of higher tiers of rank (gold/diamond, etc.) and exploration can be seen in new maps being introduced to the game.

Monetisation is considered next by Luton (2013). Four types of monetisation are suggested: content, convenience (anything that skips players ahead), competitive advantage and customisation. Overwatch, with its current system of randomised lootboxes, is an effective way of monetisation, but does not specifically align with its B2P model. These lootboxes are exclusively about customisation, offering no convenience or competitive advantage, and nothing else within the game does either. This is an approach often embraced by games with an eye on encouraging an esports scene, like Counter Strike: Global Offensive (CS:GO) or Valorant. There is no additional content offered for money either by Overwatch. These areas could represent a way of offsetting any cost or opportunity cost with a switch to F2P.

The final two elements outlined are Analytics and Marketing. Analytics is explained as using in game statistics to inform decisions, like when the game should be released or what type of in-game advertising should be used. It is difficult to discern the exact level of analytics undertaken within Overwatch. However, websites like Overbuff.com offer an insight into the level of data collected by the publisher, with basic information like wins, kills and deaths, but also character specific information at a granular level like in-game accuracy of specific abilities and number of kills while in a specific form during gameplay. It is not possible to judge if or what this information is used for, but it is all collected in the source code of Overwatch.

As with Analytics, Marketing and its impact and importance to Overwatch is difficult to judge. Luton (2013) proposes a number of techniques to incentivise players, including viral marketing, encouraging players to gift to friends and introducing challenging elements. Given it is a part of a larger holding company, Activision Blizzard, which is one of the largest videogame publishers globally, it is known that it has a large marketing budget of over $270m per year (Statista 2021). However, it is not known how this budget is employed.

A summary of the five elements outlined by Luton (2013) is shown in Table 2. Overall, their application to Overwatch supports a move to F2P, with four supportive elements vs. one unknown.

Table 2. Application of Luton (2013) to Overwatch.

Luton (2013) F2P Element Considered	Applicable to Overwatch?	Example
Economic considerations	Yes, highly applicable	Battle pass system being embraced, loot boxes used previously
Gameplay	Yes, highly applicable	Some social elements within Overwatch, very robust competitive system, sense of achievement through progressing through ranks, exploration less applicable
Monetization	Yes, highly applicable	Content, competitive advantage not too applicable. Content is available from start, and there is no pay-to-win element to the competitive aspects. Customisation is the biggest source of monetisation through purchasing skins, with rare and time-limited skins encouraging purchase. Convenience is often used to skip tiers in battle pass systems, so likely to be more important for Overwatch 2
Analytics	Yes	Lots of elements can be measured and data readily available for analysis to inform decision making
Marketing	Potentially, difficult to judge	Blizzard has a significant marketing budget, could use OWL as a form of marketing

3.3. Application of Seidl et al.: The Pros and Cons of a Switch Applied to Overwatch

There is little research done about a publisher switching a game from one payment system to another. Yet, there is a relevant research paper by Seidl et al. (2018), who create a quantitative theoretical model considering a subscription-based system and a F2P system. The focus of the switch between systems is based on revenue coming from those who use the game heavily, with the optimal situation depending on a number of factors, including "how rapidly casual users escalate to this more intense playing state, the willingness of users to pay for additional content, and the costs of changing the business model" (Seidl et al. 2018, p. 714). The biggest advantage of the F2P model is identified as being that it can attract higher levels of new players initially, due to the lack of initial purchasing costs. As a result, "if the initial willingness of players to pay for additional content is low but general interest in the game is high, then it is optimal to start with a subscription model and then switch to F2P later at an optimally determined time" (Seidl et al. 2018, p. 714). Costs of switching are also identified, with the need for some adaptations in software and hardware development. This has implications when switching systems. For example, if costs are too high, a switch cannot take place; and if there is a lack of heavy users, the necessary costs of switching cannot take place. Other significant findings are that advertising is particularly effective in F2P models; and if games do not have a flow of players consistently converting from casual to heavy, a subscription-based model is better suited. This research can be

used in the applied context being considered in this paper relating to whether Overwatch is suitable to be switched from B2P to F2P.

Seidl et al. (2018) develop a model which considers different business models in the video game industry, and the willingness of players to pay for content. As a part of this model the authors identify a list of criteria to either strengthen or weaken the possibility of a switch between systems being optimal. The model developed considers specifically a switch from a subscription-based system to a F2P model, meaning some of the conclusions cannot be applied to a switch between B2P and F2P, as would be the case with Overwatch. Yet, the parameters identified are considered qualitatively to assess how they would impact on the switch, and whether they would suggest it to be beneficial. One potential issue with the model employed is the level of generalisation undertaken. Videogames are heavily influenced by marketing and advertising, as well as trends. As explained by Faber (2021) there are numerous games which have increased in popularity solely due to being viewed on platforms such as Twitch and Youtube. These games provide numerous examples of potential anomalies which do not fit with the logic required for the paper to function. However, these dimensions are controlled for in the two other sources and methods used. Besides, the model developed by Seidl et al. (2018) does add to these two other methods, hence why it is considered here.

The variables considered are applied to Overwatch in Table 3. State variables describe the mathematical state of a model, control variables describe what is being held constant during investigation using this model, and parameters are used to define the conditions and limits of what is being investigated. In this way, the state variables used, heavy and light users, are observed during the switching process from B2P to F2P in this model, the control variables are not changed as to not influence the model, and the parameters are adjusted, varied and measured to investigate whether a switch would be beneficial. When considering Table 3, there are many unknowns due to restricted access on the required data. However, a few specific points can be drawn which provide justification for a switch between B2P and F2P for Overwatch.

Table 3. Application of Seidl et al. (2018) to Overwatch.

Variable or Parameter	Relation/Link to Overwatch	Support a Switch to F2P?
State variables		
Number of "light" users	10 m monthly users	Likely yes
Number of "heavy" users		Likely yes
Control variables		
Subscription fee	No subscription fee	N/A
Unit price for a virtual good	Various	N/A
Advertising rate	$270 m per year	N/A
Switching time	Unknown	N/A
Parameters		
Switching costs	Assumed to be marginal	Likely yes
Inflow rate to heavy users (degree of addictiveness) in Stage i, I = 1,2	Unknown	Unknown
Advertising costs in Stage i, I = 1,2	Unknown, could be amalgamated with the existing marketing costs	Likely yes
Initiation rate if the subscription fee is zero	Unknown, assumed to be higher than zero	Likely yes
Flow to heavy users if the unit price of a virtual good is zero	Unknown, assumed to be higher than zero	Likely yes
Demand of virtual goods if the p2 = 0	Unknown, assumed to increase	Likely yes

Distinguishing between light and heavy users (L, H) is difficult. However, Blizzard confirmed that there were 10m monthly players in 2020 (Richman 2021), which displays a level of longevity which could have an impact on a number of elements that relate to player numbers and demand (d1, d2, d3). This will also likely have an impact on addictedness and the level of quitting (bi, gi, v). Overwatch is also well positioned for a successful switch to F2P if the situation with its virtual goods is considered (p2). Overwatch has various options for in-game purchases. Two lootboxes cost $1.99, up to 50 lootboxes for $39.99. This system has helped generate over $1bn in revenue from in-game purchases alone. Activision-Blizzard, the publisher for Overwatch, has five other titles which have reached this point, two of which are F2P, namely Hearthstone and Candy Crush (Bailey 2019).

Overall, out of 12 variables highlighted by Seidl et al. (2018), seven are likely to support a move to F2P for Overwatch, one is unknown and four are not applicable. Based on this overview, it is concluded that the application of Seidl et al. (2018) to Overwatch is likely to support a switch to F2P.

3.4. Synthesis of the Three Models Used

Table 4 displays a synthesis of the three models used. Their methodologies refer to the criteria that should be included in the assessment of the switch of business model for a videogame, answering to RQ1. Although the three models present some limitations, using all three enables to assess the relevance of a switch of business model for a videogame against different set of criteria, to compare the outcome reached with each of them (i.e., supportive of a switch or not) and to make a recommendation based on such comparison. Overall, the three models are supportive of a move from B2P to F2P for Overwatch, answering RQ2; this is the case for the first two models and likely the case for the third model.

Table 4. Summary of seminal research employed.

Titles	Authors	Methodology	Primary Findings	Limitations	Application to Overwatch
Economic Evaluation of Business Models in Video Gaming Industry from Publisher Perspective	Massarczyk, E., Winzer, P. and Bender, S. (Massarczyk et al. 2019)	Catalogue of criteria is used for analysis including costs and revenues of video games. Results for each of the business models are summarized in a combined index.	F2P is seen as the highest ranking in the model developed from a publisher perspective. Traditional business models (B2P, P2P) are unattractive, to a lower extent for B2P. P2P is seen to have high running costs and limited potential revenue.	Lack of in-depth analysis, lack of evidence and examples.	Supportive of a move to F2P
Free-to-Play: Making Money From Games You Give Away	Luton, W. (Luton 2013)	Qualitative and narrative method, considering economics, gameplay, monetization, analytics and marketing.	F2P is seen as "better" as players can decide on how much to spend, more people can access the games.	Lacks scientific rigour, no real method explained or used. Subjective considerations.	Supportive of a move to F2P
Serious strategy for the makers of fun: Analyzing the option to switch from pay-to-play to free-to-play in a two-stage optimal control model with quadratic costs	Seidl, A., Caulkins, J., Hartl, R. and Kort, P. (Seidl et al. 2018)	A two-stage optimal control model analysing a switch between business models. Stage 1 considers a subscription business model, Stage 2 considers a microtransaction or F2P business model.	Optimal model depends on numerous factors such as how rapidly casual users escalate to this more intense playing state, the willingness of users to pay for additional content, and the costs of changing the business model.	Large amount of generalisation undertaken. Logic used to develop the method not specific to videogames.	Likely supportive of a move to F2P

3.5. Impact on Esports

Overwatch is widely considered as one of the most significant esports, with franchises worldwide, large companies like Budweiser, Coca-Cola, State Farm, Kellogg's, Toyota, and T-Mobile sponsoring events (Stern 2019). Broadcasts have also featured on ESPN and team owners include Robert Kraft and Stan Kroenke (Wolf 2018). Viewership often peaks around large events. The in-game competitive system was likely developed with a focus on esports. Players see after every match exactly how good they are in the form of a numerical ranking, with those excelling knowing so, and being more likely to advance. Overwatch also has a robust framework for progression within its esport, with four tiers. Open Division is a competition of amateur teams and players, allowing them to compete formally. Teams or players can then move up into Contenders, which, as explained by Garst (2019), runs as a minor league to Overwatch League. This offers an opportunity to develop from a casual, amateur player to a professional playing at the highest level. However, Garst (2019) highlights that there are fundamental issues with the Contenders, outlining that any two-tier system should be aiming to develop and shed light on talent. A confusing mix of academy and unsigned teams with different approaches towards competitiveness coupled with restrictive rules around sponsorship result in a failing system that does not perform as it should do.

Overwatch had outlined a roadmap for 2021 and the fourth season, but since then has not provided much detail on the future. Blizzard has provided no official roadmap for the 2022 season and beyond (Sciberras 2022). There were changes to the 2021 structure due to COVID-19 related travel restrictions, but the league intends to develop and expand. However, there are some issues with the foundation of Overwatch esports. The three formal competitions have seen withdrawals and negative changes. For example, Team Envy's dissolution of their T2 team, alongside ten other teams who have disbanded their T2 teams. Contenders has arguably gone from a robust competitive league to struggling to fill all of its positions. Since the conclusion of the 2021 season, a number of issues have arisen which alter the landscape of Overwatch and OWL. Heinisch (2022) outlines how one of the teams is trying to sell its players as it has lost trust in the finances of OWL. No new sponsors have been signed, the deal with Google for YouTube to host the broadcast of its events is ending, and a lot of teams preferred the league system during COVID when no travelling was required (Samal 2022).

It could be argued that embracing a F2P system could benefit Overwatch esports significantly. Switching to F2P, as shown in the popularity of Rocket League after its switch, would likely create an increase in the number of players. An increased number of players would result in more players entering T5 the competitive play within the base game. This would then feed into T4, T3, T2 and T1, as more active players would provide a larger pool of talent to draw from for the professional T1 and T2 leagues. It could be argued that the largest esports in terms of player numbers, audience size and prize money, namely DOTA 2, League of Legends and Fortnite, all being F2P, could provide enough justification alone for Overwatch to complete the switch. Furthermore, Macey et al. (2020) prove that watching intention fuels both gaming and buying intention, which, in turn, could justify how Overwatch could transition to F2P while maintaining profitability for the publisher if embracing a modified microtransaction-focused system. Overall, a switch from B2P to F2P would not only benefit Overwatch but also its esports league, answering RQ3.

4. Discussion

The results are supportive of a move from B2P to F2P for Overwatch and its esports league. However, it is acknowledged that there are some uncertainties around some variables of the switch. Besides, the application of the framework developed in the present paper to a single videogame raises the question as to whether it can be generalised to other videogames. Accordingly, the discussion considers first the application of the framework to other videogames. There are also additional points which should be addressed regarding the potential shift to F2P for Overwatch, tackled in the present discussion. These additional

points include the current popularity of Overwatch compared to relevant F2P games and what can be learnt from other games having moved from B2P to F2P. This is an important consideration because one limitation of the current study is that it neglects the process on how to transition to F2P.

4.1. Application of the Framework to Other Videogames: Illustration with Call of Duty

The framework developed in this paper can be applied to other videogames. This is illustrated here through the example of Call of Duty. This game is also published by Activision-Blizzard. Call of Duty is one of the most significant video game franchises in the world, with a reported $27 billion in revenue across the franchise so far (Apolinario 2022). Similarly to Overwatch, decisions made around Call of Duty and its monetisation will have considerable consequences for consumers, employees and shareholders, and is likely to have a significant risk factor attached. The league system utilised in Call of Duty is similar to that of Overwatch, with a focus on in-person events, a global reach and a tiered system similar to Overwatch and its Contenders division. Call of Duty shares some of the issues Overwatch has experienced too, with a lack of attention paid to the competitive system below the top tier Call of Duty League events, and a level of viewership of official events which is inconsistent (Byers 2022). Viewership has varied since the Call of Duty League was established in 2020. The final for that year attracted a peak of 331,558 viewers (Esports Charts n.d.). In 2021, this decreased to 238,794, then increased back to 275,244 in 2022. This does not seem to be significant when compared to, for example, League of Legends which attracted a peak viewership of 2.1 m in 2022, or Valorant, a much newer title, which peaked at 1.5 m viewers in 2022.

There are some differences between Call of Duty and Overwatch, however. These differences would have to be addressed and accounted for in the model used here. Examples include the existence of related games Call of Duty: Mobile and Call of Duty: Warzone, both of which are F2P already. Similar issues would be met as those which occurred when examining Overwatch. Given Call of Duty is published by the same company (Activision-Blizzard), who does not release comprehensive statistics on its titles, not all information could be accessible. Yet, an informed examination could be undertaken. Call of Duty could be seen as a suitable title for examination with the model employed, with justification coming from the disparity between the number of players it gets from its range of titles, especially those which are already F2P, and the popularity of its flagship esport which is played on its B2P title.

4.2. Overwatch Popularity vs. Relevant F2P Games

One key point to consider when contemplating potential transition for Overwatch is whether or not it is really likely to benefit, based on a further look at its current situation. One limitation of the present study is that it did not put the decline of Overwatch into the perspective of the growing videogame market. One explanation may be the growth of the number of videogames and, in particular, F2P games, leading to a higher competition. To some extent, it may be that Overwatch used to 'overperform' in the past and its current situation is simply normal given its potential. Besides, it could be argued that the Overwatch community is far from dead, casting potential doubt about the opportunity of transitioning to F2P. In 2019, it was reported that Blizzard made over $1bn in lootbox transactions alone from Overwatch since its launch (Castelot 2019). Miller (2020) reports that Blizzard has posted better than expected earnings despite the COVID-19 pandemic, and stated that Overwatch has over 10 million monthly players. This is compared to, for example, CS:GO having 26.2 m players in May 2020. It is difficult to obtain accurate data on the popularity of any game published by Blizzard as they do not announce regular figures on player numbers, but a measure of popularity can be gained by looking at Twitch viewership, for example through using Twitch Tracker.

Overwatch sees regular cyclical fluctuations, with a consistent average over the game's lifetime, but it could be argued that the audience size has stagnated. However, when

compared to Valorant, a similar, competitive team focused F2P game launched more recently, there has been a sustained drop off in popularity, decreasing from its launch to a low point of around 50,000 total viewers in November 2020. On the other hand, CS:GO has been operating for a much longer period of time, and also established itself as a popular esports. Viewership has remained fairly consistent over time, seeing a significant rise in early 2020. Both of these games are F2P but have differing experiences; CS:GO was initially B2P so could be used as a model for Overwatch on how to transition to a F2P system.

4.3. How to Transition to F2P? The Example of CS:GO

CS:GO launched in 2012 with a fee of $15 to purchase the game. It has seen extraordinary success in terms of longevity and popularity, in part encouraged by its particularly popular esports events. CS:GO is also popular on streaming platforms like Twitch, fuelled by the strength of its professional scene (Moore 2018). The publisher (Valve) also had experience handling a title like CS:GO in the past, through predecessors CS Source and the original Counter-Strike, meaning there was an existing player base, networks in place for considerations like monetisation and marketing, and an existing level of demand. CS:GO transitioned to F2P in 2018 (Švejda 2018). Since then, CS:GO has introduced a system where a player can upgrade to a higher tier, called "Prime Status" (Steam n.d.), which gives players access to ranked, competitive gameplay, and additional cosmetic items. The core of the game can still be access for free however, meaning there are likely to be players who try the game, becoming first "light" users, and a proportion becoming "heavy" users, as Seidl et al. (2018) outline. A more unique feature of CS:GO is its infamous skin system, where cosmetic items can be purchased via loot crates. This system is acknowledged as being successful, with players investing in specific items, loot boxes and cosmetics with the aim of making money (Williams 2022). This further encourages players to spend money with the publisher Valve. CS:GO transitioned from B2P to F2P at a time where it was not particularly fashionable to do so. It had a number of characteristics (strong esport associated, an existing player base, methods of monetisation) which are not common, but to some extent the plan used could be replicated for Overwatch or more exactly Overwatch 2, the new sequel of the game.

As previously outlined, Overwatch has a strong associated esport and an existing player base, even though these have waned over the course of the game. Activision-Blizzard have a strong history of other releases, so would have a large amount of players willing to try a game, even if it was not a sequel. The monetisation utilised by CS:GO is being emulated by Overwatch, with a battlepass being utilised in Overwatch 2 alongside their already popular lootbox mechanic, but the publisher has also decided to lock certain characters behind a premium battle pass or through investing a significant amount of playing time (Toms 2022). This means that for the first time there is an option to spend money on something other than cosmetic items. This is not something CS:GO has focused on, the publisher has tended to provide as level a competitive field as possible and focus efforts to monetise on cosmetic items. Whether or not this will be an issue for Overwatch 2 remains to be seen.

5. Conclusions

This research aimed at evaluating the opportunity for Overwatch to switch from a B2P to a F2P model and the impact on its associated esports. It presents the caveat of not being an all-encompassing study of every possible route for the future of Overwatch. Instead, it is more an exploratory consideration of how Overwatch could transition to enhance the system currently in place. The novelty of the research from a methodological perspective is its sequential approach, starting with the identification of relevant literature having considered different sets of criteria to assess the relevance of a switch of business model for a video game, then applying these different sets of criteria to Overwatch, comparing the outcomes reached with the different sets, and finally making a recommendation based on the comparison of the outcomes. Looking forward, this exploration could be generalised

and applied to other videogames and their associated esports, with the same model being adjusted for contextual differences, as illustrated in the discussion with the example of Call of Duty. This research could also inform future decisions taken by publishers around the suitability of their videogames for the models examined, for example a publisher may identify that their yet-to-be-published game would suit F2P over B2P or P2P.

Based on the analysis undertaken in this study, it is likely that a transition to F2P would be beneficial. The decision has been made for Overwatch 2 to be F2P, with a move away from the problematic loot box system to a battle pass (Apsey 2022). The switch could also benefit Overwatch esports due to a potential increased number of players translating in more high-level players and, as such, an improved quality at the highest level. This would likely lead to a higher and/or more sustained viewership, which, in turn, would benefit Overwatch due to watching fuelling gaming and buying. It remains to be seen if the move will occur and, if so, if the virtuous circle described here would be confirmed.

Ultimately, Blizzard has made its final decision on the future of Overwatch. Overwatch 2 was announced in August 2019, and after a number of delays is due to launch fully in October 2022 (Sirani 2019). The move to F2P represents a shift which aligns with the recommendations made in this paper. This is a decision which is positive for players, as it could result in more people experiencing the game. It could be beneficial for the associated esport (OWL), but it will remain to be seen if it is the correct decision for Blizzard and the risk taken with the switch of business model will pay.

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Selected Issues of (Good) Governance in North American Professional Sports Leagues

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Abstract: In recent years, sport governing bodies (SGB) have been the subject of serious questions regarding their governance structures and decision-making processes. SGB that fail to implement regulatory mechanisms and to improve their governance structures and processes risk being confronted with severe ethically sensitive issues outside and inside the fields, which may eventually result in negative publicity and reduced demand (e.g., fans, sponsors) or financial support (e.g., from governments). This study examines selected regulations and practices of North American professional sports leagues in light of good governance principles. By adopting a qualitative research design, we investigate if there is a need for reforms to be employed by the leagues to comply with core dimensions of governance and thus reduce the risk of not being prepared to deal with ethically sensitive issues that may come up. Our critical analysis suggests that essential reforms need to be employed by the leagues to comply with core principles of good governance. In terms of democracy, professional leagues need to recognise stakeholder interests, implement innovative participation mechanisms, and apply diversity and inclusion policies for board composition. On transparency, it is required to publish internal regulations and financial information despite lax regulations on disclosure policies in the United States. Concerning accountability, professional leagues should separate their disciplinary and executive branches to avoid the concentration of power and potential conflict of interest in the relationship between the commissioner and team owners.

Keywords: good governance principles; democracy; transparency; accountability; ethics; risk; US sport

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1. Introduction

In recent years, sport governing bodies (SGB) have come under serious questioning regarding their governance structures and decision-making processes. By governance failures, Henry and Lee (2004) mean a lack of coordination among relevant bodies, deficiencies in regulating potentially harmful practices, and a flaw in establishing fair, transparent, and efficient procedures. Sports organisations both on national and international levels face a myriad of risks related to ethically sensitive issues and several organisations have received criticism in the past for their handling of different matters. Professional sports leagues in North America are no exception to this, as their approaches to dealing with ethically sensitive issues such as doping, cheating, concussions, domestic violence, racial discrimination, and homophobia, to name a few, have been criticized by broad sectors inside and outside sports (Shropshire 2004; Gregory 2004; Wolf 2010; Rapp 2012; Augelli and Kuennen 2018; Conklin 2020).

The high level of autonomy of sports organisations, an extremely rule-oriented context, and the increasing commercialisation of sport (e.g., Geeraert 2013; Hillman 2016) have called into question the legitimacy of sports organisations and have led to the development of criteria and indicators of good practice and ethical conduct in the governance of sports

organisations. The Sport Governance Observer developed by Play the Game in 2013, for example, resulted in clear criteria for desirable behaviour in sport organisations (Alm 2013). Thompson et al. (2022) explain that, as seen by many, improving organisational governance by implementing policies is regarded as central to the performance and effective governance practices of sport organisations.

Professional sports leagues in North America have emerged as entities in which profit maximisation and shareholder supremacy have been the fundamental principles of decision-making. The lack of clarity about the legal nature of North American professional leagues, their self-governance mechanisms and the weight of economic performance as a determining factor in their governance raise a number of ethical concerns that deserve to be studied. While it is true that the business operations of North American professional sports leagues have been a fertile research topic for scholars in the field of economics and management (e.g., Zimbalist 2002; Szymanski 2003; Blair 2011; Leeds et al. 2018), studies on the ethical issues and conflicts of interest arising from this business model in sport are limited (e.g., Willisch 1993; Lentze 1995; McLin 2016). It is precisely this gap that we have found through our research, which highlights the need to examine North American professional sports leagues through the lens of ethical standards and principles of good governance.

In this paper we examine selected regulations and practices of professional sports leagues in North America in light of good governance principles. By adopting a qualitative research design analysing a plethora of secondary sources, we look into issues related to the governance principles democracy, transparency and accountability. In a recent review, Thompson et al. (2022) identified these three principles to be the most frequently discussed criteria in academic discourse (and in the grey literature). Also, Geeraert et al. (2014) state that these three principles constitute central dimensions of good governance. This paper aims to investigate whether leagues must undertake reforms to comply with these core dimensions of governance and thus reduce the risk of being unprepared to deal with ethically sensitive issues that may arise.

The remainder of the paper is structured as follows: First, we lay out our theoretical framework on the principles of (good) governance in sport. Then, we present the context of our analysis and describe core features of North American professional sports leagues. The research methods are described next, followed by the results and their discussion. The paper ends with a general conclusion and some practical implications as well as limitations of the study that may invoke further research.

2. Theoretical Framework: Principles of (Good) Governance

Since the late twentieth century, the term 'governance' has played a central part in contemporary social science debates (Bruyninckx 2012). The concept of governance is commonly used in the spheres of policymaking, regulation, standards, and the exercise of authority. The Committee on the Financial Aspects of Corporate Governance (1992), known in the U.K. as the Cadbury Committee, defined it as 'the system by which organisations are directed and controlled'. Shleifer and Vishny (1997) maintain that corporate governance is how investors are assured of a return. Several authors have criticized these approaches for their limited scope and descriptive approach (McNamee and Fleming 2007). McNamee and Fleming's main concern is that such definitions exclude normative ideals. They claim that it is not only a matter of describing the type of governance but also of thinking of corporate governance as a concept that entails both descriptive and evaluative standards.

Good governance is a term that became popular in the 1990s when the World Bank introduced it as an unavoidable condition for countries requiring financial aid. Providing additional funding was subject to countries following these international financial organisations' 'good governance' recommendations. The OECD (2015) stated that good governance seeks an atmosphere of trust, transparency, and accountability necessary for fostering long-term investment, financial stability, and business integrity, thereby supporting more robust growth and more inclusive societies. It is clear that these concepts are oriented towards a

set of principles and therefore correspond to the normative dimension, which help address what is expected from organisations. Although Geeraert (2018) recognises recent efforts in sports, he concludes that there is still a certain inertia hampering the establishment of better governance in sports organisations. Geeraert credited this inaction to the lack of generally clear frameworks and the unavailability of benchmarking tools for good governance. Chappelet and Mrkonjic (2013) claim that the absence of universal principles in sports is motivated by the fact that sports organisations are rarely identical. Risk analysis needs to be employed by each organisation individually to identify which risks it is exposed to and to assess incidents or actions that may have a negative impact on the organisation (Transparency International 2021). Therefore, the relevance of governance indicators may vary across organisations. Nevertheless, as outlined above, certain principles (namely democracy, transparency and accountability) appear to be more frequently discussed than others (e.g., responsibility, solidarity and integrity) in the debate (Thompson et al. 2022). In the following subsections, the three most frequently used terms that also form the basis of this study are discussed in turn.

2.1. Democracy

Democracy is one of the most protected values of western societies, commonly referred to as the 'government by the people', where the power resides in the people and decisions are made by individuals directly or by elected representatives (Mittag and Putzmann 2013). This traditional concept of democracy is hardly strictly applicable to the North American sporting model, which even shows less democratic features as compared to, for example, the European model. Yet it might offer some essential ethical standards to pursue. Democracy is usually associated with governments and the public sphere, while it does not have the same acceptance among private entities. However, scholars have built a case for extending democratic principles into corporate settings (De Jong and Van Witteloostuijn 2004). According to Garrett (1956), democracy has a ringing appeal to Americans because of its political implications, but in a corporate sense, its meaning is restricted. Dahl (2020) maintains that a democratic system consists of designing regulations and principles that determine how the association members should conduct the decision-making process. More concretely, Geeraert (2022) summarises that democracy contains a set of rules that establish (electoral) competition, and collective participation (by affected groups) in decision-making and deliberation (fair and open debates).

2.2. Transparency

Forssbaeck and Oxelheim (2014) defined transparency as the entire disclosure of relevant information in a timely and systematic way, made available for observation and decision-making by stakeholders. They also acknowledge transparency as a connection with openness, clarity, access to information, and communication. Hood (2010) advocates that transparency helps bring corruption situations to the proper authorities' attention and leads to an open culture that benefits stakeholders. Roberts (2006) attributes the failure of organisations in part to the culture of secrecy and advocates for a culture of transparency. Similarly, Geeraert (2022) refers to McCubbins and Schwartz (1984) and points out that the major benefit of transparency is the decrease in information asymmetries between an organisation and its stakeholders; the availability of information indeed allows stakeholders (and others) to detect (the potential of) wrongdoings.

