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Willingness-To-Pay For Sporting Success Of Football Bundesliga Teams

By: Pamela Wicker, **John C. Whitehead**, Bruce K. Johnson, & Daniel S. Mason

Abstract

This study shows that fans and people living in the region of 28 Football Bundesliga teams from all three divisions are willing to support their team financially. Survey respondents were asked for their willingness-to-pay to avoid a negative outcome (e.g., relegation) and to achieve a positive outcome (e.g., promotion). Fan bonds are applied as an alternative payment vehicle within the contingent valuation method. The results show that different factors affect the decision to support the team and the actual amount of willingness-to-pay—for attendees and nonattendees. Public goods are particularly relevant for reporting a positive willingness-to-pay.

WILLINGNESS-TO-PAY FOR SPORTING SUCCESS OF FOOTBALL BUNDESLIGA TEAMS

PAMELA WICKER, JOHN C. WHITEHEAD, BRUCE K. JOHNSON and DANIEL S. MASON

This study shows that fans and people living in the region of 28 Football Bundesliga teams from all three divisions are willing to support their team financially. Survey respondents were asked for their willingness-to-pay to avoid a negative outcome (e.g., relegation) and to achieve a positive outcome (e.g., promotion). Fan bonds are applied as an alternative payment vehicle within the contingent valuation method. The results show that different factors affect the decision to support the team and the actual amount of willingness-to-pay—for attendees and nonattendees. Public goods are particularly relevant for reporting a positive willingness-to-pay.

I. INTRODUCTION

The most popular sport league in Europe is the German Football Bundesliga (soccer), averaging 43,484 fans per game during the 2013/2014 season, even greater than the English Premier League (36,657; Transfermarkt 2014). Average attendance in the Bundesliga's second division is 17,882, on par with Major League Soccer's average attendance of 17,273 (Transfermarkt 2014). This popularity has been a financial boon to Bundesliga teams; according to a report from the German Football League (Deutsche Fussball Liga [DFL] 2014), the first division generated €2.17 billion in revenues in 2012/2013 and the second division grossed €419 million.

While Bundesliga revenues are large, the intangible benefits of Bundesliga teams have never been measured. Previous studies have shown that professional sport teams and events create various public goods such as national or local pride, happiness, and improved city image (Elling, van Hillvorde, and van den Dool 2012; Rowe and McGuirk 1999; Süssmuth, Heyne, and Maennig 2010). It is difficult to measure the value of public goods because no prices or quantities can be observed. The contingent valuation method (CVM) was developed to estimate the value of public goods. In a CVM survey, respondents are presented with a hypothetical scenario and asked for their willingness-to-pay (WTP) to either support a positive outcome or avoid a negative outcome (Johnson 2008; Walker and Mondello 2007).

This study uses CVM to estimate the willingness of fans and other people living near a team to pay to support a positive team outcome; this might be promotion to a higher division, or to avoid a negative outcome, such as relegation to a lower division. Because the typical tax referendum payment vehicle of North American studies cannot be applied in the Bundesliga, this study uses fan bonds (Weimar and Fox 2012) instead. To do so, this study advances the following two main research questions. First, what factors affect the WTP for sporting success in a negative scenario and in a positive scenario? Second, do different factors influence WTP for attendees

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ABBREVIATIONS

CVM: Contingent Valuation Method
DFL: Deutsche Fussball Liga
IP: Internet Protocol
OLS: Ordinary Least Squares
WTP: Willingness-to-Pay

and for nonattendees? The present research contributes to the body of research on CVM in sport by looking at professional sport teams in the European context which, with a few exceptions (Castellanos, García, and Sánchez 2011), have been largely neglected in previous research. It also contributes to the CVM literature by introducing a new payment vehicle—fan bonds. The findings show that, given the fans' willingness to support clubs, local governments do not necessarily have to provide financial assistance to professional football clubs.

II. RELATED LITERATURE

According to Carson (2000, 1413), "contingent valuation (CV) is a survey-based method frequently used for placing monetary values on environmental goods and services not bought and sold in the marketplace." Although CVM is one of the only methods allowing estimation of nonuse values (Carson 2000), it is controversial. One prominent critique relates to hypothetical bias, the tendency of respondents to overstate their WTP (for an overview, see Walker and Mondello 2007). While some studies find hypothetical bias (e.g., Seip and Strand 1992), others do not (e.g., Carlsson and Martinsson 2001). Proper survey design can mitigate hypothetical bias (Loomis et al. 1996; Whitehead and Cherry 2007). Moreover, empirical comparisons have shown that CVM is as valid as other incentive-compatible methods such as conjoint analysis and lotteries (Miller et al. 2011). Further controversies relating to scope issues and strategic bias are summarized by Walker and Mondello (2007) and Carson, Flores, and Meade (2001). Methodological challenges such as temporal embedding and ordering effects (Johnson, Mondello, and Whitehead 2006) as well as dealing with zeros (Castellanos, García, and Sánchez 2011) have also been addressed in previous research.

Despite CVM's methodological criticisms, it has been widely applied to environmental topics, and more recently to sport (for an overview, see Johnson 2008; Walker and Mondello 2007) and culture (for an overview, see Noonan 2003). Johnson and Whitehead (2000) first applied CVM to team sports with subsequent studies focusing mainly on North American team sports (e.g., Johnson, Groothuis, and Whitehead 2001; Johnson, Mondello, and Whitehead 2007; Owen 2006). In the European team sport context, Castellanos, García, and Sánchez (2011) examined the WTP for keeping a Spanish football club in a city. CVM was also used to estimate the value of sporting success in football (Wicker, Prinz, and von Hanau 2012) and in the Olympics (Humphreys et al. 2011; Wicker et al. 2012). Moreover, CVM has been applied to amateur sport (Johnson et al. 2007; Wicker 2011), to hosting major events such as the Football World Cup (Süssmuth, Heyne, and Maennig 2010) and the Olympics (Atkinson et al. 2008; Walton, Longo, and Dawson 2008), to the preservation of a historic sporting arena (Harter 2015), and to explore the location of sports facilities in cities (Johnson et al. 2012).

Research has shown that intangible benefits had a positive effect on WTP in previous research (Atkinson et al. 2008; Wicker et al. 2012). When looking at other predictors of WTP, income has been found to have a significant and positive impact on WTP (e.g., Atkinson et al. 2008; Johnson Mondello, and Whitehead 2007; Owen 2006), while older people and females tend to state lower WTP (Walton, Longo, and Dawson 2008). Moreover, the level of interest in the team (Owen 2006) and attendance (Atkinson et al. 2008; Johnson and Whitehead 2000) raise WTP, while distance from the team lowers it (Owen 2006).

In sum, previous research has focused on North American team sports or major sport events, while European team sports have been largely neglected. However, due to differences in league regulations relating to club ownership, geographic distribution of clubs, and league entry, the North American findings cannot be generalized to European team sport. Thus, this article extends CVM to professional sports teams in the European context.

III. METHOD

A. Methodological Challenges of Applying CVM in the Bundesliga

Typical scenarios in North American CVM studies posit that a team will relocate, that a city will buy a team, or that a new stadium will be built to attract or retain a team. Respondents are then asked if they would vote for tax increases to achieve these hypothetical outcomes (Johnson, Groothuis, and Whitehead 2001; Johnson, Mondello, and Whitehead 2007; Johnson and Whitehead 2000). The methodological challenge is that these typical scenarios do not apply to German football. In the Bundesliga, teams are not owned

by individuals or partnerships, but by clubs with large memberships where each member has one vote. Decision making follows a $50 + 1$-rule that requires that club decisions are made by majority vote. Also, the scenario that a team moves to another city is unrealistic in Germany, where teams do not relocate.

Moreover, a scenario that results in an increase in property tax to support a local monopoly, as in North American leagues, is not plausible in Germany. Bundesliga clubs belong to the first, second, or third division because of their sporting performance and the promotion/relegation system. Furthermore, some Bundesliga teams are in small cities, with most of their fans living beyond city limits. Also, the state of North Rhine-Westphalia has at least eight Bundesliga clubs within about 100 km of Cologne. In such areas with multiple teams, the application of a tax scenario to benefit a single club is problematic.

B. Fan Bonds as Payment Vehicle Within CVM

To overcome these issues, this study uses fan bonds as a payment vehicle. Fan bonds are instruments of long-term credit financing that do not lead to changes in ownership (Weimar and Fox 2012). They represent a means to raise funds for nonprofit and limited liability company clubs, which have limited access to capital markets. Also, several parameters such as distribution of rights, interest rate, term, and bond values can be determined by clubs (Weimar and Fox 2012). In advertising brochures, clubs often specify a reason for the need to issue bonds, such as to raise funds to invest in infrastructure projects (Fox and Weimar 2014). Since Hertha BSC Berlin issued the first Bundesliga fan bonds in 2004, 11 other clubs have issued fan bonds, with some clubs issuing them more than once (Fox and Weimar 2014), presumably to refinance the first round of bonds. The volumes range from €5 million to €11 million, with face values of €100. The relatively low bond values reflect that fan bonds are meant to appeal to fans of all incomes. Interest rates are usually between 5% and 6.5% with 5- or 6-year terms (Weimar and Fox 2012).

