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Abstract

As evidenced by the viewing figures for the 2014 FIFA World Cup, U.S. interest in soccer and watching the National Team compete is growing. American households' willingness to pay (WTP) for soccer player development is measured using the contingent valuation method and compared to the cost of player development. Data are drawn from two national surveys administered before and after the 2014 World Cup event. In the surveys, individuals are faced with two stated preference decisions: first, whether they perceive that additional funding for player development will improve the chances of the National Team's performance at the 2018 World Cup and second, whether they are willing to pay an annual household tax to fund the program. We use a bivariate probit model to account for correlation between the two decisions. WTP estimates indicate that the intangible benefits of player development are roughly twice the cost, justifying the investment from a strictly benefit-cost perspective. Also, WTP is temporally reliable with no statistical difference in *ex ante* and *ex post* estimates.

Willingness to Pay for Soccer Player Development in the United States

Many of the world's leading soccer nations promote the development of their youth and national players through funding national soccer federations or dedicated Centers of Excellence. For example, the Royal Spanish Football Federation (RFEF), the governing body of soccer in Spain, is responsible for funding the development of the Spanish national soccer team. France developed the Institute National du Football de Clairefontaine (or simply Clairefontaine) as a national soccer center that specializes in training French soccer players. Following that, and the success of the French soccer team in the 1990s, the British government spent approximately $170 million developing St. George's National Football Centre with its primary purpose to be the base for all coaching and development work undertaken by the English Football Association, and the training and preparation ground for all England national football teams.

In the United States, player development is overseen by the United States Soccer Federation (although more commonly referred to as just U.S. Soccer). U.S. Soccer is essentially a central point of control over all soccer programs, for both men and women, at all levels, in the U.S. As well as providing complete oversight of soccer in the country, U.S. Soccer currently invests millions of dollars annually into player development, at all levels, including the Development Academy (considered to be the top tier of youth soccer).

While spectatorship at soccer games in the U.S. still lags the other domestic leagues, participation, especially at youth level, has increased significantly over the years. [1] Moreover, it now seems that the general public interest in soccer in the U.S. is also growing. The increased interest is demonstrated through the growth in American viewership of the FIFA World Cup. According to Nielson ratings (a measurement of audience conducted by the Nielson Company), ESPN and ABC (the two channels that covered the World Cup in the U.S.) viewership of the 2014 World Cup was up 39% over the previous 2010 World Cup, and up 96% over the 2006 World Cup. For the U.S. games in particular, 21.6 million viewers tuned in for the Round of 16 game between the U.S. and Belgium, with 24.7 million watching an earlier group game between the U.S. and Portugal.

The financing of player development and National Centers of Excellence for the major soccer nations, while clearly requiring substantial funds, often gains domestic societal acceptance given the importance of the national soccer team to these traditional soccer nations. This may not be the case in the United States though. In many instances, the U.S. is an almost unique nation when it comes to sport. The four main sports ((American) football, baseball, basketball, and hockey) are for the most part domestic sports (with the notable exception of hockey in the Winter Olympics). As such, the national unity and social cohesion that is derived from watching a national team compete in an international tournament is typically not apparent within the sporting fabric of the U.S. The FIFA World Cup is the world's largest sporting event with the final itself watched by an

[1] Annual youth soccer registrations of players have risen from about 100,000 in 1974 to over 3 million in 2012.

estimated 1 billion people plus. While interest in the game in the U.S. develops and U.S. Soccer continues to fund current and future player development, with the ultimate goal of developing a national team capable of competing further in international competition, and potentially winning the FIFA World Cup, we ask the question of whether the benefits to U.S. households from developing soccer players to compete in international tournaments outweigh the cost of player development?