2.3. Accountability

While transparency refers to business conduct in a manner that makes decisions, regulations, and policies visible from the outside, (internal) accountability denotes the obligation of an individual or organisation to respond internally to how they have conducted their affairs (Hood 2010). According to Bovens (2007), accountability implies a social relationship between an actor and a forum. The actor is obligated to explain and defend a behaviour, and the forum may question such conduct. As a result of this relationship, the actor might

face some sanctions in case of negative judgement. Bovens makes particular reference to the impact of accountability in preventing excessive concentration of power in organisations. According to Geeraert (2022) accountability consists of (a) a clear separation of powers (executive, judicial, and supervisory) and (b) an internal system to monitor decision-makers' compliance with rules. These two components together help deter undesired behaviour by increasing the likelihood of negative consequences (ebd.). The idea of a separation of powers, consequently, it is an excellent basis upon which to analyse the possible concentration of disciplinary, political, and executive power and potential conflicts of interest that are not being well-addressed in North American professional sports leagues.

3. Logic and Structure of North American Professional Sports Leagues

Professional sports leagues in North America emerged as entities in the spirit of the greatest boom of capitalism and an expansion of corporate culture in the first half of the 20th century (Kristol 1975), with profit maximisation and shareholdership being the overriding principles (Fort 2000; Andreff and Staudohar 2002). American professional leagues are considered exemplary organisations, usually supported by arguments like successful fan engagement, a high economic return, good sporting performance, and organisation longevity. Jozsa (2010) argues that despite issues such as player strikes, integrity concerns, and external problems such as economic recessions and armed conflicts, clubs within these professional leagues have remained operational as profitable businesses and an essential element of American culture and history.

The business operations of North American professional sports leagues have been a fertile research subject for scholars in the field of economics and management for more than thirty years due to their unique governance structures and sound financial performance (Jozsa 2010). However, scholarship about ethical problems and conflicts of interest that arise from this corporate system in sport is limited. Therefore, it is pertinent to question whether the governance of these professional leagues has been examined through the lens of ethical standards and principles of good governance.

One of the main obstacles when analysing the organisational structure of North American professional sports leagues is the lack of clarity regarding the entity's classification (league corporations, partnerships, or associations). One of the significant consensuses is that their organisational structures are problematic, to say the least (Davis 2018). Grossman (2014) finds a problem in the fact that although the components of the structural organisation are known, its legal classification as an entity is not. Organisational forms define the rights and duties of the member team owners, management and stakeholders.

According to Conrad (2009), professional leagues were created as a self-governance mechanism for a group of competitive teams, which have an organisational structure for decision-making focused on players and owner discipline, financial management, and expansion and relocation of league clubs. These last two elements have been intimately related to the league management's economic dimension and, therefore, have had the most weight in determining their governance structures. In this respect, Lentze (1995) concludes that sources of revenue and cost have played an essential part in defining the organisational structure of professional leagues.

The MLB, the NHL, the NFL, and the NBA are established as unincorporated associations that consist of their respective member clubs. According to the Federal Deposit Insurance Corporation (FDIC) from the US, an unincorporated association is "an association of two or more persons formed for some religious, educational, charitable, social or other non-commercial purposes". The four leagues clearly state in their founding documents that they are non-profit organisations. For most scholars of law, an unincorporated association is not a legal entity and therefore does not have limited liability, but its members do. Members may vary from time to time, and they agree on their organisation and common purposes by utilising a written constitution. Committees chosen by the members usually manage their matters. This legal approach helps understand the decision-making process of professional league members since the member clubs share revenues. Notwithstanding, each franchise

belongs to separate owners or corporations with distinct incomes, assets, and market values from those of other member clubs (Flynn and Gilbert 2001).

Unlike other national sports organisations, such as national Olympic committees (NOCs) and national sports federations, the unincorporated condition of professional sports leagues makes the need to be accountable towards society less obvious. For example, while it is correct to assert that incorporated non-profit organisations such as the United States Olympic and Paralympic Committee (USOPC) are not agencies of the United States (US) government, there are instances where the line between the private and government sectors is, at best, blurry (Congressional Research Service 2011). It is possible to argue that, at least in some cases, the private character of these corporations is reasonably in question. The fact that USOPC's recognition as the governing body of sports in the US comes from Congress is a testament to the public's interest in these organisations. This is not the case for professional leagues and makes a difference when analysing their structure and governance.

Longley (2013) highlights the closed nature of North American sports league governance, since their club members keep strict control over all facets of the game, without any external organisation regulating the game. Technically, leagues are private enterprises and the relationship between franchise members is contractual and not of public interest (Grossman 2014). In short, they are self-governed private entities protected by exceptions to antitrust laws. New members are only acknowledged with the approval of other team owners, and franchisees are protected from competition with territorial rights over attractive cities. The author expands by arguing that the lack of competition allows leagues to explicitly select an arbitrary structure and implement policies that maximise revenues. Thus, North American professional sports leagues differ in many aspects from sports leagues in other parts of the world. Van Bottenburg (2011) lists different reasons why professional sports leagues in the US developed differently to, for example, European ones that are largely driven by an association mindset. According to the author, leagues in the US developed in relative geographic and cultural isolation from processes of organisation, regulation, and standardisation in Europe, what led to 'far more room for all kinds of commercial initiatives to establish closed professional leagues under profit-oriented managerial control'. As a consequence, as discussed below, North American professional sports leagues also have a different approach to dealing with stakeholder interests and representation.

Apart from the fact that North American professional leagues are a monopoly in practice, it is appropriate to analyse the owners' interests. Leagues are composed of a group of individual owners but collectively also own the league as a whole. It means that they play a double role: they pursue the maximisation of profits for individual teams and manage the entire league in the owners' best interest. According to Longley (2013), the latter role implies making the most crucial decisions for the league's success. They include potential expansions, relocations, salary policies, and revenue sharing. In McLin's (2016) view, this double role results in what he calls a 'collective action problem': self-interested owners would focus on actions that benefit their own club rather than the league and other stakeholders at large. As a consequence, due to the requirement of a supermajority vote of the owners, this may prevent the implementation of more efficient policies by the commissioners. Furthermore, this constellation may also easily impede innovation and the adoption of reforms to address issues such as a lack of transparency or accountability, if these are not congruent with the (economic) interest of all individual owners.

With greater or lesser similarities in their regulations, some authors support the idea that the four professional leagues share most of the principles. For example, McLin (2016) stresses that each of the four major professional sports leagues have an extraordinarily similar governance structure reflected in their respective constitutions. In general, they show a peculiar mix of corporate principles and particularities that address the nature of sporting organisations. The above-described landscape is the basis for arguing that professional leagues take the best of each model to guarantee profits while avoiding regulations from the business sector and societal demands to sport organisations. Therefore, it leads to severe problems of ethics and integrity concerning society and internal functioning.

4. Research Methods

This qualitative research focuses on the social sphere, whose methodological orientation is documentary in nature. This type of research responds to a systematic search, analysis, and synthesis of information from secondary sources. It refers to an exhaustive examination of documents that contain relevant and systematic information on the phenomenon explored (Bailey 1994). The procedure involved three fundamental steps: (1) Extensive document search: a keyword-based search with words such as 'governance', 'sports governance', 'corporate governance', and 'principles of governance' paired with keywords related to North American professional sports leagues resulted in a plethora of data that entered the analysis, thus ensuring data triangulation. A multitude of word combinations allowed us to assess previous research in this area and identify gaps in the literature. Furthermore, through desk research, we identified discursive heights of attention (e.g., scandals, important events or decisions) that also served as key terms (Hajer 1997). This collection of data was dynamic in the sense that new keywords could arise as a result of our directed search until theoretic saturation was attained (Strauss and Corbin 1990). (2) Organisation of the data: we organised and grouped the data in a deductive way based on the three (good) governance principles under consideration. (3) Critical analysis and synthesis of the data: the exhaustive reading technique involved identifying primary and secondary themes related to the three principles, which allowed the understanding and interpretation of the ideas expressed in the text. It involved going deeper by consulting various authors and sources and making evident the remaining ideas that were overlapping. Investigator triangulation in the form of intersubjective verifiability was addressed through regular meetings between research team members during which agreement on the interpretation of the data was reached (Guest et al. 2012). Finally, we synthesised the data to construct a coherent pattern. Figure 1 shows the final coding tree with our three main principles under consideration as well as the different main themes that were identified in the data. The themes written in italics were not included in the analysis for research economic reasons (see information in the limitations section at the end of the paper).

We acknowledge that the chosen methodological procedure impacts the results and findings of the research. Piggin et al. (2009, p. 91) point out that, in line with Foucauldian theorization, it is acknowledged that controlling and examining all 'data' on a given subject is not possible. As a consequence, an important assumption underlying our study is that the entire amount of information on the topic could never be covered. Rather, the chosen documents and examples represent focal points in a debate. It is also worth noting that the research process was partially constrained by the lack of relevant information on the leagues' internal regulations. The lack of publicity of constitutions and bylaws on the official websites of North American professional sports leagues, beyond being a constraint, reveals the problem of transparency suffered by the governance of these organisations. This governance flaw will be discussed in Section 5.2 in particular.

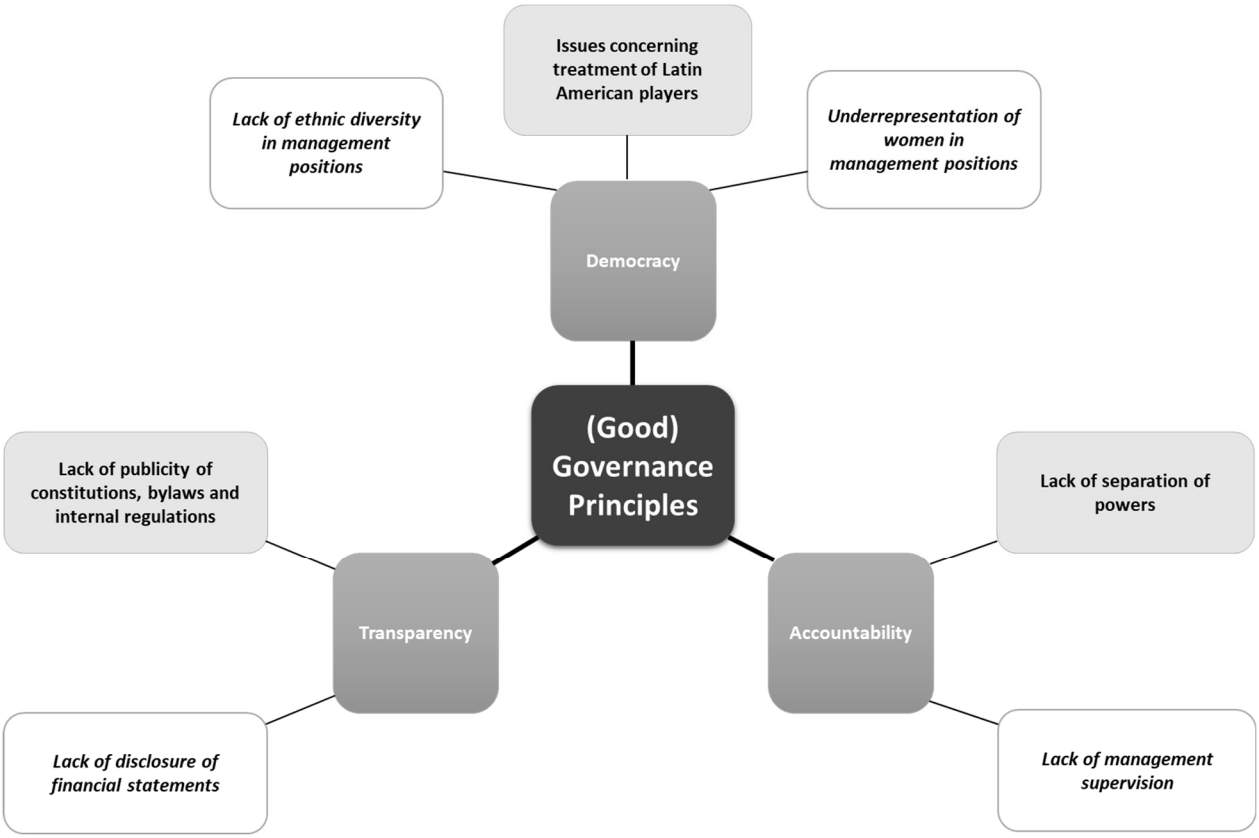

Figure 1. Final coding tree showing the three principles and themes that emerged from the data.

5. Results and Discussion

In the following sections, we present to what extent the described structures and regulations are compatible with the good governance principles of democracy, transparency, and accountability. We illustrate deficiencies in each dimension drawn from different examples. Regarding democracy, we look into the mechanisms employed by the leagues towards stakeholder representation and participation. Regarding transparency, the availability of information with a concrete focus on the publicity of constitutions, bylaws, and internal regulations is critically investigated. Finally, regarding accountability, we assess the role of the leagues' commissioners and their powerful position within the structures.

5.1. Democracy: Representation and Participation Mechanisms

Despite an evolution of corporate responsibility (Crane et al. 2019) and considering some stakeholder rights in North America, the current corporate model is still determined mainly by decisions exclusively made by shareholders and management. Jackson (2011) asserts that most groups and individuals impacted by the conduct of American companies have no voice in their governance structures. Sports organisations have been no strangers to these concerns about athletes and stakeholders' lack of influence in decision-making bodies. Geeraert et al. (2014) claim that sports organisations' stakeholders have been excluded from policy processes pivotal to the regulations that govern their activities.

This phenomenon is clearly observable in North American professional sports leagues. The original wording in their constitutions state that they represent an agreement between their constituent parties (team owners). Therefore, they are governed by the rules of contract law (Davis 2018). In the framework of liberal democracy, in which contractual relations are protected from the intervention of third parties, the involvement of agents outside the traditional governance of these leagues, such as employees and fans, is infrequent, not to say non-existent.

After an exhaustive review of constitutions, bylaws and internal regulations of professional sports leagues in North America, there were no indications of any formal representation of stakeholders in their governance structures other than the team owners. Even less observed were any mechanisms of active participation by players, coaches, referees, or spectators in governance choices. Based on the analysis of all these powers being attributed to the commissioner and the board, it can be concluded that the constitutions of these leagues correspond to a governance system typical of shareholder supremacy.

The shareholder approach is traditionally understood as one that mainly considers profit maximisation favouring stockholders. It defines the primary duty of a company's management bodies as the maximisation of shareholder capital (Friedman 1962). Velasco (2010) argues that because shareholders are 'owners' of the company, it must be governed in the owners' best interest, which precludes the participation of other organisation members in the decision-making process. These principles of the American business culture have been observed in some way in professional sports leagues. Most of their governance decisions are made based on profit-maximisation approaches, and owners and commissioners dictate governance entirely.

The shareholder approach has been an object of broad criticism for its promotion of unethical conduct since it applies the rights claim of shareholders to excuse failure to consider the rights of other groups. In addition, the growing and sustained power of corporations has opened the discussion about the decision-making process within these private entities. Sports leagues have been no exception due to of the particular interest of a large portion of society, public investment to build sports facilities, and the effects that governance may have on critical agents such as athletes, coaches, referees, spectators, and society as a whole. These concerns about the decision-making process mainly raise challenges in the participation of those affected stakeholders and the absence of democratic practices.

To further illustrate our argument, we provide a selected example from baseball to illustrate a lack of mechanisms for stakeholder representation and participation, such as is the case of Latin-American players in MLB. Disadvantaged youths and families from the Dominican Republic, Venezuela, or Mexico, for instance, often see North American baseball as a way to escape poverty. Since the US government has no international jurisdiction, MLB scouts operate with almost complete freedom to recruit Latin American players at a very young age, even before they finish high school (Marcano and Fidler 1999). Because Latin American baseball players are not covered by the regulated draft system of North American athletes, the scouting system takes advantage of the rampant poverty that reigns in these countries. As an MLB team representative, a scout with the power to sign baseball prospects has huge leverage over vulnerable families from poverty-stricken countries (Regalado 1998). Marcano and Fidler (1999) add that these facts lead Latino prospects to be typically eager to accept any conditions an MLB scout puts in front of them while receiving any of the signing incentives that US baseball prospects receive. Fierce competition among scouts in an unregulated environment has also led to the signing of younger and younger prospects, without offering any incentive to complete their formal education. It undoubtedly represents a significant impact on the educational development of these young people and is a determining factor in the functioning of the local leagues in these countries. It denotes that the promise of millionaire contracts in North America has encouraged corrupt methods by scouts seeking to take advantage of the region's juvenile talent. Rosentraub (2000) affirms that ethical implications raised by MLB's foreign activities validate that several constituencies are affected and proposes that a shared model of decision-making might be more suitable for representing different stakeholder interests.

The mentioned example clearly demonstrates that under the current scenario, the leagues risk not adequately taking into account the interests of stakeholders that are crucial to the leagues' continuing success. To avoid this, a risk management-based recommendation would be to implement changes in the representation and participation of these stakeholders. The intellectual reference point of most demands for further democratic prac-

tices in corporations is stakeholder theory, which contradicts shareholder theory. According to Blount (2015), the rationale for stakeholder theory lies in the fact that organisations have several constituent entities, which have an influence on or are influenced by the practices and decisions that take place within the business. Therefore, their interest must be considered for the successful governance of these organisations through specific mechanisms of representation and participation.

Beyond recognising these interests, the real problem at hand is whether stakeholders would have a place at the decision-making table and, in particular, if their interests should be treated equally or similarly to those of shareholders. Greenfield (1997) defends the equal right of stakeholders, arguing that shareholders invest their economic resources with confidence that managers can use the company's productive capabilities to secure and increase profitable returns. Similarly, workers attend work because they believe that managers can organise their job skills in such a way as to make them more productive and guarantee them appropriate compensation. Like stockholders, employees depend on the care, performance, and ethics of managers. This approach, applied to professional leagues, would equalise the interests of crucial stakeholders such as players, coaches, and referees with those of team owners. The former consider that their physical and intellectual skills are productive only within the framework of the league, and their interests must be protected by management bodies, in the same way as the owners, who invest their money for profit-making. Equal rights when participating in governance decision-making would imply for professional leagues that crucial stakeholders also sit on boards, as the current representation methods do not meet the current needs of these stakeholders.

It is undeniable that the bargaining power of players has increased in parallel with the strengthening of players' associations, which in practice operate as labour unions. However, they are not considered part of the leagues' governance structure, as is the case with the vast majority of companies in North America. On this matter, Davis (2018) has called to differentiate interests as employees from interests as stakeholders, appealing to the representation failures seen in the NBA and the role of the National Basketball Players Association (NBPA). In response to the Anglo-American shareholder primacy norm, proposals for alternative mechanisms of participation and representation have already been made in corporate governance and to a lesser extent in the governance of sports organisations. For instance, Jackson et al. (2004) refer to the case of the German codetermination model, in which employee participation is institutionalised at the level of boards and work councils. It means giving one or more employee representatives a formal position at the boardroom table to constitute a balance of power vis-à-vis the shareholders regarding appointing managers. Under this scheme, if applied to the professional leagues, one or more representatives of the stakeholders, whether players, coaches or referees, may have a say in the selection of the commissioner, or perhaps the power to appoint committees for a specific purpose, provided that their interests are affected.

The most evident obstacle to achieving such participation is that none of the constitutions and bylaws of the four professional leagues contemplates this; in fact, the NBA's constitution expressly prohibits the inclusion of players on the board of governors. Stakeholder recognition would be the first step for leagues toward achieving better governance in terms of democracy. After such recognition, mechanisms of representation and participation of these groups in league governance should be implemented. In this regard, it is suggested that these foundational documents must be modified, not only to allow the representation of stakeholders (coaches, players, referees, and fans) but also to promote it. Without modification, the recognition of the voice and vote of stakeholders regarding concrete aspects of governance would not be easy. It implies that MLB, NHL, NFL, and NBA stakeholders' groups have a voice on their decision-making boards. The amendment of the constitution could aim at allowing stakeholders to be (better-)represented in decision-making processes, for example when ethical issues such as doping or match-fixing are addressed by rule changes, league investments, or governance mechanisms. While it is

true that this would not substantially affect the balance of power immediately, it is the first step towards more democratic and inclusive practices.

5.2. Transparency: Publicity of Constitutions, Bylaws, and Internal Regulations

Concerning the availability of information, the discussion is focused on critical elements of the governance of both a sports organisation and conventional companies: publicity of constitutions, bylaws, and internal regulations. Publication of internal regulations can give stakeholders and society as a whole an idea of how leagues operate. Decision-making bodies can affect the professional dimensions and personal aspects of players, coaches, referees, and fans. The public domain of these foundational rules can give an idea of the leagues' commitment to establishing clear rules for their operation and provide some certainty to those involved.

In the research process, access to internal regulations of the four professional leagues in North America, without exception, has been minimal. Even their most essential documents, their constitutions and bylaws, are not available to the public. Therefore, there was a need to conduct an exhaustive search of digital repositories of legal documents. For instance, for this research, the NBA and MLB's constitutions were found in DocumentCloud, a platform that grants independent users access to primary source documents. This platform is part of the MuckRock Foundation, a non-profit organisation dedicated to promoting trust and transparency in organisations of distinct nature by publishing source documents on the open web.

The MLB's constitution has been treated as an internal and secret text, which officially forms part of another document called *The Official Professional Baseball Rules Book*. However, when trying to access this rulebook, downloaded from MLB's official website, it is not possible to find the section that refers to the governance structure of MLB. The NHL's constitution is also not a document published by the league on its official website. The first reports that it had been released to the public domain were made in 2009 when a legal dispute over control of a member club forced the league to include its own constitution as part of the case and consequently made it publicly available (McGran 2009). This lends credence to the culture of secrecy that professional league constitutions typically possess and how it hinders the process of assessing their governance system. In the case of the NBA, reports indicate that the constitution was published in 2014 due to a scandal over racist comments made by one of the team owners. In order to apply the appropriate sanctions, the NBA commissioner decided to disclose the contents of the league's constitution. According to Flynn (2014), this constituted an unprecedented display of transparency from the NBA. As with the previous leagues, it was not evident during this research that the NFL's constitution and bylaws were available on any official web portals belonging to the league.

Compliance with the principle of transparency is often regulated by some legal systems, such as in European Union member states, where companies must disclose information on how they operate. However, this is not a widespread practice among companies in the US. According to the US Internal Revenue Service (2021), the office that administers and enforces federal tax regulations, bylaws are an organisation's internal operating rule. From the legal perspective of the US institutions, this definition indicates that companies are not obliged to publish their bylaws because of their internal nature.

Strict adherence to the law is often an argument for establishing the limits of human and organisational behaviour. However, are legal provisions sufficient in determining best practices? Crane et al. (2019) maintain that the law might be understood as the minimum acceptable standards of conduct, but it does not explicitly cover every possible ethical issue in business. For those business issues that regulations cannot cover since they involve values in conflict, business ethics may offer some guidance to put in place good practices. Disclosure of internal corporate affairs could well fall into this grey area, as US regulations do not require companies to publish their internal regulations.

Professional sports leagues in North America are of interest to fans acting as consumers. Their management also impacts the welfare of employees (players, coaches, referees), and

public funding has been part of the development of North American sport. Given this, it is suggested that these leagues voluntarily provide details of their internal workings to benefit the game and their stakeholders. Remarkably, the four professional leagues have maintained a culture of secrecy about foundational documents that explain operations, organisational structures, and internal decision-making processes that impact internal and external actors. Much of the game's reputation rests on fans' knowledge about how the leagues work. If there are suspicions of, for instance, doping, cheating, and threats to the integrity of athletes, it seems fair to communicate how decisions are made and who was involved.

Silver (2005, p. 16) maintains that stakeholders demand that organisations implement transparency not only 'in the numbers they release but also in how they are run'. Schnackenberg and Tomlinson (2016) see transparency as a necessity not only from a normative perspective but also relating to pragmatic aspects of business, such as efficiency and gaining the trust of stakeholders. A culture of secrecy, therefore, runs the risk of damaging the reputation of the sports organisation among its main stakeholders and the gaining of public trust and support. Based on the above analysis, concerning the culture of secrecy surrounding the leagues' internal regulations, it would be interesting to know if the leagues see commercial risks involved in publishing their internal regulations. If such risks do not exist, it is suggested that they dedicate a section of their websites to the publication of their constitutions, bylaws, and policies. It would create an environment of transparency where players, coaches, and spectators understand the protocols for response to specific problems by league authorities. It would help to provide a feeling that the organisation is determined to ensure that similar incidents will be addressed transparently and according to rules (e.g., addressing doping cases in the best interest of the fans and the health of the athletes, preventing cheating where the cheater is correctly sanctioned without any interests at stake, among others).

5.3. Accountability: Separation of Powers

The discussion centres around the first of the two components of accountability mentioned above: the separation of powers. It seeks to reflect on how the league structures respond to the principle of the separation of powers in light of the many powers that the commissioners have within the leagues, emphasising disciplinary attributions. The approach to the review of the separation of powers in professional leagues is based on constitutions and bylaws, as they set out the original powers of commissioners, boards, and committees. The constitutions confer the power to govern North American professional sports leagues upon the commissioner's office. According to Lentze (1995), the creation of this super-powerful authority in 1920 obeyed the personal interests of the members, the ineffective MLB structure, and the 'Chicago Black Sox' scandal, which severely damaged the public confidence in the game and the league. To restore public faith in the integrity of the game, the owners replaced the commission with a single commissioner. Since then, any individual involved in the league is subject to the commissioner's jurisdiction, bound by his/her decisions, with very discreet alternative instances of appeal and little power. The commissioner position was replicated from MLB to the other leagues with no significant changes.

Lentze (1995) states that commissioners retain disciplinary power, dispute resolution, and executive authority, for example appointing other officers and committees. According to Conrad (2009), league constitutions provide the commissioner's extraordinary power to the extent that they can be judge, jury, and appeals court in a given disciplinary case. The constitutions secure a large number of powers for the commissioner and ensure that she/he remains in office for long periods. On average, each commissioner has been in office for fifteen years (McLin 2016).

Over the last few years, professional leagues have been an object of criticism due to how some disciplinary procedures have been handled. For instance, in Milwaukee American Ass'n v. Commissioner Landis, the court interpreted that it is deductible from the

MLB's constitution and collective bargaining agreement that the owners intend to grant the commissioner all the attributes of a 'benevolent but absolute despot' (Willisch 1993). The NFL's commissioner does not only have the authority to discipline players for misconduct but also the capacity to review player appeals for penalties he or she imposed by appointing him- or herself over such grievances (Einhorn 2016). It means that commissioner decisions are final and non-appealable. For instance, NFL domestic violence policy infringements and cases of cheating such as 'The Deflategate' have been under the exclusive supervision of the commissioner's office. As a result, they affect not only the integrity of the game but also the reputation of the league. Einhorn adds that these incidents have called the ability of the NFL commissioner into question, not only because of their individual capacities but also because of the absence of a fair appeals body composed of impartial arbitrators. According to Mondelli (2017), the NFL commissioner seems to impose a despotic government upon all other league members.

Because the team owners are also proprietors of the league as a whole, they appoint a figure who must not only defend their joint interests but also act in 'the best interests of the game'. It is an expression that appears not infrequently in the constitutions of these leagues. Durney (1992) suggests that professional leagues' primary disciplinary standard is 'the best interest of the game' clause, which is functional in supporting any decision from the commissioner's office. The lack of clarity regarding the authority of 'best interest' offers a great deal of discretionary power to the commissioner, which has been used to extend the role's powers and enforce excessive sanctions. The best interest of the game, integrity, and fairness have been motives for owners and commissioners to defend the almost absolute powers of the latter. Commissioners often turned to their 'best interests' powers to discipline players or another staff member within the leagues. Traditional experts in the field have often advocated for the benefits of this case. However, considering that much of the literature regarding professional league commissioners is from the 20th century, it is necessary to examine whether the 'best interest of the game' strategy is not contrary to contemporary principles of good governance in sport and therefore involves several risks.

For many years, professional players' unions have negotiated collective agreements with professional leagues. One of the historical demands has been disciplinary proceedings being intervened in by external arbitration to guarantee stakeholders' rights. During the first 50 years of MLB, the commissioner's authority over all league discipline remained supreme. In 1970, the Major League Baseball Players Association (MLBPA) installed independent grievance arbitration into baseball's collective bargaining agreement. They were reluctant to accept the idea that the commissioner, appointed and paid by the franchise owners, was an unbiased decision-maker in disputes where such owners were involved (Zimbalist 2007). This demand will eventually also be heard in the NBA and NHL. On the other hand, the NFL continues to give its commissioner absolute powers in these proceedings. Despite significant progress through collective bargaining agreements negotiated by players' associations, concerns persist in the world of professional leagues regarding the independence of decision-makers in disciplinary processes. A disciplinary process should consider the rights of all parties involved. So far, our analysis suggests that this has not been the guiding criterion applied by the leagues to handle disciplinary issues. As stated before, commissioners respond to the interests of the game and the owners' interests as they are subject to removal by the relevant board.