Previous research has found that, because of the emotional link between bond holders and clubs, the interest rates do not adequately capture the inherent investment risk. The risk is typically higher than what is captured in the interest rate because the clubs issuing those bonds have high debt levels and even negative owner's equity (Weimar and Fox 2012). Alemannia Aachen, for instance, went bankrupt and defaulted on its fan bonds. Also, the MSV Duisburg was relegated from the second to the third division before the 2013/2014 season because the club did not meet the financial licensing criteria of the German Football League; as a response the club issued fan bonds. One unusual feature of fan bonds, compared to other bonds, is the attractive certificates, or deeds, printed with the club's logo and mascot to which the interest coupons are attached. The deeds are destroyed when the bonds are redeemed. The idea behind making the deeds so attractive is that the club hopes some bond holders will not redeem their bonds (Fox and Weimar 2014).

Despite the relatively low interest rates compared with the risks, people may still see fan bonds as an investment opportunity. However, it seems to be more a form of socially responsible, or ethical, investment (e.g., Michelson et al. 2004; Webley, Lewis, and Mackenzie 2001), where people prefer to invest in ways that are consistent with their personal values even at the cost of underperforming when compared to the market. Similarly, research supports the view that people purchasing shares of professional football clubs tend to be motivated more to support their teams rather to earn investment returns (Benkraiem, Le Roy, and Louhichi 2010; Bernile and Lyandres 2011).

C. Questionnaire and Variables

A standardized questionnaire was developed that could be applied to all teams of the first, second, and third Bundesliga divisions. The surveys were identical for all teams with the exception of two CVM scenarios that were adjusted for each team to make them plausible to respondents; plausibility is critical to the face validity of a CVM survey (Carson 2000). The relegation scenario could be considered realistic for all teams except Bayern Munich. In the 2013/2014 season, when the survey was taken, Bayern Munich played exceptionally well and clinched the league title on match day 27 (of 34), the earliest in Bundesliga history. Thus, a different negative scenario, that is, not qualifying for the UEFA Champions League, was chosen for Bayern Munich to make the scenario more realistic. Other teams, such as Borussia Dortmund and Schalke 04, were competitive, but had weaker seasons recently enough that relegation would seem plausible. The positive scenarios for teams of the second and third divisions were

identical—promotion to the higher division. For first division teams, the positive scenarios were qualification for the UEFA Europa or Champions League. Again, a different positive scenario, that is, winning yet another UEFA Champions League, had to be selected for Bayern Munich. An overview of these scenarios is provided in Table 1.

The questionnaire was in German. It started with a short introduction of the topic and a guarantee of anonymity and confidentiality. A contact address was also noted if people had questions or comments about the survey. To avoid ordering effects (Johnson, Mondello, and Whitehead 2006), four versions of the questionnaire, differing only in the team-specific scenarios and the order in which they were presented, were developed. Note that the questionnaire also contained a CVM scenario on Germany hosting a future Olympic Summer Games, which is not considered in this article, but important when explaining the different versions on the questionnaire.[1] The scenario order in the four versions was (1) football negative, football positive, Olympics, (2) football positive, football negative, Olympics, (3) Olympics, football negative, football positive, and (4) Olympics, football positive, football negative.

Survey responses were used to generate the variables described in Table 2. Respondents were asked to state their level of agreement with several items on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). These were interest in soccer ("interest"), participation in soccer ("play"), identification with the team ("identify"), fan of the team ("fan"), happy when team wins ("happy"), sad when team loses ("sad"), importance of team for reputation of city ("reputation"), and if players are role models ("rolemodel"). The Likert scale variables are converted into dummy variables (strongly agree = 1, else = 0). These variables (together with the next variable "discuss") capture the public goods created by teams.

Some questions addressed the consumption and attendance patterns of the respondents. People were asked to state how many days per week they talk about the team ("discuss"), how many home games they attend per season ("games1"), and how far they live away from the stadium ("distance"). "Attend" is a dummy variable equal

1. A referendum in Munich in November 2013 on an Olympic bid for the 2022 Winter Olympics delayed the start of the data collection phase.

to one if the respondent attends home games. The survey asked only about attendance at Bundesliga games, as opposed to matches in the German Cup, UEFA Europa League, or Champions League, which vary from year to year. Afterwards, the first scenario was presented, with an introduction about fan bonds in case respondents were unfamiliar with them. Here is the English translation:

> Some football clubs sell fan bonds when they want to raise money to improve the team. Fans buy bonds from teams so that teams can hire better players. Teams repay the fans with interest over a period of 5 years. Fan bonds have recently been issued by several clubs (e.g., Hertha BSC Berlin, Schalke 04, 1860 München).

> Typically, fan bonds are issued when the clubs have financial difficulties. Financial difficulties can be problematic because the clubs have to meet the licensing criteria of the German Football League. The MSV Duisburg is a recent example for a team that was relegated to a lower division before this season because they did not meet the licensing criteria of the German Football League.

To check the scenario's plausibility, respondents were asked to rate the likelihood that the team will be relegated to the lower division *with* ("with") and *without* ("without") fan bonds (on a five-point Likert scale; 1 = very unlikely; 5 = very likely). "With" and "without" is equal to one if the respondent thinks that it is very or somewhat unlikely. Then the respondents were asked for their WTP in the following scenario:

> Suppose that Team XY has financial difficulties. Suppose that Team XY decides to sell fan bonds to raise enough money to meet the licensing criteria and to avoid relegation. Each bond would pay 5.5% interest for the next 5 years and at the end of 5 years the principal (fan) would be repaid in full. How likely would you be willing to purchase a fan bond from Team XY in one of the following amounts?

In past years, some clubs had difficulty meeting DFL licensing criteria with a few clubs being denied a license or being punished with point reductions. The interest rate, term, and face values of the fan bonds were in line with past fan bond issues (Weimar and Fox 2012). Respondents were presented with a payment card format where they could indicate the likelihood, on a five-point scale (1 = very unlikely, 5 = very likely), of purchasing fan bonds of the following values: €50, €100, €200, €500, €800, €1000, and a historical date value (i.e., the year of foundation; Table 1), which is also a typical face value of

TABLE 1

Overview of Teams in the Sample

Division	Team	Sample Size	Year of Foundation[a]	Positive Scenario	Negative Scenario
1	FC Nürnberg	235	1900	EL qualification	Relegation
1	Bayer Leverkusen	204	1904	Champion	Relegation
1	Borussia Dortmund	254	1909	Champion	Relegation
1	Borussia Mönchengladbach	233	1900	CL qualification	Relegation
1	Eintracht Frankfurt	238	1899	CL qualification	Relegation
1	FC Augsburg	278	1907	EL qualification	Relegation
1	FC Bayern Munich	237	1900	Winning CL again	No CL qualification
1	FC Schalke 04	235	1904	CL qualification	Relegation
1	FSV Mainz 05	204	1905	CL qualification	Relegation
1	Hertha BSC Berlin	234	1892	EL qualification	Relegation
1	SC Freiburg	284	1904	EL qualification	Relegation
1	SV Werder Bremen	217	1899	CL qualification	Relegation
1	VfB Stuttgart	345	1893	CL qualification	Relegation
2	FC Kaiserslautern	382	1900	Promotion	Relegation
2	FC Cologne	204	1948	Promotion	Relegation
2	FC St. Pauli	201	1910	Promotion	Relegation
2	Fortuna Düsseldorf	330	1895	Promotion	Relegation
2	Karlsruher SC	290	1894	Promotion	Relegation
2	SC Paderborn 07	204	1907	Promotion	Relegation
2	TSV 1860 München	419	1860	Promotion	Relegation
3	FC Heidenheim	365	1846	Promotion	Relegation
3	FC Saarbrücken	281	1903	Promotion	Relegation
3	MSV Duisburg	440	1902	Promotion	Relegation
3	SC Preußen Münster	271	1906	Promotion	Relegation
3	SpVgg Unterhaching	200	1925	Promotion	Relegation
3	SSV Jahn Regensburg	392	1882	Promotion	Relegation
3	SV Darmstadt 98	342	1898	Promotion	Relegation
3	SV Wehen Wiesbaden	202	1926	Promotion	Relegation
Total	28 Teams	7,721			

CL, UEFA Champions League; EL, UEFA Europa League.
[a]Equivalent to historical bond value.

fan bonds (Weimar and Fox 2012). For example, the MSV Duisburg was founded in 1902 and, therefore, fan bonds with a face value of €1902 were issued by the club. While most clubs issue the cheapest fan bond at €100 (Weimar and Fox 2012), we used €50 as the lowest value. The historical date value is typically the highest bond value issued.

Although some researchers consider the payment card format problematic (Hackl and Pruckner 1999), others note its resurgence (Carson and Groves 2011). A payment card format will be more appropriate when there are more than two alternatives. In our case, a menu of fan bond amounts can be included in the choice set. Because the menu may increase respondent uncertainty, decreasing WTP, our WTP estimates are conservative, but not "grossly conservative" (Carson and Groves 2011, 310). Payment cards have also been used in previous CVM studies (Atkinson et al. 2008; Johnson and Whitehead 2000).

