

Recruitment and Retention of Referees in Nonprofit Sport Organizations: The Trickle-Down Effect of Role Models

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Abstract The recruitment and retention of voluntary referees is challenging for nonprofit sport organizations. This study examines the trickle-down effect of role models on the retention of already active referees and the recruitment of new referees in German football (soccer). Secondary panel data on the number of referees and role models (i.e., referees promoted to the status of a Bundesliga or FIFA referee) were collected for the 21 regional football associations. The regression results show that the presence of role models has a statistically significant and positive effect on the number of existing referees. The number of new referees is positively affected by referees who were promoted to the status of a first Bundesliga referee, but not by those promoted to the status of a FIFA referee. The findings suggest that nonprofit sport organizations should capitalize on the effect of role models to a greater extent.

Résumé Le recrutement et la fidélisation des arbitres bénévoles est difficile pour les organisations sportives à but non lucratif. Cette étude examine l'effet de retombée des exemples à suivre en matière de fidélisation des arbitres déjà actifs et le recrutement de nouveaux arbitres dans le football allemand. Les données d'un panel secondaires sur le nombre d'arbitres et d'exemples (les arbitres promus au statut d'arbitre de Bundesliga ou de la FIFA) ont été collectées pour 21 associations régionales de football. Les résultats de la régression montrent que la présence de

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modèles a un effet statistiquement significatif et positif sur le nombre d'arbitres existants. Le nombre de nouveaux arbitres est influencé positivement par les arbitres qui ont été promus au statut d'arbitre de Bundesliga, mais pas par ceux qui sont promus au statut d'arbitre FIFA. Les résultats démontrent que les organisations sportives à but non lucratif devraient tirer profit de l'effet des modèles dans une plus large mesure.

Zusammenfassung Die Gewinnung und Bindung von ehrenamtlichen Schiedsrichtern stellt für Non-Profit-Organisationen im Sport eine besondere Herausforderung dar. Diese Studie untersucht den Trickle-Down-Effekt von Vorbildern auf die Bindung bereits aktiver Schiedsrichter und die Anwerbung neuer Schiedsrichter im deutschen Fußball. Es wurden sekundäre Paneldaten zur Anzahl der Schiedsrichter und Vorbilder (d. h. Schiedsrichter, die in den Status eines Bundesliga- oder FIFA-Schiedsrichters befördert wurden) der 21 regionalen Fußballvereine gesammelt. Die Regressionsergebnisse machen deutlich, dass das Vorhandensein von Vorbildern einen statistisch signifikanten und positiven Effekt auf die Anzahl der vorhandenen Schiedsrichter hat. Schiedsrichter, die in den Status eines 1. Bundesliga-Schiedsrichters befördert wurden, wirkten sich positiv auf die Zahl neuer Schiedsrichter aus; nicht jedoch die Schiedsrichter, die zu FIFA-Schiedsrichtern befördert wurden. Die Ergebnisse weisen darauf hin, dass Non-Profit-Organisationen vermehrt auf den Effekt von Vorbildern bauen sollten.

Resumen El reclutamiento y retención de árbitros voluntarios es un desafío para las organizaciones deportivas sin ánimo de lucro. El presente estudio examina el efecto goteo de modelos de rol en la retención de árbitros ya activos y el reclutamiento de nuevos árbitros en el fútbol alemán. Se recopilan datos secundarios de panel sobre el número de árbitros y modelos de rol (es decir, árbitros promovidos al estatus de un árbitro de la FIFA o de la Bundesliga) para las 21 asociaciones regionales de fútbol. Los resultados de regresión muestran que la presencia de modelos de rol tiene estadísticamente efecto positivo y significativo sobre el número de árbitros existentes. El número de nuevos árbitros se ve afectado de manera positiva por los árbitros que fueron promovidos al estatus de árbitro de la primera Bundesliga, pero no por aquellos promovidos al estatus de árbitro de la FIFA. Los hallazgos sugieren que las organizaciones deportivas sin ánimo de lucro deben capitalizar el efecto de los modelos de rol en mayor medida.

Keywords Volunteer · Referee · Trickle-down effect · Demonstration effect · Role model · Nonprofit sport club · Football

Introduction

Nonprofit sport clubs play an important role within the nonprofit sector and draw a large number of volunteers. For example, in Canada, sport and recreation organizations representing the most prevalent type of nonprofit organization and 21 % of all volunteering hours are performed within these organizations (Gumulka

et al. 2005). In the European Union, the sport sector draws the largest number of volunteers too (GHK Consulting 2010). Moreover, in Germany, the by far largest share of volunteers is active in nonprofit sport clubs (Gensicke et al. 2005). Breuer and Feiler (2015) estimated that 8.6 million people are engaged as volunteers in German nonprofit sport clubs.