Geeraert (2013) suggests that a sound system of checks and balances in professional sports would imply separating disciplinary powers from those with executive responsibilities. In the context of North American professional sports leagues, it means that the current commissioner's powers should be divided among several individuals or bodies. A first step in establishing a system of checks and balances in professional leagues is to stop using integrity as an explanation for arbitrariness. The vital function of the commissioner in protecting the integrity of the game has already been discussed. However, when we look at the nature of its second function, which is to protect the business interests of team owners, it can be even more problematic. This second responsibility raises a potential conflict of

interest within the agency relationship between the owners and the commissioner. As the CEO of the league and owners' employee, the commissioner is responsible for safeguarding the principals' significant investments in the league (Willisch 1993). This mission mainly maintains labour harmony between teams and players, engages fans, and guarantees terrific television revenues. In regular companies, corporate functions would be performed by or under the mandate of the board of directors. By contrast, no further delegation of power is necessary according to professional leagues' constitutions. While a board of directors oversees the actions of their CEO, the league's owners do not oversee the actions of their commissioner (McLin 2016). If that is not enough leverage, the commissioner also has the authority to sanction owners for any misconduct. This would mean that a CEO can sanction board members. This ability to sanction league members derives from the best interest of the game clauses and conflicts with their role of defending the owners' best interests. The employee–employer relationship does not allow the commissioner to exercise these powers freely. Any decision that goes against the interests of a group of owners could mean his/her removal from office.

Many decision-making processes in professional leagues imply the sole discretion of the commissioner. From the perspective of business ethics and good governance principles in sports, such concentration of power in the commissioner and conflicting interests involved in an agency relationship do not correspond to good practices in the business world nor sports organisations. Adopting an alternative structure with elements of the corporate culture and satisfying demands from the sports industry would mitigate some of the negative consequences of the current model.

In addition to the apparent governance problems arising from the current conception of the commissioner and his or her relationship with other governing bodies of the professional leagues, some scholars in the field have proposed alternative structures to the existing one (Willisch 1993; Lentze 1995). Given the particularities of professional sports and their corporate nature, it would seem appropriate to implement a hybrid system that addresses various interests, one that is fair to the various stakeholders and improves the business efficiency of these leagues. As already proposed, the need to separate the executive arm from the disciplinary arm is paramount. The hybrid model suggested by these authors involves a CEO taking full ownership of corporate decisions and preserving team proprietors' interests. It also contemplates the commissioner's role in the hands of a different individual, who protects the integrity of the game with no concerns about independence from the owners. For a clear understanding of this separation of roles, Willisch (1993) distinguishes between the 'best Interest of the game' and 'the best economic interest'. For the former, it is appropriate to rethink the source of the commissioner's power. Protecting the game requires absolute independence from economic factors and not the mere declaration of autonomy and moral status of the commissioner. For the latter, taking the fundamentals of the CEO position seems suitable for continuing to manage the economic side of the leagues.

Although most of the criticism of power concentration may come from the governance view of sport governing organisations, calls for deconcentrating power within the corporate culture are becoming more prevalent. If professional sports leagues in North America intend to implement best practices as a sporting organisation but also as a company in the following years, then they should undoubtedly consider separating their executive arm from the disciplinary arm as a first step. While it is true that the professional leagues have not suffered from outside intervention by the courts, the adoption of these measures will help these leagues remain autonomous. At the same time, it will improve their accountability practices, which is a growing demand in the US for private entities and sports organisations worldwide.

6. Conclusions and Implications

By linking (good) governance to rational choice theory, Geeraert (2022) holds that organisations that fail to implement some form of transparency, accountability, and democ-

racy run the risk that unconstrained self-interest and limited access to information will lead to governance failures in organisations. Our critical analysis identified several areas in which North American professional sports leagues may be exposed to such a risk. It can be concluded that changes in the governance structure of North American professional sports leagues have been essentially determined by economic motivations, in part to preserve monopoly power. As a result, it has been conducive to an utterly self-governed system with predominantly corporate features and some characteristics typical of sports organisations. The analysis involved making visible concrete aspects of organisational structures and practices of the leagues, examining them in terms of selected principles of (good) governance. Based on our analysis, we can identify some risk management-related recommendations for each of the three principles analysed.

In terms of democracy, professional leagues have not recognised stakeholder interests in decision-making processes, despite clear evidence that their policies affect interests beyond those of the team owners. For this reason, it is suggested to promote reforms to those constitutions and bylaws whose spirit is that of the early twentieth century when the leagues were founded. It implies transcending shareholder supremacy and ensuring that representatives of these stakeholders (players, coaches, referees, among others) have a position on decision-making boards to avoid the risk of continued discomfort among affected groups. Furthermore, it would contribute to meeting social demands for stakeholder participation and representation towards companies and sports organisations, which would positively impact the leagues' reputation and establish confident perceptions of their work culture.

In terms of transparency, the research process itself revealed the culture of secrecy surrounding the governance of the four professional leagues. Specifically, one of the findings was that their internal regulations, such as constitutions and bylaws, policies and disciplinary measures are not in the public domain. Lax regulation in the US is often an excuse for companies not to disclose their internal information, but it has been shown that the laws are only minimum acceptable standards of conduct. In this regard, both good governance principles and business ethics can guide the implementation of good practices. Given the interests of employees and the social interest in sport, leagues should contemplate the business risks of publishing their constitutions, bylaws, policies, and procedures on their websites. Without jeopardising the commercial operations of the league, making this information available to stakeholders would help create an environment of transparency and certainty on integrity matters specific to sports and business affairs.

In terms of accountability, the salient aspect was the primacy of the commissioner's role in the governance of the leagues. This, in turn, raised ethical concerns involving the high concentration of power in this figure and an evident conflict of interest due to the atypical commissioner–team owners' relationship. Thus, a first approach to solving this problem would be the separation of disciplinary and executive powers to avoid the risk of potential conflicts of interest. While the commissioner watches over the integrity of the game, a CEO could govern the league in business matters. In this way, the best interests of the game would be separated from the best economic interests of the owners, which are not always aligned. It would address concerns arising from lack of independence when resolving disputes or applying disciplinary measures and contribute to better-addressing business challenges.

7. Limitations and Directions for Future Research

We have based our analysis on concrete examples of detected shortcomings in each of the three principles. It is important to note though, that these examples are only part of a longer list of shortcomings in each of the three areas. In our analysis, we came across a couple of other cases that would be worth investigating further (see Figure 1), yet the scope of the article and length restrictions did not allow us to address these in detail. These cases include a lack of a diversity and inclusion in board compositions (democracy). In terms of gender, for instance, after more than one hundred years since the first of these

professional leagues was founded, all the commissioners who have held office have been white men. Furthermore, none of the thirteen MLB franchise owners (Baseball Reference 2020) and none of the thirty-one team representatives on the NHL Board of Governors are women (NHL 2021). Racial underrepresentation is even more eye-catching as the significant percentage of players, coaches, and referees of Latin and African American origin in the MLB, NFL, and NBA is not reflected at all in the composition of team owners. Furthermore, regarding transparency, we identified a complete lack of disclosure of financial statements. Even though professional leagues are not public companies, we would argue that the disclosure of such companies may well be implemented for the sake of good governance. In terms of accountability, we would like to highlight a lack of management supervision and potential conflicts due to the agency relationship between the owners and the commissioner. Given these examples, we believe that further research should explore these issues as well as others to increase awareness.

More generally, one significant limitation is that we conducted our analysis only on the basis of publicly available information. As Thompson et al. (2022) point out, such a procedure skews findings in favour of organisations that are more externally transparent. Furthermore, the design of our study does not provide an internal perspective looking into how the leagues internally deal with the mentioned issues. According to Thompson et al. (2022) and Pielke et al. (2019), this is a common shortcoming of most research on governance principles in organisations. Our contribution can thus only be a first step in exploring these fields. Therefore, we echo these authors' suggestion of conducting empirical studies that adopt more sophisticated qualitative (e.g., observations, interviews) or quantitative (e.g., questionnaires) methods to obtain direct internal data from organisations.

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Article

How Much Are Fans Willing to Pay to Help "Their" Soccer Clubs to Overcome a Crisis? An Analysis of Central European Fans during the COVID-19 Pandemic

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Abstract: Through restrictions and people's behavioral changes with regard to public events, the COVID-19 pandemic has had a massive financial impact on professional team sports clubs. Particularly, many smaller clubs that are more dependent on match-day revenues were facing an existential struggle. In this study, we examined the willingness of fans to contribute financially to help their favorite teams to overcome financial difficulties caused by this unforeseen operational risk. Moreover, we investigated the significance of the level of team identification among fans as an antecedent for willingness to pay. Analyzing the data from an online survey with 178 respondents, we found that fans would be willing to participate in fundraising campaigns to support their favorite teams. Among the fans of small clubs, the level of identification drives the willingness to support. On the one hand, the findings are encouraging for clubs as they underscore the potential role fans could play in overcoming the current crisis while showing that including fans in future risk management strategies is a promising approach. On the other hand, for this to be successful, clubs need to unravel and invest in measures for nurturing the fans' identification with the team.

Keywords: team identification; professional team sports clubs; willingness to pay; risk management; crisis management; COVID-19; sports management

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1. Introduction

On 11 March 2020, the World Health Organization (WHO) declared the coronavirus disease (COVID-19) a pandemic (World Health Organization 2020). As of 24 October 2022, over 623 million cases of COVID-19 and 6.5 million deaths had been confirmed globally (World Health Organization 2022). In an attempt to protect human lives and health, as well as the resilience of the public health care systems, governments around the world resorted to tough measures such as lockdowns, curfews, and travel restrictions; moreover, they set up policies and recommendations for social distancing. These preventive measures and consequent sudden changes in consumer behavior had a huge economic impact, which hit many fields of business exceptionally hard; tourism and event industries, for instance, were shut down completely, as were many services such as hairdressers and gyms (Donthu and Gustafsson 2020). As part of the event industry, the professional sports industry was immediately impacted by the COVID-19 pandemic (Bazzanella et al. 2021). At the beginning of 2020, several international sports events including the Olympic Games and the UEFA EURO 2020® were either canceled or postponed, and many professional leagues were either completely suspended (such as the majority of the European national soccer leagues) or completed under tight restrictions and without spectators (such as the North American NBA and NHL) (Drewes et al. 2021). As the initial standstill of professional sports came to an end, most of the events were organized and leagues started without spectators as "ghost games" (Drewes et al. 2021).

The financial and economic impacts of the COVID-19 crisis on sports teams, both directly through missing matchday revenues and indirectly through the financial problems of commercial partners and sponsors (Maguire 2021), are self-evidently huge. However, given that the professional team sports industry is characterized by deep identification with the team and loyal support from fans even during times of poor team performance (Wann and Branscombe 1990), we considered it possible that passionate fans could provide sports teams with additional means to cope with the financial consequences of the COVID-19 crisis.

This is the first study analyzing the impacts of team identification (TI) on fans' willingness to financially support their favorite teams in a crisis. We assessed soccer fans' (1) willingness to pay (WTP) to support their favorite teams by participating in crisis-related fundraising campaigns and (2) willingness to accept (WTA) an increase in season ticket prices. We employed techniques of statistical modeling to test the impacts of TI on the WTP. From a managerial perspective, our results provide insights into the magnitude of the possible role of fans in current and future risk and crisis management strategies as defined by the clubs. From a theoretical perspective, the results of this study advance the knowledge of the consequences of fans' social identification with a sports team in a crisis. This paper is structured as follows: In the next section, we review key literature and propose a conceptual framework. We then go on to review the sampling process and report the results. Finally, we provide some managerial and theoretical implications, and propose directions for future research.

2. Literature Review

2.1. Impact of COVID-19 on Sports

When the WHO declared the COVID-19 outbreak a pandemic in spring 2020, the situation quickly moved far beyond what was chiefly a medical emergency to a crisis affecting society as a whole. Consequently, the pandemic rapidly caught the attention of researchers from virtually all fields, causing an influx of pandemic-related publications. This chapter provides an overview of the key research findings relating to the impacts of the pandemic on finances, economies, and management especially from the perspective of team sports.

Due to the unforeseen and shocking nature of the COVID-19 pandemic and the fact that recovery from the crisis is still ongoing, much of the pioneering research on the pandemic's economic impacts on sports is intrinsically exploratory in nature and focuses on mapping the impacts on different areas of the sports industry. First, many researchers have highlighted the indirect and rather long-term impact of matches without spectators. In one of the first published papers after the outbreak, Parnell et al. (2021) shed light on the complex and networked production structure of soccer and the importance of fans within that structure. The authors stressed the role of fans as simultaneous producers and consumers of the product and accentuated the importance of innovative strategies by clubs to involve fans and, hence, to generate income when stadia were closed. Grix et al. (2021) emphasized the likelihood of unpredictable impacts from the absence of the feelgood factor triggered by the social consumption of sport and the stadium atmosphere not only for live but also for TV audiences. The long-term impacts of these "ghost games" along with the role of spectators as co-producers of the sports product were brought up in the study by Drewes et al. (2021). The authors additionally proposed that one of the consequences of the COVID-19 crisis was that clubs have started to gain a stronger appreciation of the fans' role in the production process.

In general, sports teams generate revenues mainly from three sources: (1) matchday sales, (2) commercial partnerships (i.e., sponsorships), and (3) broadcasting and media rights (Desbordes et al. 2019). Traditionally, matchday revenues and sponsorships have been the most important income sources. This still remains the case in most of the national soccer leagues, while in a few big European leagues, especially the English Premier League, the rapidly growing value of broadcasting rights has changed the revenue structure around

(Solberg et al. 2018). As far as gate receipts are concerned, the clubs in the English Premier League generated on average EUR 36.2 million in 2018, which accounted for 13% of total revenues, whereas in mid-sized European leagues, the absolute value was much lower, but the share of total revenues considerably higher (e.g., Scotland: EUR 1.9 million and 43%; Austria: EUR 1.5 million and 17%) (UEFA 2020). Similarly, clubs in the lower levels of the league pyramid in major soccer countries are also more dependent on gate receipts; the clubs in the bottom two leagues of the English system generate up to 40% of their income on match days (Maguire 2021).

Hence, it is clear that closed stadium gates had a tremendous impact on club and league finances. The North American professional leagues NFL, MLB, NBA, and NHL, for instance, suffered an immediate financial loss of almost USD 7 billion in gate receipts alone (Ehrlich et al. 2021). While lost matchday revenues hit the rich leagues and clubs hard, the impact was proportionally even greater for those leagues and clubs that are more dependent on gate receipts (Bond et al. 2020).

The immediate impact of the COVID-19 crisis on broadcasting revenues is more difficult to estimate and largely depends on the deals negotiated between the leagues and the broadcasters. In England, for example, domestic broadcasters granted subscription holidays for their customers and negotiated rebates with the leagues for matches not played (Bond et al. 2020). However, as most of the major leagues resumed operations quickly without spectators, the immediate impact on TV and new audiences was more positive than negative, as live attendance was not possible (Ehrlich et al. 2021). In fact, this may have even solidified the media's power in sports (Manoli 2020).

The outbreak of the COVID-19 pandemic not only exposed the professional sports clubs to a financial shock through reduced matchday revenues (spectator restrictions) and falling sponsorship revenues caused by liquidity problems and insolvencies among their partner organizations, but it also revealed notable weaknesses in their risk management capacities and fragilities in their crisis resilience. One of the most important—if not the most important—reasons for these industry-specific vulnerabilities is the balancing between profit maximization and on-field success maximization, which has led to negligible profit margins and consequently to low liquidity among many professional team sports (Hammerschmidt et al. 2021). Not focusing on team sports but cycling competitions and with a more generic view of sports events, Bazzanella et al. (2021) highlighted the kind of measures that had to be taken to organize these events and showed how different stakeholders evaluated new measures from their point of view. Furthermore, Bazzanella et al. (2021) suggested that an improved approach to risk management could also be a positive outcome of the COVID-19 crisis.

While all professional clubs and leagues suffered tremendous financial hardship because of governments' measures in fighting the pandemic, the evidence presented in this section indicates that the impact on small- and mid-sized professional clubs and leagues was even greater, as they are more dependent on gate receipts than their larger counterparts. Additionally, the findings described above suggest that there were serious shortcomings in the risk management and resilience of many sports organizations. In summary, there is an obvious need to study particularly the fans of small and mid-sized clubs' potential willingness to support their favorite teams in a crisis, and thus, the extent to which fans could be incorporated in clubs' risk management strategies.

2.2. Team Identification (TI)

The social identity theory (Tajfel and Turner 1979) defines social identity as the self-image that people derive from the categories and groups to which they perceive themselves as belonging. According to the theory, people strive for a positive social identity by drawing favorable comparisons between their own group and relevant rival out-groups. An extension to the social identity theory—the self-categorization theory (Turner et al. 1987)—posits that once group membership becomes salient, it generates a sense of belonging and strengthens group identification among its members, who adopt the group norm-conform

behavior (Hogg and Reid 2006). When a group is exposed to an existential threat, its members are also willing to engage in in-group strengthening behavior (Wohl et al. 2010). Commercial brands can also offer meaningful social identities if they can satisfy consumers' needs for self-enhancement and self-differentiation. This social identification with a brand further leads to supportive behavior toward the brand such as loyal repurchases and positive word of mouth (Bhattacharya and Sen 2003). Brand researchers have also observed that a threat to a brand triggers a similar defensive response among brand fans than a threat to the self (Lisjak et al. 2012).

TI—i.e., a person's social identification with a sports team (Heere 2016; Lock and Heere 2017)—is a concept sports management and sport psychology scholars generated on the basis of the social identity theory. To date, several studies have investigated the outcomes and consequences of TI. It has been observed that TI has a number of positive consequences from the perspective of the sports club with which the fans identify. In a seminal study on the field, Wann and Branscombe (1990) demonstrated that highly identified "die-hard" fans tended to maintain their association with the team despite poor on-field performance. Since then, several scholars have corroborated the causal link between TI and fans' loyal consumer behavior toward the team (Gladden and Funk 2001; Karjaluoto et al. 2016; Laverie and Arnett 2000; Matsuoka et al. 2003; Stevens and Rosenberger 2012). In addition to direct impacts on consumer loyalty, TI benefits the team, for example, through its positive impacts on the fans' attitude toward the team's sponsors (Gwinner and Swanson 2003) and the fans' tendency to buy team merchandise (Kwon and Armstrong 2002). Wicker et al. (2016) found that identified fans are willing to pay more for fan bonds—i.e., credit instruments issued by professional team sports clubs.

Hence, based on the evidence of the positive impact of (team) identification on favorable consumer behavior and the willingness to defend the object of identification in case of a threat and considering the generally more severe impacts of the COVID-19 crisis on financially weaker sports clubs that are more dependent on match-day revenues, we propose the following formal hypotheses:

H_1. *Fans of small clubs are more willing to pay than fans of large clubs.*

H_2. *A higher level of TI leads to a higher WTP for clubs.*

These hypotheses have to be seen in the context of fans supporting their favorite team in overcoming the negative financial impacts caused by the COVID-19 pandemic.

3. Methodology

3.1. Setting and Measures

An online survey was distributed to several selected soccer fan groups on Facebook: the Tottenham Hotspur supporters' clubs in Austria and Germany, two Wacker Innsbruck fan groups, an FC Bayern Munich fan group from Austria, and one FC Chelsea supporters' club. The several Facebook groups were chosen in order to secure varied levels of identification amongst the participants. The survey was online from 6 April until 15 June 2020. After agreeing to fill in the survey, the participants were first presented with demographic items (gender, age, nationality, country of residence, and level of education) as well as an item on income for measuring the potential interaction effect. In order to categorize the participants based on the size of their supported club, the respondents were asked to name their favorite team. Moreover, they indicated their level of TI using a 3-item 8-point Likert scale previously validated by, e.g., Collins et al. (2016). To measure whether the respondents were local or distant fans, they were asked to state whether they lived within 50 km of their favorite team's home stadium.

The next part of the questionnaire included items measuring the outcome—the willingness to support the team to compensate for financial losses caused by the COVID-19 pandemic. For this, we utilized a contingent valuation method—a survey-based technique to elicit the respondents' WTP for hypothetical projects (Portney 1994). As there was no real product to be evaluated, we included a scenario describing the potential financial con-

sequences of COVID-19 for teams and potential fundraising actions taken by teams. After describing the scenario, two WTP items were presented: first, we asked for the respondents' WTP for a fundraising campaign with no actual counter value ("Game against COVID", in which the team sells tickets to a fictitious game). Second, we asked respondents' WTP for specific merchandising products offered within a merchandising campaign including scarves, shirts, caps, and mugs (WTP was asked for each of the products separately). Finally, we also included an item measuring the season ticket holders' WTA season ticket price increases for the next season. An open-ended approach was utilized for eliciting the WTP for the fictitious game and for the merchandise campaign. The WTA season ticket price increases were examined with the payment card method, from which the respondents selected the maximum tolerable increase in season ticket price measured in percent.

3.2. Sample and Procedure

A total of 178 fans provided usable responses to the survey questionnaire. The vast majority (92%, n = 163) of the respondents were male, and only slightly above 7% were female. The participants' ages ranged from 13 to 77 years old; the average was 32.6 years (Mdn = 29.5 years). The clear majority of the survey participants were Austrian (88.8%, n = 158). Of the respondents, 32% had a university or college degree, 37.1% had completed upper secondary school, and 19.2% had completed an apprenticeship or vocational education. In total, 12 out of 178 respondents opted not to respond to the item on personal income. Following the suggestion of Whitehead (Whitehead 1994), we imputed these missing responses as it improves the performance of the contingent valuation model. For the imputation, we used the median of income for the specific age group, as the median is more robust to outliers, which are typical for income distributions (Punzo et al. 2018). The average monthly net income of the respondents was EUR 1868.60 (Mdn = EUR 2000). Finally, by using a squad market value threshold of EUR 20 million (2019–2020 season market values extracted from the online platform "transfermarkt.de"), we divided the respondents into small-club and large-club fans: 71.3% (n = 127) of the respondents were categorized as small-club fans and 28.7% (n = 51) as large-club fans. Table 1 shows the descriptive statistics of the variables used in the hypotheses testing by fan group.

Table 1. Descriptive Statistics for Variables Used in Hypotheses Testing.

Variable	Small-Club Fans				Large-Club Fans			
	M	**Mdn**	**SD**	**n**	**M**	**Mdn**	**SD**	**n**
WTP (Fictitious Game)	67.26	50.00	96.77	127	52.73	20.00	152.65	51
WTP (Merchandise)	54.86	56.00	41.40	127	44.45	40.00	37.47	51
Identification	7.14	7.67	1.23	127	7.01	7.33	1.19	51
Income	1877.20	2000.00	1139.10	127	1847.20	2000.00	1161.70	51

Note. M = Mean, Mdn = Median, SD = Standard Deviation, n = Sample Size. All monetary values in EUR.

4. Results

4.1. WTP for Fictitious Game and Special Merchandise

We analyzed the fans' WTP for supporting their favorite team by participating in a campaign without any material counter value (Figure 1). Altogether, 88.2% (n = 157) of the respondents indicated that they would be willing to pay for a ticket to a fictitious game against COVID-19 if their favorite team organized such a fundraising campaign. Only 7% of small-club fans would not be willing to pay; this share was higher among large-club fans (23.5%). There was also an apparent between-groups difference at the higher end of the WTP: 32% of small-club fans would be willing to pay more than EUR 50, compared with only 8% of large-club fans. Overall, the respondents' median (mean) WTP for a fictitious "game against COVID-19" was EUR 30 (EUR 63.10); the median (mean) WTP of small-club fans was EUR 50 (EUR 67.26), whereas the WTP of large-club fans was lower with a median (mean) of EUR 20 (EUR 52.73). Due to the non-symmetric WTP distributions, we used

Kruskal–Wallis H tests to test our formal hypothesis H_1 and compare the WTP of two fan groups (van Hecke 2012). The test confirmed that the difference between the WTP of small-club fans and large-club fans was statistically significant (Kruskal–Wallis H = 7.687, $p = 0.006$), which allows us to conclude that small-club fans are generally willing to pay more for a fundraising campaign with no material counter value.

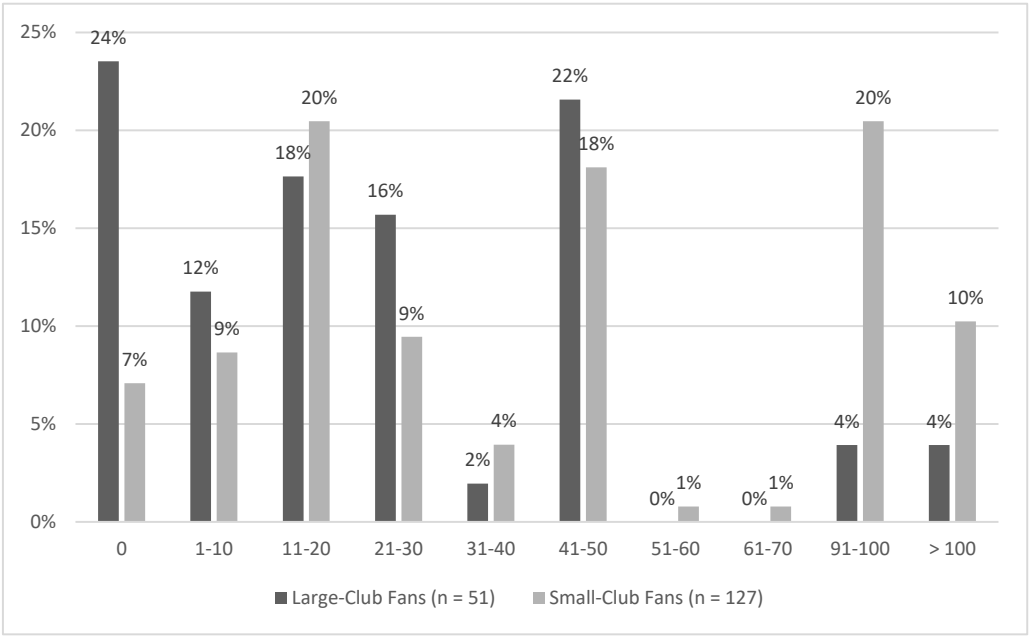

Figure 1. Share of Respondents/WTP (Fictitious Game) in EUR.

Examining the respondents' WTP for a merchandise fundraising campaign (Figure 2), we found that 82% of the respondents (n = 146) would be willing to pay for at least one of the special merchandise items. Of the small-club fans, 15% had no WTP for special merchandise whereas 55.8% would be willing to pay more than EUR 50 altogether. Regarding merchandise, we also observed a tendency toward a lower WTP among large-club fans: 25.5% of them would not be willing to pay at all, whereas 43.1% would be prepared to pay more than EUR 50. The overall median (mean) WTP for merchandise was EUR 55 (EUR 51.88). The central tendency of small-club fans was higher (Mdn = EUR 56, M = EUR 54.86) than that of large-club fans (Mdn = EUR 40, M = EUR 44.45). However, the Kruskal–Wallis H test indicated that the difference in the WTP for a merchandise fundraising campaign between groups was not statistically significant (Kruskal–Wallis H = 2.734, $p = 0.098$). Hence, despite the higher central tendency values among the fans of small clubs, we cannot conclude that the groups differ from each other in terms of their WTP for a merchandise fundraising campaign. However, based on these two WTP comparisons, we can partly confirm H_1.

Finally, we investigated the season ticket holders' WTA an increase in season ticket prices to offset financial hardship caused by the COVID-19 pandemic (Figure 3). Only six of the season ticket holders in the sample were large-club fans, which is due to the fact that most of them were distant fans—i.e., fans supporting foreign teams (Lianopoulos et al. 2020) or teams from a city in which they have never lived (Lintumäki and Koll 2022). Hence, regarding the WTA season ticket price increases, we looked only at the fans of small clubs and did not include the analysis in formal hypotheses testing. From the data, we observed that 85.9% of the (small-club) fans would be willing to accept an increase in season-ticket prices; 41.2% of respondents would be willing to accept a price increase of up to 10%, 15.3% of up to 20%, and 29.4% of more than 20%.