"Verylikely" is equal to one if the respondent answered very likely to any of the amounts; it represents a control for hypothetical bias. Those who indicate that they are not very likely to buy fan bonds may have a zero WTP if placed in the actual situation (Loomis 2011). After the payment card, respondents were asked an open-ended question about the total amount they would spend on fan bonds to capture the purchase of multiple bonds ("wtp"). Questions about the number of home games they would attend if the negative outcome occurred ("games2") and their probability of redeeming the fan bonds after 5 years followed. The variable "not redeem" is equal to one if respondents are "very unlikely" to redeem the bonds after 5 years. "Poswtp" is equal to one if the respondent indicated she would buy at least one fan bond.

The positive scenario began with "Suppose that Team XY aims at being promoted to the higher division/qualifying for the Europa League/qualifying for the Champions League." As with the negative scenario, respondents were asked to assess the likelihood of this scenario with and without fan bonds. The scenario continued:

TABLE 2
Variable Descriptions

Variable	Label
Dependent variables	
poswtp	Positive willingness to pay (1 = yes)
wtp	Willingness to pay if poswtp = 1
Independent variables	
interest	I am interested in soccer (strongly agree = 1)
play	I play soccer myself regularly (i.e., once per week) (strongly agree = 1)
identify	I identify with Team XY (strongly agree = 1)
fan	I am a fan of Team XY (strongly agree = 1)
happy	I am happy when Team XY wins (strongly agree = 1)
sad	I am sad when Team XY loses (strongly agree = 1)
reputation	It is important for the reputation of City XY that Team XY is successful (strongly agree = 1)
rolemodel	The players from Team XY are role models (strongly agree = 1)
discuss	Number of days per week the respondent talked about the team with friends, colleagues, etc.
distance	Distance the respondent lives away from the stadium (in km)
attend	Attend home games of Team XY (1 = yes)
games1	Number of home games of Team XY attended per season
games2	Number of home games of Team XY attended per season if the scenario occurred
dgames	Difference in games between scenario and presence: games2 − games1
tvgames	Number of Bundesliga games watched on television
without	Likelihood that the positive/negative scenario occurs without fan bonds (very or somewhat unlikely = 1)
with	Likelihood that the positive/negative scenario occurs with fan bonds (very or somewhat unlikely = 1)
verylikely	Likelihood of purchasing fan bonds from Team XY (very likely = 1)
not redeem	Likelihood of redeeming fan bonds after 5 years (very unlikely = 1)
male	Gender (1 = male)
age	Age (in years)
tenure	Number of years respondent is living in the city he/she is currently living in
schooling	Years of schooling
income	Personal net monthly income (in €)
gameday	Match day before the interview
tablerank	Rank in table on the match day before the interview was completed
league1	Club plays in the first division
league2	Club plays in the second division
fanbonds	Club has sold fan bonds previously (1 = yes)
first	First WTP scenario
third	Third WTP scenario
recentrel	Club was relegated after previous season (1 = yes)
recentprom	Club was promoted after previous season (1 = yes)

Suppose that the team is planning to hire a new player that would improve the team's performance significantly to increase the likelihood of promotion/qualification for the Europa/Champions League. Suppose that Team XY decides to issue fan bonds to finance this player. Each bond would pay 5.5% interest for the next 5 years and at the end of 5 years the principal (fan) would be repaid in full. How likely would you be willing to purchase a fan bond from Team XY in one of the following amounts?

The same payment card as in the first scenario was presented, followed by the open WTP question, the question about the number of home games in the case of the positive outcome, and the likelihood of bond redemption. The survey finished with questions about the respondents' socio-economic characteristics: gender ("male"), age ("age"), number of years living in the city ("tenure"), educational level ("schooling"), and income ("income"). "Schooling" measures the number of school years; it is coded as 5 years if the respondent is not a graduate, 9 years if the respondent graduated from secondary general school, 10 years if the respondent graduated from intermediate secondary school, 13 years if the respondent graduated from specialized grammar school or has A-levels, and 17 years if the respondent is a university graduate of applied sciences or a university graduate. A pretest was conducted to check the clarity and comprehensibility of the questions, which led to minor adjustments to the wording and ordering of questions.

After the survey, several additional control variables were defined. The "gameday" variable is equal to the match day before the interview; it is included to control for the time of the survey

because this may affect WTP statements. "Table-rank" is the team's rank in the table on the day of the survey. If the team is in the first or second division, then "league1" and "league2" are equal to one, respectively. If the club has sold fan bonds previously, then "fanbonds" is equal to one. If the CVM scenario was the first (third) presented in the survey, then "first" ("third") is equal to one. "Recentrel" and "recentprom" capture whether the team has been relegated or promoted after the previous season (Table 2).

D. Sampling Procedure

Primary data for a total of 28 teams—13 in the first, 7 in the second, and 8 in the third divisions—were collected via an online survey. The data collection was supported by 26 undergraduate students, who each collected data for one team, and one graduate student, who collected data for two teams. The students consisted of 24 males and 3 females; most of the undergraduate students were in their final year at a German university. The graduate student prepared a training video explaining the online programming of the questionnaire for the undergraduates and supervised the programming. The questionnaires were transferred into an online survey format using the provider SoSci Survey (www.soscisurvey.de). They were checked and corrected by the lead author.

Students distributed links to the survey in various ways, including through the official club, fan club, and city websites, social media, websites of local radio stations, and fan forums. The online provider randomly assigned a version of the questionnaire to respondents. The survey was directed at people who are fans and attend games and at people who do not attend but who live in a club's area because they may nevertheless benefit from team public goods, such as civic pride and community solidarity. Respondents were limited to those aged 16 or older because younger people are less likely to have the money for fan bonds, which is critical for WTP questions. To prevent double answering of the online questionnaire, each online questionnaire could only be completed once by the same internet protocol (IP).

The survey period was from December 8, 2013 to March 25, 2014. Students were required to collect at least 200 complete responses for each club. Incomplete responses were not included in the sample. The surveys of most teams were completed within 3–5 weeks of being made available online. The author overseeing data collection received the raw data and ensured correct,

consistent coding across all datasets. Plausibility of responses was checked in several ways. The data were checked for cases with identical or nearly identical responses to mitigate the issue of double answering. Also, respondents who clicked through the questionnaire and put in the same response to various questions were identified and removed from the datasets. Moreover, implausible answers were set to missing values. For example, in the case of high WTP values, the age and income of the person were checked, and in the case of relatively long distances from the stadium (>1,000 km), the post code was checked. After data cleaning, the 28 files were merged into one with 7,721 observations. After deleting cases with item nonresponse on key variables, 7,105 observations are left for the analysis (Table 1).

E. Sample Characteristics and Weights

Dillman, Smyth, and Christian (2014) discuss the benefits and costs of online surveys. In our case, the primary benefit is the speed and low cost of data collection. The primary cost is the sample bias of using a convenience sample. In particular, avid football fans—typically younger males—are more likely to self-select into a survey on this topic. Seventy-six percent of the original sample state that they are very interested in football. We do not have information about interest in football or other variables from survey nonrespondents and are not able to determine if the sample suffers from nonresponse or self-selection bias (Whitehead, Groothuis, and Blomquist 1993). In the conclusions, we discuss simple methods to adjust WTP to mitigate self-selection bias.

Considering nonresponse bias, in the original sample 76% of the respondents are male, and the average age is 31.7 years. Thus, males and younger people are overrepresented in the sample compared to the German population, where the share of males aged 15 years and older is 48.5% and approximately 70% are older than 30 (Regionalstatistik 2012). The age difference is likely due to the online nature of the survey—younger people are more likely to be online (Hargittai and Hinnant 2008) and may therefore be more likely to participate in online surveys.