These large numbers notwithstanding, previous research indicates that human resources such as volunteers are perceived as rather scarce by nonprofit organizations in general (e.g., Hall et al. 2003) and nonprofit organizations in sport in particular [e.g., Gumulka et al. 2005; Lasby and Sperling 2007; Sport and Recreation Alliance (SARC) 2013; Wicker and Breuer 2011]. For example, the recruitment and retention of volunteers such as board members, coaches, and judges or referees were found to be the main problems of nonprofit sport clubs in Germany (Breuer and Feiler 2015). Similarly, sport and recreation organizations in Canada face challenges in recruiting the type of volunteer they need (Lasby and Sperling 2007). Consequently, several studies examined the factors facilitating volunteering (e.g., Schlesinger and Nagel 2013; Hallmann 2015) and ways to improve the recruitment and retention of volunteers (e.g., Kristiansen et al. 2015; Schlesinger et al. 2015).

While the recruitment and retention of volunteers in general, and specifically of board members and coaches, has already been intensively investigated in previous research (e.g., Schlesinger and Nagel 2013; Schlesinger et al. 2015; Wicker and Breuer 2013), the recruitment and retention of referees has been largely neglected with a few exceptions (Cuskelly and Hoye 2004). Studies examining referees in sport mainly looked at expertise development (e.g., Ollis et al. 2006), decision-making (e.g., Mallo et al. 2012), referee bias (e.g., Buraimo et al. 2010), stress, burnout, and retirement intentions (e.g., Taylor et al. 1990), as well as cognitive and physical requirements (e.g., Helsen and Bultynck 2004).

The scarcity of research regarding the recruitment and retention of referees is surprising since it represents one of the major problems of nonprofit sport clubs across countries (Breuer and Feiler 2015; Cuskelly and Hoye 2004; Lamprecht et al. 2012). The reasons for this problem are manifold, including the scarcity of resources and facilities available for referees, the lack of qualified coordinators, and significant deficits in the training provided for referees (Cuskelly and Hoye 2004). The quantity and quality of referees is important to the organization and functioning of sporting competitions in every sport system. Thus, sport governing bodies have looked at ways on how to increase the pool of qualified referees. For example, sport governing bodies across sports have developed strategies to assist in recruiting, educating, and retaining referees [American Youth Soccer Organization (AYSO) 2010; International Basketball Federation (FIBA) 2013; National Association of Sports Officials (NASO) 2001].

These strategies are often based on the motives to become a referee, such as financial rewards, power, reaching, and/or maintaining a certain fitness level, and a desire to give back to the sport (FIBA 2013). Another potential reason for becoming a referee which—to the best knowledge of the authors—has not yet been considered in previous research is the inspiration by role models. A few studies have already looked at the trickle-down effect of role models (e.g., Mutter and Pawlowski 2014;

Weimar et al. 2015), but only in the context of *star athletes* as role models and not in the context of referees.

The purpose of this study is to investigate the effect of role models on the recruitment and retention of referees. The research context for this study is German amateur football (soccer). The present analysis is relevant in this context because the recruitment and retention of voluntary referees has been found to be the second most important problem of amateur football clubs in Germany (Breuer and Feiler 2013). The concept of the trickle-down effect and the idea of role models are not limited to athletes, but can also be applied to referees. For the empirical analysis, a balanced panel dataset with information on the number of existing referees and applicants for referee training courses covering ten consecutive years (2005–2014) and 21 regional football associations is used. The results of panel regression models show that role models (i.e., referees who were promoted to a higher status) significantly affect the retention of already active as well as the recruitment of new referees. Thus, this study contributes to the body of research on the trickle-down effect and on volunteering in nonprofit organizations.

Theoretical Framework and Literature Review

The Pyramid of the Sport System

Being aware of the structure of the sport system is a requirement to understand the trickle-down effect. In many Western countries, the sport system has the structure of a pyramid (Eady 1993). A few elite sport organizations and athletes represent the top of the pyramid, while many grassroots and amateur sport organizations and athletes can be found at the bottom of the pyramid. Thus, the local nonprofit sport clubs providing sport programs to their members represent the basis of many sport systems. For example, the recent annual statistics of the German Olympic Sports Confederation (DOSB) show that Germany is home to 90,802 nonprofit sport clubs including 27.775 million memberships (DOSB 2015). Given the German population of approximately 80 million, it seems that one out of three German citizens is a member of a sport club (although people who are members of more than one sport club are counted more than once in these statistics). The figures for football clubs also support their importance: Germany counts 25,513 football clubs including 6.85 million memberships (DOSB 2015).

The general idea of the sport pyramid is that both levels nurture each other (Sotiriadou et al. 2008). For example, it is assumed that out of the large pool of grassroots participants, a few elite athletes will emerge who eventually make their way to the top of the pyramid and represent their nation in international competitions. The transition from grassroots sport to elite sport is referred to as the *trickle-up* effect. Relevant to the present research is the movement in the opposite direction, i.e., the *trickle-down* effect. In short, this effect assumes that elite sport has an inspirational function which leads to a growing participant base at the grassroots level. This effect does not only apply to athletes, but also to referees.