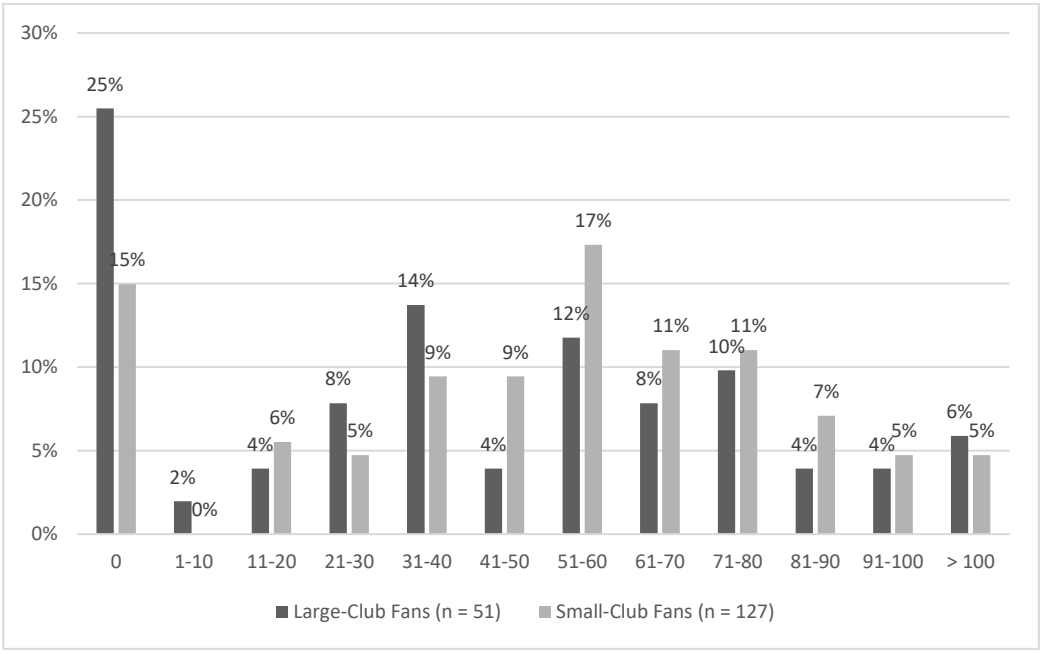

Figure 2. Share of Respondents/WTP (Merchandise) in EUR.

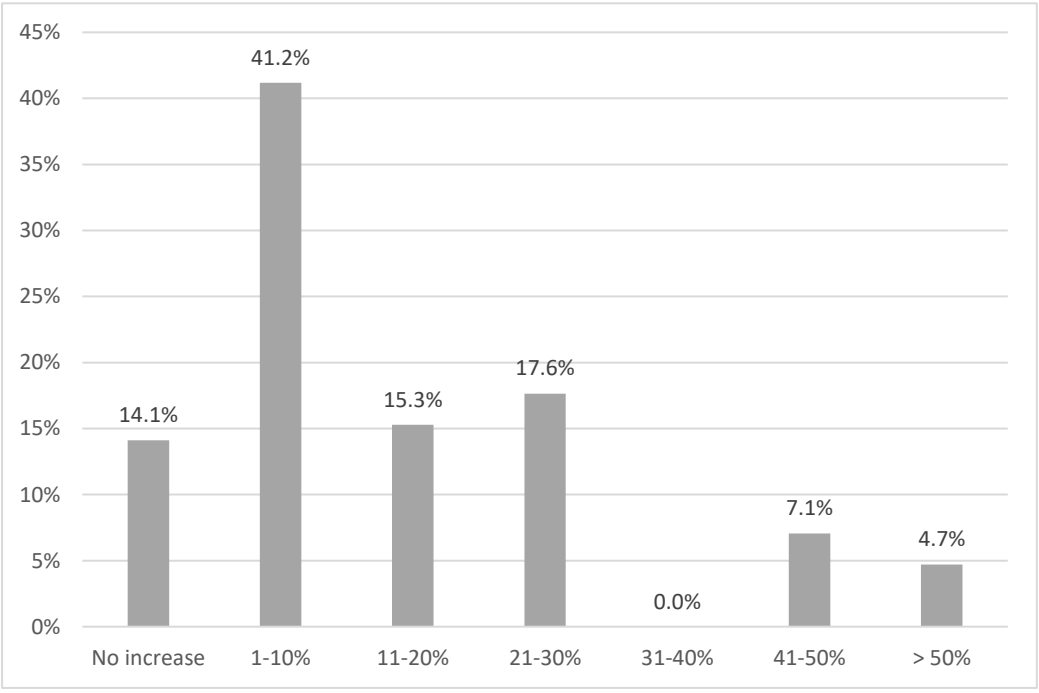

Figure 3. Share of Small-Club Fans/WTA (Season Ticket Price Increase) Category (%).

4.2. Determinants of WTP

To test our formal hypothesis H_2 and measure the impact of TI on fans' WTP for (a) fictitious game and (b) merchandise campaign as well as the moderating role of income between TI and both WTP measures, we conducted stepwise hierarchical regression analyses. As gender (Wicker et al. 2016) and age (Castellanos Garcia et al. 2014) were shown to have an impact on financial support to a sports team, we also controlled for these two variables in our tests. The regression models (Figure 4) were run separately for the fans of small and large clubs. In the first step, we tested the impact of the control variables on the WTP. We added the explanatory variable TI in the second step and income in the third

step. In the final step, an interaction term (standardized value of TI x standardized value of income) was added to the model.

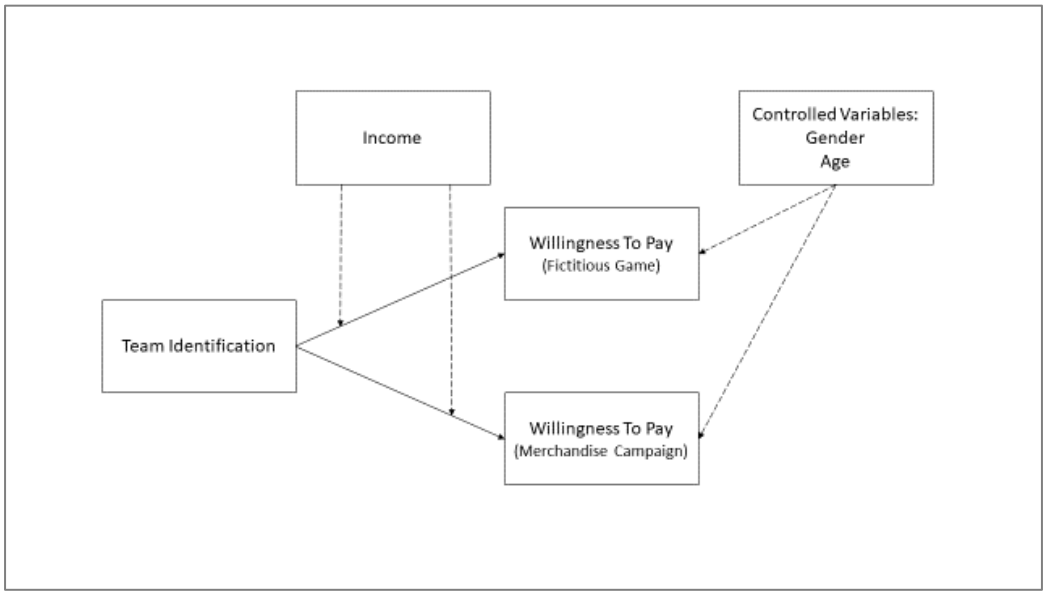

Figure 4. Research Model.

The results of the stepwise regression models (Table 2) indicated that the impact of TI on the WTP for a fictitious game is positive and that income strengthens the positive impact among the fans of small clubs (Model A I). However, no causal relationship between TI and WTP was identified among the sample of large-club fans (Model A II). Measuring the impact of TI on the WTP for a special merchandise campaign, we found that the impact among the fans of the large clubs is non-significant (Model B II) whereas the impact among the small-club fans is negligible at most (Model B I). Income does not moderate the impact of TI on the WTP for merchandise in either of the groups. An impact of the control variables (gender and age) on the WTP was found in none of the models. Hence, as TI increased the WTP for a fundraising campaign with no material counter value, we can partly confirm H_2. However, although the relationship is positive and significant, the total explanatory power of the specific model remains rather weak ($R^2 = 0.141$). Therefore, we acknowledge the positive relationship while advising to avoid exact monetary predictions based on the model.

The ordinal logistic regression model (Table 3) was applied to determine the impacts of TI, respondents' income, and interaction of TI and income on the fans' WTA season ticket price increases. Only those participants who indicated the intention to purchase a season ticket for their favorite team if the upcoming season were unaffected by COVID-19 were selected to the model. This resulted in the subsample of 78 small-club fans. Here too, the regression model was conducted only with a subsample consisting of small-club fans, and the analysis did not include testing of the research hypotheses. First, the X^2 test results ($\chi 2$ (3) = 7.935; $p < 0.05$) confirmed that the selected predictor variables significantly contribute to the model. TI ($\beta = 0.551$; SE = 0.236; OR = 1.735; $p < 0.05$) significantly predicts the WTA season ticket price increases; the odds ratio (exp[B]) of 1.735 indicates that one point increase in identification is associated with a 73.5% increase in the odds of the respondent belonging to a higher WTA price increases category. Respondents' income and interaction (TI x Income) were not associated with the WTA price increases level. Overall, with Nagelkerke Pseudo-R^2 being 0.106, the model accounted for 10.6% of the overall variance in the respondents' WTA season ticket price increases.

Table 2. Hierarchical Regression Analyses.

Model	IV	DV	β	p	R^2	Adj. R^2
Model A I Small-Club Fans: TI → WTP (FG) (Moderating Role of Income)						
1	TI	WTP (FG)	0.211	0.017	0.045	0.037
2	TI	WTP (FG)	0.194	0.024	0.110	0.096
	Income		0.257	0.003		
3	TI	WTP (FG)	0.268	0.004	0.141	0.120
	Income		0.216	0.013		
	TI x Income		0.194	0.038		
Model A II Large-Club Fans: TI → WTP (FG) (Moderating Role of Income)						
1	TI	WTP (FG)	−0.035	0.807	0.001	−0.019
2	TI	WTP (FG)	−0.034	0.816	0.001	−0.040
	Income		−0.004	0.977		
3	TI	WTP (FG)	−0.034	0.821	0.001	−0.062
	Income		−0.005	0.975		
	TI x Income		0.012	0.935		
Model B I Small-Club Fans: TI → WTP (Merc) (Moderating Role of Income)						
1	TI	WTP (Merc)	0.166	0.062	0.028	0.020
2	TI	WTP (Merc)	0.164	0.067	0.028	0.013
	Income		0.030	0.733		
3	TI	WTP (Merc)	0.160	0.100	0.029	0.005
	Income		0.032	0.725		
	TI x Income		−0.01	0.923		
Model B II Large-Club Fans: TI → WTP (Merc) (Moderating Role of Income)						
1	TI	WTP (Merc)	0.004	0.976	0.000	−0.020
2	TI	WTP (Merc)	−0.190	0.894	0.016	−0.025
	Income		0.128	0.385		
3	TI	WTP (Merc)	−0.020	0.893	0.016	−0.047
	Income		0.128	0.389		
	TI x Income		−0.009	0.948		

Note. IV = Independent Variable, DV = Dependent Variable, Adj. R^2 = Adjusted R^2.

Table 3. Ordinal Logistic Regression Model.

				Mean (Median) for WTA Season Ticket Price Increase Categories			
IV	**β**	**Exp(B)**	***p***	**0%**	**1–19%**	**20–39%**	**>40%**
Model C Small-Club Fans: TI → WTA (ST Increase) (Moderating Role of Income)							
TI	0.551	1.735	0.021	6.58 (6.67)	7.44 (7.83)	7.41 (7.83)	7.83 (8.00)
Income	0.000	1.000	0.622	1642.00 (1900.00)	1906.00 (1800.00)	2087.00 (2125.00)	2010.00 (1950.00)
TI x Income	0.206	1.228	0.638				
Nagelkerke R^2		0.106					
Likelihood Ratio X^2		7.935 * (df = 3)					

Note. IV = Independent Variable, Exp(B) = Odds Ratio, * = Significant at 95% ($p < 0.05$).

5. Discussion and Conclusions

The purpose of this research was to investigate soccer fans' willingness to support their favorite teams through the financial challenges because of the COVID-19 pandemic and related mitigation measures, in particular league suspensions and ghost games. As a primary finding, we highlight the considerable potential of a base of highly identified fans as a risk and crisis management resource, particularly for small clubs. Given the median WTP of EUR 50, a club in a mid-sized European soccer league could realistically raise tens of thousands of euros alone through a counter-value-free fundraising campaign. The results of our causal analyses also revealed that the higher the respondents' identification with the team, the higher the tendency and willingness to support the team at the cost of personal finances. This finding supports the earlier findings on the positive financial and marketing impacts of TI such as its impact on attendance (Katz et al. 2018) and on spreading positive word-of-mouth about the team (Gwinner and Swanson 2003). From the perspective of risk

and crisis management, Chien et al. (2016) highlighted the fans' enduring support and favorable attitude toward a team embroiled in a sports scandal. Findings of this research reinforce the significance of fans' identification with the team as a potential asset in the risk and crisis management of professional sports clubs.

Although we used the WTP for fundraising campaigns (with and without direct counter value) as outcome variables, the results of this study should be considered as an indication of fans' general willingness to support their favorite club in a crisis. Hence, professional team sports clubs could profit by organizing other kinds of fundraising activities such as a voluntary ticket price premium. Going beyond direct fundraising, clubs could also launch other marketing campaigns, for example to encourage fans to bring their friends and family members to games to support the club in trouble. Moreover, highly identified fans could powerfully transmit a message and build awareness of the club's situation among the local community, for example through a well-organized social media campaign, which could lead to supportive actions also by non-fan residents of the club's home region if they perceive the club generally beneficial to the community.

We recommend that sports team managers acknowledge that a base of highly identified fans not only offers a tool for safeguarding sufficient matchday revenues during seasons when performance is poor (Laverie and Arnett 2000; Matsuoka et al. 2003), but also can be a remarkable contribution to the financial survival of a team in a crisis. Hence, managers should consider nurturing fans' identification with a team as an objective not only from a marketing perspective, but also from a risk management perspective. Extant research has offered recommendations on how managers can address fans' identification with the team: Lintumäki and Koll (2022), for instance, underscored the importance of focusing on distinctive aspects of a team brand and desired aspects of team brand personality in strengthening the points of identification, which requires a clear picture of the fans' perceptions of a team brand. We also consider it essential to note that management should not take fans' identification with a team for granted, but should see it as "a two-way street": For instance, if fans feel that their favorite team is contributing positively to the community, their TI is likely to deepen (Kim and Manoli 2022; Ullah et al. 2021). During the acute phase of the COVID-19 crisis, several professional team sports clubs engaged in corporate social responsibility (CSR) actions to support the groups heavily affected by the crisis (López-Carril and Anagnostopoulos 2020). Based on our findings, we encourage managers of sports clubs to plan and undertake CSR actions, as they not only strengthen the clubs' role as a facilitator of societal wellbeing and cohesion, but also have a positive impact on inducing identification. Furthermore, especially in a crisis affecting society broadly (such as the COVID-19 pandemic), clubs should recognize their roles as impactful organizations: By contributing to the community through CSR actions, clubs could not only fulfill their role as responsible organizations, but also improve and strengthen their broader societal image (Blumrodt et al. 2012).

The results also showed that there is an apparent conditionality of financial support for the team. As the fans of large clubs are less willing to participate in counter-value-free fundraising campaigns than fans of small clubs, there is an indication that regardless of a very high level of identification, fans do consider the actual state of their club's finances in a crisis when making decisions about participating in fundraising campaigns. This leads us to recommend that club managers give careful consideration to potential means of fundraising. In case of a large club struggling with weak liquidity, fundraising options with a counter value might be more recommendable; besides special merchandise campaigns, crowd investments or fan bonds could offer more appropriate options. The results of our study support the findings of Weimar and Fox (2021) and Wicker et al. (2016) about the positive impact of fans' involvement in and identification with their favorite club on investing in it in the form of a bond. Fan bonds, albeit being credit funding, could be an attractive option for clubs, because fans may accept below-market interest rates due to emotional reasons (Weimar and Fox 2012).

There are several limitations in this study, which researchers and practitioners alike should observe when interpreting the results. First, although we consider our sample size sufficient for simply analyzing fans' WTP for supporting their favorite team in a crisis, we suggest future researchers aim for a larger sample size so that they can run causal analyses with greater comparative power between the fans of large and small teams. Second, our sample consists mainly of highly identified fans. Hence, the results in this study are more representative for a population of "die-hard" fans. Given that a significant share of people supporting sports teams are more casual followers than fans, we advise that caution be exercised when interpreting the actual WTP—especially since our results suggest that decreasing identification is likely to lead to a lower WTP. Third, as we collected the sample from German-speaking countries (mainly Austria), the generalizability and transferability (to, e.g., Latin American or Asian fans) of our findings are limited.

Managers should be particularly careful when reflecting upon increasing single and season ticket prices: Although the results of this study suggest a rather high WTA increased ticket prices, they offer limited evidence on the attitudes of less identified fans. Finally, as we employed contingent valuation in eliciting the WTP, we need to point out the possibility of biased responses (Venkatachalam 2004); most importantly, the hypothetical nature of the "fundraising campaigns" might have led some respondents to state a higher WTP than would be the case in a real-life situation.

Considering that some leagues and teams have recently reported lower average attendance figures in comparison with the pre-pandemic era (Davidi 2021), we would like to bring up a specific suggestion for future research. Social identification with a group is a dynamic construct, which requires accessibility to the group to render it meaningful to an individual (Oakes 1987; Trepte and Loy 2017). As this has been tested also in the context of team sports fans and the involvement with a club has been confirmed to be driven by its visibility and exposure to publicity (Laverie and Arnett 2000), we would consider it important to study whether seasonal interruptions and "ghost games" have caused a decrease in identification among some spectators and fans. Given that fans are co-creators of the team sports product and the stadium atmosphere is an essential part of the matchday experience (Bond et al. 2020; Drewes et al. 2021), we consider it possible that the lockouts and consequent absence of a stadium atmosphere have caused some fans and spectators to distance themselves from the team. If measures combatting the pandemic have jeopardized some fans' identification with their team, this would, in the worst case, have severe and long-lasting financial impacts on teams. Hence, a study on the impacts of the pandemic on TI would be important also from a managerial perspective.

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Doping in Recreational Sport as a Risk Management Strategy

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Abstract: Knowledge about the prevalence of doping in recreational sports is still limited and fragmented. The same holds true for explanations of doping prevalence rates among different groups. One of the few theoretical models that exists uses the concept of consumer capital based on Stigler and Becker's theory of rational addiction. Building on the largest study on doping in recreational sports that has ever been conducted in Europe, the FAIR+ survey, hypotheses on the differences in doping prevalence rates, by the level of participation in competitions and by the relative time spent participating in the sport are, developed. Statistical tests support the model while also drawing attention to the limitations of this theoretical explanation.

Keywords: performance enhancing drugs (PED); mass sport; indirect questioning techniques; Randomized Response Technique (RRT); consumer capital; rational addiction theory

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1. Introduction

Doping in recreational sports has been studied for years, but due to the differences in methodological approaches used in the population groups being studied and in the precipitating factors of doping behavior, knowledge about the prevalence of doping as well as about its social and psychological determinants is scarce and fragmented (Frenger et al. 2016; Lentillon-Kaestner and Ohl 2011). In a recent study, researchers from different European countries addressed this divergence by conducting the first multi-national study on doping in recreational sports in Europe (Christiansen et al. 2022).

An evolving line of empirical studies since 2005 has succeeded in reliably estimating the prevalence of doping in elite sports by using indirect questioning techniques (Fincoeur et al. 2013; Fincoeur and Pitsch 2017; Pitsch et al. 2007; Pitsch and Emrich 2012; Ulrich et al. 2018; Uvacsek et al. 2011). Different variants of the Randomized Response Technique (RRT), as well as the single sample count technique were used in these studies. The results show that the prevalence of doping in elite sports ranges from between 10% and 75% and hinges primarily on the type of sport, sex and the level of athletic performance. Empirical research thus provides reliable results on the extent of doping in elite sports in different contexts, while the development of theories explaining the reasons behind the doping phenomenon is still lagging. This discrepancy was already pointed out by Pitsch and Emrich (2012), but little effort has been made since to close this gap between theoretical and empirical research.

Comparative research into recreational sports is even more scarce than it is in elite sports. To date, only two studies have examined the prevalence of doping in recreational sports using similar techniques (Frenger et al. 2016; Pitsch 2019). Interestingly, these studies found a similar pattern in the doping prevalence rates as in elite the sports, depending on the level of athletic success (Pitsch and Emrich 2012). The prevalence of doping at the most competitive levels in both elite and recreational sports was lower than at the next lower level. Moreover, the prevalence of doping in recreational sports decreased in levels below the "second tier". One explanation for this pattern is based on the concept of consumer capital within the theory of rational addiction (Stigler and Becker 1977), giving rise to a hypothesis on patterns of the prevalence of doping among different groups. This model has to date only been tested for consistency within a social scientific simulation without any further empirical testing.

This article is structured as follows: first, the prevalence of doping patterns in elite and recreational sports is briefly outlined and research hypotheses are derived. Then, indirect questioning techniques are described so the reader can independently assess the reliability of results based on the proposed method. Finally, the limitations of this research are discussed.

2. Theoretical Background: Doping as a Technique to Preserve Consumer Capital

The explanations for the prevalence of doping based on social science research often does not differentiate between elite and recreational sports, and empirical evidence on the differences in doping prevalence rates by discipline or by level of competition are often disregarded, which includes theories on moral (dis-) engagement, (Melzer et al. 2010), or social-cognitive theory (Barkoukis et al. 2013; Lazuras et al. 2010; Lazuras 2016; Lucidi et al. 2008; Petróczi et al. 2010). Economic theories on elite sport (Breivik 1992; Daumann 2008, 2011) usually implicitly model doping as a rational behavior, assuming that the subjectively expected utility from doping to increase competitive success ($u_{d,c}$) depends on the probability of success in the competition ($p_{s,c,d}$), the utility of competing successfully, the doping-related (monetary and moral) costs to be successful (c_d), the probability of detection (p_{det}), as well as the costs related to potential sanctioning (c_{san}). In short:

$$u_{d,c} = p_{s,c,d} * u_{s,c} - c_d - p_{det} * c_{san} \quad (1)$$

Yet these theories fail to explain similar prevalence patterns between different levels of competition in both recreational and elite sports despite apparent differences in both the assumed utility from being successful and the probability of detection (Berentsen 2002; Berentsen and Lengwiler 2004; Breivik 1987, 1992; Buechel et al. 2016; Tangen and Breivik 2001).

Consequently, sport science can explain the effects on either elite or recreational sports but disregards any similarities between them or provides little explanation into the effects on either category of sport that fail when empirically tested. Moreover, most theories that explain doping behavior fail to predict the prevalence of doping among different population groups in both categories of sport because psychological and economic drivers are introduced as determinants of doping behavior, while their distribution in the population group being studied remains unknown. To bridge these gaps, Pitsch (2019) developed a theory of doping based on Stigler and Becker's theory of rational addiction (Stigler and Becker 1977).

The term "consumer capital" was coined by Stigler and Becker (1977) as the central element of their theory of 'rational addiction', which could have also been referred to as "rational passion" or "rational commitment", considering that the authors described the scope of their theory using the example of "getting used to good music". In a similar vein, their publication was entitled "de gustibus non est disputandum" ('There is no accounting for taste').

The concept "consumer capital" builds on the notion that humans become used to goods which, when consumed, lead to an increased stock of human capital to continue consuming them in the future. Stigler and Becker refer to these goods as "consumer capital goods" while the proficiency to consume them is referred to as "consumer capital". The following examples clearly illustrate the utility of this concept:

- Every minute of a beginner's first skiing lesson increases his/her capacity to consume "skiing" in the future, not only in the sense of safely skiing down steep slopes but also in terms of his/her ability to small-talk about skiing at parties or to discuss skiing-related issues in a more serious setting. Moreover, the beginner's appreciation of professional skiers' performance when watching broadcasted skiing events will change.
- Elite weightlifters' potential to consume 'weightlifting' in the future increases with every training session, not only because not training would reduce their chance

of winning in competitions, but also because automatizing already acquired skills increases the likelihood of successfully competing in competitions.

The utility from consuming sport is therefore not only defined by an athlete's present consumption but is also a function of his/her past consumption, including the hours or years spent exercising and training, investments in equipment and travel, as well as the opportunity costs of training. When digging deeper into the concept of "utility from consuming sport", there is one form of utility that all athletes benefit from, namely the aesthetics of doing sport. This is an in-process and intrapsychic utility that originates in the perception of expertise when playing sport and is ranked each time an athlete succeeds in achieving an ambitious goal, be it a tricky feint in handball that results in a goal or a (double-, triple-) somersault in gymnastics. In addition, a social form of utility exists, which is the result of success in competition. Only athletes who are successful in competitions can draw on this form of positive utility from their past investments in their consumer capital. This type of utility evidently depends on the athlete's overall level of success, when considering that a world champion clearly gains more attention than a regional champion, yet recreational athletes who compete also gain positive attention in their particular social circles, such as from their family, friends and members of their sports club when they are successful at lower levels.

With regards to the above-mentioned problem of sport category-specific explanations for doping behavior, it is important for the effects to hold for both the elite and recreational sport levels. In contrast to the existing economic models on doping decisions, this notion does not limit the utility from engaging in (doped) sport of the outcome of a competition in terms of prize money and public attention but embeds the utility from sport in the individual's athletic biography. This also seems to hold for the negative utility associated with both the detection and sanctioning: penalties for doping are imposed in the form of a ban from the sport, i.e., the negative utility from such a sanction is a function of consumer capital as well.

Within this model of consumer capital, doping can be understood both in recreational as well as in elite sports as a technique to minimize the risk of losing one's utility from consuming sport.

The simulations to test this model's consistency (Pitsch 2019) is built on the notion of consumer capital assumed for differently talented individuals who played one model of sport for different lengths of time. The individual propensity for doping was derived from the probability of gaining a better position than the rankings achieved in past competitions and the probability of ranking lower. A doping decision could thus be based on increasing the utility from competing, to secure a utility that was already achieved in the past and to prevent diminished utility.

Despite being tested for consistency, this explanation of the social phenomenon "doping" has thus far only been formulated ex-post and has therefore not been explicitly tested in classical empirical social science research. Its acceptance as a "scientific explanation" is therefore questionable. Aside from deriving the theorized competition level effect from it, the simulation revealed an additional effect of the time spent participating in the sport. We therefore hypothesized:

1. The prevalence of doping in recreational sports is highest among athletes who compete at the second highest level of performance when compared to higher and lower levels.
2. The prevalence of doping in recreational sports increases over time in the sport the recreational athlete has been participating in.

3. Materials and Methods

The FAIR+ consortium (Forum for Anti-Doping in Recreational Sport) conducted a survey in eight European countries in 2021 to shed light on the prevalence, the social determinants and the psychological drivers of doping in recreational sports. Given that neither their sport nor doping is the focus of recreational athletes' everyday lives, the scope of the survey was expanded to not only cover doping but also the use of freely available

pharmaceuticals for performance enhancement, as well as sport-induced medication for purposes other than performance enhancement (e.g., mood regulation and pain reduction). Due to the sensitive nature of the studied behavior, the indirect questioning technique was used with the objective of reducing response bias.

3.1. Indirect Questioning Techniques

When measuring embarrassing issues in social science research, there is always a high risk of biased results owing to portrayals of social desirability. To eliminate this bias, Warner (1965, 1971) developed the RRT which has since been improved in terms of the advantages and risks of different variants of this technique (for an overview, see the meta-analysis by (Lensvelt-Mulders et al. 2005) and the recent review by Wolter (2012).

The RRT is only one among several indirect questioning techniques e.g., the unmatched count technique (Ahart and Sackett 2004), the single sample count technique (Petróczi et al. 2011), or the recently intensively studied crosswise model (Heck et al. 2018; Hoffmann and Musch 2016; Hoffmann et al. 2020; Meisters et al. 2020; Sagoe et al. 2021). The RRT was used in the FAIR+ survey because most of the evidence on doping in sport from former studies was obtained using this technique and the population group being studied (recreational athletes) made up a sufficiently large sample size, which is a precondition for using the RRT.

The FAIR+ survey used the RRT with detection for Instruction Non-Compliance (INC) (Feth et al. 2017; Clark and Desharnais 1998) in a forced response setup. The forced response method is considered one of the most efficient techniques to measure embarrassing or even threatening issues (Lensvelt-Mulders et al. 2005).