Previous CVM studies, which were also based on nonrandom samples, shared this problem and used weights to make the sample more representative of the general population (Wicker, Kiefer, and Dilger 2015; Wicker, Prinz, and von Hanau

TABLE 3

Descriptive Statistics (Weighted Sample): General Variables

	Total Sample				Attend = 0				Attend = 1			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
interest	0.657	0.475	0	1	0.300	0.538	0	1	0.845	0.338	0	1
play	0.081	0.273	0	1	0.040	0.230	0	1	0.103	0.284	0	1
identify	0.500	0.500	0	1	0.140	0.408	0	1	0.690	0.432	0	1
fan	0.558	0.497	0	1	0.145	0.413	0	1	0.777	0.389	0	1
happy	0.584	0.493	0	1	0.204	0.473	0	1	0.785	0.384	0	1
sad	0.347	0.476	0	1	0.116	0.376	0	1	0.470	0.466	0	1
reputation	0.338	0.473	0	1	0.200	0.469	0	1	0.411	0.460	0	1
rolemodel	0.290	0.454	0	1	0.189	0.459	0	1	0.344	0.444	0	1
discuss	2.528	2.233	0	7	0.797	1.466	0	7	3.445	1.955	0	7
distance	52.509	111.739	0	650	48.561	131.231	0	650	54.601	104.333	0	650
attend	0.654	0.476	0	1	—	—	—	—	—	—	—	—
games1	6.585	7.160	0	19	—	—	—	—	10.074	6.149	1	19
tvgames	11.060	11.175	0	38	5.270	10.804	0	38	14.127	10.194	0	38
male	0.485	0.500	0	1	0.321	0.548	0	1	0.572	0.462	0	1
age	45.534	15.195	16	99	48.292	18.330	16	91	44.073	13.792	16	99
tenure	27.893	18.202	0	90	28.150	21.840	0	90	27.757	16.804	0	80
schooling	13.460	3.155	5	17	13.937	3.727	5	17	13.207	2.910	5	17
income	1986.93	1200.22	250	4250	1867.92	1436.76	250	4250	2049.98	1105.06	250	4250
gameday	20.050	2.916	13	27	20.046	3.477	13	27	20.052	2.702	13	27
tablerank	8.183	4.885	1	20	8.859	6.272	1	20	7.824	4.283	1	19
league1	0.472	0.499	0	1	0.551	0.584	0	1	0.430	0.463	0	1
league2	0.218	0.413	0	1	0.141	0.408	0	1	0.259	0.409	0	1
fanbonds	0.266	0.442	0	1	0.185	0.456	0	1	0.309	0.432	0	1
recent_rel	0.113	0.317	0	1	0.091	0.347	0	1	0.123	0.301	0	1
recent_prom	0.052	0.222	0	1	0.031	0.203	0	1	0.063	0.228	0	1
Sample size	7,015				1,765				5,250			

2012). This study also uses weights on gender and age, which were based on the most recent population data available at the time of writing (Regionalstatistik 2012). The summary statistics of the weighted sample are displayed in Table 3. In the weighted sample, 48.5% of respondents are male and the average age is 45.5 years. On average, respondents earn a monthly net income of €1987 and have 13.5 years of school or university education. The respondents are highly interested in football (65.7%) and regularly attend home games (65.4%). Respondents attended about 6.6 home games. Overall, 55.8% consider themselves fans, compared to the 72% who considered themselves hockey fans in Pittsburgh (Johnson, Groothuis, and Whitehead 2001).

Next, we examine the sample characteristics for those who attend and do not attend soccer games (Table 3). Those who attend games have more interest in soccer, are more likely to play soccer, identify with the team, and consider themselves fans. They are also more likely to be happy when their team wins and sad when it loses. Attendees are more likely to think that the reputation of the city depends on the team and that the players are role models. They talk about soccer more frequently and watch more games on television. Those who attend games live farther away from the stadium. Attendees are more likely to be male and have slightly less education.

Several variables are particular to the negative or positive CVM scenario (Table 4). While a similar share of respondents would purchase fan bonds in the negative and positive scenario (56.8% vs. 53.3%), average WTP is lower in the negative than in the positive scenario (€736 vs. €765). For the negative scenario, 72.7% of attendees and 26.8% of nonattendees have a positive WTP. The average stated fan bond purchase is €727 for attendees and €778 for nonattendees. Thus, WTP is substantially higher than in previous research (Wicker, Prinz, and von Hanau 2012). Yet, it must be considered that the present research design with fan bonds as the payment vehicle contained an investment decision. Forty-six percent of attendees and 16% of nonattendees are very likely to purchase fan bonds. Eighty percent of attendees and 56% of nonattendees think it is unlikely that the negative scenario occurs *without* fan bonds, while 82% of attendees and 59% of nonattendees think it is unlikely to occur *with* fan bonds. If relegation occurred, respondents would attend about the same number

TABLE 4
Descriptive Statistics (Weighted Sample): CVM Scenario Variables

	Total Sample				Attend = 0				Attend = 1			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Negative scenario												
poswtp	0.568	0.495	0	1	0.268	0.520	0	1	0.727	0.416	0	1
wtp	735.758	1046.470	50	5000	778.159	1422.850	50	5000	727.467	986.918	50	5000
verylikely	0.357	0.479	0	1	0.161	0.431	0	1	0.461	0.466	0	1
without	0.717	0.450	0	1	0.558	0.583	0	1	0.801	0.373	0	1
with	0.742	0.438	0	1	0.591	0.577	0	1	0.821	0.358	0	1
not redeem	0.214	0.410	0	1	0.310	0.543	0	1	0.163	0.345	0	1
games2	6.498	7.270	0	19	0.435	2.478	0	19	9.709	6.523	0	19
dgames	−0.088	3.375	−19	19	0.435	2.478	0	19	−0.365	3.601	−19	17
first	0.255	0.436	0	1	0.227	0.491	0	1	0.270	0.415	0	1
third	0.249	0.432	0	1	0.267	0.519	0	1	0.239	0.399	0	1
Positive scenario												
poswtp	0.533	0.499	0	1	0.262	0.516	0	1	0.676	0.437	0	1
wtp	765.227	1111.200	50	5000	906.556	1630.910	50	5000	736.212	1020.070	50	5000
verylikely	0.321	0.467	0	1	0.144	0.413	0	1	0.414	0.460	0	1
without	0.458	0.498	0	1	0.457	0.585	0	1	0.458	0.466	0	1
with	0.421	0.494	0	1	0.409	0.577	0	1	0.428	0.462	0	1
not redeem	0.199	0.399	0	1	0.296	0.536	0	1	0.148	0.332	0	1
games2	7.398	7.028	0	17	0.805	2.375	0	17	10.890	5.774	0	17
dgames	0.812	2.815	−17	17	0.805	2.375	0	17	0.816	2.948	−17	16
first	0.255	0.436	0	1	0.227	0.491	0	1	0.270	0.415	0	1
third	0.249	0.432	0	1	0.267	0.519	0	1	0.239	0.399	0	1
Sample size	7,015				1,765				5,250			

of home games each year. Sixteen percent of attendees and 31% of nonattendees state it is very unlikely that they will redeem their fan bonds at maturity. It is likely that this percentage is higher for nonattendees because they are more motivated by nonuse values. While attendees may feel they already support the team through buying tickets, nonattendees may consider the purchase of fan bonds as an alternative opportunity to support the team. Thus, the latter may be regarded as ethical investors (Bernile and Lyandres 2011; Webley, Lewis, and Mackenzie 2001).

For the positive scenario, 67.6% of attendees and 26.2% of nonattendees would buy fan bonds, with the average purchase being €736 (attendees) and €906 (nonattendees), respectively. Forty-one percent of attendees and 14% of nonattendees say they are very likely to purchase fan bonds. Forty-six percent of both attendees and nonattendees think it is unlikely that the positive scenario occurs *without* fan bonds. Forty-three percent of attendees and 41% nonattendees think it is unlikely to occur *with* fan bonds. Again, nonattendees are more likely not to redeem their fan bonds at maturity than attendees (29.6% vs. 14.8%). If the positive scenario occurred, attendees and nonattendees would attend about one more home game each year.

F. Empirical Models

We first estimate the determinants of positive WTP ("poswtp") with a probit model and then, for the subsample of those with positive WTP, estimate the magnitude of WTP ("ln(wtp)") using ordinary least squares (OLS). This two-stage hurdle model is preferred because the determinants of positive WTP and the actual amount of WTP are not assumed to be equal. In nonmarket valuation, there is often an extensive (participation) and intensive (intensity) margin. When the determinants of the two decisions differ, the most appropriate empirical model estimates the determinants separately. The Tobit model constrains the determinants of both the extensive and intensive decisions to be equal, which is econometrically inappropriate in this context. Castellanos, García, and Sánchez (2011) also support the notion that these are two separate decisions that should be modeled separately. Separate estimations for attendees and nonattendees are provided to allow the distinction between use and nonuse values. Altogether, the combination of two scenarios (positive and negative), two types of models (probit and OLS), and two sub-samples (attendees and nonattendees) leads to a total of eight models. All remaining variables from Table 2 are included as independent variables in the models,