The Trickle-Down Effect

The trickle-down effect, also referred to as demonstration effect (Weed 2009) or Boris Becker effect (van Bottenburg 2001), assumes that “people are inspired by elite sport, sports people or sports events to participate themselves” (Weed 2009, p. 4). Thus, it consists of three facets—sporting success, elite athletes as role models, and hosting sport events. Importantly, two types of effects can be distinguished when elaborating on the trickle-down effect—an inspirational and a motivational effect. The inspirational effect refers to individuals starting an activity, while the motivational effect means that already active individuals increase their participation frequency or change the type of activity or position. Altogether, many studies had difficulties in providing empirical evidence for the existence of a trickle-down effect (e.g., Feddersen et al. 2009; Veal et al. 2012).

The Concept of Role Models and Role Model Research

The definitions of the concept of role models advanced in previous research (e.g., Gibson 2003; Lockwood 2006) indicate that role models have at least three characteristics: outstanding performance, being worthy of imitation, and similarity. Before explaining these characteristics, it must be mentioned that there is also the possibility that referees receive less appreciation for the job they are doing. Referees can also have conflicts with other stakeholders (fans, players, coaches, managers etc.) that may lead to burnout and turnover of referees (Taylor et al. 1990). Yet, the focus of this research is on the potential of referees representing (positive or negative) role models.

First, the aspect of *outstanding performance* is included in several definitions of role models. For example, Lockwood and Kunda (1997) as well as Lockwood et al. (2002) stressed the importance of outstanding achievement and success, respectively, when conceptualizing role models. According to Lockwood and Kunda (1997), a role model is “someone who is outstanding in a domain that one cares deeply about” (p. 93). Lockwood (2006, p. 36) defines role models as “individuals who provide an example of the kind of success that one may achieve, and often also provide a template of the behaviors that are needed to achieve success.” These definitions highlight that role models are characterized by outstanding achievement and success, respectively. However, further aspects are needed to characterize role models since not all successful people are automatically considered role models.

Second, most definitions of role models stress that role models are people who are perceived as being *worthy of imitation*. For example, Pleiss and Feldhusen (1995, p. 163) conceptualized role models as “adults who are worthy of imitation in some areas of life.” Being worthy of imitation implies that role models should exhibit good character and virtue, although some role models also appear in the headlines of the media showcasing recklessness and bad character (Jones 2011).

Third, the perceived degree of *similarity* between the individual and the role model also affects changes in behavior. For example, Gibson (2003), defined role models as “person(s) an individual perceives to be similar to some extent, and because of that similarity, the individual desires to emulate (or specifically avoid)

aspects of that person's attributes or behaviors" (p. 592). Following Basow and Howe (1980), a role model is "someone whose life and activities influenced the respondent in specific life decisions" (Basow and Howe 1980, p. 559).

This conceptualization can also be applied to referees: referees can also be considered successful when they are, for example, selected to umpire important Bundesliga, Champions League, or World Cup games. Moreover, similarities in the form of age, gender, refereeing style etc. could also be acknowledged by observing individuals who may, therefore, consider referees as being worthy of imitation. These individuals may then change their behavior in the sense that they want to become a referee too and enroll in specific training courses. While the presence of role models may inspire people to become referees (recruitment), they may also motivate active referees to continue their activities (retention). These aspects are covered in the two main hypotheses:

H1 The higher the number of role models, the higher the number of new referees.

H2 The higher the number of role models, the higher the number of already active referees.

Previous role model research focused on the choice of role models (e.g., Basow and Howe 1980; Biskup and Pfister 1999; Lockwood 2006). Only a few studies empirically examined the impact of role models on individual behavior. For example, the study by Mutter and Pawlowski (2014) investigated the motivational effect of successes of the German national teams in football on amateur sport participation. Their results showed that individuals who followed the national teams in the media and who perceived their success as relevant were more likely to increase their participation frequency. Weimar et al. (2015) examined the inspirational effect of role models on male club memberships. Their results showed that role models only have a significant positive effect on the number of junior memberships (up to 18 years).

Two reviews summarized the trickle-down effect of role models (Lyle 2009; Payne et al. 2003), although the reviewed studies investigated the effect of sporting success and hosting sport events. Payne et al. (2003) stated that there was little academic evidence to support the causal link between role models and sport participation. Lyle (2009) stressed the need for more methodologically adequate studies, arguing that the inspirational effect of role models has not yet been documented convincingly, because the "research approaches have not been sophisticated enough to tease out the complex proof of any causal links" (Lyle 2009, p. 3).

Shortcomings of Previous Research and This Study's Contribution

Previous studies have mainly analyzed the trickle-down effect of sporting success (e.g., Feddersen et al. 2009; Hanstad and Skille 2010) and hosting sport events (e.g., Frawley and Cush 2011; Misener et al. 2015; Veal et al. 2012). Only a few studies examined the trickle-down effect of role models in sport (Mutter and Pawlowski 2014; Weimar et al. 2015). It is likely that sporting success and hosting major events

were preferred in previous research because they are easier to operationalize than the concept of a role model. The focus of this study is on the second facet of the trickle-down effect (i.e., role models). Yet, and contrary to previous research (Mutter and Pawlowski 2014; Weimar et al. 2015), it does not examine the trickle-down effect of athletes. The theoretical contribution of this research is the extension of the trickle-down effect to sports officials by applying the concept of role models and the trickle-down effect to referees. In doing so, this study also contributes to the broader volunteering literature by examining the determinants of volunteering through a different lens (i.e., trickle-down effect and role models) and in a different context (i.e., refereeing).