To ensure that respondents answer questions on embarrassing or even threatening issues truthfully, this technique adds random noise to the answers. This noise is produced by a randomization device, such as flipping a coin or rolling a dice during the process of answering an embarrassing question. Such randomization is directly perceived by the respondent, letting him/her experience that an embarrassing answer could result from the randomization process or from answering the embarrassing question truthfully. While respondents are perfectly safe from any inference from an answer on their characteristics or behaviors, the researcher only needs to examine the distribution of outcomes of the randomization device to arrive at conclusions based on the distribution of answers to relative rates in the population group under study. In the FAIR+ survey, we asked the respondents to select one from multiple randomly generated 5 digit figures. When asking the RRT questions, answers were randomized by referring to a certain digit of this figure, e.g., "If the second digit of your random figure is a 1, 2 or a 3, please...".

Although the RRT has proven to consistently provide more reliable answers in comparison to direct questions (Lensvelt-Mulders et al. 2005), this advantage depends on many factors which, when not properly estimated, may lead to even worse results (Krumpal and Voss 2020; Preisendörfer 2008; Wolter and Preisendörfer 2013). Most of these problems arise from the fact that respondents do not always trust the safety this technique purports or that they do not handle the randomization device properly. A technique to control this effect is the so-called cheater detection model developed by Clark and Desharnais (Clark and Desharnais 1998; Feth et al. 2017). As the RRT is often used for illegal or illegitimate issues, we will use the term "instruction non-compliance" (INC) to avoid common confusion between cheating in the sense of e.g., doping, and cheating in the sense of not answering the questions in accordance with the RRT instructions. Figure 1 presents an example of the RRT questions asked in the FAIR+ survey.

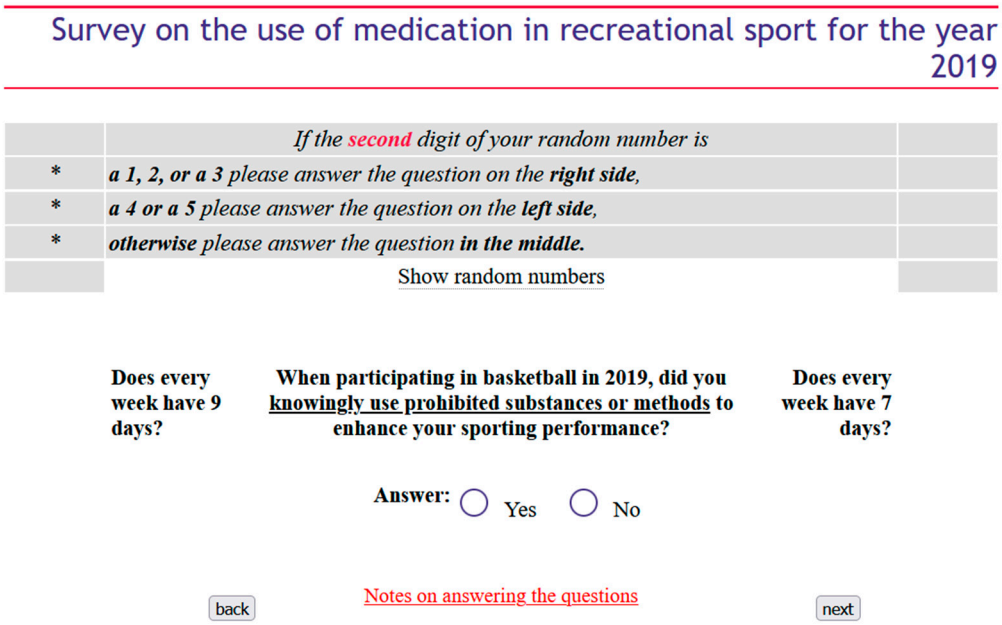

Figure 1. Example of an RRT question on doping in recreational sport from the FAIR+ survey. For the full survey, see https://fp.socioeconomy.eu/index.php (accessed on 28 November 2022).

Ethical approval for the study, the questionnaire and methodology, including the handling and storing of data, was obtained from Saarland University (Ethikkommission der Fakultät für Empirische Humanwissenschaften und Wirtschaftswissenschaft).

3.2. Questionnaire and Sampling

The questionnaire was developed as an online survey. The first questions focus on socio-demographic issues and on the sport(s) the respondent plays (up to four types of sport in total), including level of competition and the time the respondent has spent participating in the sport(s). As the survey had been designed to start in 2021, questions on sport, doping and sport-induced medication use were asked retrospectively for the last pre-COVID year 2019. The ensuing questions were two RRT questions on over-the-counter medication use for performance enhancement, and the use of medication for training or competition for reasons other than performance enhancement. Additionally, we asked about doping use in up to two sports. The two sports were prioritized from up to the four sports listed by the respondent based on his/her level of competition (the highest level with the highest priority) and by the time spent participating in the sport (increasing priority with an increasing time period).

The concept of "doping" in recreational sports as addressed in the survey differs from the well-known concept of "doping" in elite sports in at least two aspects. While in elite sports, WADA defines what falls under the scope of the legal term "doping" (WADA 2020), this definition is nearly meaningless for recreational athletes because doping tests are typically not conducted in this sphere. For this reason, one cannot assume that the participants are aware of the WADA definition and the list of prohibited substances and methods (WADA n.d.). Therefore, the respondents were not asked whether they had engaged in "doping" but whether they had willingly used prohibited substances or methods to enhance their performance. This concept of "doping" differs from WADA's legal definition while it nevertheless addresses the voluntary use of substances, which the recreational athlete believes are prohibited. Additionally, the concept of "doping" in the sense of the aforementioned question differs from that of "doper" in elite sport. In elite sport, a person who violates an anti-doping rule, according to Article 2.1 to 2.11 of the World Anti-Doping Code (WADA 2020), is considered a 'doper' and could be banned from participating in organized sport, be it an athlete, a coach or a member of an elite athlete's

support staff. For recreational athletes, this understanding of being a "doper" with all of the consequences is meaningless. Therefore, the prevalence of "doping" in recreational sports reflects the relative frequency with which recreational athletes knowingly use substances to enhance their performance in a given sport, while at the same time potentially participating in a different sport without engaging in "doping".

To best approach the known concept of "doping" and "doper" as it is used in elite sport based on the FAIR+ data, only the RRT answer for doping in the sport with the highest priority was analyzed in this study, thus reducing the analysis to one sport per participant.

The FAIR+ consortium selected eight European countries for their sample (Norway, Denmark, the United Kingdom, Germany, Spain, Italy, Greece and Cyprus), covering northern, central and southern Europe. This selection was based on the home countries of the consortium members in charge of conducting the research (Denmark, Germany and Italy) and from researchers' colleagues' readiness to assist in language issues and troubleshooting. The questionnaire was initially developed in English. The questions, formulations, individual words, as well as the sequence of questions, were intensively discussed to determine the best possible phrasing. The survey was then translated by professional translators from English into six other languages (Greek for Greece and Cyprus, Danish, Norwegian, German, Italian and Spanish). For each language version, the native speaking academic partner checked the survey for congruence with the English template and for comprehensibility. Small pilots with peers and students were run for each language version,. Dissemination was primarily conducted by snowball sampling on social media platforms. This was organized by student assistants in all participating countries (except for Cyprus which was covered by the student from Greece).

The survey webpages remained active for 12 weeks from May 2021 to July 2021. After this phase, the data were checked for trustworthiness (e.g., arising from respondents who tampered with the survey by entering nonsense).

Due to the sampling procedure used, there was no opportunity to intentionally select respondents to ensure a representative sample. Consequently, the sample was heavily biased in terms of an over-representation of recreational athletes from Denmark and Spain, in particular, but also in terms of an over-representation of younger athletes. We therefore applied weighting procedures (Elliot 1991; Häder and Gabler 1997) to correct for the bias by country, sex and age based on the known distribution of the population group of recreational athletes (for details of this weighting procedure, see Christiansen et al. 2022; the population structure was derived from the European Union 2018).

3.3. Statistics

Responses to the RRT questions cannot be analyzed the same as responses to direct questions. RRT questions provide an estimate of the prevalence doping rate within a population group but in no way provide information about the individuals who answered the question. As prevalence rates are only meaningful concepts at the level of (sub-) populations and not at the individual level, classical statistical analyses such as t-tests and ANOVA, which build on the individual data, cannot be used. To test whether the hypotheses hold, significance tests can only be calculated to determine whether the prevalence of doping differs between groups of individuals, who, e.g., compete at different competitive levels or have spent different times participating in the sport.

In addition, using classical confidence intervals as well as statistical tests that build on the assumption of normally distributed error components in the population is strongly discouraged in RRT setups with INC detection (Frenger et al. 2016). If any of the prevalence rates that are to be estimated (honest yes, honest no or INC) is close to 0, the estimator builds on marginal solutions to account for the mathematically unnatural conditions that none of these prevalence rates may be smaller than 0 and that the sum always equals 1. In these cases, "artificially" setting one parameter to 0 leads to skewed distributions of the other estimators, thus violating the normality assumption (see Figure 2).

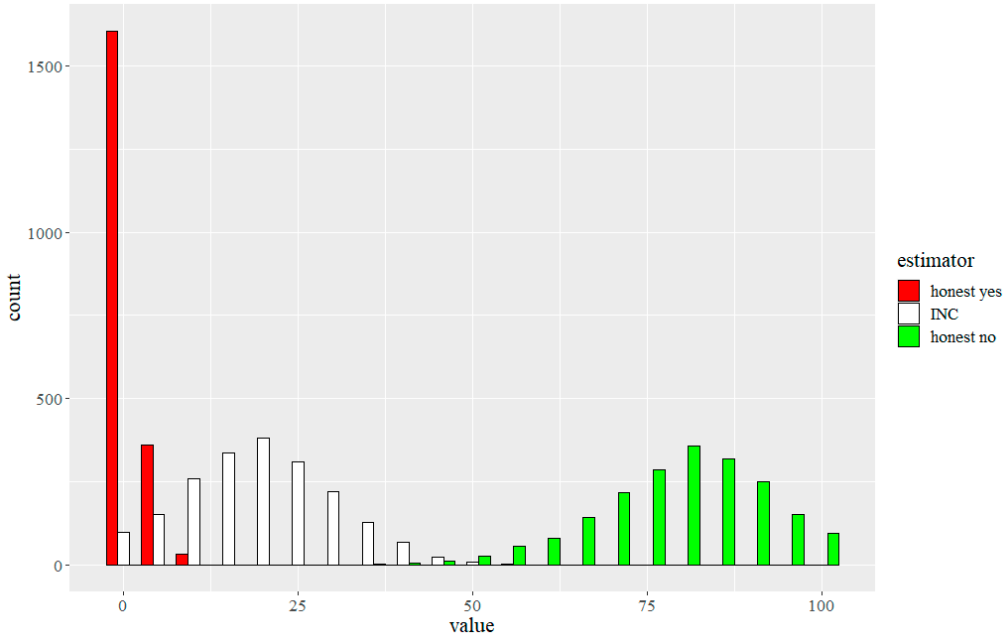

Figure 2. Skewed distributions of RRT estimators from 2000 bootstrap-replications for assumed true scores close to zero (honest yes) and due to the 'trade-off' of answers between INC and honest no in cases of estimators above 1 or below zero.

Confidence interval estimations, as well as hypothesis testing, were therefore conducted using non-parametric bootstrapping (Efron 1981; Efron and Tibshirani 1993). All calculations were conducted in self-developed scripts and functions in R, 4.1.3 (R Core Team 2022).

Apart from these limitations to statistical inference, RRT with INC has a unique strength. For direct questioning, the information provided by 'yes' and 'no' answers are perfectly redundant. In an RRT with INC detection, we identified three population groups, namely 'honest yes' and 'honest no' respondents as well as those who did not answer the question in accordance with the instructions. The estimate for 'honest yes' respondents is independent from that for 'honest no' respondents. Thus, not only are we able to calculate the significance of our data based on the assumption that the rate of—in this case—dopers differs between the two groups but also, and independently, whether the rate of non-dopers differs as well. Using the common significance level of 5% for both tests, this allows us to conduct a far more in-depth test of the hypotheses than the classical approach.

This double testing of the hypotheses is limited as well, however. We used the INC detection to falsely answer "no" when respondents were instructed to answer "yes" (see "NCD" in Feth et al. 2017). In this case, there is a trade-off between the INC estimator in the form of falsely answering "no" and the estimator for honest no responses. Therefore, significant differences in the honest no responses can only be interpreted as long as the INC estimator does not simultaneously differ significantly (see below).

4. Results

When comparing the different levels of competition participation descriptively, the results conformed to the hypothesis (Figure 3, for confidence intervals, see supplement, Table S1) both for honest yes and honest no responses. There were also considerable differences in the levels of INC. Hypothesis tests were calculated to compare the prevalence of doping at the national level (the second highest level) to the mean prevalence at the other levels of competition participation. These tests resulted in a significant difference for honest yes responders, honest no responders but also in a significant difference in the INC between the national level compared to other levels (Table 1). The difference in the estimates for honest yes responses is a clear indicator that this hypothesis holds. The

estimated prevalence of doping at the second highest level exceeds the mean prevalence at the other levels. As the trade-off between INC estimation and the estimator for honest no responses, the significant difference in honest no responses cannot unanimously be considered an indicator of the hypothesized differences.

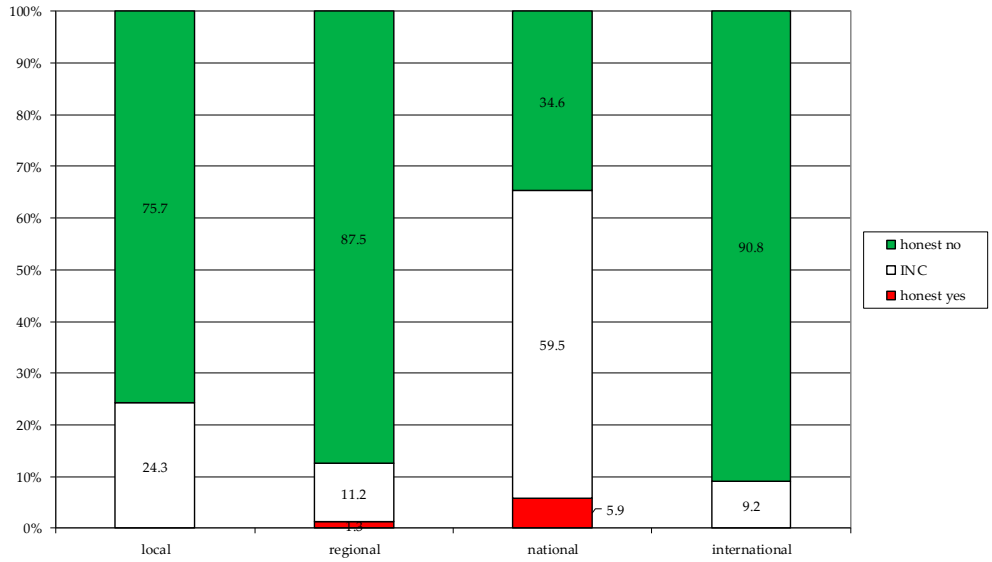

Figure 3. Prevalence of doping by level of competition participation.

Table 1. Test for significance, hypothesis 1: The prevalence of doping is at its highest at the second highest level of competition participation.

Comparison		Difference in Best Estimates	Confidence Interval of the Differences	
			Lower	Upper
National level vs. other levels n = 2862	Honest yes	5.9	0.2	
	INC	42.5	31.4	
	Honest no	−48.4		−36.2

For hypothesis 2, the time spent participating in a sport was evaluated in terms of the relative duration in relation to the respondent's lifetime. Therefore, the time spent participating in a sport was divided by the respondent's lifetime. A descriptive analysis of the distribution of this relative duration (see Table 2) resulted in a median of 0.25 years. When calculating the median of the sample, the prevalence of the doping estimation for recreational athletes with time spent participating in the sport below the median was 0 (honest "yes"), while this estimate was 9.4 % for those with time spent participating in the sport at or above the median (Figure 4, for confidence intervals, see supplement, Table S2).

Table 2. Sample distribution of relative time spent participating in a sport.

	Percentile				
	5th	25th	50th	75th	95th
Relative time spent participating in a sport	0.03	0.10	0.25	0.55	0.77

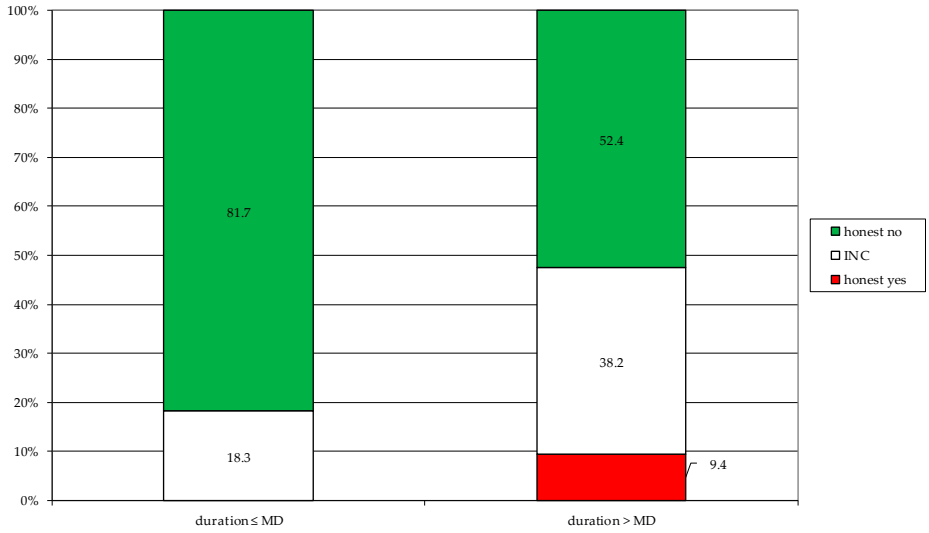

Figure 4. Prevalence of doping by relative time spent participating in a sport.

The significance tests (Table 3) revealed significant differences for all estimators. Likewise, hypothesis 1, which implies that the hypothesis is shown to hold for the estimation of honest yes responses but not unanimously for honest no responses due to the significant differences in INC.

Table 3. Significance test, hypothesis 2: prevalence of doping in recreational sports increases with time spent participating in the sport.

Comparison		Difference in Best Estimates	Confidence Interval of the Differences	
			Lower	Upper
Up to median vs. above median n = 4240	Honest yes	9.4	0.6	
	INC	19.8	6.8	
	Honest no	−29.3		−12.3

In addition to these analyses, a descriptive analysis without an ex-ante formulated hypothesis was conducted to elaborate on the scope of the model of consumer capital to explain doping in recreational sports by comparing the prevalence of doping among competing and non-competing recreational athletes.

For non-competing athletes, the utility from playing sport ($u_{s,e}$) only consists of the in-process benefit from exercising (u_e), while for competing athletes, the total utility from playing sport is increased by the additional utility from competing (u_c):

$$\begin{array}{c} \text{non-competing athletes: } u_{s,e} = u_e \\ \text{competing athletes: } u_{s,c} = u_e + u_c \end{array} \quad (2)$$

For $u_{s,c}$, our results reveal that it can be increased by doping, depending on the level of athletic success and on time spent participating in the sport. The effect of doping on u_e can be twofold. On the one hand, doping can enhance the in-process benefit from exercising ($u_{e,d}$). The utility from performing "successfully" ($u_{s,d}$, i.d. perceiving to perform at a subjectively high level) will increase through doping while the probability to exercise "successfully" ($p_{s,e,d}$) will increase through doping as well. On the other hand, monetary but also moral costs (c_d) from engaging in doping will arise:

$$u_{e,d} = p_{s,e,d} * u_{s,d} - c_d \quad (3)$$

Athletes cannot independently decide whether to engage in doping for competitive events or for exercising but decide to use (or not) doping substances or methods for both.

For competing recreational athletes, the utility of doping $u_{c,d}$ would be (by adding (1) to (3) and accounting for the fact that the costs for doping only occur once):

$$u_{c,d} = p_{s,c,d} * u_{s,c} + p_{det} * u_{san} - c_d + p_{s,e,d} * u_{s,d} \quad (4)$$

When comparing (3) with (4), we immediately find that the costs for doping c_d do not affect the different utilities from only exercising and from also competing when doped. As is the case in recreational sports, the probability of detection is practically zero because there are no doping tests; therefore, the term $p_{det} * u_{san}$ in (4) can be assumed to be equal to 0. As a result, the utility from doping for competing recreational athletes should always exceed the utility from doping of non-competing athletes and hence the prevalence of doping among competing recreational athletes is assumed to exceed the prevalence among non-competing recreational athletes. The results descriptively contradict this assumption (see Figure 5, for confidence intervals, see supplement, Table S3), but a significance test did not reveal any significant effects (Table 4).

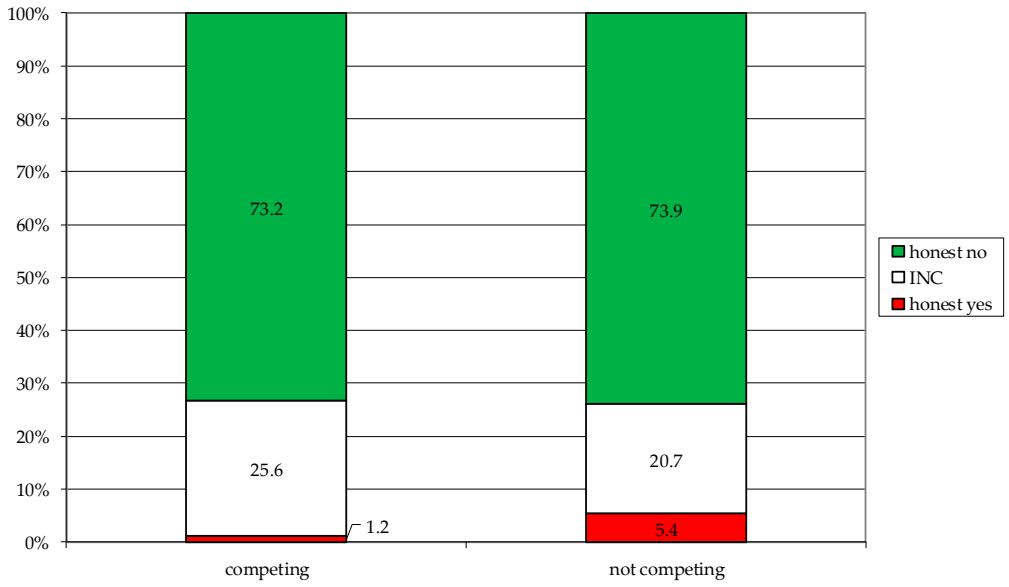

Figure 5. Prevalence of doping among competing and non-competing elite athletes.

Table 4. Ex-post test for significance for competing and non-competing athletes.

Comparison		Difference in Best Estimates	Confidence Interval of the Differences	
			Lower	Upper
Non-competing athletes vs. competing athletes n = 4193	Honest yes	6.2	−6.0	
	INC	5.7	−14.1	
	Honest no	−11.8		10.2

5. Discussion

The study was designed to test the notion that sport is a consumer capital good that increases the human capacity to play sport in the future. Based on this assumption, "doping" can be viewed as a strategy to reduce the risk of losing one's utility from playing sport. In addition to being tested for consistency with already available empirical evidence on the prevalence of doping (Pitsch 2019), this new study presents the first test of this model using newly available data.

The FAIR+ project is the largest ever empirical study on doping in recreational sports. Sampling by age, sex and country was corrected by appropriate weighting procedures. Hence, a sound database for this empirical test was available.

In hypothesis 1, the starting point for the development of the consumer capital model was addressed. In former studies on doping in elite sports (Pitsch et al. 2007; Pitsch and Emrich 2012), the prevalence of doping at the second highest level of competitive events was higher than at the highest level. In recreational sports (Frenger et al. 2016), the second highest level revealed a higher prevalence of doping when compared to the highest level but also when compared to the lower levels. The immediate in-process utility from playing sport and in training and exercising increases each time sport is consumed. This aspect does not depend on success in a competition. Other social aspects of the utility from playing sport, e.g., the gain in positive attention from relatives and friends when winning in a competition nevertheless hinges on the level of participation in competitions and on winning.

The fact that the highest prevalence of doping was not measured at the highest level of competition participation but at the second highest level was shown to depend on the relationship between time spent participating in the sport, the level of individual talent and the performance density, which differs between the different levels. The related hypothesis 1 was proven to hold for the estimate of honest yes responses, while the results for honest no responses was inconclusive. Nevertheless, support for this hypothesis is already as strong as the result of a test for significance, which could be conducted with data from a classical direct questioning survey.

Hypothesis 2 scrutinized another implication of the model that is tested here. If sport is understood as a consumer capital good, the utility from engaging in sport increases with time spent participating in the sport. The operationalization of this time as the relative duration throughout an individual's lifetime accounts for different estimations of the effort and time spent participating in the sport for differently aged recreational athletes. For the above-mentioned social aspects of the utility from engaging in sport, the risk of losing this utility can be lowered by using illegal substances or methods to increase performance. This hypothesis held for honest yes responses while honest no responses could not be interpreted conclusively.

The additionally conducted comparison between recreational athletes who compete and those who do not compete points to an important limitation. While the economic model would imply that the prevalence of doping among competing recreational athletes exceeds the prevalence among non-competing athletes, the results at least descriptively contradict this assumption. This implies that doping in recreational sports cannot simply be understood using concepts that have proven valuable in elite sports.

These results, by and large, support the model and its further development while pointing to the limited scope of its explanatory power when used in such a multifaceted domain, such as recreational sports. One promising impact of this model, beyond recreational sports, could be predicting the effects of rule amendments in terms of limitations between levels of competition, which might allow a fine-tuning of rules in a way that the probability of athletes using doping substances is reduced.

There are several limitations to this study. Most of them originate from the concept of "doping" in recreational sports, which is as multifaceted as recreational sport itself is. This renders it questionable whether the tools that have been applied in this study are appropriate for the concept under study. Nevertheless, this is a weakness of any study that attempts to open a new field of research. Another weakness originates from the survey and from the sampling techniques, which led to biased return rates and to a high level of item-non-response. The known bias was corrected by using appropriate weighting techniques. Nevertheless, the high item-non-response is unsatisfactory and leads to the problem that weightings have to be applied on a per-question basis, rendering the comparison between different questions and even between different analyses of the same question problematic. The extent to which the RRT has increased these effects can be addressed in a study that could use the newer and to date still promising Crosswise model for the same population group (Sagoe et al. 2021; Yu et al. 2008; Hoffmann et al. 2015; for a critical discussion, see also Walzenbach and Hinz 2019).

The results presented in this article should generally be understood as a first step toward scientifically exploring the concept of "doping" in recreational sports. Regarding the social impact of science, this step is overdue because anti-doping organizations already conduct anti-doping tests in this field of sport which, according to our results, science has thus far not yet really understood (Henning and Dimeo 2015).

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Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/jrfm15120574/s1, Table S1: Bootstrapped CI's for hypothesis 1; level of competition; Table S2: Bootstrapped CI's for hypothesis 2, relative time spent participating in a sport. Table S3: Bootstrapped CI's for competing and non-competing athletes.

Data Availability Statement: Data as well as further information on data quality management and weighting procedures can be downloaded from: Pitsch, Werner, Ask V Christiansen, Monika Frenger, and Andrea Chirico. 2022. "Data and Data Management Documentation for FAIR+ Survey Data." OSF. 28 November. doi:10.17605/OSF.IO/JXZA5. R scripts and functions are available on request.

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Conflicts of Interest: The author declares no conflict of interest.

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Politicians' Personal Legacies from Olympic Bids and Referenda—An Analysis of Individual Risks and Opportunities

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Abstract: The popularity of staging Olympic Games has dropped in democratic countries as a series of failed referenda and withdrawn bids as well as protests against mega sport events have shown in recent years. Nevertheless, the there still are democratically elected office-holders willing to become involved in an Olympic bid despite the high probability of public opposition and the threat of an almost unwinnable referendum. This conceptual study analyses the individual risk management that these politicians have to concern themselves with because of their involvement in Olympic bids and referenda. It does so by looking at possible 'personal legacies' the politicians can obtain. It is interesting to note that although the size of such legacies will vary, they can result irrespective of the outcome of a bid or a referendum and can have positive, negative, or neutral effects for the politician(s) in question. As will be shown, personal legacies can also be obtained by opponents of Olympic bidding ambitions, which is not the only finding that is problematic particularly for the IOC and National Olympic Committees interested in hosting Olympic Games or other sport events.