TABLE 5
Negative Scenario: Probit Model for poswtp, Weighted Sample

	Attend = 0				Attend = 1			
	Coefficient	SE	t	ME	Coefficient	SE	t	ME
intercept	−1.586	0.932	−1.702		−0.608	0.427	−1.423	
interest	−0.394*	0.105	−3.771	−0.10	0.034	0.061	0.560	0.01
play	0.256	0.194	1.318	0.07	−0.041	0.070	−0.585	−0.01
identify	−0.292	0.199	−1.472	−0.07	0.407*	0.061	6.711	0.13
fan	−0.404*	0.204	−1.975	−0.09	0.437*	0.075	5.800	0.14
happy	0.696*	0.162	4.310	0.21	0.283*	0.070	4.050	0.09
sad	0.572*	0.155	3.681	0.17	−0.212*	0.050	−4.230	−0.06
reputation	0.268*	0.115	2.332	0.07	0.164*	0.051	3.248	0.05
rolemodel	−0.127	0.107	−1.184	−0.03	0.064	0.049	1.317	0.02
discuss	0.219*	0.040	5.459	0.06	0.014	0.012	1.222	0.00
ln(distance)	0.174*	0.034	5.206	0.04	0.019	0.017	1.075	0.01
dgames	0.059*	0.018	3.322	0.02	0.024*	0.005	4.354	0.01
tvgames	0.007	0.006	1.145	0.00	0.005*	0.002	2.390	0.00
without	0.090	0.126	0.720	0.02	−0.114	0.083	−1.371	−0.03
with	0.233	0.125	1.872	0.06	0.115	0.084	1.369	0.03
male	0.148	0.095	1.553	0.04	−0.081	0.046	−1.778	−0.02
age	−0.006	0.003	−1.701	−0.00	0.001	0.002	0.330	0.00
tenure	−0.002	0.003	−0.814	−0.00	−0.003*	0.001	−2.482	−0.00
schooling	−0.002	0.013	−0.112	−0.00	0.007	0.007	0.957	0.00
ln(income)	0.049*	0.018	2.691	0.01	0.036*	0.010	3.584	0.01
gameday	0.046	0.028	1.634	0.01	0.012	0.016	0.766	0.00
tablerank	−0.031	0.055	−0.558	−0.01	−0.013	0.025	−0.516	−0.00
league1	−0.224	0.725	−0.309	−0.06	−0.079	0.312	−0.251	−0.02
league2	−0.307	0.390	−0.786	−0.08	−0.252	0.177	−1.428	−0.07
fanbonds	−0.961	0.602	−1.596	−0.21	0.222	0.169	1.308	0.06
first	0.094	0.096	0.981	0.02	−0.009	0.048	−0.194	−0.00
third	0.402*	0.091	4.407	0.11	0.007	0.050	0.139	0.00
recent_rel	−1.340*	0.678	−1.977	−0.25	−0.004	0.224	−0.016	−0.00
recent_prom	0.076	0.701	0.109	0.02	0.637*	0.227	2.807	0.15
wtp > 0	504				3,864			
wtp = 0	1,261				1,386			
χ^2 (df)	485 (50)				843 (50)			

Notes: Team dummies are included except for SV Werder Bremen, Karlsruher SC, FC St. Pauli, MSV Duisburg, and SSV Jahn Regensburg. ME, marginal effects.

*p < .05.

IV. RESULTS AND DISCUSSION

as well as team dummies (reported in Table A1). Because of multicollinearity issues, five team dummies had to be excluded. The marginal effects for the ln(WTP) models are interpreted as the percentage change in WTP from a one unit change in the independent variable. Given the large sample size, we limit our discussion to the α-level of .05 for all statistical tests.

The probit models for the negative scenario are presented in Table 5. Attendees who identify with the team and who are fans are more likely to have a positive WTP, while those who are sad when the team loses are less likely to state a positive WTP. Nonattendees who are sad when the team loses and who frequently talk about the team are more likely to have a positive WTP, while fans and people interested in sport are less likely to report a positive WTP. Attendees and nonattendees who are happy when the team wins and who think that it is important for the reputation of the city that the team does well are more likely to be willing to pay. Thus, intangible effects and public goods are relevant for the decision to support the team for both attendees and nonattendees—a finding that is similar to previous research (Atkinson et al. 2008; Wicker et al. 2012).

Distance from the stadium has a positive effect on positive WTP for nonattendees—this effect is contrary to previous research (Owen 2006). It is likely that people who have moved away from their team chose this as a way to support the team. Attendees and nonattendees who would attend more games if the scenario occurred are more likely to have a positive WTP. Attendees who watch games on television are more likely

to be willing to pay, indicating that passive consumption also plays a role. Attendees who have lived for many years in the city are less likely to be willing to pay. As in previous research (e.g., Johnson, Mondello, and Whitehead 2007; Owen 2006), income is positively associated with positive WTP. Ordering matters to nonattendees; those who received the negative scenario as the last scenario were more likely to report a positive WTP. Attendees whose team was recently promoted are more likely to be willing to pay, while nonattendees whose team was relegated after the previous season are less likely to have a positive WTP.

In the model for the amount of WTP in the negative scenario (Table 6), attendees and nonattendees who are very likely to buy fan bonds are willing to pay 19% and 72% more than others. Those very unlikely to redeem their bonds are willing to pay less than others. Attendees who play soccer, identify with the team, and frequently talk about the team have a higher WTP. Attendees and nonattendees who are sad when the team loses and who think that the players of the team are role models report a higher WTP, again supporting the importance of public goods for the WTP statement. Given the negative effect of "happy" and "discuss" for nonattendees, it seems that the consumption of public goods is more relevant for reporting a positive WTP than for the actual amount of WTP. Nonattendees living in the region of a second division team state significantly higher WTP. The order of the scenario matters in the sense that nonattendees reported higher WTP when they received the negative scenario first, while attendees stated lower WTP when they were presented with this scenario last. Ordering effects were also evident in previous CVM studies (Johnson, Mondello, and Whitehead 2006, 2007). Years of schooling are positively associated with WTP for attendees, but negatively correlated with WTP for nonattendees. The positive effects of male gender and income are in line with previous research (Owen 2006; Walton, Longo, and Dawson 2008).

The first stage WTP model results for the positive scenario are summarized in Table 7. As for the negative scenario in the probit models, the consumption of public goods is decisive for the statement of a positive WTP for both attendees and nonattendees. For example, attendees and nonattendees who are happy when the team wins, who think that it is important for the city that the team does well, and who frequently talk about the team are more likely to report a

TABLE 6
Negative Scenario: OLS Model for ln(wtp), Weighted Sample

	Attend = 0			Attend = 1		
	Coefficient	SE	t	Coefficient	SE	t
intercept	1.899	1.345	1.41	2.566*	0.476	5.39
interest	0.243	0.144	1.69	−0.125	0.066	−1.88
play	−0.093	0.239	−0.39	0.183*	0.069	2.64
identify	0.038	0.238	0.16	0.142*	0.064	2.22
fan	0.130	0.257	0.50	0.120	0.084	1.43
happy	−0.406*	0.188	−2.16	−0.190*	0.077	−2.45
sad	0.534*	0.188	2.84	0.100*	0.046	2.17
reputation	−0.066	0.142	−0.47	−0.011	0.047	−0.24
rolemodel	0.554*	0.144	3.85	0.210*	0.046	4.56
discuss	−0.133*	0.044	−3.05	0.057*	0.011	5.09
ln(distance)	0.090*	0.045	1.99	0.011	0.017	0.63
dgames	−0.030	0.019	−1.55	0.000	0.005	0.02
tvgames	−0.018*	0.007	−2.49	0.002	0.002	1.25
without	−0.163	0.171	−0.96	−0.186*	0.084	−2.22
with	−0.013	0.162	−0.08	0.247*	0.086	2.88
verylikely	0.722*	0.114	6.36	0.191*	0.041	4.65
notredeem	−1.060*	0.201	−5.28	−0.298*	0.081	−3.66
male	0.395*	0.130	3.04	0.090*	0.044	2.02
age	0.003	0.005	0.49	0.006*	0.002	3.43
tenure	0.001	0.004	0.31	0.002	0.001	1.70
schooling	−0.041*	0.019	−2.18	0.026*	0.007	3.92
ln(income)	0.400*	0.077	5.22	0.310*	0.028	11.00
gameday	−0.040	0.041	−0.97	−0.003	0.017	−0.16
tablerank	0.162	0.085	1.92	−0.027	0.025	−1.07
league1	−0.767	0.953	−0.80	−0.090	0.317	−0.29
league2	1.388*	0.541	2.57	0.057	0.164	0.35
fanbonds	−0.549	0.627	−0.88	−0.023	0.158	−0.14
first	0.733*	0.142	5.17	−0.037	0.047	−0.78
third	0.065	0.138	0.47	−0.143*	0.048	−2.94
recent_rel	−0.053	0.758	−0.07	0.209	0.219	0.96
recent_prom	−0.771	0.726	−1.06	−0.065	0.198	−0.33
R^2	0.52			0.14		
F	9.32			11.56		
Sample size	504			3,864		

Note: Team dummies are included except for SV Werder Bremen, Karlsruher SC, FC St. Pauli, MSV Duisburg, and SSV Jahn Regensburg.
*$p < .05$.

positive WTP. Distance from the stadium has a positive effect on positive WTP for both nonattendees and attendees, suggesting that people living farther away from the team would take the issuing of fan bonds as an opportunity to support the team. Nonattendees who would attend more games if the positive scenario occurred are more likely to be willing to pay, indicating that on-site consumption plays a role. Attendees with higher incomes and those with fewer years of schooling are more likely to have a positive WTP. In the positive scenario, female attendees are more likely to state a positive WTP. This finding is similar to previous research (Wicker, Prinz, and von Hanau 2012) indicating that females are more likely to be willing to pay for positive outcomes such as sporting success.