As is typical in most benefit-cost analyses (BCA), the costs are relatively easy to quantify, but measurement of potential benefits can be more complicated. The benefit, or value that individuals derive from their team, or in this case, country, from participating and being successful in a competition represents one such benefit, or economic value. This value is in the form of a public good, as it represents the national pride or unity derived from the success of the national team. The problem faced by researchers is how to capture the value of this public good. While a team's performance provides this intangible value to supporters, the performance itself is not traded in an explicit market. To overcome the problem, economists have developed a variety of methodologies to estimate economic values based on individuals' actual (observed) and anticipated (stated) behavior. The contingent valuation method (CVM) is one such technique that derives data on individuals' observed and stated behavior to measure the value of public goods. Essentially, the CVM technique provides individuals with stated preference scenarios in which they are asked whether they would be willing to pay a specified price (or fee) for an increase in a public good (or conversely whether they would accept a specified amount to give up some portion of the public good). It is therefore called contingent valuation as

people are asked to state their willingness to pay contingent on a specific stated preference scenario and description of the good.

CVM was first applied to sport by Johnson and Whitehead (2000) when valuing the public good associated with two proposed sport stadiums in Kentucky. Results from a CVM indicated that neither project would generate sufficiently valuable public goods to justify public financing. Since then, typically, CVM techniques have been used in a sporting context to measure the benefits associated with the presence of a specific team or hosting an event, such as the Olympics. For example, researchers have examined the WTP for public goods produced by the Pittsburgh Penguins Hockey team (Johnson, Groothuis, and Whitehead 2001), the National Football League's Jacksonville Jaguars Football team (Johnson, Mondello, and Whitehead 2007), and the Minnesota Vikings (Fenn and Crooker, 2009). Further, Atkinson et al. (2008), Walton, Longo, and Dawson (2008), and Sussmuth, Heyne, and Maening (2010) have all attempted to quantify the intangible benefits associated with hosting the Olympics and World Cup.

There has also been a selection of other studies that attempt to capture the impact of a national team's success on national pride. These studies identify the positive effects of sporting success on factors such as national unity and social cohesion, a general feel-good factor, and civic pride (Johnson 2008; Forrest and Simmons 2003; Allison and Monnington 2002, and Castellanos, Garcia, and Sanchez 2011). Probably the closest study in nature to our research is by Wicker, Prinz, and von Hanau (2013). They use CVM to measure the WTP of German households for winning the 2010 World Cup. Using an open-ended elicitation technique, they find that the average household WTP to

win the World Cup is approximately $30. They also examine components that might influence WTP and find that intangible factors such as identification with the country and the national team significantly increase individuals' WTP.

Finally, Sussmuth, Heyne, and Maennig (2010) examine the impact of a sporting event on elicited WTP estimates. That is, they consider the temporal reliability of WTP estimates. Their results indicate that WTP estimates are not temporally reliable with individuals' WTP increasing after the event. Specifically, they estimate that German's WTP to host the 2006 World Cup more than doubled after the event.

The overarching purpose of this research is to measure the intangible benefits to U.S. households from the development of soccer players, and as such, to potentially improve the chances of success for the U.S. National Team, particularly at the FIFA World Cup. As the U.S. funds player development through its academy structure, to examine whether funding for players is justified financially, we also provide a simple benefit-cost analysis to see whether a positive net present value exists. Further, we identify the determinants of respondents' WTP. Data are derived from two national surveys, administered prior to and following the 2014 World Cup. The pre and post-tournament survey design also enables an examination of whether WTP with respect to improved player development is temporally reliable, and whether the determinants of WTP change as a result of the event.

While the application is different, our research is similar in nature to Wicker, Prinz, and Hanau (2013), but with some distinct differences. We are not explicitly examining households' WTP to win the World Cup. Posing this question, even in a stated preference