Keywords: Olympic bids; legacy; mega sport event; bidding process; referendum

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1. Introduction

The bidding race for the Winter Olympic Games in 2022 saw an unprecedented number of cities withdrawing their bid due to failed referenda or political concerns. Throughout the process, all of the eight European contenders withdrew before the International Olympic Committee's (IOC) decision on the host. Eventually, the IOC elected Beijing (China) over Almaty (Kazakhstan) as the host city on 31 July 2015 (Könecke et al. 2016). So, other than expected at the beginning of the bidding process, the IOC only had a very limited choice in terms of the number of remaining bidders (only two), political backgrounds (only from non-democratic countries), and geographic regions (as all of the traditional European winter sport countries had dropped their bids; Butler 2016a; Könecke and de Nooij 2017). The bidding process for the Summer Games in 2024 showed a similar pattern of failed referenda and withdrawn bids that again left the IOC with two potential hosts to choose from. Only this time, the organization changed its original plan and awarded the Games in 2028 as well, thus preventing to antagonize an attractive potential host by refusing its bid. Now, Paris will host the Games in 2024 and Los Angeles the ones in 2028 (Carroll and Melander 2017; International Olympic Committee 2017; Könecke and de Nooij 2017). Before the IOC elected Milan—Cortina d'Ampezzo (Italy) as the host for the 2026 Winter Olympic Games, referenda or threats thereof had again ended the bidding ambitions of five potential host cities.

Against this backdrop and taking Whitson's and Horne's observation that 'hosting is [. . .] often the project of political [. . .] elites' (Whitson and Horne 2006, p. 73) into account, the motivation for this paper is sparked by the following observations:

1. Even before referenda became common in the process, it has been rather unlikely that a city's bid for Olympic Games would be successful as usually only one host city was elected and the contenders could frequently expect to meet a strong competition;
2. Very briefly after the failed referendum ended Munich's ambitions regarding 2022, two other German cities, Hamburg and Berlin, tried to become the nation's Applicant City for the Games in 2024. Furthermore, several other major cities from democratic countries were willing to bid for this event (and also the Winter Games in 2026) even though it is quite apparent that bidding for and staging mega sport events raises concerns in most countries nowadays (e.g., Könecke et al. 2016). Besides unsuccessful referenda, the protests in Brazil that targeted the hosting of and the expenditures for the football World Cup in 2014 and the Olympic Games in 2016 were another exemplary proof of this opposition;
3. Unlike in Switzerland, referenda do usually not constitute an integral element of the political systems of the other European countries that have held referenda on Olympic bids, such as Austria, Germany, or Poland.

Keeping these observations in mind, the question has to be asked why politicians in democratic countries still willingly engage in an endeavor which is unlikely to succeed because of its general nature, is very likely to face strong public opposition, and has a high chance of failing in a referendum[1]. This is especially so since almost all of the referenda that were held on Olympic bids in recent years failed. Moreover—as will be discussed later on—even a supportive outcome in Oslo did not prevent an eventual withdrawal of the bid due to political reasons. Considering that politicians in democratic countries depend on a favorable public opinion to obtain and retain political power, they should be expected to support likely popular and/or successful projects. Consequently, and even though a politician might be very fond of sport, it could seem highly irrational on an individual level to support an Olympic bid because of the potentially detrimental effects it could have on a political career.

However, and even though the economic idea of rational behaviour has been under fire at least since Simon (1955), irrationality is an unlikely explanation for the behavior of senior politicians in major cities in democratic countries. These officeholders generally have succeeded in a number of elections to obtain such an office, which indicates that they must be able to make decisions that maximize professional welfare in the long run (a key assumption of rational choice theory). Therefore, the promotion of an Olympic bid or a referendum should usually not be a beginner's fault. Even though sometimes actors rather new to the political system can become involved, the common situation should rather be that seasoned politicians initiate and uphold Olympic bids. Moreover, newly elected ones do not face a bid unexpectedly, as could be seen by the example of Rome's former mayor Virginia Raggi, who had strongly opposed staging Olympic Games during the electoral campaign that brought her into office (New York Times 2016).

Even though it is not to be expected that Olympic bids are primarily motivated by political self-interest, these considerations show that politicians will (have to) evaluate the risks and opportunities of their participation in such an endeavor before getting involved and/or throughout the process. The considerations also show that the decisions made in this regard should usually correspond to rational choice theory in that sense that they should maximize individual welfare in the long run (at least to large extent).

A key aspect in the corresponding considerations should be possible 'personal (or individual) legacies' that can result from initiating, supporting, and even opposing Olympic bids and referenda. As will be discussed later, 'legacies' can generally be understood as a set of structures originating from a bidding process (including a referendum) or an Olympic Games, which can bear positive or negative consequences or may turn out to be neural, for example if they are not 'activated'.

This study aims at analyzing which 'personal legacies' can result for politicians involved in Olympic bids and referenda. It also shows that personal legacies have the potential to influence a politician's professional career in an advantageous or disadvanta-

geous way—or not at all. It will be outlined that personal legacies result irrespective of the outcome of a bid and are the reason why politicians face a number of risks and opportunities due to their involvement. As will be seen, personal legacies and the corresponding risks and opportunities also result if politicians do not actively strive for or concern themselves with them.

The main contributions of this paper are the following: Generally, it is a contribution to the research on event legacies and bidding for Olympic Games (e.g., Baade and Matheson 2016; Brückner and Pappa 2015; Chalip et al. 2016; de Nooij and van den Berg 2017; Könecke et al. 2016; Preuss and Werkmann 2011; Rundio and Heere 2016). These fields of research are broadened by focusing on politically relevant individual legacies that are mainly generated prior to the event through the bidding process and—if one is held—a referendum. Thus, this study also contributes a new aspect to the growing research on event-related referenda (e.g., Baade and Matheson 2016; Brückner and Pappa 2015; Coates and Wicker 2015; Könecke et al. 2016; Rundio and Heere 2016), which have become a major factor in bidding processes in democratic countries.

However, so far, no comparable study focusing on legacies or the corresponding risks and opportunities for individual politicians has been published. This is particularly astonishing because even heads of governments of major countries have prominently been involved in Olympic bids or Games in the past. One example is former journalist Boris Johnson who built a considerable international 'media legacy' (will be defined later in the paper) as mayor of London when the city hosted the Games in 2012. Afterwards, Johnson made use of the inherent opportunities by 'activating' (see later) this legacy when spearheading the Brexit campaign before the referendum in Great Britain. Later on, he even became Prime Minister. Current German chancellor Olaf Scholz' biography shows parallels as he was First Mayor in Hamburg when the city worked towards hosting the Olympic Games in 2024. After Hamburg's bidding ambitions were ended by a dismissive referendum in November 2015, Scholz became Germany's Minister of Finance in early 2018 and was elected German chancellor after the federal elections held in 2021. Of course, it should not be forgotten that there are also examples of politicians whose association with an Olympic bid had negative effects for them. An example for someone who incurred negative effects in the long run is the former Mayor of Montreal, Jean Drapeau, who was the driving force behind the city's bidding ambitions but, as Todd (2016) describes, was also made responsible for a number of negative effects associated with the event later on.

The analysis in the paper is generally a theoretical one. It would certainly be interesting to supplement the theoretical considerations with empirical data, for instance from interviews with office holders. However, it was not expected that these would freely share their actual evaluation of personal risks and opportunities regarding an Olympic bid. Moreover, even though people who closely worked with or are related to office holders who were in charge of bidding processes confirmed the assessments made in this study (for instance, after conference presentations on the topic), none of them were willing to formally participate in the research to protect their privacy. Accordingly, a conceptual approach was chosen that—as has been explained above—is generally rooted in rational choice theory and past research on the legacy of mega sport events.

The following parts of this paper are structured as follows: In the next chapter, personal legacies which politicians can draw from Olympic bidding processes and Olympic Games are addressed. The first part of said chapter looks at the literature that outlines potential reasons for staging Olympic Games. Afterwards, a general concept of (Olympic) legacy is introduced. Personal legacy is defined thereafter before the analytical findings are described in the final part of the chapter. In the subsequent chapter, referenda are introduced into the analysis. This is done by first addressing Olympic referenda on a general level. Afterwards, their potential to influence politicians' personal legacies is outlined. The final chapter contains the discussion and the conclusion.

2. Olympic Bids and Legacies

2.1. Motivators for Bidding for Olympic Games

In academic research, a number of different expectations linked to bidding for Olympic Games have been identified. For instance, Fourie and Santana-Gallego (2011) pointed out that boosting tourism arrivals can be one major reason to do so. However, they also showed that touristic effects greatly vary due to a number of factors. Solberg and Preuss (2007), for instance, mentioned methodological difficulties when measuring touristic effects of such events and a notion to overstate socioeconomic advantages in the pre-event phase that could be spurred by an opportunity to obtain funding. Whitson and Horne (2006) posited that this common overstatement is facilitated by a lack of transparency in the calculation of event profits and losses and the severe difficulty in answering the question which costs and benefits to include or to exclude. However, particularly in recent studies, the notion has been dominant that hosting the Olympics is almost never economically viable for a region (e.g., Baade and Matheson 2016; de Nooij and van den Berg 2017; Rose and Spiegel 2011).

Yet, major cities are still willing to start a bid despite the low probability of success (many cities give up and only one wins), the likely public opposition (possibly manifesting in a referendum), and the fact that already bidding itself is a costly endeavor. Baade and Matheson (2016) named three main reasons why a region or a country could (still) want to host Olympic Games: (1) the fact that '[l]arge projects always create (some) winners' (Baade and Matheson 2016, p. 213), (2) the egos of political leaders and their willingness to put their country's political and economic power on display, and (3) the winner's curse, which motivates the bidder that most overestimates the potential advantages of staging the Games to win the bid. Furthermore, they stated that 'the Olympics can serve as a catalyst for urban redevelopment and to generate the political will required to undertake needed infrastructure investments' (Baade and Matheson 2016, p. 211). However, they also pointed out that it is at least questionable if alternative investments would have yielded a less favorable outcome. de Nooij and van den Berg (2017) provided a compatible albeit slightly more extensive list to explain the motivation for pursuing a bid: (1) early political enthusiasm, (2) tying side-projects to the bid to raise political support, (3) biased reading of history, (4) the winners curse, (5) redistribution and lobbying, (6) a media bias in favor of hosting, and (7) boosting happiness and pride of residents.

For some bidders, it is of relevance that bidding for and hosting a mega sport event can increase exports especially for developing economies. In this regard, Rose and Spiegel (2011, p. 653) stated that 'when a country wishes to enter the world stage, it can signal this to both domestic and international constituencies by offering to host a mega-event'. Interestingly, they observed that the positive economic development does not only occur for countries that eventually host the Olympics but for the unsuccessful bidders as well. Even though their claim was that for the latter the effect is 'similar in size to that experienced by actual Olympic hosts' (Rose and Spiegel 2011, p. 654), Brückner and Pappa described it as rather fleeting:

'In both our empirical exercise and the theoretical model, news about Olympic Games makes output and investment surge already at the time of the bidding. In unsuccessful bidding countries, the agents' optimism turns out to be unjustified, and as a result, the economy returns quickly to its original trend, while hosting economies enjoy quantitatively large and significant positive effects from hosting' (Brückner and Pappa 2015, p. 1364).

Yet, as Baade and Matheson (2016) pointed out with reference to other studies, all of these positive macroeconomic effects might be attributable to a selection bias and not to an Olympic influence. However, even considering that economic effects may be (rather) irrelevant on a national level, it can be retained that entering the bidding race for Olympic Games leads to the 'news shock' postulated by Brückner and Pappa in the title of their paper and further 'important anticipation effects' (Brückner and Pappa 2015, p. 1340). This is naturally also true of the event itself. Against this backdrop, it is insightful to take a look at the legacy of sport events, which will be done in the next sub-chapter.

2.2. Legacies of Mega Sport Events and Their Bidding Processes

Preuss defined the legacy of Olympic Games as follows: 'Irrespective of the time of production and space, legacy is all planned and unplanned, positive and negative, tangible and intangible structures created for and by a sport event that remain longer than the event itself' (Preuss 2007, p. 211). Legacy can also result from bidding for an event, since Preuss (2015, p. 647) noted that it 'can derive from structures already completed before the event' as well. Examples are the above-mentioned 'anticipation effects' (Brückner and Pappa 2015, p. 1340) and the corresponding media coverage. Obviously, the potential of legacies to create an effect does not generally vanish when a city drops out of the bidding process or is not awarded the event. However, as has been discussed above, such developments can strongly influence the size, potential, and longevity of the structures (Brückner and Pappa 2015).

Preuss (2015) named infrastructure (e.g., stadia, roads, housing), knowledge (e.g., scientific knowledge, event management know how), policy (e.g., sport policies, laws), networks (e.g., political networks, networks in the security sector), and emotions (image, memories, stories) as different types of event legacy. He also pointed out that these frequently remain a 'latent legacy' until they are actively put to use (activated): 'For example, a network is only activated when a contact is used for [a] cooperation of some kind' (Preuss 2015, p. 656). The concept of activation is closely linked to the 'leveraging' of an event (Chalip and Leyns 2002), which 'refers to strategic and intentional tactics that seek to derive benefits from the hosting of sport events' (Wood et al. 2018). However, because this paper is not limited to an analysis of politicians' ex-ante 'strategic and intentional tactics' to activate event legacies, leveraging is not considered prominently hereafter but rather the broader concept of activation because a politician can try to activate a legacy even though s/he did not plan or even intend to do so before.

Since mega events have the potential to create a variety of legacies, the question how to attain and guide these legacies in the desired direction has gained considerable interest (e.g., Boukas et al. 2013; Chalip 2006; Chalip et al. 2016; Smith 2009; VanWynsberghe et al. 2012; Veal et al. 2012). Pre-event legacies have also been scrutinized. An example is the effect of the run-up to the Olympic Games in London on the population's participation in physical activity and sport (Bretherton et al. 2016). Generally, the volume 'Leveraging Legacies from Sport Mega-Events' (Grix 2014) provides a rather recent overview over the field. Yet, as can be seen by Chalip's contribution to the book, further analysis is still called for (Chalip 2014), especially because some authors question if the opportunity to leverage the latent legacy of mega events is not but a mere excuse for still staging them if considering their unsatisfactory economic performance (e.g., Smith 2013).

Regardless of the question whether latent or not, a legacy eventually loses its potential to create an effect 'and therefore its utility. People get older, and networks and memories disappear. Knowledge and skills become outdated' (Preuss 2015, p. 657). Furthermore, event legacies can also have unfavorable effects, such as maintenance costs for an unused or underutilized stadium, salaries for a bidding committee that cannot be released immediately after dropping a bid, or (lasting) negative publicity stemming from Olympic ambitions (which could be considered a 'media legacy'—cf. underneath). In order to support the creation of positive legacy-effects and to diminish negative ones, Ritchie (2000) suggested the development of a strategic plan for the post-event use of the legacy at a very early stage (which would mean to leverage the event legacy—see above).

Summing up, legacy will hereafter be understood as different tangible or intangible structures stemming from bidding for or staging Olympic Games. These structures have the potential to create advantageous, disadvantageous, or no effects. In order to create effects, an activation of latent structures can be necessary.

2.3. Politicians' Personal Legacies from Bidding for and Staging Olympic Games

According to the introduction, it can be assumed that senior politicians responsible for an Olympic bid frequently take welfare maximizing decisions regarding their own

career. Considering the two claims that (a) '[a]gents that endorse [. . .] the staging of mega-events usually do so out of naivety or self-interest' (Rose and Spiegel 2011, p. 652) and (b) '[l]arge projects always create (some) winners' (Baade and Matheson 2016, p. 213), it can be concluded that such politicians will regularly strive to obtain an advantageous outcome for themselves. This does not mean that their endorsement of an Olympic bid is always (primarily) motivated by self-interest. But the vast public exposure, the probable public opposition, and the long duration of the bidding process are known. Due to this, senior politicians will (have to) concern themselves with the personal consequences of their involvement in such an endeavor sooner or later.

Against this backdrop, the following analysis aims at outlining the 'personal legacy' which can result for politicians from their involvement in bidding for and/or staging Olympic Games. In this paper, the primary focus will be on legacies that have the potential to influence a politician professionally. Like all legacies, these structures are usually latent until activated and can be planned or unplanned. Corresponding to Preuss' (2015) considerations regarding cities, politicians' personal legacies will differ from person to person and case to case. This is also why the following analysis does not relate to one specific person or office but is a general collection of ideas regarding the question which 'personal legacies' could generally result for politicians involved in a bid or an Olympic Games. This means that not all of the described legacies will result in all cases or for all politicians concerned. In the end, the specific context, the motivation to create legacies for oneself, the degree of involvement and many other factors influence which legacies will result for a specific individual (or group of individuals).

It has previously been mentioned that Preuss (2015) classified legacies into five different structures: infrastructure, policy, knowledge, emotions, and networks. In the following analysis, it will be explained in how far these different types of legacies can be related to the personal level of politicians. Moreover, it is shown that 'media' has to be added as another type of legacy for individual politicians and in general in Figure 1. The final analytical step of this chapter is devoted to the potential influence, the outcome of the bidding process and the success of staging Olympic Games can have on a politician's personal legacies.

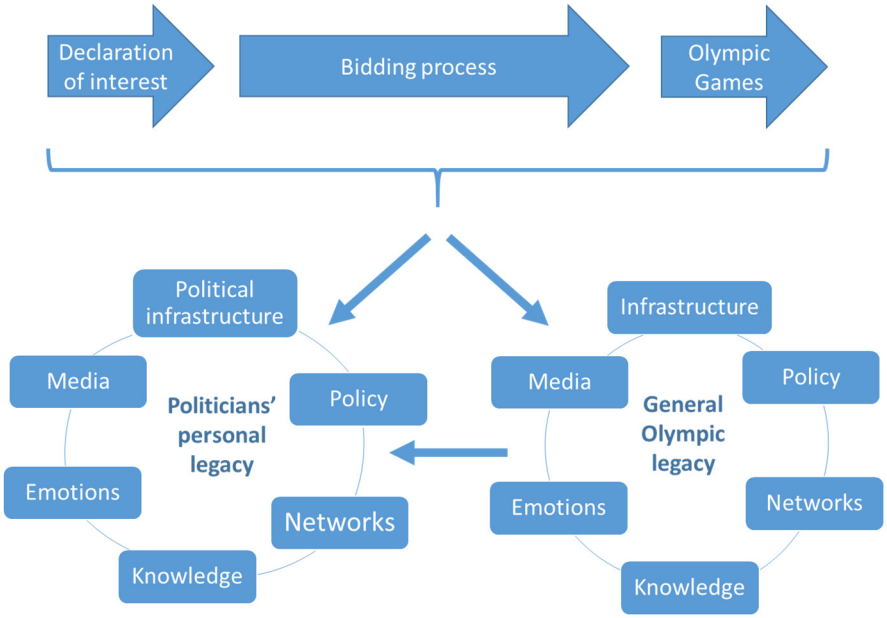

Figure 1. Sources of politicians' personal legacies from Olympic bidding processes and Games.

First and maybe foremost, a politician's involvement in an Olympic endeavor will obviously help her/him to create and strengthen different types of networks. Obviously, sport-related networks are relevant. Since major sport organizations are very well connected in society, politics, and the business world, they are resourceful domestic and

international power brokers. Thus, supporting and promoting an Olympic bid can enable a politician to effectively win fans and members of sport organizations as voters or supporters. Furthermore, the politician obtains access to the networks sport officials and sport organizations sustain. To strengthen her/his 'Olympic ties' to a specific sport or sport in general, a politician could also take over an office in a sport organization. This strategic move should enable him/her to prolong the latency of this network-legacy and to activate it more easily if need be.

Politicians can also further their personal network outside of the sport world. Due to the international scope of an Olympic bid, the people closely connected to it will become directly acquainted with a considerable number of very high ranking national and international politicians and officials. Moreover, access to and acquaintance with important actors from business and society can be expected since these regularly show interest and support for Olympic bids. This is in line with the general ideas of and recent discussion concerning urban regime theory. The theory basically describes how informal arrangements and formal relationships between actors in society and the business world on the one hand and in politics on the other contribute to the governance of a city (Mossberger and Stoker 2001; Smith 2019). However, 'a longstanding pattern of cooperation rather than a temporary coalition' (Mossberger and Stoker 2001, p. 829) is a key component of urban regimes. This can also be the case for networks constituting a legacy of an Olympic bid or Games, but legacy-networks can also be short-lived if they are not maintained or activated.

Nevertheless, it should be considered that Smith (2019) observed that the structure of urban regimes is influenced by and has to adapt to globalization and its impact on how and with whom politicians cooperate and connect on the regional level. This leads to the assumption that the opportunity to enhance a personal network by getting involved in an Olympic endeavor would be especially attractive for ambitious officeholders interested in widening their sphere of influence. That means that somebody holding an office on a regional, state, or national level has a great opportunity to further his or her network on a national and/or international level within and outside of politics by getting involved in an Olympic endeavor. Without such an involvement, obtaining access to a comparably large number of potentially important personal contacts would most likely require considerable effort and luck. Moreover, even though the political network might seem particularly relevant at first sight, an enhanced personal network in other areas should not be underestimated in terms of its political value. Furthermore, such networks can open other professional opportunities within and outside of politics. After a lost election, the latter might even prove more valuable than the former.

Structures in the fields of knowledge and emotions are included as personal legacy in Figure 1 as well. On an individual level, examples hereof are the perception of one or more politicians as being sporty, sport friendly, and/or advocates of sport. Due to the great popularity of sport (e.g., Sloan 1989; Trail et al. 2003) this association enables politicians to build a legacy from the halo effects (i.e., the 'spillover effects' of the positive image) of sport and its popular figures (athletes, coaches, functionaries) and the very profound passion that ties many people to sport. Moreover, the perception of a politician's interest in and close relation with sport can communicate a valuable proximity to 'regular people' due to a shared common interest. Corresponding to Baade and Matheson's (2016) observation, it can also be posited that a politician's willingness to put forward an Olympic bid creates knowledge and emotions concerning his/her trust in the political and economic power of the region s/he represents. This means that s/he is showing great appreciation for the region by her/his support for the bid, which should be appreciated by the population as well.

As can be seen in Figure 1, infrastructure can usually not be considered a personal legacy for politicians because it cannot directly be leveraged. For example, successfully realizing a construction project due to an Olympic bid cannot create a personal advantage or disadvantage for a politician per se. To create an effect, the act in question has to be noticed by the public and/or other relevant groups and linked to the politician (it has to be

'personalized'). This usually implies that it will also be evaluated as either desirable or not, i.e., knowledge, emotions, and/or a media legacy (see below) are created. Moreover, the relevant project could yield networks with people from the political, construction, finance, and/or other sectors. If this transfer of the general legacy 'infrastructure' into these types of personal legacy does not occur, it cannot create relevant effects for the politician unless there is a private use (e.g., if the politician can use a sport facility for private purposes). However, these private advantages would not influence the politician's career, which disqualifies them as 'personal political legacy'.

The only exception from this rule is 'political infrastructure'. This type of infrastructure consists of formal infrastructure which is at the disposal of the politician. Examples are personal staff or access to staff of the politician's party, an administration, or a government. Specifically, these could be communication departments, the Olympic Public Authority (like the one introduced for Rio 2016), legacy commissions, or other units that have been established for a purpose related to the Olympic Games. Political infrastructure can usually directly be activated and thus create effects for a politician very quickly. Naturally, like all legacies, political infrastructure is also prone to dissolve once the event or the bid is over. An example would be a communication department that has originally been set up for an Olympic bid but also becomes involved in an electoral campaign that is running at the same time. Consequently, 'political infrastructure' is included as a personal legacy in Figure 1.

'Policy' is also included as a personal legacy in Figure 1 because policy effects can be created or facilitated by Olympic bids or Games that would. Very often, it is of relevance in this regard that campaigns surrounding Olympic bids have a strong potential to draw attention away from other political issues because of the considerable media coverage (see hereafter) and public awareness they create. This means that an Olympic bid can be used to prevent high public involvement in and/or opposition to other political issues. If these issues can thus be furthered by a politician, for example, by successfully putting them to a vote in parliament when the attention is focused on the Olympic bid, a policy-legacy is attained. Moreover, an Olympic bid also has the potential to tie other political projects to it, which also constitutes an opportunity to create a personal legacy of the policy-type. If and how such a policy-legacy creates effects for a politician in the long run, largely depends on how s/he is willing and able to activate it afterwards.

Just like bidding and hosting cities (Brückner and Pappa 2015), politicians can also obtain a 'media legacy'. As has already been described, Olympic bidding ambitions usually bring about a considerable boost in national and international media attention (cf. also Preuss and Alfs 2011), vastly increasing the media visibility of key politicians as well. This corresponds to the free rider mentality discussed by Preuss (2004). He observed that cities can be motivated to bid or to discuss a bid just by the image effects and the general support that can thus be generated—even without a real chance of winning. To reduce free riding, the IOC introduced a non-refundable fee for each bidder and banned any international promotion during the application stage. Even though this increases sunk costs and hold up costs for a bidding city, it neither creates direct individual costs for a politician nor does it diminish the general media attention that is created by announcing a bid. This surge in media attention can be particularly attractive for ambitious local politicians seeking to advance their career on a national or even an international level.

Over the course of a bidding process, a politician can establish different types of legacy due to the media attention. Comparable to policy and most infrastructure, the media coverage can lead to knowledge and emotions. Networks with reporters and other media personnel can also be built or strengthened. Moreover, a special legacy consisting of the willingness of the media to accept the politician himself as a relevant media content can result. If this is the case, the news value (e.g., Lippmann [1922] 1965) of all information regarding the politician rises, which in turn can spur further media interest. Since the media are a key protagonist in the opinion building process in modern societies (e.g., Kim et al. 2015, 2002; Könecke et al. 2016), this effect should be considered an independent

legacy on an individual and the general level. Accordingly, media is included as a sixth legacy structure for both, the politicians' and the general Olympic legacy in Figure 1.

Regarding the sources of a politician's personal legacy, Figure 1 indicates that they are twofold: First, they can stem directly from the involvement in the bidding process and/or Olympic Games. An example is a personal network in the sport sector. Second, it could already be seen that personal legacy can also be derived from the general Olympic legacy. An example is a politician's involvement in a maintenance project for Olympic infrastructure (a general legacy). The politician would be able to build a personal network in the construction sector, which could eventually be leveraged to create personal advantages.

General Olympic legacies and personal legacies are arranged in circles in Figure 1 because legacies and/or their capability to create effects frequently are interdependent. For instance, this is the case if voters base their voting decision on knowledge about a politician's involvement in an Olympic bid. Usually, this knowledge will be drawn from the media and will build legacies in the fields of knowledge and emotions as well.

Figure 2 adds to Figure 1 by showing that personal legacies can either cause effects directly or indirectly. Direct effects are created if legacies have immediate effects. One example of a direct effect are emotions created through a politician's involvement in an Olympic bid that have an effect on whether or not (certain) voters vote for the politician in an election. Direct effects occur without any efforts of the politician to activate or leverage specific legacies. Indirect effects, on the other hand, occur, if certain legacies are latent and have to be activated or leveraged prior to generating an impact for the politician. Again, an example thereof is a communication department set up for an Olympic bid that a politician then actively involves in an ongoing electoral campaign even though this is none of the department's actual tasks. Another example is a personal acquaintance or network that originates from a bidding process that is put to use at a later point in time for another professional purpose.

Figure 2 also indicates that these personal legacies can have positive, negative, or neutral effects. This is so because a specific legacy can, for instance, causes citizens to vote or not to vote for a politician, which means that a positive or a negative effect is the result. If the specific legacy does not affect voters' behavior in an election, it has a neutral effect.

Finally, it is important to briefly consider how the outcome of a bid or staging the Games can affect politicians' personal legacy:

1. If a politician is involved in staging a successful Olympic Games, s/he should usually be able to obtain a strong personal legacy yielding strong positive personal effects. This should be especially true if the politician has also been involved in the bidding process because s/he will then be remembered as one of the people who brought the Games to the region. A generally similar but somewhat weaker legacy could be obtained if a politician leaves the office after a successful bid but before the Games are successfully staged;
2. If the Olympics are generally not considered a success (e.g., because of large cost overruns), personal legacies still result. However, they will usually incur more negative effects than otherwise, such as a negative reputation effect (knowledge) or bad media coverage. However, even if the politician loses her/his office due to the Olympics (a very negative legacy-effect), leveraging a personal Olympic legacy for a career in another line of work might still be possible. Due to the long run-up period to the event, it is not unlikely that the former initiators of the bid have switched office at the time of the event anyway. This might even have happened as a result of their personal legacy from the bid—for instance if they have been elected to a higher office. In this situation, coping with the actual event and its outcomes has to be dealt with by their successors;
3. If the bid is not successful, personal legacy still results, but it will likely be less pronounced than it would have been otherwise. An unsuccessful bid leaves a shorter overall time in which a legacy can be created, less money spent during the process, and less opportunities to create strong and lasting emotions. Nevertheless, this

constellation is especially interesting since many bids have been withdrawn before the IOC's final vote in recent years. Moreover, because it is usually no disadvantage for a politician to publicly demonstrate her/his firm belief in a city or a region, the politician might as well do so by proclaiming bidding ambitions for Olympic Games. If the bid fails or is withdrawn, a politician might still be able to obtain numerous positive personal legacy-effects. In an effort to do so, the politician would probably be well-advised to make good use of the media legacy in order to shape the public's opinion according to personal needs (on shaping public opinion through media see e.g., Kim et al. 2002, 2015; Könecke et al. 2016). Ideally, that would mean to leverage this legacy by having an ex ante strategy in place.