The second stage of the WTP model for the positive scenario is presented in Table 8. The

TABLE 7
Positive Scenario: Probit Model for poswtp, Weighted Sample

	Attend = 0				Attend = 1			
	Coefficient	SE	t	ME	Coefficient	SE	t	ME
intercept	−0.576	0.923	−0.624		−0.221	0.412	−0.536	
interest	−0.237*	0.105	−2.264	−0.06	−0.070	0.060	−1.159	−0.02
play	0.380*	0.192	1.977	0.10	−0.031	0.067	−0.455	−0.01
identify	−0.612*	0.201	−3.039	−0.13	0.337*	0.059	5.748	0.11
fan	0.200	0.205	0.978	0.05	0.335*	0.074	4.518	0.11
happy	0.409*	0.165	2.485	0.11	0.292*	0.069	4.257	0.10
sad	0.716*	0.156	4.583	0.21	−0.271*	0.048	−5.676	−0.08
reputation	0.489*	0.115	4.237	0.14	0.197*	0.048	4.113	0.06
rolemodel	−0.259*	0.109	−2.379	−0.06	0.054	0.046	1.159	0.02
discuss	0.186*	0.039	4.721	0.05	0.026*	0.011	2.360	0.01
ln(distance)	0.145*	0.034	4.321	0.04	0.036*	0.017	2.181	0.01
dgames	0.045*	0.018	2.545	0.01	0.009	0.005	1.788	0.00
tvgames	−0.001	0.006	−0.237	−0.00	0.001	0.002	0.352	0.00
without	0.257*	0.115	2.237	0.07	0.280*	0.062	4.496	0.09
with	−0.453*	0.108	−4.186	−0.11	−0.401*	0.056	−7.190	−0.13
male	0.063	0.096	0.660	0.02	−0.090*	0.044	−2.064	−0.03
age	−0.005	0.003	−1.339	−0.00	−0.003	0.002	−1.781	−0.00
tenure	0.003	0.003	0.982	0.00	−0.001	0.001	−0.985	−0.00
schooling	0.019	0.013	1.440	0.00	−0.018*	0.007	−2.716	−0.01
ln(income)	0.032	0.018	1.771	0.01	0.055*	0.010	5.636	0.02
gameday	0.023	0.028	0.810	0.01	−0.005	0.015	−0.320	−0.00
tablerank	−0.110*	0.055	−1.989	−0.03	0.031	0.024	1.277	0.01
league1	0.309	0.717	0.431	0.08	−0.199	0.303	−0.657	−0.06
league2	−0.387	0.383	−1.012	−0.09	0.310	0.184	1.680	0.10
fanbonds	−0.562	0.576	−0.975	−0.13	0.391*	0.160	2.437	0.12
first	−0.200*	0.097	−2.049	−0.05	−0.029	0.047	−0.622	−0.01
third	−0.466*	0.093	−4.990	−0.11	−0.065	0.048	−1.377	−0.02
recent_rel	−0.940	0.669	−1.406	−0.19	0.072	0.214	0.334	0.02
recent_prom	0.202	0.675	0.299	0.05	0.334	0.225	1.483	0.10
wtp > 0	480				3588			
wtp = 0	1,285				1,662			
χ^2 (df)	485 (50)				726 (50)			

Notes: Team dummies are included except for SV Werder Bremen, Karlsruher SC, FC St. Pauli, MSV Duisburg, and SSV Jahn Regensburg. ME, marginal effects.
*$p < .05$.

consumption of public goods produced by the team is not very decisive for the amount of WTP in the positive scenario. Attendees who think the positive scenario is unlikely to occur without fan bonds are willing to pay more. Nonattendees and attendees who are very likely to buy fan bonds are willing to pay more than others, but when they are very unlikely to redeem their bonds they are willing to pay less. Those with higher income, male nonattendees, and older attendees with more years of schooling stated a higher WTP. Table rank has a positive effect on WTP for nonattendees indicating that the worse the team's standing in the table, the higher the WTP for a positive outcome.

Many of these results have economic significance. Not redeeming fan bonds would be equivalent to a donation. For those who would redeem fan bonds, it is more of an investment decision. In the negative scenario, nonattendees

and attendees are willing to pay approximately 100% and 30% less if they are very unlikely to redeem their fan bonds after 5 years. In the positive scenario, the figures are 61% (nonattendees) and 56% (attendees), respectively. These differences suggest that there is a significant willingness to donate to the sporting success of teams, in addition to a pure investment component.

Other results have economic significance. Those nonattendees of teams that have been recently relegated are 25% less likely to have positive WTP in the negative scenario. In other words, for those whose teams have been recently relegated, another relegation is not likely and reduced the credibility of the scenario. There is some evidence that experience with fan bonds is important. Those attendees in the positive scenario whose teams have issued fan bonds in the past are 12% more likely to have positive

TABLE 8

Positive Scenario: OLS Model for ln(wtp), Weighted Sample

	Attend = 0			Attend = 1		
	Coefficient	SE	t	Coefficient	SE	t
intercept	2.956	1.468	2.010	2.579	0.487	5.290
interest	0.143	0.155	0.920	−0.241*	0.069	−3.510
play	−0.076	0.251	−0.300	0.289*	0.072	4.030
identify	0.305	0.269	1.140	0.071	0.067	1.050
fan	−0.208	0.292	−0.710	−0.017	0.089	−0.190
happy	−0.049	0.204	−0.240	−0.068	0.084	−0.820
sad	0.366	0.210	1.740	0.057	0.048	1.190
reputation	−0.040	0.158	−0.250	0.078	0.049	1.570
rolemodel	0.482*	0.155	3.100	0.080	0.048	1.680
discuss	−0.143*	0.050	−2.890	0.057*	0.012	4.840
ln(distance)	0.101*	0.048	2.110	0.027	0.018	1.510
dgames	−0.007	0.021	−0.330	0.001	0.007	0.180
tvgames	−0.034*	0.008	−4.200	−0.001	0.002	−0.680
without	−0.251	0.160	−1.570	0.130*	0.065	2.000
with	0.096	0.161	0.600	−0.062	0.058	−1.070
verylikely	0.686*	0.130	5.250	0.408*	0.043	9.470
notredeem	−0.611*	0.214	−2.860	−0.558*	0.094	−5.970
male	0.505*	0.141	3.570	0.069	0.047	1.470
age	−0.001	0.006	−0.230	0.007*	0.002	3.410
tenure	0.009*	0.004	2.270	−0.002	0.001	−1.100
schooling	−0.078*	0.020	−3.920	0.023*	0.007	3.270
ln(income)	0.391*	0.084	4.650	0.377*	0.030	12.570
gameday	−0.062	0.045	−1.380	−0.029	0.017	−1.690
tablerank	0.218*	0.093	2.360	−0.015	0.026	−0.600
league1	−1.117	1.000	−1.120	−0.156	0.327	−0.480
league2	1.506*	0.572	2.630	0.153	0.162	0.940
fanbonds	−0.899	0.683	−1.320	0.120	0.165	0.730
first	−0.073	0.147	−0.490	0.048	0.050	0.960
third	−0.301	0.155	−1.940	0.021	0.052	0.410
recent_rel	−0.868	0.845	−1.030	0.339	0.229	1.480
recent_prom	−0.671	0.769	−0.870	−0.107	0.200	−0.540
R^2	0.52			0.13		
F	9.01			10.54		
Sample size	480			3,588		

Note: Team dummies are included except for SV Werder Bremen, Karlsruher SC, FC St. Pauli, MSV Duisburg, and SSV Jahn Regensburg.

$*p < .05$.

WTP. The marginal effects on the income coefficients provide some validity for our results (Flores and Carson 1997): the income elasticity of WTP is 0.31 (attendees) and 0.40 (nonattendees) in the negative scenario and 0.38 (attendees) and 0.39 (nonattendees) in the positive scenario, respectively.

Our sample potentially suffers from sample selection bias where those with more interest in soccer, fans, and those who identify with the team are more likely to participate in the survey. Whitehead (1991) shows that, in the context of environmental values, adjustment of independent variables related to response can be used as sensitivity analysis against sample selection bias. In the negative scenario, those nonattendees with an interest in soccer are 10% less likely to have positive WTP. For attendees, fans are 14% more

likely to have positive WTP. Those attendees who identify with the team are willing to pay 14% more than others. For the positive scenario, we find that nonattendees with an interest in soccer are 6% less likely to have positive WTP. Attendees who are fans are 11% more likely to have positive WTP, but those with an interest in soccer are willing to pay 24% less. Altogether, these results suggest that upward biased WTP due to sample selection may not be a major concern with these data. But, the marginal effects of these variables could be used to investigate that magnitude.

Hypothetical bias exists if stated WTP is greater than actual WTP. Loomis (2011) reviews the literature and finds that those who state that they are very likely to pursue the behavior are more likely to actually behave in that manner. We include a variable that indicates if respondents

state they are very likely to actually purchase fan bonds. An approach that could be used to investigate the potential magnitude of hypothetical bias is to set the WTP values of those who are not very likely to purchase fan bonds to zero with an adjustment for the WTP of those who are likely to purchase fan bonds. The regression coefficient on ln(WTP) in the negative scenario models suggests that hypothetical bias-adjusted WTP would be 72% and 19% higher for nonattendees and attendees, respectively. These adjusted values would be aggregated over 16% and 46% (Table 4) of the nonattendee and attendee populations. In the positive scenario, hypothetical bias-adjusted WTP would be 69% and 41% higher for nonattendees and attendees and these adjusted values would be aggregated over 14% and 41% of the nonattendee and attendee populations.