setting is difficult as clearly no policy-based process can guarantee such a result. Instead, we analyze the WTP for soccer development in the U.S. with the purpose of improving the chances of the U.S. National Team in future competitions, especially the World Cup. Also, our methodology differs from their approach in two distinct ways. First, we use the referendum method for eliciting WTP, as opposed to their open-ended technique that potentially suffers from a number of shortcomings, such as incentive incompatibility. Following the Exxon Valdez oil spill, a blue-ribbon-assembled panel of economists assessed the reliability of CVM and endorsed the referendum method as the preferred procedure for CV analyses (U.S. Department of Commerce 1993). Second, in any stated preference framework, the threat of potential hypothetical bias in survey responses is apparent. Results from early CVM applications designed to elicit WTP were met with much skepticism as CVM and WTP valuation critics disputed whether respondents' stated WTP estimates approximate their true WTP. For example, Diamond and Hausman (1994) argued that stated preference responses to hypothetic scenarios do not necessarily correspond to what the individual would pay in real life, and suggested that payment responses would be less if the respondent had to actually pay for the provision at that point in time. The notion of hypothetical bias was supported by Little and Berrens (2004), Harrison (2006), and Harrison and Rutström (2008), who all suggested that WTP estimates from CVM techniques tended to overstate actual vales. To counter criticism of CVM methods and to elicit WTP values with confidence, a number of *ex ante* and/or *ex post* methods were suggested as a means to address hypothetical bias and estimate WTP values more in line with actual values (Arrow et al. 1993). As a means to control for potential hypothetical bias, we include both an *ex ante* (cheap talk) and *ex post* (certainty

statements) technique (Loomis 2011). While Wicker, Prinz, and Hanau (2012) attempt to account for potential hypothetical bias in survey responses, their use of a maximum WTP threshold has not been tested against real payment.

Survey Description

To assess American households' willingness to pay for soccer player development, two national surveys were conducted. The first was in June 2014, one month prior to the opening of the World Cup, the other in August 2014, one month following the event. The surveys were developed in the Qualtrics, Inc, survey software package and administered via Amazon Mechanical Turk (MTurk). MTurk is a crowdsourcing internet marketplace for work that enables researchers to access a representative sample of individuals willing to participate as survey respondents and is growing in popularity for online experiments and surveys (Berinsky et al., 2012). In terms of developing nationally representative samples, recent research has examined and compared the demographic characteristics of MTurk users to other sampling techniques and found that MTurk users are more representative than samples derived from experimental lab studies and in-person convenience samples (Paolacci, Chandler, and Ipeirotis 2010; Berinsky, Huber, and Lenz 2012; and Buhrmester, Kwang, and Gosling 2014)

The principle components of both surveys were to present respondents with a stated preference scenario regarding federal funding for the development of U.S. soccer players. Respondents were informed that the United States Soccer Federation, commonly referred to as U.S. Soccer, is the official governing body of the sport of soccer in the United

States. As well as supporting the men's national team, U.S. Soccer currently invests about $17 million per year into player development. Respondents were then asked if they thought that the funding would increase the U.S. National Team's chances of performing better in the 2018 World Cup compared to their performance without the funding. Approximately 60 percent of respondents replied yes to this question in the pre-World Cup survey, while 64 percent responded in a similar fashion after the World Cup.

Next, respondents were presented with a stated preference scenario about expanding funding for U.S. soccer players' development. They were asked to consider that the U.S. Congress proposes a new policy to increase the level of funding for the development of U.S. soccer players. They were told that this would be financed through an increase in the annual federal household income tax for each of the next four years of one of the following five amounts: $5, $25, $75, $125, and $250. Respondents were then asked how they would vote in a referendum regarding the imposition of one of the income tax increases (varied randomly across respondents). In the referendum question, respondents were told:

"Imagine now that the proposed policy for player development is put to a vote and that if more than one-half of all people voted for it, Congress would put it into practice. If there was a vote today and you knew that your annual federal household income tax would go up by (either $5, $25, $75, $125, and $250) for each of the next four years, would you vote for or against the proposed policy?"

Respondents were offered the choice of voting "for", "against" or "I Don't Know".

We included in the survey design two techniques for controlling for potential hypothetical bias in survey responses. The first is an *ex ante* treatment, so immediately before the referendum question respondents were told that in surveys some people ignore the monetary cost and other sacrifices they would really have to make if their vote won a majority and became law. Further, in surveys that ask people if they would pay more for certain services, research has found that people may say that they would pay 50% more than they actually will in real transactions. For the following question, it is very important that you "vote" as if this were a real vote. Respondents were then told that they needed to imagine that you actually have to dig into your household budget and pay the additional costs. This narrative is termed 'cheap talk' and has been demonstrated to be effective as an *ex ante* technique for mitigating hypothetical bias although the evidence is mixed (see Cummings and Taylor 1999).