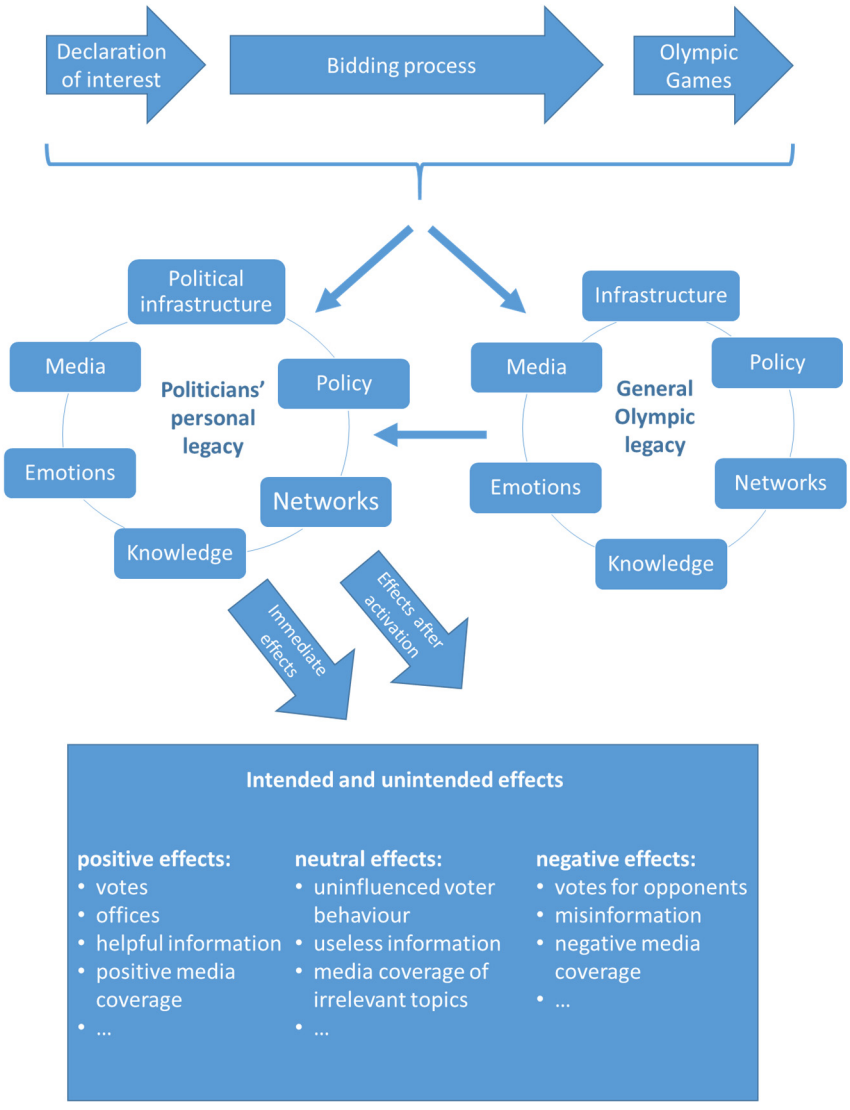

Figure 2. Sources and effects of politicians' personal legacies from Olympic bidding processes and Games.

3. Olympic Referenda and Legacies

3.1. Referenda and Olympic Games

Until not too long ago, research has frequently shown public support for staging mega sport events (e.g., Atkinson et al. 2008; Barget and Gouguet 2007; Heisey 2009; Heyne and Süssmuth 2007). However, as the description in the introduction has shown, this support has not been present in the most recent bidding processes anymore. During these processes, many bids have been ended or prevented by referenda or the mere threat thereof.

Such referenda on Olympic bids or Games have not been common in many countries even though they have a richer tradition in others. In North America, for instance, different referenda have been held in previous decades (Chappelet 2021). One example is the referendum prior to the 2002 Winter Games. Salt Lake City (Utah) organized a poll that yielded a favorable vote (57 percent) in 1989 (Guala 2009). As Andranovich et al. (2001) pointed out, this referendum to use part of the sales tax revenues for the construction of Olympic facilities was the only one in which US-American citizens could vote during the bidding process. In 1994, there was a successful vote in Atlanta on issuing two bonds for the 1996 Games, whereas the 1978 vote in Los Angeles refused to use general city funds for the Games in 1980. These two polls were held after the IOC had awarded the Games to the cities (Andranovich et al. 2001). This was also the case for the referendum held in Colorado in 1972, that blocked the provision of additional state funds for the Winter Olympic Games 1976. The outcome of this referendum had the effect that Denver had to refuse to stage the event and the IOC had to look for another host. Eventually, Innsbruck (Austria) hosted this edition of the Winter Games (Carpenter 2022). Hiller and Wanner (2011) also looked at a referendum in Vancouver in Canada that showed support for the Winter Games in 2010.

In Europe, voting on Olympic Games has a comparably rich tradition in Switzerland. Guala (2009), Maennig (2017) and Chappelet (2021) mention a number of Swiss referenda with positive, dismissive, or unclear outcomes. However, referenda are a central element of Swiss democracy, which is why they are also held on sport events. Nonetheless, there are some examples of Olympic referenda held in other European countries dating back to before the turn of the century. One was held in the Italian Aosta Valley (bordering Switzerland). In 1992, 84.7 percent of the valid votes were cast against a regional law put in place to financially support the bid for the Winter Olympic Games in 1998 (Marco 2006). However, it has to be noted that this outcome could have been influenced by the IOC's vote on the host, which was held before and was unsuccessful for the Aosta Valley (Cress 1991). Other examples took place in 1993 and 1997, when voters in Innsbruck did not support bids for the Winter Games in 2002 and 2006, respectively (Maennig 2017). Chappelet (2021) additionally mentions that citizens could vote on bids for Winter Olympic Games in Tarvisio (Italy) in 1994, in Poprad-Tatry (Slovakia) in 1997, in Zakopane (Poland) in 1997, in Klagenfurt (Austria) in 1997.

In 2011, a vote was held in Garmisch-Partenkirchen regarding Munich's bid for the Winter Olympics in 2018 (Chappelet 2021). Afterwards, three candidates for the 2022 Winter Olympic Games (Graubünden in Switzerland, Munich in Germany, and Krakow in Poland) withdrew after dismissive referenda (Könecke et al. 2016; Mackay 2013; Shirinian 2014). In Krakow, this happened even though the city had already handed in its bid. Oslo (Norway) also voted on bidding for 2022 and 55.1 percent of the voters were in favour (Goddard 2013). However, the Norwegian national government eventually decided not to back the bid and it was withdrawn (Aalberg 2014).

Furthermore, Vienna (Austria) voted against hosting the 2028 Olympics (Crook 2013) and voters in Hamburg (Germany) dismissed a bid for the Games in 2024. Interestingly, Hamburg had been chosen over Berlin as National Applicant City by Germany's National Olympic Committee mainly because market research on both cities' bidding ambitions had yielded more favorable results in Hamburg (Könecke et al. 2016).

In Paris (France), Rome (Italy), and Budapest (Hungary), the city councils had decided against holding referenda on their 2024 Olympic bids even though these had been requested in Budapest and Rome (cf. Dampf 2016). In Budapest the bid was eventually dropped without a referendum after a public petition in favour of one had been signed much more often than required (Morgan 2017a; Dampf 2016). In Rome, the then newly elected mayor Virginia Raggi ended the city's bid after having voiced her strong opposition during the electoral campaign (New York Times 2016). Long before that, Boston had already dropped its bid for 2024 due to slipping political support which manifested in the 'refus[al] to cover cost overruns' (Dampf 2016). Eventually left with only two potential hosts, the IOC then decided rather spontaneously to include the Olympic Games 2028 in the bidding process

as well. Paris will now host the Games in 2024 and Los Angeles the ones in 2028 (Carroll and Melander 2017; International Olympic Committee 2017) and neither of these two very attractive potential hosts will be left empty-handed (Könecke and de Nooij 2017).

For the 2026 Winter Olympics, seven cities originally proclaimed their interest in hosting in the dialogue stage. One was dropped by the IOC due to infrastructure-related concerns (Erzurum, Turkey). Before even entering the dialogue stage, Innsbruck voted against hosting the event in 2017 (Morgan 2017b). Graz then developed an Austrian bid. However, after the communist party had collected enough signatures and the State government had approved a referendum, the bid was terminated without a referendum actually taking place (Butler 2018; Morgan 2018c). Two more dismissive referenda were held in Switzerland in Graubünden (Butler 2017) and Sion (Morgan 2018a), and another one in Canada (Calgary) (Morgan 2018b). One city (Sapporo in Japan) withdrew because of earthquake damages and planned another try for the 2030 Olympics (Morgan 2018d). In the end, again only two cities were left and the IOC choose Milan—Cortina d'Ampezzo (Italy) over Stockholm—Åre (Sweden) as host for 2026.

3.2. Olympic Referenda and Politicians' Personal Legacies

In recent years, it seems to have become even more likely that the public is asked to vote on Olympic bid, and it has become very likely that the results are against bidding for or hosting the Games. Accordingly, the question arises how this development can influence politicians' personal legacies. If a referendum is held, public figures from the sport world and beyond generally start promoting the bid, resulting in many joint appearances with local politicians. A mutual promotion strategy of political and other supporters of the bid is also likely. Thus, if a politician credibly supports the Olympic cause, personal networks within the sport world and beyond can be strengthened, regardless of the outcome of a referendum.

Particularly, if a referendum supports a bid, further legacy effects should result. For instance, the acquisition of (political and other) support becomes much easier and political opposition to the bid becomes less powerful. A favorable vote also constitutes an insurance against allegations of having taken a wrong decision when opting for the bid. Thus, a supportive referendum paves the way for strengthening the personal legacies from Olympic bidding processes depicted in Figure 1. Yet, as could be seen in the case of Oslo, a supportive referendum cannot guarantee that a bid will actually be maintained until the IOC's final vote. Accordingly, even a supportive referendum is only a momentary success that could also prove to be a burden at a later stage. In the end, the decision against staging an Olympic Games can be transferred to the voters with a referendum at one specific point in time. However, the final decision for upholding a bid and/or staging the Games remains a political choice until the very end.

Since Olympic referenda are hard to win, a referendum can also constitute a rather convenient bail out option of an Olympic bid at comparably low political cost. Moreover, they can be employed as a tool to create legacies from a bid without actual ambition to stage the event. In that sense, a referendum can be attractive if a politician would like to drop a bid but cannot withdraw his support gracefully without a very good (external) reason. Such an ambition could have numerous reasons. For instance, a bid could have been 'inherited' from a predecessor (possibly from another political party), a politician might not want to openly oppose major sport organizations' pressure to bid, or the desired personal legacy from the bidding process might already have been attained. However, due to the political commitment that has been accumulated, it can be very hard to stop policy proposals if they are somewhat advanced (Mackie and Preston 1998). In the case of an Olympic bid this could particularly be the case if popular sport organizations and their members and stakeholders have shown a high commitment to the bid and would be upset by or even fight political opposition. This means that a politician—particularly one from a party that has previously supported the bid—would risk losing considerable potential to positively activate networks and other legacies built with this group if s/he suddenly

openly opposed the bid. A failed referendum or—as Budapest or Graz have shown—even the threat of having to stage a referendum that is likely to fail can thus serve as an 'excuse' for stopping a bid without having to openly oppose it and should enable the concerned politicians to maintain (at least some of) the positive potential of the acquired legacies. This means that referenda enable politicians to end bids without openly opposing them, while still being able to create personal legacies from them.

In addition to simply influencing the legacies stemming from an Olympic bid, referenda can also create legacies of their own, which is why they are included in Figure 3 alongside the declaration of interest and the bidding process. In this context, it has to be considered that having voters decide on an Olympic bid usually is not a very risky choice for a politician if compared to other political issues. Olympic bids are highly emotional topics experiencing considerable media attention that give them an air of fundamental importance. However, they do not influence the regular life of most voters or the general political landscape too much if they are dismissed during the bidding phase. Thus, a defeat in an Olympic referendum should be considerably less harmful to a politician's career than a defeat regarding a central political topic that s/he promotes. This can be expected because the long-term effects of a failed referendum on a bid would be considerably less present than it would be the case after a failed referendum on an everyday matter. An example could be a failed referendum on increased subsidies for public transportation to prevent higher prices. Such a failed referendum would be perceivable for everybody who uses public transportation because it becomes more expensive. Many voters would be confronted with such an outcome (almost) every day.

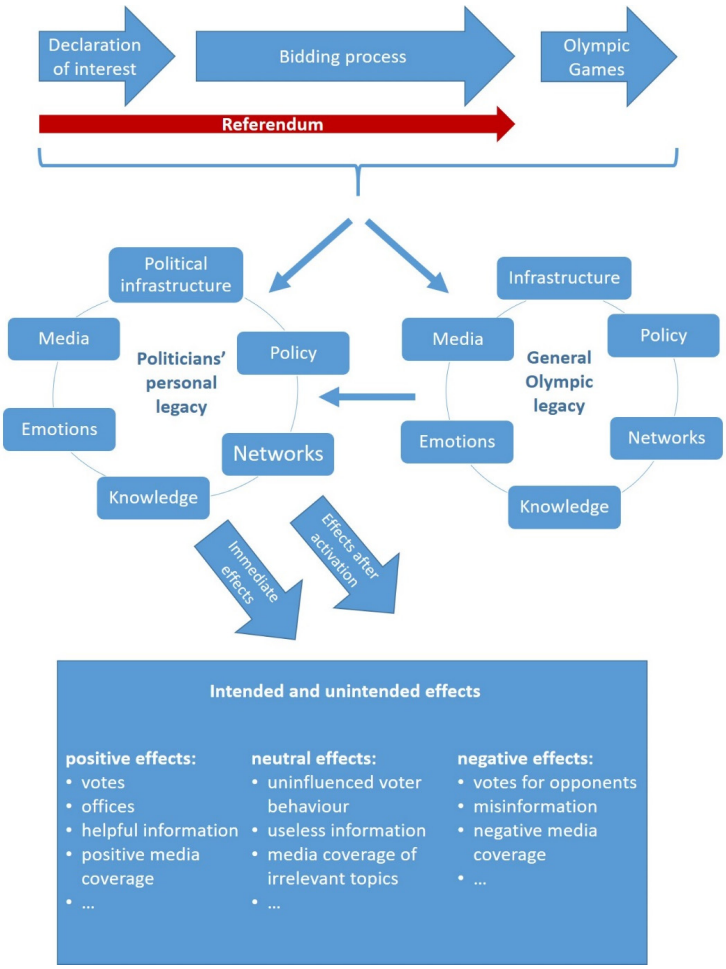

Figure 3. Sources and effects of politicians' personal legacies from Olympic bidding processes, Olympic referenda, and Games.

Vice versa, the careers of politicians opposing an Olympic bid should also not be strained too much after a successful referendum. One reason for this is that the actual effect of this outcome would only be felt much later, and nobody could tell for quite some time if it would not have actually been better to withdraw the bid until then. Moreover, opponents of a bid that have supported a referendum can claim that one of their motivations was to give the general population a voice in the process, which will generally be appreciated by many in Western democracies. This means that referenda have the potential to create legacies not only for supporters but also for opponents of Olympic bids at comparably low political costs. This aspect could be one of the explanations for the popularity this instrument has gained in democratic countries in recent years.

In terms of the overview presented in Figure 3, legacies from referenda can primarily be created in terms of emotions (it is a highly emotional topic for supporters and adversaries alike) and networks (because networks will form around those politicians who support and around those who oppose a bid). As has just been described regarding politicians who have opposed a bid, referenda on Olympic bids generally constitute an opportunity for politicians to position themselves as 'firm democrats' who ask for the voters' opinion on a—seemingly—important matter. This is particularly true in countries where referenda are not mandatory or common. In turn, if politicians deny a referendum, they run the risk of being perceived as 'undemocratic' even though this denial might be the result of the designated democratic procedure.

Due to the actually rather low importance of the matter, a referendum on an Olympic Games—especially a failed one—can also serve as a 'pressure valve'. It can give unsatisfied voter groups an opportunity to voice their dissatisfaction without severe consequences for the involved office holders. By publicly opposing an Olympic bid and/or voting against it, dissatisfied voters and/or interest groups can gain a victory of high symbolic value without greatly influencing major political decisions or political careers. Like this, another type of emotional legacy results as it can be expected that tensions with disgruntled voters should be reduced for some time. As has already explained before, this reasoning is also applicable to 'policy' because other political initiatives could profit from the focus that is put on an Olympic referendum. This is why referenda have a high potential to also create policy-legacies.

4. Discussion and Conclusions

Many politicians in Western democracies still openly advocate bidding for Olympic Games. However, large parts of the general public do not seem to support staging the event (anymore) and almost all of the rather frequent—and often non-mandatory—referenda on the matter failed. However, given that senior politicians usually are in a position to decide upon these matters, supporting such an endeavor cannot be considered a mere beginner's fault. Rather contrarily, good knowledge of and consequently rational actions within the political system are necessary for the relevant officeholders to have attained their positions. Following rational choice theory, they therefore have to weigh potential personal gains (opportunities) and costs (risks). Against this backdrop, the ambition of this paper was to show that politicians can obtain personal legacies from bidding for and hosting Olympic Games and also from related referenda regardless of the success of these endeavors. By doing so, the study has yielded contributions in three fields by (a) contributing to the research on the Olympic bidding process, (b) broadening the scientific perspective on (individual) legacies of mega sport events, and (c) providing a new perspective on Olympic referenda and their recent popularity.

The analysis started by first outlining the different personal legacies that can result from bidding for and staging Olympic Games. As could be seen, these legacies mostly fall in the 'classical' categories networks, knowledge, emotions, and (political) infrastructure. Furthermore, it was explained why media was included not only as politicians' personal legacy but also as a general legacy in Figure 1. Regarding referenda, it was shown that these have the potential to strengthen personal legacies from the bidding process and to

even create legacies themselves. Particularly emotions and policy are individual legacies that should result when referenda are conducted. For opponents of an Olympic bid, the legacy potential of referenda should be especially attractive because it enables them to strongly partake in the legacy creation of the bidding process. Without referendum, their potential to obtain personal legacies should be considerably smaller.

Like all legacies of mega sport events, personal legacies have the potential to create positive, negative, or neutral effects (Figure 3). Since legacies can be latent, personal legacies often have to be activated in order to create an effect for a politician. However, personal legacies—particularly those of political opponents—can also be leveraged to create unfavorable effects. An example is leveraging the knowledge about an opponent's involvement in an unpopular Olympic bid during an electoral campaign to discredit him/her with the voters.

Generally, many of the thoughts described in this paper should also be applicable to other mega sport events (e.g., the football World Cup or other international competitions) and their bidding processes or other types of events (e.g., large cultural and/or business events like the World Expo). This is especially so because it is not carved in stone that the public will not also be asked to vote on the football World Cup or many other (non-)sport events in the future. If this should happen, some of the aspects described in this paper could turn out to have contributed to this development. Due to this and to the outstanding worldwide attention Olympic Games create, the fact that they usually take place in only one region, and since referenda are now somewhat common in Olympic bids, this event seemed to be especially fruitful for this analysis, even though some limitations will be pointed out hereafter.

First, this study's focus is on individual politicians, which is why some relevant aspects have not been covered but should be scrutinized in the future. For example, a more detailed analysis of how other groups can partake in the legacy-potentials of the bids and the events and what this means for their assessment of incurred risks and opportunities would be informative. This is obviously relevant since—among many other types of legacy creation or activation—'[c]itizens may take the opportunity to attract the attention of a worldwide audience to their social needs, for example by holding protest marches' (Preuss 2015, p. 660).

Despite an Olympic bid's currently very slim chances of outlasting a public vote, it turned out that holding a referendum could often be a rational choice for senior politicians. This is so because such referenda should usually be considerably less risky than many other political projects. This consideration even holds true regardless of the actual preferences of the concerned politician(s) regarding the Games. It can even be more attractive for supporters of a bid to stage a referendum and lose than to uphold the bid without one. Furthermore, particularly opponents of a bid can obtain considerable personal legacies from referenda, which should be another major reason for their recent popularity. Thus, it can be expected that referenda in Olympic bidding processes will remain a common phenomenon in Western societies in the future. Considering that the latest developments in the awarding process should considerably diminish the number of bidding processes for Olympic Games in the years to come (see also further down), the assumption that referenda could also be held on other (sport) events does not seem far-fetched. Particularly not if their potential to create personal legacies for politicians (and also other groups) is taken into account.

As has become clear in this paper, it can be expected that politicians promoting a bid will usually have personal strategies for managing the risks and making use of the opportunities resulting from the possible outcomes of the bid (successful or unsuccessful referendum, bid is stopped because of political concerns, bid is eventually successful or unsuccessful). If this is initially not the case, such a strategy will certainly be developed during the process and at the latest as soon as strong opposition becomes apparent (which currently is almost certain). When considering their options for such a strategy, politicians will (have to) concern themselves with many aspects that have been discussed in this paper.

However, these aspects are not only relevant for politicians but also for a number of other actors. Clearly, sport organizations such as National Olympic Committees, also have to assess the risks and opportunities resulting from their involvement in an Olympic bid. Due to what has been addressed in this paper, it is obvious that one of the risks they have to manage is the personal strategies of the involved political actors. Depending on the organizations' main interests and aims, a number of 'counterstrategies' can be suitable to safeguard their interests to prevent that politicians are primarily interested in their own advantages or abandon the bid for their own good. For example, sport organizations might try to strengthen the personal commitment of the most relevant politicians in order to decrease these politicians' potential profits—i.e., to increase the politicians' risks—if the bid fails at an early stage. Sport organizations also will have to make staging Olympic Games and other sport events much more attractive for local stakeholders (citizens and taxpayers) (Könecke et al. 2016). The introduction of Agenda 2020 and other changes regarding the Olympic Games and the bidding process that the IOC has implemented in recent years might be steps in this direction. However, the discussions about scandals and shortcomings related to the IOC and the Olympic Games profoundly undermine these efforts. Long jail sentences for corruption linked to the Games in Rio (Savarese 2021) or the Russian doping scandal (e.g., France 24 2020) are just two exemplary issues that can be mentioned here.

The fact that—regardless of their outcome—referenda cannot only be beneficial for political supporters of a bid but also for adversaries is problematic as well. But it could potentially also be advantageous for sport organizations. This is so because potential political supporters are in the comfortable situation to be able to show initial support on the condition that a referendum is held. And also political opponents of a bid should generally look forward to a referendum and its potential to create personal legacies. This insight could be helpful when 'selling' a bid to them. But even if this could make the initiation of a bid more attractive to politicians, sport organizations still have to find good answers to the question of how to convince the public that bidding for and organizing an Olympic Games is an idea worth supporting in a referendum. This again shows that further analyses of risks and opportunities of other stakeholders involved in bidding processes for mega sport events, such as sport organizations, are a very worthy field of research.

It should also not be forgotten that many of the ideas and observations described in this paper are not only applicable to politicians on the local or regional level. They can, for instance, also be extended to national politics. Interesting examples to look at in this context could be Tony Blair (Prime Minister during the successful bid for the Olympics 2012 held in London), Luiz Inácio Lula da Silva (Brazilian president when Rio de Janeiro won the bid for the Games in 2016, who recently regained the presidency), or Emanuel Macron (French president when Paris was awarded the Games in 2024). Moreover, the ideas brought forward in this paper are also applicable to non-politicians who are linked to or involved in a bid. An example thereof are the careers of the two co-heads of the Albertville 1992 Winter Olympic Games. Michel Barnier moved on to become a member of the French cabinet less than a year after the Games and eventually became the European Union's lead negotiator with Great Britain after the Brexit vote. His co-head, Jean-Claude Killy, eventually headed the IOC's Coordination Commissions for the Winter Olympic Games in Turin (2006) and Sochi (2014) (Butler 2016b). It can be assumed that they have made use of (some of) the legacies they have acquired through their involvement in the bid and the Games to further their careers.

It is also worth noting that the IOC has reacted to some of the developments that have been scrutinized in this paper. One example are the changes in the bidding rules based on which Brisbane was announced as host city for the Olympic Games 2031 already on 21 July 2021. This was two days before the 2020 Summer Olympics and much earlier than in the past. Moreover, the decision was made much faster than in previous bidding processes (International Olympic Committee 2021). This development disappointed many other potential hosts but solved some of the problems that have been addressed in this paper. However, it also gives even more power to politicians and other interest groups in

the selected host regions as legacies can now be built over longer periods of time, which should lower the risks and increase the opportunities they incur. Moreover, it should not be forgotten that referenda still remain a threat even after the Games have been awarded. As has been shown, they can constitute a convenient bail-out option, which might have the effect that hosts refuse to stage the Games even (long) after they have been awarded to them (as it has been the case in Denver). This, again, shows that risk management regarding mega sport events will be an important topic in research and practice for some time to come.

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Note

[1] A referendum can generally be understood as a free, fair, and competitive vote (Rose 2015), which is why we use this expression to describe all types of democratic public voting procedures on Olympic bids and Olympic Games.

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Is Professional Soccer a Risk for Their "Lives Afterwards"? A Social-Sciences-Based Examination of Retired Professional Soccer Players from a Long-Term Perspective

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Abstract: Most professional soccer players' careers end before their forties. Consequently, many of them face a relatively early retirement from their profession, thus facing multifaceted changes and potential issues of adjustments in different areas of their lives. Public discussion and therein expressed concerns have led to increased attention on the topic, notably among practitioners and researchers. This study described and analyzed central retirement transition and adjustment outcomes of ex-professional soccer players from a social sciences and long-term perspective. A total of 78 ex-professionals completed the online questionnaire, most of them having played in the highest German soccer division for several years and having retired from professional soccer 10 years or more ago. Overall, 8.9% (95% CI 2.5 to 21.2; n = 45) showed signs of mental health problems. Compared to the results of a gender- and age-matched sample from the German population, retired ex-professionals were significantly more satisfied with their life and their personal income, and assessed themselves as having a higher subjective social status. Although further evidence is necessary to draw any final conclusion, our results do not point to those publicly discussed concerning central retirement transition and adjustment outcomes of (average) former professional soccer players in the long run.

Keywords: retirement; transition; soccer; football; professional sport

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1. Introduction

1.1. Problem Statement

Is professional soccer a risky or even high-risk sport? Thinking about this question, one might immediately search for injury statistics. Others might try to calculate the probability of becoming a professional soccer player, and others would think about analyzing the working conditions of professionals. This makes it clear that we can consider different kind of risks and thus answer this question from various perspectives—with the view from a typical epidemiologist, interested in injury incidence figures, as a sport psychologist, analyzing athletes' mental health, or a sports economist perhaps interested in athletes' incomes and contract durations. Due to the fact that research on the retirement of professional soccer players has increasingly narrowed down to mental health from a psychological perspective (for a systematic review see Barth et al. 2021), we decided to take a broader or more holistic social sciences perspective, including psychology, sociology, and economics.

Next to the perspective, the period of time that should be taken into consideration has to be determined. In this context, a central characteristic of a soccer player's professional career has to be considered. The time as an active professional soccer player is, on average, a short period in a person's life. Consequently, identifying potential risks and impacts of a professional soccer player's career for the post sport life from a social sciences perspective

seems to be of high relevance; for the (former) soccer players and other stakeholders (e.g., players unions, clubs) as well.

A short narrative review on retirement research in sports in general shows: Initial publications on the retirement of professional athletes—including soccer (Mihovilovic 1968)—date back to the 1960s. In the 1980s and early 1990s, a growing concern about athletes' transition out of sports was apparent in the literature. As Miller and Kerr (2002, p. 144) mentioned, "particularly among researchers who also worked in applied capacities". Since then, sports retirement has been a flourishing research field. *Theoretical concepts* on transition in general and sports retirement in particular have primarily been developed from psychological, sociological, and economical perspectives (Schlossberg 1981; Sussman 1972; in sports: Küttel 2017; Stambulova 2003; Stambulova et al. 2009, 2021; Stambulova and Ryba 2014; Taylor and Ogilvie 1994; Wylleman 2019). Today, textbooks on athlete career development and transition commonly include chapters on athletes' retirement (e.g., Alfermann and Stambulova 2007; Lavallee 2000; Petitpas et al. 2012; Wylleman 2019). Next to these theoretical considerations and discussions, *practical* programs such as ERASMUS+ B-WISER (n.d.), The World Player Devleopment, Wellbeing, Transition and Retirement Standard, Paris 2017 (2017), and other so-called "dual career" programs (Stambulova and Wylleman 2019, for a review) were introduced to support athletes during their career transitions and in their retirement from sports. This career assistance was enriched during the last decades, among others by an increasing number of different types of career assistance programs (Stambulova et al. 2021).