From a methodological viewpoint, one of the main challenges of trickle-down research is the isolation of the effect because the decision to volunteer depends on a variety of factors such as time, income, and age. (Wicker and Hallmann 2013). In an effort to isolate the trickle-down effect, adequate data and methods are required (Weimar et al. 2015) which have not been available in most previous studies. Ideally, secondary data are needed to allow an objective analysis of the effect because it is unlikely that people are able to identify or remember the exact reason why they started to participate. Therefore, the results of studies relying on primary data should be treated with caution (e.g., Mutter and Pawlowski 2014; Ramchandani and Coleman 2012).

However, longitudinal data should be preferred over cross-sectional data because they allow examining changes in behavior between different points in time, e.g., before and after a sport event. Third, adequate statistical methods such as multivariate regression models are needed that allow an isolation of the effect (Mutter and Pawlowski 2014; Weimar et al. 2015). Therefore, descriptive analyses (Veal et al. 2012) and bivariate correlations (e.g., De Bosscher et al. 2013) are less suitable for this kind of research endeavor. This study attempts to contribute to the body of research by providing empirical evidence of the trickle-down effect using secondary panel data.

Methods

Research Context: Referees in German Football

Following the German Football Association (DFB)—the national governing body for football in the country—the minimum age for enrolling into referee training courses is 12 years; yet, some regional football associations require that applicants are at least 14 years old. Applicants must be a member of a football club, interested in football, willing to referee at least 20 games per year, and participate in further referee training courses another 8–12 days per year. Depending on the regional football association, the initial referee education lasts between 20 and 50 teaching hours which are held during a 1- to 6-week-period. The final examination includes a written test and a physical test (DFB 2015b).

The German Football Association advertises the advantages or incentives for referees as follows: the referees' equipment (e.g., shirts, shorts, football socks) will

be provided and the travel costs to games will be reimbursed. Moreover, referees receive an allowance for each game they referee depending on the league level. Interestingly, the referee license guarantees free access to all games of the German Football Association—with some restrictions for games of the first and second Bundesliga division (DFB 2015a).

The regional football associations have certain regulations regarding the number of referees each football club has to provide to ensure the functioning of football competitions, the penalties for not meeting the required number, and the financial compensation of referees (Table 1). The required number slightly varies between the regional associations and depends in some associations on the league level of the first senior team of the respective football club. There is considerable variation in the penalties when a football club does not meet the required number of referees: while some regional associations provide fewer subsidies to these clubs, others impose a financial penalty the amount of which depends on the league level of the clubs' first senior team, and still others even fail to specify the concrete penalty in their by-laws. Moreover, the financial compensation of the referees slightly varies between the regional associations and depends on the league level. To provide an example, Table 1 reports the compensation for three league levels: Kreisliga (local league; low level), Bezirksliga (more regional; slightly higher level), and Oberliga (5th tier of German football). The information in Table 1 was obtained from the websites of the regional football associations which provided the most recent version of their by-laws (at the time of writing, the most recent version was published sometime between 2012 and 2016).

Data Collection and Variables

Secondary data were collected for the empirical analysis. Table 2 provides an overview of the variables used in this study. The two outcome variables are the number of already active referees and the number of new referees in the regional football associations. While the former refers to the retention of referees, the latter captures recruitment. New referees are those who enroll in referee training courses and receive a refereeing license afterward. The German Football Association has 21 regional associations which differ in terms of geographical size and membership, respectively. To control for size differences, the number of already active referees and the number of new referees are divided by the number of total members (in thousands) in the regional associations. Thus, the variables *Referees* and *New Referees* reflect the number of already active referees and new referees, respectively, divided by 1000 members. The scatterplot of *Referees* and *New Referees* (Fig. 1) visualizes that the two variables are highly correlated ($r = 0.86$) indicating path dependency: regional football associations that already have many referees are more likely to recruit new referees.

Four variables are used to measure the presence of role models. Since outstanding performance is crucial in the definition of role models (e.g., Lockwood 2006; Lockwood and Kunda 1997), it is used to measure the presence of role models. In football refereeing, outstanding performance leads to the promotion of a referee [DFB 2015b; Fußball-Verband Mittelrhein (FVM) 2015]. The performance

Table 1 Overview of required numbers, penalties, and financial compensation of referees by regional football association