V. CONCLUSION

This study estimates the WTP for sporting success in the German Football Bundesliga. It is based on the largest sample ever used in CVM sport research. Survey respondents were asked for their WTP to avoid a negative outcome (e.g., relegation) and to achieve a positive outcome (e.g., promotion, qualification for European competition). Given the challenges associated with selecting a credible scenario and payment vehicle for the WTP question in the German context, this study is the first to use fan bonds as a payment vehicle within CVM. We find that fan bonds are a credible payment vehicle. More than half of the respondents would be willing to purchase fan bonds in either scenario. Average WTP is slightly higher in the positive scenario than in the negative scenario. Nonattendees are less likely to buy fan bonds, but in the case of a purchase the face values would be higher than for attendees. The amount of stated WTP in this study is higher than in previous studies, probably because of the inherent investment component. However, not all respondents consider it an investment because approximately one-fifth do not plan to redeem the fan bonds. Nonattendees are less likely to redeem the fan bonds supporting the notion of ethical and emotional investment (Bernile and Lyandres 2011; Webley, Lewis, and Mackenzie 2001).

The regression results support the decision to estimate separate models for positive WTP and for the amount of WTP because these two variables are affected by different factors. Also, the statement of a positive WTP and the amount of WTP of attendees and nonattendees are affected by different factors, supporting the estimation of separate models. The decision to support the team in either scenario is affected by various public goods, for example, happiness when the team wins, importance of the team's performance for the city's reputation, talking about the team, etc., for both attendees and nonattendees. Nonattendees living farther away from the team consider the purchase of fan bonds to be an alternative opportunity to support the team.

The findings of this study have implications for policy makers. Despite the economic significance of the league, several clubs experience financial problems in the sense that they carry high debt or even negative owner's equity (Weimar and Fox 2012). Similar to clubs in other leagues (Barajas and Rodriguez 2010), financial problems are a result of investing in players who do not lead to sporting success and associated financial success. Some clubs like Dynamo Dresden received financial support from the local government to meet the financial licensing criteria of the DFL (Dresden 2014). Issuing fan bonds has emerged as a way of mitigating financial problems of clubs (Weimar and Fox 2012). Our results suggest that the local population is willing to financially support the club. This support is not limited to fans and attendees; people who do not attend games, but consume the public goods created by the club, are also willing to support it. Given this support, local governments do not necessarily have to provide financial assistance to professional football clubs.

This study has some limitations that represent directions for future research. First, it could not distinguish between genuine zeros and protest zeros (Castellanos, García, and Sánchez 2011) because specific debriefing questions were not included in the survey. Future research examining the WTP for sporting success among professional clubs should include those — given the financial turnaround of the Bundesliga people may think that there is enough money to support clubs. Second, although this research is based on a comprehensive sample, the data are only cross-sectional in nature. Future research should examine how stated WTP varies over time respectively over the course of the season. Finally, while we weighted the sample for nonresponse bias and find little evidence that sample selection might bias WTP, future research should pursue obtaining a more representative sample of those who would be in the fan bonds market.

TABLE A1

Results for the Team Dummies, Weighted Sample

	Attend = 0								Attend = 1							
	Probit				ln(wtp)				Probit				ln(wtp)			
	Negative		Positive		Negative		Positive		Negative		Positive		Negative		Positive	
	Coefficient	t	Coefficient	t	Coefficient	t	Coefficient	t	Coefficient	t	Coefficient	t	Coefficient	t	Coefficient	t
SC Freiburg	0.80	2.37	0.76	3.72	−0.62	−1.38	−1.51	−2.96	0.32	1.67	−0.05	−0.28	0.76	3.72	0.76	3.59
Bayern Munich	−1.00	−1.56	0.18	0.49	2.71	2.61	3.03	2.76	−0.08	−0.21	0.59	1.63	0.18	0.49	0.63	1.63
Eintracht Frankfurt	−0.48	−1.59	−0.20	−0.87	−0.40	−0.95	−0.47	−1.03	0.11	0.54	0.04	0.18	−0.20	−0.86	0.14	0.60
FC Nürnberg	0.59	0.88	0.30	1.20	−0.18	−0.24	−0.01	−0.01	0.00	−0.01	−0.41	−1.71	0.30	1.20	0.23	0.91
Bayer Leverkusen	−0.66	−1.11	−0.23	−0.69	1.80	1.86	2.42	2.43	0.42	1.25	0.63	1.94	−0.23	−0.69	−0.03	−0.08
Bor. Mönchengl.	−1.08	−1.79	−0.20	−0.62	1.20	1.31	1.57	1.63	−0.25	−0.79	0.33	1.08	−0.20	−0.62	−0.14	−0.43
Borussia Dortmund	−0.52	−0.90	0.14	0.43	2.68	3.12	3.45	3.78	−0.48	−1.54	−0.13	−0.43	0.14	0.43	0.50	1.48
FC Schalke 04	0.53	0.60	0.22	0.55	2.96	2.50	3.76	2.97	−0.84	−2.14	−0.79	−2.08	0.22	0.55	0.39	0.95
FSV Mainz 05	−0.89	−2.15	0.00	−0.02	1.84	3.07	2.16	3.45	−0.38	−1.81	0.21	1.04	0.00	−0.02	0.18	0.80
FC Augsburg	−0.49	−1.17	0.14	0.61	−0.09	−0.15	1.20	1.53	0.02	0.08	0.15	0.68	0.14	0.61	0.34	1.46
Hertha BSC Berlin	−0.70	−0.51	0.14	0.29	2.27	1.44	3.05	1.83	−1.22	−2.50	−0.82	−1.73	0.14	0.29	0.33	0.68
VfB Stuttgart	−0.82	−2.45	0.22	1.11	0.06	0.14	−0.16	−0.32	−0.17	−0.94	−0.16	−0.90	0.22	1.11	0.25	1.22
FC Kaiserslautern	−0.28	−0.61	−0.02	−0.14	0.12	0.21	0.40	0.67	0.24	1.30	−0.59	−3.23	−0.02	−0.14	−0.35	−2.14
FC Cologne	0.47	0.98	−0.38	−1.36	−0.49	−0.74	0.71	1.00	−0.13	−0.48	−0.02	−0.07	−0.38	−1.36	−0.06	−0.23
Fortuna Düsseldorf	1.31	2.11	−0.35	−1.41	−2.43	−2.57	−2.06	−2.06	0.46	1.79	−0.36	−1.40	−0.35	−1.41	−0.64	−2.58
SC Paderborn	−0.54	−0.71	−0.07	−0.23	−1.80	−1.94	−1.38	−1.38	0.16	0.55	−0.34	−1.18	−0.07	−0.23	0.07	0.23
1860 München	0.08	0.19	−0.11	−0.68	−0.20	−0.35	−0.28	−0.50	0.07	0.39	−0.84	−4.56	−0.11	−0.68	−0.13	−0.80
FC Heidenheim	−0.68	−1.03	−0.11	−0.69	2.66	3.81	3.21	4.31	−0.16	−1.03	0.44	2.89	−0.11	−0.69	0.33	1.96
Preußen Münster	−1.22	−1.51	−0.39	−1.27	−0.84	−0.85	−1.14	−1.04	0.30	0.98	0.09	0.29	−0.39	−1.27	−0.34	−1.09
FC Saarbrücken	0.75	0.75	0.26	0.61	−2.12	−1.48	−2.72	−1.75	0.70	1.57	−0.05	−0.13	0.26	0.61	0.21	0.48
Wehen Wiesbaden	−1.48	−2.60	−0.66	−3.66	1.28	2.20	1.83	2.82	−0.14	−0.83	−0.03	−0.19	−0.66	−3.66	−0.58	−2.95
Unterhaching	−0.28	−0.43	0.07	0.30	−0.82	−1.13	−0.67	−0.85	0.90	3.42	0.83	3.30	0.07	0.30	0.34	1.43

Note: Reference is SV Darmstadt 98.

REFERENCES

Atkinson, G., S. Mourato, S. Szymanski, and E. Ozdemiroglu. "Are We Willing to Pay Enough to 'Back the Bid'? Valuing the Intangible Impacts of London's Bid to Host the 2012 Summer Olympic Games." *Urban Studies*, 45, 2008, 419–44.

Barajas, A., and P. Rodriguez. "Spanish Football Clubs' Finances: Crisis and Player Salaries." *International Journal of Sport Finance*, 5, 2010, 52–66.

Benkraiem, R., F. Le Roy, and W. Louhichi. "Sporting Performance and the Volatility of Listed English Football Clubs." 2010. Accessed April 7, 2014. http://www.efmaefm.org/0EFMAMEETINGS/EFMA%20ANNUAL%20MEETINGS/2010-Aarhus/papers/EFMA2010_0057_fullpaper.pdf.

Bernile, G., and E. Lyandres. "Understanding Investor Sentiment: The Case of Soccer." *Financial Management*, 40, 2011, 357–80.

Carlsson, F., and P. Martinsson. "Do Hypothetical and Actual Marginal Willingness to Pay Differ in Choice Experiments?" *Journal of Environmental Economics and Management*, 41, 2001, 179–92.