In a decade of proclaimed, "exponential conceptual, theoretical, methodological, and applied developments in the athlete career knowledge" (cf. Stambulova et al. 2021, p. 524), one would expect that the same is true for empirical investigations. Their imperative is clear: Theoretical concepts have to be verified and practical programs should be evidence based and evaluated. However, in the discussion of sports retirement, it has to be considered that retirement processes and their outcomes may vary by sport, performance level, and professionalization (Barth et al. 2021; for an empirical examination of this see e.g., Knights et al. 2019). Due to this necessity of limiting ourselves to a field with similar problems and similar conditions, we further focus on professional soccer players.

The current state of knowledge on professional soccer players' sport retirement transition and adjustment outcomes from social sciences perspectives, as well as on possible determinants, was recently presented by Barth et al. (2021). By systematically reviewing the available empirical research, the authors identified 17 eligible studies, with the first being published in the 1980s. Within the 14 quantitative and three qualitative or mixed-methods studies, more than 2200 retired professional soccer players were investigated. However, within the 14 quantitative studies and the quantitative part of the one mixed-methods study, only one study was classified as having a low risk of bias; nine showed a moderate risk, one a moderate to high risk, and four had a high risk of bias of reported results. Of the qualitative studies respective the qualitative part of the mixed-methods study, only one study was assessed as having a high methodological quality. Consequently, the available knowledge from empirical investigations is fraught with some uncertainty. Furthermore, the review showed the following. First, the research of professional soccer players retirement was narrowed down to mental health from a *psychological perspective*. Second, perhaps relating to the mentioned perspective, the most recent investigations seem to be concentrated on a *short period after career termination*. Third, a *comparison* of the results from ex-professional soccer players *to other relevant populations* for a better interpretation was very rarely the case. Saying that, it became clear that evidenced representative and reliable knowledge about ex-professional soccer players' educational, occupational, socio-economic, and well-being outcomes is required (Barth et al. 2021).

Therefore, the central purpose of this article is to (empirically) examine central retirement transition and adjustment outcomes of ex-professional soccer players from a social sciences perspective, with special interest in the long-term. Such a purpose requires the

determination of a problem-oriented theoretical perspective on retirement transition as well as the determination of central adjustment outcomes, i.e., concepts.

1.2. Theoretical Framework

Looking at different theoretical concepts in sports retirement research reveals that authors emphasize the process nature of transition and the necessity of applying a holistic approach (Stambulova et al. 2009; Wylleman 2019). However, to at least partly close the above-mentioned research gaps one and two, we have to shift our focus from the retirement transition phase to post-retirement. Our view on the problem is from a social sciences perspective. Therefore, the resource-based dynamic process perspective (Wang et al. 2011) is a suitable theoretical framework for our research problem at hand. Consequently, and although we used a phase-like approach to describe the research gaps, we view retirement as a longitudinal process. Such an approach relaxes the sequential assumption regarding the development stages in retirement adjustment. However, at the same time, we have to accept that retirees' well-being (or any other variables defined as outcome or resource) could fluctuate up and down at any given point of time (Wang et al. 2011).

As stated above, we were especially interested to view the problem at hand from a long-term and social sciences perspective. The distinction between retirement transition phase and post-retirement is based on retirees' actions, not on a clear time cut (for the distinction of phases see Barth et al. 2021). However, determining whether an action is to be characterized as a retirement transition action or not seems to be just as vague. The same is true for the distinction between short-term and long-term. Here, we (pragmatically) followed Barth et al. (2021) and defined short-term as a time-span between professional soccer career end and time point of survey of less than 10 years, long-term of 10 years and more. It should be added that this refers to samples' mean time spans and not individual players. None of the relevant available studies used such a criterion on an individual level, nor was the respective information available.

Following Wang and Shultz (2010) as well as Muratore and Earl (2015), we *defined (mental) wellbeing* and *life satisfaction* as central retirement transition and adjustment outcomes. Furthermore, *how well the respondents have overall managed their adjustment to the new life situation after their career as a professional soccer player and if this process is completed* seems to be of high relevance in the context. In order to meet the required social sciences perspective, variables in the context of former players' current *socioeconomic status* have to be considered.

The existing results from original empirical studies on the above-determined concepts are presented in the next section.

1.3. Literature Review

In empirical investigations on professional soccer players' retirement, *mental well-being* was commonly measured with a short version of "The 12-Item General Health Questionnaire" (GHQ-12; Goldberg and Williams 1988). Table 1 summarizes the existing empirical results on former professional soccer players' mental health (GHQ-12).

First, and most striking, all studies were classified as short-term. Second, the level for indication of signs of symptoms of anxiety/depression/mental health problems was not always the same. Therefore, results are not directly comparable with each other. Third, some of the publications had a similar focus, with data seemingly stemming from one survey (see also Barth et al. 2021). Fourth, with the exception of Kilic et al. (2017), studies reported a prevalence of symptoms of anxiety/depression/mental health problems in former professional soccer players of roughly one-third.

For *current life satisfaction*, it must be said that none of the existing empirical studies on the retirement of professional soccer players investigated the former professionals' life satisfaction at the time-point of the survey.

Table 1. Former professional soccer players' mental health (GHQ-12).

Study	N	Retirement [M (SD) in Years] [1]	Time Elapsed Since Retirement	Concept	GHQ-12 Indicator [2]	GHQ-12 M (95% CI)
Gouttebarge et al. (2015)	104	5.0 (3.0)	4.0 (3.0) years	Prevalence	2 or more out of 6	39% (30–49%) [3]
Gouttebarge et al. (2016a)	187	4.4 (3.6)	4.4 (3.6) years	Prevalence	2 or more out of 12	35.3% (28.4–42.1%)
Gouttebarge et al. (2016b)	n.a. [4]	4.4 (3.6)	4.4 (3.6) years	Prevalence	2 or more out of 12	35.3% (28.4–42.1%)
Gouttebarge et al. (2017)	220	4.0 (3.0)	4.0 (3.0) years	Prevalence	3 or higher out of 12	26% (n.a.)
Kilic et al. (2017)	n.a.	6.0 (4.4)	6.0 (4.4) years	Prevalence	2 or more out of 12	18.7% (13.8–23.5%)
Van Ramele et al. (2017)	n.a.	4.0 (3.0)	4.0 (3.0) years	12-month incidence	3 or higher out of 12	29% (21–39%)

[1] Time since retirement; [2] Indication of signs of symptoms of anxiety/depression/mental health problems; [3] GHQ-12 sub-score for anxiety/depression (6 items of the GHQ-12); [4] Information not availablee.

To the best of our knowledge, the only study investigating the *quality of adjustment after a career as a professional soccer player* was the one of Carapinheira et al. (2018). However, the authors investigated the quality of the transition process and not the outcome of the process—our central interest.

For former professional soccer players' *current socioeconomic status*, the existing empirical investigations show: In a short-term perspective, (self-) employment rates between 75% and 86% were reported for former professional players (Gouttebarge et al. 2015; Gouttebarge et al. 2017; Gouttebarge et al. 2016a; Gouttebarge et al. 2016b; assuming that 52/212, i.e., an employment rate of 25% in Van Ramele et al. 2017 is a reporting error; see Barth et al. 2021). In his early study, Houlston (1982) found that 33% of former players became initially unemployed after their career termination and 21% of them found an initial position as a coach within professional soccer. Semyonov (1986) reported that former players often became independent entrepreneurs; a field where, according to the mentioned author, education level is not a formal prerequisite. In a long-term perspective, during roughly 15 years of retirement from professional soccer, former players had 2.1 jobs, each lasting on average 7.0 years (Drawer and Fuller 2002). Of 379 former players in Curran's (2015) study, 252 (67%) stayed within soccer in different positions, including coaches, managers, scouts, agents, club administrators, and media professionals. In this context, it must be considered that this sample consisted of former players having retired from professional soccer ten years and more, but also of players who did end their career within the last ten years before the survey.

To the best of our knowledge, no study has investigated former soccer players' satisfaction with their professional career after ending their soccer career or their satisfaction with their current income. Furthermore, no results on the former players' occupational status (from a long-term perspective) or more details on their current job were reported.

Therefore, the aim of our empirical investigation was to describe central retirement transition and adjustment outcomes of ex-professional soccer players from a social sciences perspective. For a better interpretation of results, findings from ex-professionals were compared to results of a gender and age-matched random sample drawn from the German Socio-Economic Panel (SOEP), i.e., to a gender and age-matched sample from the German population. Our central interest was not on the short-term (psychological) transition-phase perspective, but on the long-term (social sciences) perspective.

2. Methods

2.1. Sampling Procedure

The survey was part of the project "Career of professional soccer players after sport: A life cycle based analysis" founded by the Deutsche Forschungsgemeinschaft (DFG). The survey was supported by the players' union VDV, the German Football Association (DFB),

and the German Football League (DFL). Our first approach was a life-cycle representation of former professionals in terms of looking at active and post-sport careers. The interviews preceding the survey indicated that active professional soccer players have little interest in participating in a post-sport career survey. Furthermore, access to professionals proved extremely difficult, as players are hermetically sealed off from the outside world, making direct access to players almost impossible or only possible through third parties. After several pre-tests and corresponding revisions, an online questionnaire in German and English was conducted. All teams of the Bundesliga (highest German league), 2. Bundesliga (second highest German league) and 3. Liga (third highest German league) were contacted by mail and twice by phone. In the course of this, a request was also made to forward the link to the questionnaire to the so-called "Traditionsmannschaften". Quite a few of the clubs contacted expressed in this context that they did not wish to participate in the study. In addition, the survey was publicized at a meeting of the Bundesliga and 2nd Bundesliga women's teams. Here, the clubs were subsequently asked to participate a second time by telephone.

As of 29 April 2020, the number of clicks was 415; 226 people had started the questionnaire. Since it was already clear at this point that an adequate sample size could not be achieved in this way, the decision was made to collect further contact data on former players via an online database. For this purpose, data on former players from the 1984/1985 to 2006/2007 seasons were collected. In total, 3221 players were involved. Possible current contact addresses were collected via internet research. In addition to e-mail addresses, players were contacted via social media channels (e.g., Instagram) (sent out: 20 August 2020). If there was no response, a reminder letter was sent. As of 2 November 2020, the click-through number was 666; 362 people had started the questionnaire. On 25 November 2020, the questionnaire was clicked for the last time. Since no further activity was recorded by the end of December, the survey was terminated on 31 December 2020.

After data cleaning, the sample consisted of 158 cases. The sample composition in terms of "soccer activity status" and gender is shown in Table 2.

Table 2. Composition of the sample (absolute frequencies).

Player Group	Male	Female	Gender Missing	Total
ACTIVE professional players with current contract	8	32	33	73
FORMER professional players WITH current contract as an amateur soccer player	3	0	0	3
FORMER professional players WITHOUT current contract as an amateur soccer player	78	1	3	82

2.2. Sample

Those active players, who did not indicate their gender mostly abandoned the questionnaire at an early stage (approximately 70% after approximately one-third of the questionnaire); for both reasons, those were not usable for the study. When these cases were disregarded, it became clear that the vast majority of responding active players were female. The picture was different for former players, with 81 people in this group being male.

The web-search for former players' addresses was conducted exclusively for male athletes. Due to the fact that male and female soccer players differ considerably in their career opportunities in soccer, a pooling of female active players and former male players would distort results. For this reason, the decision was made to limit the further analyses to former professional male players. Consequently, a life-cycle representation in terms of looking at active and post-sport careers was impossible.

For this investigation, we defined "former professional soccer player" as a male person who had a contract with a soccer club from the Bundesliga, the 2nd Bundesliga, or the 3rd Liga in Germany, or a league comparable in level in other countries. In addition, they had to have finished their career as a (professional) soccer player and not want to resume it.

This means that they had stopped playing soccer as a gainful activity, including playing in an amateur league; playing or not playing soccer as a leisure activity was not considered as a criterion in this context. Thus, the final sample consisted of 78 cases. Out of these 78 cases, 28 were filled out before the application of the second approach of data collection (via e-mail and social media channels), and 50 were filled out afterwards.

The vast majority (89.7%) of former professionals in the sample reached the highest league level (Bundesliga or comparable). Five players reported playing in the 2nd Bundesliga as their highest-reached level; three were in the 3rd league. When asked about their primary position played as a professional, players provided the following information (n = 62): goalkeeper (n = 5), defender (n = 19), midfielder (n = 23), and striker (n = 15).

The former professionals' careers lasted, on average, 11.8 (SD $\pm$ 4.4, n = 78) years, with a minimum of 2 and a maximum of 20 years. They played at their highest level for an average of 7.5 (SD $\pm$ 5.2, n = 77) years, with more than half of the sample (n = 42) reporting having played at that level for more than five years. Thirteen players reported having one or more contracts with only one club. Fifty-three had contracts with different clubs from Germany. Twelve former professionals had contracts with clubs from Germany and also with clubs from abroad.

Twenty-seven former players terminated their professional careers in the 1980s and 1990s, 32 between the years 2000 and 2009, and 16 after 2010. On average, former players ended their professional careers 17.8 (SD $\pm$ 8.4, n = 75) years ago; only 4 players ended their careers within the last five years. Overall, 82.7% of players reported ending their careers 10 years or more ago; 37.3% even 20 years or more ago. In the group of the 4 players ending their careers within the last five years, only 1 player ended his career within the last two years.

The sample thus consists of a large majority of former professionals with several years of experience in the highest divisions. The majority of the former professionals played exclusively for clubs in the German soccer leagues. In context with the above criticism of the short-term analysis carried out to date from a primarily psychological perspective, this sample can—on an individual player level—be described as "mixed" in terms of time between career termination and interview. The small number of cases prevents a differentiated multivariate analysis in this respect. However, and this is striking, roughly 80% of the players in the sample ended their careers 10 or more years ago. With an average of 17.8 (SD $\pm$ 8.4, n = 75) years between players' careers ending and the time point of the survey, the sample can be described as "long-term" in accordance with the above stated criteria.

For a better interpretation of results, results from the variables current life satisfaction and satisfaction with current income from this sample were compared to a gender and age-matched random sample drawn from the German Socio-Economic Panel (SOEP), version 36, 2019 (hereinafter: SOEP.v36.sample). For building this comparison sample, the procedure was as follows. We restricted this data set to male subjects and drew a sample of 10 times the sample size (n = 780) in relation to the birth cohorts. In this context, we want to state that 11 players did not specify their age. The others were born between 1954 and 1989. The matching was planned to include further variables, especially the players' parental socioeconomic background. However, due to missing values in the respective variables we had to abandon these planned matching procedures.

In addition to objective measures of socioeconomic status and current occupational situation of former players, the survey assessed subjective social status using the German version of the MacArthur Scale (Hoebel et al. 2015). For comparison, we used the 2018 wave of the Socio-Economic Panel Innovation Sample (SOEP-IS; n = 1720). A matching procedure comparable to the above was not possible due to a lack of corresponding variables in the SOEP-IS sample.

2.3. Instrument and Central Measures

As stated above, our central variables/constructs were: (1) mental wellbeing, (2) life satisfaction, (3) how well the respondents have overall managed their adjustment to the new life situation after their career as a professional soccer player and if this process is completed, and (4) the socioeconomic status. Their operationalization and measurement are described in the following.

(1) *Mental wellbeing* was measured by GHQ-12 (Goldberg and Williams 1988). This test was applied not only because it is regarded as one of the most appropriate for use in mental health surveys (Alaminos-Torres et al. 2021), but also because it was already used in professional soccer players retirement research (see Table 1). The GHQ-12 comprises 12 items. Each item was scored on a Likert-type rating scale (0-1-2-3). For our further analyses we converted the Likert-type ratings into a dichotomous score (0-0-1-1), i.e., the traditional way of analyzing these data. The sum score of these converted items can thus range between 0 and 12 points, where the higher the score, the greater the psychological distress. No established cut-off points for the GHQ-12 exist. However, when applied to professional soccer players' retirement research, different investigators used different cut-off values (some used a score of 2, others used a score of 3) to detect signs of mental health problems (see Table 1). We used a score of at least 3 but will also additionally provide the results if the threshold of 2 would have been primarily used. Furthermore, a sub-score for anxiety/depression was calculated summing up 6 dichotomous items of the GHQ-12 (cf. Gouttebarge et al. 2015). Following Gouttebarge et al. (2015), a score of 2 or more indicates signs of anxiety/depression.

(2) The second retirement transition and adjustment outcome was *current life satisfaction*, which was operationalized via a single question: "How satisfied are you with your life, all things considered?" (0, "completely dissatisfied" to 10, "completely satisfied"). This question was chosen to establish comparability of the samples' results to the SOEP.v36.sample results.

(3) Respondents were asked how well or badly they have overall managed the adjustment to the new life situation after their career as a professional soccer player (*quality of adjustment after a career as professional soccer player*; 5-point Likert-type rating scale, from very badly to very well). In this context we also asked the former players if they feel that the adaptation to the new life situation after their career as a professional soccer player is completed (4-point Likert-type rating scale: yes, rather yes, rather no, no). Both questions were based on the survey of Küttel (2017).

(4) Preliminary interviews in the pilot phase of this study showed that, especially for active professional soccer players and for former players as well, direct data on their consumption and saving behavior as well as questions on the current income represent quite sensitive data. Therefore, we primarily used subjective measures for assessing the ex-player's *socioeconomic status*. We first asked players to self-assess their subjective social status. The operationalization was done by application of the German version of the MacArthur Scale of Subjective Social Status (ladder with 10 rungs from rung 1, people who are the worst off, those who have the least money, least education, and worst jobs or no job to rung 10—at the top of the ladder—people who are the best off, those who have the most money, most education, and best jobs; Hoebel et al. 2015). Furthermore, we asked the respondents about the satisfaction with their current personal income (0, "not at all satisfied" to 10, "extremely satisfied"). For assessment of the satisfaction of former players with their current professional career, we applied the Greenhaus Scale. To produce a total career satisfaction score, we averaged the responses on the five items (each a 5-point Likert-type rating scale from "strongly agree" to "strongly disagree") according to Greenhaus et al. (1990). Finally, we asked the respondents about their current occupational status in their current main job.

2.4. Data Analyses

The 95% CIs were used to (approximately) detect statistical significance. For calculating 95% binomial confidence intervals (CIs), we used the Clopper–Pearson method. All data analyses and statistical testing was done in IBM SPSS, version 26.

3. Results

The empirical results will be presented in the following order: (1) results on how well the respondents think they have managed their *adjustment to the new life situation after their career as a professional soccer player overall* and if this process is complete for them; (2) ex-soccer players' *mental wellbeing* (GHQ-12) and results on the respective sub-score for anxiety/depression; (3) former professionals' current *life satisfaction*; (4) ex-players' current *socioeconomic status*.

The vast majority (83.3%; n = 78) answered that they feel their adjustment to the new life situation after their career as a professional soccer player has been completed (yes). An additional 6.4% (n = 5) answered "rather yes". Only one person answered no and four answered rather no. Two people chose the category "don't know", and one person did not answer at all. When asked how well or badly they had overall managed the adjustment to the new life situation after their career as a professional soccer player, nearly 90% answered good (34.6%) or very good (55.1%). No person answered very bad, and only one ex-soccer professional answered bad.

Forty-five respondents answered every of the GHQ-12-questions and could thus be used for the respective analyses. Using the threshold of 3 (and more), less than 10% (8.9%, 95% CI 2.5 to 21.2) showed signs of mental health problems. If we would have used the threshold of 2, the respective percentage would be 15.6% (95% CI 6.5 to 29.5). For the sub-score for anxiety/depression, the result was 10.2% (95% CI 3.4 to 22.2).

The results showed that ex-soccer professionals (M = 8.2, 95% CI 7.9 to 8.5, n = 42) had a statistically significant higher life satisfaction compared to the (gender- and age-matched) German population (M = 7.5, 95% CI 7.4 to 7.6, n = 780).

Socio economic status: Ex-soccer professionals (M = 7.4, 95% CI 7.2 to 7.7, n = 60) viewed themselves as standing on a higher rung compared to the results from German residents (M = 5.6, 95% CI 5.6 to 5.7, n = 1720). Furthermore, former players were more satisfied with their current personal income (M = 8.0, 95% CI 7.5 to 8.5, n = 57) compared to the (gender- and age-matched) German population (M = 6.8, 95% CI 6.6 to 7.0, n = 780). The total career satisfaction score was M = 4.1 (95% CI 3.9 to 4.2, n = 58). Table 3 shows that 71.7% to 85.0% either agreed to some extent or strongly agreed when they were asked if they were satisfied with different aspects of their current professional career.

Table 3. Ex-soccer professionals' satisfaction with their current professional career (n = 59–60).

I Am Satisfied with...	Strongly Disagree	Disagree to Some Extent	Neither Agree Nor Disagree	Agree to Some Extent	Strongly Agree
... the success I have achieved in my current professional career.	0.0%	1.7%	13.3%	40.0%	45.0%
... the progress I have made toward meeting my overall career goals in my current professional career.	0.0%	6.8%	13.6%	35.6%	44.1%
... the progress I have made toward meeting my goals for income in my current professional career.	0.0%	5.0%	23.3%	45.0%	26.7%
... the progress I have made toward meeting my goals for advancement in my current professional career.	0.0%	5.1%	18.6%	49.2%	27.1%
... the progress I have made toward meeting my goals for the development of new skills in my current professional career.	0.0%	5.0%	18.3%	53.3%	23.3%

Overall, 93.7% (95% CI 84.5 to 98.2) of all former players answering (n = 63; missing n = 15) stated that they were employed full-time at the time of the survey; two were part-time and two were marginally employed. None of the former players indicated that they

were unemployed. Compared to the results in the (gender- and age-matched) German population: here we found that 19.4% were unemployed (95% CI 16.6 to 22.3).

We further analyzed the occupational status of ex-soccer professionals' current main jobs: 38.1% (95% CI 26.1 to 51.2; n = 63) stated that they were self-employed. We found that 54.2% (from n = 59) of ex-soccer professionals indicated that their current main job is related to soccer (e.g., coach, club management). We then compared the group of self-employed and non-self-employed and whether their jobs were related to soccer. This revealed an interesting result: three-quarters of ex-soccer professionals working as non-self-employed worked in a field related to soccer. Interestingly, in the context of being self-employed, the opposite applies; the vast majority (78.3%) stated that their job was not related to soccer.

4. Discussion and Conclusions

This paper aimed to describe central retirement transition and adjustment outcomes of ex-professional soccer players from a social sciences perspective, including psychology, sociology, and economics.

With soccer players having, on average, retired from their professional careersl 17.8 (SD $\pm$ 8.4, n = 75) years ago, this study was the first to investigate the former players' *mental well-being* by application of the GHQ-12 under a long-term perspective. Because of our approach of using a threshold score of 3 to detect signs of mental health problems, our results are directly comparable to those of Van Ramele et al. (2017) and Gouttebarge et al. (2017). The detected prevalence of mental health problems in our results (10.2% with 95% CI 3.4% to 22.2%) were descriptively below the two mentioned studies. If we had applied 2 for the indication of signs of mental health problems, our result would be 15.6% (95% CI 6.5% to 29.5%). Only one study existed with which we could compare our results of the subscore of the GHQ-12 for anxiety/depression. We found a prevalence of anxiety/depression in ex-soccer professionals that was statistically significant below the prevalence found by Gouttebarge et al. (2015). In a more general interpretation, it could be said that the prevalence of signs of mental health problems in the population of ex-professional soccer players under a long-term perspective was not statistically significant, but remarkable below the existing—based on a short-term perspective—results.

Interestingly, none of the existing empirical studies on professional soccer players' retirement investigated the former professionals' *life satisfaction* at the time-point of the survey. It could be shown that ex-soccer professionals had a higher life satisfaction compared to the results of a gender- and age-matched sample from the German population. Before the background of the long-term view, it seems unsurprising that the vast majority of subjects stated that they felt their *adaptation to the new life situation after their career as a professional soccer player* was completed. Furthermore, nearly 90% answered they managed their adjustment to the new life situation after their career as a professional soccer player very well or well.

Due to our interview results mentioned above, we primarily used subjective measures for assessing the ex-players' *socioeconomic status*. Ex-soccer professionals assessed themselves as having a higher subjective social status than the average German population. Moreover, they were, on average, more satisfied with their current personal income compared to the results of a gender- and age-matched sample from the German population.

The total current professional career satisfaction score was 4.1 (95% CI 3.9 to 4.2). Thus, it seems to be justified to say that ex-soccer professionals were satisfied with their current professional career. None of the former professionals indicated that they were unemployed at the time of the survey. With more than a third, the proportion of self-employed persons was relatively high under former soccer professionals compared to the German average, with 9.4% in 2018 (Statistisches Bundesamt 2019). A relatively high proportion of self-employment under former professional soccer players was already reported by Semyonov (1986). Surprisingly, three-quarters of employed ex-soccer professionals' jobs were related to soccer, whereas nearly exactly the contrary was true for the self-employees, with 21.7%, not even a quarter, indicating that their job/business was related to soccer.

Taken together, the results seem—in the mean—to be quite "positive" compared to what seems to be known in the context of professional soccer players' retirement. Thus, the question arises as to how these results can be explained.

Some reasons might be found in this study's limitations. The central limitations are, first, not being able to generate a representative sample. Although we were kindly supported by the Players' Union VDV, the DFB and the DFL, we contacted every club twice, and then additionally used a second approach for collecting data, even though the number of clicks stayed far behind our expectations. Furthermore, we were not able to get some central information on the population. Our second approach to collecting (more) data may have caused a selection bias. Additionally, a self-selection bias might have taken place through which former professionals might have decided to not take part in the survey or to not answer certain question. Thus, we have to stand back from saying that our results were representative for (German) ex-soccer professionals. The small samples size hindered further, more differentiated analyses. However, we were able to generate a unique sample of ex-professionals who played in the best soccer leagues in the world and, on average, retired a long time ago. Second, the measurement of the variables and its central consequences: Although variables/constructs were named retirement transition and adjustment outcomes, the interpretation must not be in a causal manner, i.e., we do not state that any results are caused by the retirement from soccer. The different variables were only measured at one point in time. However, before the background of the resource-based dynamic process perspective (Wang et al. 2011), we have to accept that retirees' well-being (or any other variables defined as outcome or resource) could fluctuate up and down at any given point of time (Wang et al. 2011). In this context, it should be added that the vast majority answered that they feel their adjustment to the new life situation after their career as a professional soccer player has been completed. Due to our interview results in the pilot phase of this study, we applied subjective measures for assessing the socio-economic status. Additionally, ex-soccer professionals self-assessed their mental well-being and were not clinically tested.

Next to the limitations of the study, we can see an additional approach to explaining the seemingly "positive" results. The systematic review by Barth et al. (2021) clearly showed that for former professional soccer players, empirical knowledge on long-term central retirement transition and adjustment outcomes from a social sciences perspective is missing. Most existing information in this context seems to be anecdotal information. We all know cases of so-called "problematic" sport retirements from media reports. However, how many cases are too many? Is a "good" mean value "good enough"? This is a normative discussion which is to be held by the sport representatives. Regardless of the outcome of this discussion, for any investment in sport transition and retirement programs, we think it is important to know the prevalence of concerning central retirement transition and adjustment outcomes. These probabilities could also help athletes to make more informed choices about aspiring or not a career as a professional soccer player, i.e., answering for themselves the question of whether or not being a professional soccer player is too high a risk for their later life.

Comparable to Barth et al. (2021), we can now advise that we urgently need evidenced representative and reliable knowledge about central retirement transition and adjustment outcomes of ex-professional soccer players from a social sciences and long-term perspective. However, we doubt that such a project could be realized by any other research group. Therefore, we suggest the following for future research. First, it would be interesting to investigate why retirement from sports already seems to be considered problematic in advance—especially before the background that the justification for several "post-sport career programs" is to be found in the believed negative occupational and socio-economic situation of former sports professionals; things which seem to be best evaluated in the long-term and not in the short-term. Second, to investigate this problem with qualitative approaches such as biographic mapping, especially with the aim to identify patterns ending up in a problematic situation. Third, by application of a dynamic perspective, it

would be interesting to measure the outcomes not once but several times to get a better understanding of the process as such. In this context, the question arises—if time-dependent and intertemporal patterns can be identified.

Based on the currently existing empirical evidence and our results, we think it is justified to conclude that we have, on average, no indication for concerning central retirement transition and adjustment outcomes of ex-professional soccer players in the long run from a social sciences perspective. On the contrary, these first results indicate that ex-professional soccer players' life satisfaction and (subjective) socioeconomic status is above the population's average. It should be emphasized that this quantitative view is oriented towards the average; it does not say that no problematic progressions on individual levels exist.

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