Regional football association	Number of referees a club has to provide	Penalty for not meeting the required number of referees	Financial compensation of referees per game (€)		
			Kreisliga	Bezirksliga	Ober-/Verbandsliga
Badischer FV	2–15	€179	25	40	45–60
Berliner FV	1 per team	€125	15	20	23
Brandenburger FV	1 per team	€250–1000	20	25	30–35
Bremer FV	1 per team	Up to €50	17	17	25
FV Bayern	1 per team	Reduced subsidies	20	30	36–60
FV Mecklenburg-Vorpommern	1 per team	€100–500	23	25	35
FV Mittelrhein	1–4	€20–300	17	25	30–50
FV Niederrhein	1–4	€50–300	17	25	30–50
FV Rheinland	1–4	€250–400	20–23	30	60
FV Sachsen	1 per team	€250–1200	25	30	40
FV Sachsen-Anhalt	1 per team	Not defined	18	25	35
FV Thüringen	1 per team	€150–700	20	25	30–35
FV Westfalen	1–4	€250–500	25	33	38–50
FV Württemberg	1 per team	€50–100	25	30	45–60
Hamburger FV	1 per team	Not defined	13	18	20–30
Hessischer FV	1 per team	€80–750	20	30	40–50
Niedersächsischer FV	1 per team	€100–400	17	30	50
Saarländischer FV	2–6	Reduced subsidies	17–20	24	30
Schleswig-Holsteinischer FV	1 per team	€125–500	15	20	30
Südbadischer FV	1 per team	€150–750	25	30	45–60
Südwestdeutscher FV	1–10	€100–1000	22	30	35–40

FV football association (Fußballverband)

of referees is constantly monitored during the season and potential candidates for promotion are nominated by a committee consisting of specialists such as football officials and former referees. Depending on the league, an extra practical performance and theoretical test must be successfully completed prior to promotion. Frick (2012) showed that refereeing performance is also associated with career duration and, thus, retention of referees in German football.

Relevant for this study is the promotion to at least Bundesliga status: referees who show outstanding performance in refereeing lower division games are promoted to the status of a third Bundesliga referee (*New_BL3*), third Bundesliga referees with outstanding performance are promoted to the status of a second

Table 2 Overview of variables

Variable	Description	Scale
Referees	Number of already active referees per 1000 members	Continuous
New referees	Number of new referees per 1000 members	Continuous
New_FIFA _{t-1}	Number of referees in the regional association who were promoted to the status of a FIFA referee in the previous year	Continuous
New_BL1 _{t-1}	Number of referees in the regional association who were promoted to the status of a first Bundesliga referee in the previous year	Continuous
New_BL2 _{t-1}	Number of referees in the regional association who were promoted to the status of a second Bundesliga referee in the previous year	Continuous
New_BL3 _{t-1}	Number of referees in the regional association who were promoted to the status of a third Bundesliga referee in the previous year	Continuous
Male_15–18	Percentage of male members between 15 and 18 years in the regional association (% of total members)	Continuous
Male_u15	Percentage of male members under 15 years in the regional association (% of total members)	Continuous
Female_u17	Percentage of female members under 17 years in the regional association (% of total members)	Continuous
GC_Male	German champion (male team) in the previous season is from the regional association (1 = yes)	Dummy
GC_Female	German champion (female team) in the previous season is from the regional association (1 = yes)	Dummy

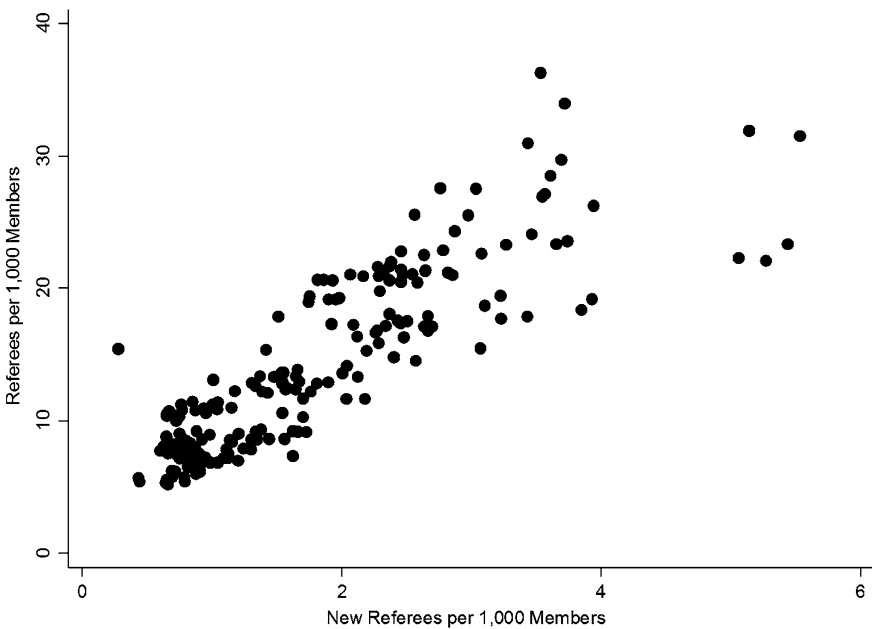


Fig. 1 Scatterplot of *Referees* and *New Referees* in the regional football associations, 2005–2014

Bundesliga referee (*New_BL2*), second Bundesliga referees demonstrating outstanding performance are promoted to the status of a first Bundesliga referee (*New_BLI*), and first Bundesliga referees showing outstanding performance are promoted to the status of a FIFA referee (*New_FIFA*; UEFA referees are included here, they do not have a separate status). Notably, all of the Bundesliga and FIFA referees are males with one exception: Bibiana Steinhaus has the status of a second Bundesliga referee.