Carson, R. T. "Contingent Valuation: A User's Guide." *Environmental Science and Technology*, 34(8), 2000, 1413–18.

Carson, R. T., and T. Groves "Incentive and Information Properties of Preference Questions: Commentary and Extensions," in *International Handbook of Non-Market Environmental Valuation*, edited by J. Bennett. Cheltenham, UK and Northampton, MA: Edward Elgar, 2011, 300–21.

Carson, R. T., N. E. Flores, and N. F. Meade. "Contingent Valuation: Controversies and Evidence." *Environmental and Resource Economics*, 19, 2001, 173–210.

Castellanos, P., J. García, and J. Sánchez. "The Willingness to Pay to Keep a Football Club in a City: How Important Are the Methodological Issues?" *Journal of Sports Economics*, 12(4), 2011, 464–86.

Deutsche Fussball Liga [DFL]."Bundesliga Report 2014. Die wirtschaftliche Situation im Lizenzfußball." 2014. Accessed May 17, 2014. http://www.bundesliga.de/media/native/dokument/dt_DFL_BL_Wirtschaftssituation_2014_72dpi.pdf.

Dillman, D. A., J. D. Smyth, and L. M. Christian. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. 4th ed. Hoboken, NJ: John Wiley & Sons, 2014.

Dresden. "Landeshauptstadt Dresden unterstützt die SG Dynamo Dresden im laufenden Lizenzierungsverfahren." 2014. Accessed July 03, 2014. http://www.dresden.de/de/02/035/01/2014/03/pm_089.php.

Elling, A., I. vanHillvorde, and R. van denDool. "Creating or Awakening National Pride Through Sporting Success: A Longitudinal Study on Macro Effects in the Netherlands." *International Review for the Sociology of Sport*, 49(2), 2012, 129–51.

Flores, N. E., and R. T. Carson. "The Relationship between the Income Elasticities of Demand and Willingness to Pay." *Journal of Environmental Economics and Management*, 33(3), 1997, 287–95.

Fox, A., and D. Weimar. "Fan-Anleihen als Finanzierungsmöglichkeit von Sportorganisationen außerhalb des Fußballs." *Corporate Finance*, 5, 2014, 242–52.

Hackl, F., and G. J. Pruckner. "On the Gap between Payment Card and Closed-Ended CVM Answers." *Applied Economics*, 31, 1999, 733–42.

Hargittai, E., and A. Hinnant. "Digital Inequality: Differences in Young Adults' Use of the Internet." *Communication Research*, 35(5), 2008, 602–21.

Harter, J. F. R. "Is the Wigwam Worth It? A Contingent Valuation Method Estimate for a Small-City Sports Arena." *Contemporary Economic Policy*, 33(2), 2015, 279–84.

Humphreys, B. R., B. K. Johnson, D. S. Mason, and J. C. Whitehead. "Estimating the Value of Medal Success at the 2010 Winter Olympic Games." Department of Economics Working Paper No. 11–20, Appalachian State University, 2011.

Johnson, B. K. "The Valuation of Nonmarket Benefits in Sport," in *The Business of Sports*, edited by B. R. Humphreys and D. R. Howard. Westport, CT: Praeger, 2008, 207–33.

Johnson, B. K., and J. C. Whitehead. "Value of Public Goods from Sport Stadiums: The CVM Approach." *Contemporary Economic Policy*, 18(1), 2000, 48–58.

Johnson, B. K., P. A. Groothuis, and J. C. Whitehead. "Value of Public Goods Generated by a Major League Sports Team: The CVM Approach." *Journal of Sports Economics*, 2(1), 2001, 6–21.

Johnson, B. K., M. J. Mondello, and J. C. Whitehead. "Contingent Valuation of Sports: Temporal Embedding and Ordering Effects." *Journal of Sports Economics*, 7(3), 2006, 267–88.

———. "The Value of Public Goods Generated by a National Football League Team." *Journal of Sport Management*, 21(1), 2007, 123–36.

Johnson, B. K., J. C. Whitehead, D. S. Mason, and G. J. Walker. "Willingness to Pay for Amateur Sport and Recreation Programs." *Contemporary Economic Policy*, 25(4), 2007, 553–64.

———. "Willingness to Pay for Downtown Public Goods Generated by Large, Sports-Anchored Development Projects: The CVM Approach." *City, Culture and Society*, 3, 2012, 201–8.

Loomis, J. "What's to Know about Hypothetical Bias in Stated Preference Valuation Studies?" *Journal of Economic Surveys*, 25(2), 2011, 363–70.

Loomis, J., T. Brown, B. Lucero, and G. Peterson. "Improving Validity Experiments of Contingent Valuation Methods: Results of Efforts to Reduce the Disparity of Hypothetical and Actual Willingness to Pay." *Land Economics*, 72(4), 1996, 450–61.

Michelson, G., N. Wailes, S. van der Laan, and G. Frost. "Ethical Investment Processes and Outcomes." *Journal of Business Ethics*, 52, 2004, 1–10.

Miller, K. M., R. Hofstetter, H. Krohmer, and Z. J. Zhang. "How Should Consumers' Willingness to Pay Be Measured? An Empirical Comparison of State-of-the-Art Approaches." *Journal of Marketing Research*, 48, 2011, 172–84.

Noonan, D. S. "Contingent Valuation and Cultural Resources: A Meta-Analytic Review of the Literature." *Journal of Cultural Economics*, 27, 2003, 159–76.

Owen, J. G. "The Intangible Benefits of Sports Teams." *Public Finance and Management*, 6(3), 2006, 321–45.

Regionalstatistik. "Bevölkerungsstand: Bevölkerung nach Geschlecht und Altersgruppen – Stichtag 31.12.2012." 2012. Accessed September 10, 2014. https://www.regionalstatistik.de/genesis/online/data;jsessionid=D64EC247C33D8E06698CC190BD791B05?operation=abruftabelleAbrufen&selectionname=173-21-5&levelindex=1&levelid=1410347548414&index=5.

Rowe, D., and P. McGuirk. "Drunk for Three Weeks—Sporting Success and City Image." *International Review for the Sociology of Sport*, 34, 1999, 125–41.

Seip, K., and J. Strand. "Willingness to Pay for Environmental Goods in Norway: A Contingent Valuation Study with Real Payment." *Environmental and Resource Economics*, 2, 1992, 91–106.

Süssmuth, B., M. Heyne, and W. Maennig. "Induced Civic Pride and Integration." *Oxford Bulletin of Economics and Statistics*, 72, 2010, 202–20.

Transfermarkt. "Zuschauerstatistik der aktuellen Saison." 2014. Accessed May 17, 2014. http://www.transfermarkt.de/de/default/zuschauerstatistik/basics.html.

Walker, M., and M. J. Mondello. "Moving Beyond Economic Impact: A Closer Look at the Contingent Valuation Method." *International Journal of Sport Finance*, 2, 2007, 149–60.

Walton, H., A. Longo, and P. Dawson. "A Contingent Valuation of the 2012 London Olympic Games: A Regional Perspective." *Journal of Sports Economics*, 9, 2008, 304–17.

Webley, P., A. Lewis, and C. Mackenzie. "Commitment Among Ethical Investors: An Experimental Approach." *Journal of Economic Psychology*, 22, 2001, 27–42.

Weimar, D., and A. Fox. "Fananleihen als Finanzierungsmöglichkeit von Sportclubs? Eine Bestandsaufnahme am Beispiel der Fußballbundesliga." *Corporate Finance*, 4, 2012, 181–87.

Whitehead, J. C. "Environmental Interest Group Behavior and Self-Selection Bias in Contingent Valuation Mail Surveys." *Growth and Change*, 22(1), 1991, 10–20.

Whitehead, J. C., and T. L. Cherry. "Willingness to Pay for a Green Energy Program: A Comparison of Ex-Ante and Ex-Post Hypothetical Bias Mitigation Approaches." *Resource and Energy Economics*, 29, 2007, 247–61.

Whitehead, J. C., P. A. Groothuis, and G. C. Blomquist. "Testing for Non-Response and Sample Selection Bias in Contingent Valuation: Analysis of a Combination Phone/Mail Survey." *Economics Letters*, 41(2), 1993, 215–220.

Wicker, P. "Willingness-to-Pay in Non-Profit Sports Clubs." *International Journal of Sport Finance*, 6(2), 2011, 155–69.

Wicker, P., K. Hallmann, C. Breuer, and S. Feiler. "The Value of Olympic Success and the Intangible Effects of Sport Events—A Contingent Valuation Approach in Germany." *European Sport Management Quarterly*, 12(4), 2012, 337–355.

Wicker, P., J. Prinz, and T. von Hanau. "Estimating the Value of National Sporting Success." *Sport Management Review*, 15, 2012, 200–10.

Wicker, P., S. Kiefer, and A. Dilger. "The Value of Sporting Success to Germans: Comparing the 2012 UEFA Championships with the 2012 Olympics." *Journal of Business Economics*, 2015. doi: 10.1007/s11573-014-0761-1.