Since the trickle-down effect may take some time and since it is unlikely that people enroll in referee training courses immediately when a referee has been promoted to a higher status, the role model variables refer to the previous year. This 1-year time-lag is also necessary because referee training courses are held throughout the year, while referee promotions are made public in the summer break.

The number of (new) referees may not only be affected by role models, but also by the size of the pool of potential referees. Since the German Football Association (DFB 2015b) and its regional associations (e.g., FVM 2015) explicitly target young people for referee training courses, the number of youth members in the regional associations is an adequate measure of the local recruitment potential for new referees. For males, the corresponding age groups are members between 15 and 18 years (*Male_15–18*) as well as under 15 years (*Male_u15*); for females, the corresponding age group is girls under 17 years (*Female_u17*). Given the different sizes of the regional associations, the share of youth members as a percent of total members is used for all three variables. The study also includes whether the male or female German champion from the previous season is located in the regional association, assuming that the general interest in football and consequently also the potential for new referees is higher in these regions.

The data on the number of already active and new referees, the number of promoted referees, and members by gender and age group were retrieved from the website of the German Football Association (www.dfb.de). Information on the number of referees is only available since the year 2004 and, therefore, earlier data cannot be used. The present study uses data from 21 regional associations over a 10-year-period (from 2005 to 2014) leading to a total number of $n = 210$ observations on a region-year basis.

Empirical Analysis

To analyze the effect of role models on the recruitment of referees, regression models are estimated. Panel regression models are preferred given the panel character of the data. Altogether, two sets of models are estimated. In the first set of models, the number of already active referees per 1000 members (*Referees*) serves as the dependent variable, while the number of new referees per 1000 members (*New Referees*) represents the dependent variable in the second set of models. The four role model variables are the independent variables of interest. The remaining variables in Table 2 (i.e., percent of youth members by gender and age, German champions) serve as controls because they may also affect the number of referees. The information displayed in Table 1 cannot be included in the econometric models because the data are, first, not available for the whole period until 2005; the regional

football associations only have the most recent version of their by-laws on their websites which covers the period back to 2012 at best. Second, many of the figures (such as the number of referees required and the size of the penalty) depend on the league level of the senior team of the football club (i.e., this is a different level of analysis; it is not possible to create one figure per association) or—as in the case of penalties—were not even specified by all associations.

In each set of models, two different types of specifications are tested. The first is a fixed-effects model (Models 1.1 and 2.1) controlling for time-invariant characteristics of the regional associations. In Model 2.1, the sample size is reduced to 200 due to missing values for new referees in some regional associations in some years. The second specification is a dynamic panel regression using a first-difference estimator (Arellano and Bond 1991). The Arellano–Bond model has a number of advantages that are particularly important in our context: first, it handles missing observations in the middle of the panel (as is the case with our second dependent variable *New Referees*) and, second, it is especially suitable for estimations with (rather) small numbers of (annual) observations per unit. This estimator controls for autocorrelation in time series data. Since the number of (new) referees in 1 year may depend on the number of (new) referees in the previous year, a lagged dependent variable is included in each model: Model 1.2 includes $Referees_{t-1}$ and Model 2.2 includes $New Referees_{t-1}$, respectively. The lagged dependent variable reduces the number of observations to $n = 189$ in Model 1.2. In Model 2.2, $n = 169$ observations are left for the analysis due to some missing values.

One important requirement of time series analyses is stationarity. Time series are stationary if they do not follow any trends, i.e., if their main parameters (mean and variance) remain constant. If, on the other hand, a time series is nonstationary, mean and variance will grow over time and will, therefore, always be underestimated for future periods. The Fisher-type unit-root test confirms stationarity for both dependent variables. All models are estimated with robust standard errors to control for heteroskedasticity (White 1980). An α -level of 0.1 is used for all statistical tests.

Results and Discussion

The summary statistics are provided in Table 3. They show that there are on average 14.14 referees and 1.78 new referees per 1000 members in each regional football association during the observation period. On average, 0.047 referees were promoted to the status of a FIFA referee, 0.087 to the status of a first Bundesliga referee, 0.20 to the status of a second Bundesliga referee, and 0.28 to the status of a third Bundesliga referee. Looking at the membership structure and the referee recruitment potential in the regional football associations, the descriptive statistics indicate that on average 8.0 % of all members are males between 15 and 18 years, 22.3 % are males under 15 years, and 4.1 % are females under 17 years.

The results of the regression analyses are summarized in Table 4. The first set of models analyzes the effect of role models on the number of already active referees per 1000 members. In the first set of models, all four role model variables have a

Table 3 Descriptive statistics ($n = 210$)

Variables	Mean	SD	Min	Max
Referees	14.14	6.86	5.17	36.31
New referees	1.78	1.06	0.28	5.53
New_FIFA _{t-1}	0.047	0.21	0	1
New_BL1 _{t-1}	0.076	0.27	0	1
New_BL2 _{t-1}	0.20	0.42	0	2
New_BL3 _{t-1}	0.28	0.61	0	4
Male_15–18	8.00	1.93	5.33	17.95
Male_u15	22.33	3.52	15.00	33.91
Female_u17	4.13	1.63	1.01	7.52
GC_Male	0.048	–	0	1
GC_Female	0.048	–	0	1

Table 4 The effects of role models (promoted referees) on the number of referees in the regional football associations, 2005–2014

	Referees (per 1000 members)		New referees (per 1000 members)	
	Model 1.1 Fixed effects	Model 1.2 Arellano Bond	Model 2.1 Fixed effects	Model 2.2 Arellano Bond
New_FIFA _{t-1}	0.142** (0.0664)	0.223** (0.110)	–0.0371 (0.107)	–0.209*** (0.0778)
New_BL1 _{t-1}	0.214* (0.107)	0.102 (0.0754)	0.166** (0.0741)	0.163* (0.0872)
New_BL2 _{t-1}	0.192** (0.0770)	0.168*** (0.0433)	0.0607 (0.0621)	–0.0653 (0.0763)
New_BL3 _{t-1}	0.106*** (0.0252)	0.175*** (0.0615)	0.0387* (0.0205)	0.00712 (0.0352)
Male_15–18	–0.0359 (0.0459)	–0.130*** (0.0267)	0.193** (0.0707)	0.220** (0.0999)
Male_u15	–0.0706** (0.0325)	–0.0397 (0.0446)	0.0417 (0.0410)	–0.0408 (0.0540)
Female_u17	–0.00782 (0.0901)	0.0225 (0.0843)	–0.234*** (0.0608)	–0.236*** (0.0595)
GC_Male	0.0532* (0.0301)	0.0279 (0.0356)	0.101* (0.0559)	0.334** (0.135)
GC_Female	–0.0938 (0.0586)	–0.0797 (0.129)	–0.00496 (0.138)	0.172 (0.259)
Referees _{t-1}	–	0.568*** (0.0919)	–	–
New referees _{t-1}	–	–	–	0.204 (0.150)
Constant	2.666** (1.063)	2.081** (0.953)	0.263 (1.214)	1.544* (0.910)
R ²	0.472	–	0.426	–
Wald χ^2	–	620.31***	–	114.95***
N	210	189	200	169

Displayed are the coefficients (robust standard errors in parentheses); * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

positive effect on the number of already active referees and the retention of referees, respectively. In the fixed-effects model (Model 1.1.), all effects are statistically significant; in the dynamic panel regression (Model 1.2), only three of them retain

statistical significance. Thus, the presence of role models affects the number of already active referees in the regional football associations. In regional football associations with many potential role models, the supply of referees is significantly higher (or the drop-out rate is lower). Referees may be motivated by role models to continue volunteering as a referee. This may be an indication for the motivational effect of role models, although this type of effect has been conceptualized slightly differently (i.e., increase participation frequency etc.; Weed 2009). Yet, the previous conceptualization refers to active sport participation and not to refereeing. While the motivational effect relates to already active referees, the inspirational effect of role models is captured by the recruitment of *new* referees which is examined in the next set of models.

Turning to the second set of models, it appears that the number of referees in the regional association who were promoted to the status of a Bundesliga referee is positively associated with the number of new referees per 1000 members in the fixed-effects model (Model 2.1). The effect of the number of referees being promoted to the status of a first or third Bundesliga referee is statistically significant; the effect of referees being promoted to the status of a second Bundesliga referee is, however, insignificant. In Model 2.2, only the effect of referees who are promoted to the status of a first Bundesliga referee is statistically significant. It seems that specifically, the latter has an inspirational effect for individuals to change their behavior, become a football referee, and enroll in a training course to obtain the respective license. The first Bundesliga is the highest national division in German soccer. The games of this division are broadcasted on television and receive great media attention, while the lower divisions receive far less media attention. Thus, it seems that particularly referees with a first Bundesliga status are considered worthy of imitation. In line with the concept of role models, individuals perceive a certain degree of similarity and want to emulate their role models' behavior (Gibson 2003). The findings show that the trickle-down effect of role models cannot only be empirically documented for active sport participation (e.g., Mutter and Pawlowski 2014; Weimar et al. 2015), but also for refereeing.

Surprisingly, the number of referees promoted to the status of a FIFA referee has a negative effect which is statistically significant in Model 2.2. During recent years, the image of FIFA has become more and more negative for several reasons. For example, in 2010, it awarded the 2018 World Cup to Russia and the 2022 World Cup to Qatar. Both future hosts were controversially discussed in the media—the event in Russia because of long travel distances and several time zones (and questionable politics) and the event in Qatar because of heat (the World Cup may be hosted in the Northern winter), questionable conditions especially for construction workers, and a lack of football history. The recent wave of accusations against FIFA officials, for e.g., accepting bribes, may have contributed to the organization's loss in reputation, too (but this does not fall within our investigated period).

Finally, the questionable lineup of less experienced referees in international tournaments may have had an effect on (potential) referees. In an attempt to promote the sport, FIFA tries to maximize the variety of nationalities of officials refereeing World Cup games and thus selects referees from all continents. Yet, this

practice has led to the nomination of less experienced referees (e.g., from Asia or South America) who are not used to the dynamics of the game, while Europeans may have more experience as a result of regularly refereeing Champions League games where the best clubs and players in the world compete (Hamann and Peschke 2014). Summarizing, it seems that the increasingly negative image of the FIFA has negative consequences even for the recruitment of referees. It is likely that FIFA referees have a more negative image and rather serve as negative role models (Lockwood et al. 2002). Therefore, especially young people do not consider these referees as worthy of imitation and try to avoid this behavior.

Conclusion

This study examined the trickle-down effect of role models in the context of refereeing in German football. Given the challenges associated with the recruitment and retention of referees reported by many nonprofit sport organizations (e.g., AYSO 2010; Breuer and Feiler 2015; Cuskelly and Hoye 2004; FIBA 2013), the examination of factors that facilitate the recruitment and retention of voluntary referees is important. Secondary data on the number of already active and new referees in the regional football associations covering a ten-year-period were collected. The results show that the number of referees who were promoted to the status of a FIFA referee, first Bundesliga referee, second Bundesliga referee, and third Bundesliga referee have a positive effect on the retention of already active referees (motivational effect). The number of people enrolling in training courses every year to obtain a refereeing license is positively affected by referees who were promoted to the status of a first Bundesliga referee (inspirational effect), while the number of referees who were promoted to the status of a FIFA referee has a negative effect. Thus, first Bundesliga referees are perceived as positive role models whose behavior is worthy of imitation, while FIFA referees represent negative role models and individuals tried to avoid that behavior.

This research contributes to the literature on volunteering in nonprofit organizations—both theoretically and empirically. Regarding the theoretical contribution, it examined the recruitment and retention of volunteers through a different lens (i.e., trickle-down effect) and in a different context (i.e., voluntary referees). While previous research focused on individual and organizational factors and respective theories to explain volunteering (e.g., Schlesinger and Nagel 2013; Wicker and Hallmann 2013), this study uses a different lens by investigating the effect of role models. The inspirational and motivational effect of role models is one facet of the trickle-down effect—a theory originally developed to explain active sport participation. This theory was adapted and applied to another context (i.e., voluntary referees) which is referred to *contribution of theory* according to Doherty (2013). A second theoretical contribution is the application of the characteristics of role models (e.g., outstanding performance, being worthy of imitation, and perceived similarity) to referees rather than athletes.

The methodological contribution of this study lies in the use of adequate data and sophisticated statistical methods for the analysis of the trickle-down effect—as

requested by Lyle (2009). This study used secondary (instead of primary) and panel (instead of cross-sectional) data allowing the analysis of causal relationships. Also, multivariate statistical tests were used because they allow controlling for other possible influencing factors: since the decision to become a referee is not only affected by the presence of role models, it is important to isolate the trickle-down effect in the empirical analysis.

The findings of this study have implications for the management of nonprofit sport organizations. The inspirational and motivational effect of role models evident in this research should be considered and actively used by these organizations. Specifically, organizations should try to capitalize on the presence of role models. In studies examining the trickle-down effect of hosting sport events on individual sport participation, it is typically recommended that participation does not simply occur because of the event, but that the social leverage of the events has to be facilitated by accompanying activities (Chalip 2006). Similarly, nonprofit sport organizations should develop a set of activities that assist in capitalizing on the presence of role models. These could be, for example, the invitation of potential role models to referee training courses. In this context, organizations should also highlight that not only having the status of a first Bundesliga referee can be considered an outstanding achievement, but also a lower status which represents the precondition of being promoted one day to the status of a first Bundesliga referee. Moreover, research highlights that role models should not only be *parachuted in* (Lyle 2009) when invited to training courses; the development of specific role model programs may be helpful in this regard (MacCullam and Beltman 2002).

The present study has some limitations that may guide future research in this field. First, there is the possibility that a referee's place of residence is not within the territory of the regional football association where he is registered as a referee. Yet, this information is not included in the available referee data and, therefore, we cannot investigate this possibility further. Second, information about the age of already active or new referees was not available and therefore, we could not examine whether the effect of role models differs between youths and adults. Third, the negative effect of referees who were promoted to the status of a FIFA referee needs further investigations. Although plausible explanations were advanced in this research, future research should try to uncover the full set of reasons as to why FIFA referees are considered negative role models. Fourth, this study is limited to one sport and one country. Future studies in other sports and countries are needed to support or challenge the findings of this research. Fifth, the trickle-down effect of role models may not only be applied to voluntary referees, but also other types of volunteers such as board members and coaches. The recruitment and retention of these volunteers may also be examined through the lens of the trickle-down effect in future research. Sixth, the trickle-down effect of role models may not only be relevant to the sport industry, but also in other nonprofit sectors which rely on volunteers. Thus, the design of this research should be applied to other contexts of volunteer management in future research.

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