Also, immediately following the referendum question, respondents were asked a certainty statement as an *ex post* technique to account for potential hypothetical bias. We ask respondents to indicate on a Likert scale of 1 to 10, how certain they are of their response. Research has indicated that including responses from individuals that are uncertain about the likelihood of actually paying the fee in a real situation can result in overestimating true WTP. As such, only responses from individuals who are certain that they would do what they have stated should be included in the model. Poe et al. (2002) and Vossler et al. (2003) both found that respondents who indicated that they are certain of their WTP at a level of 7 or more out of 10 had similar stated preference payment probabilities as a real WTP sample. We calculate WTP estimates for (1) the entire sample

(uncorrected model); and (2) for only respondents who indicate a level of certainty of 7 or above to the referendum question (corrected model).

Empirical Model

We ask two stated preference questions in the surveys. The first asks respondents if they perceive that additional funding will improve the chances of the National Team's performance at the 2018 World Cup and second, whether they are willing to pay an annual tax to fund the program. As the error terms from the two responses may be correlated, the sequential choices are analyzed with a bivariate probit model. In the first equation we specify perceptions that funding will improve future success. In the second equation we specify the willingness to pay taxes for the program.

$$(6)\ \pi(I = 1) = \Phi(\alpha_0 + \alpha_1 \mathbf{SOCC} + \alpha_2 \mathbf{X} + \varepsilon_1$$

$$\pi(F = 1) = \Phi(\beta_0 + \beta_1 \mathrm{TAX} + \beta_2 \boldsymbol{SOCC} + \beta_3 \boldsymbol{X} + \varepsilon_1)$$

$$\rho = corr(\varepsilon_1, \varepsilon_2),$$

where $\pi(.)$ is the probability function, I is belief that the additional funding will *IMPROVE* U.S. National Team performances, F is a vote for in the referendum question at the randomly assigned tax, $\boldsymbol{SOCC}$ is a vector of variables reflecting individual interest in soccer and the U.S. National Team, and $\boldsymbol{X}$ is a vector of demographic variables. We expect that the probability of a for response to the referendum question will decrease with an increase in the tax amount.

Results

In total, 526 and 576 completed responses were collected for the pre- and post-World Cup survey, respectively. Table 1 provides some detail on respondent interest in soccer and the U.S. national team, plus expectations on performance with and without the additional funding. The average responses suggest that the 2014 World Cup had little impact on individual interest in the U.S. National Team from before to after the tournament.[2] Also, there is no change after the tournament in the reported level of individual importance or importance to the country regarding the success of the national team.[3] Expectations of national team performance, with or without additional funding, do increase following the World Cup, not surprising given the strong showing by the U.S. national team. Further, statistics on performance expectations demonstrate that respondents believe additional funding for U.S. Soccer will improve the performance of the national team at World Cups. For example, after the 2014 World Cup, there is a 20 percent increase in the number of respondents believing that the U.S. will get out of the group stage at the 2018 World Cup with additional funding.[4]

The same referendum question was asked in both the before and after World Cup surveys. Table 2 breaks out the percentage of respondents voting for in the referendum, both before and after the World Cup. In estimation, following general convention, any "I Don't Know" responses were coded as votes "against" the policy. The table also shows the percentage of respondents who are sure of their answer (those indicating a certainty

[2] A t-test comparing two independent sample means (against zero) does not reject the null (p-value = 0.185)
[3] t-tests comparing two independent sample means (against zero) does not reject both nulls (p-values = 0.483 and 0.743)
[4] A t-test comparing two dependent sample means (against zero) rejects the null (p-value = 0.00)

level of 7 or above to their answer to the referendum question). In both surveys, as expected, we observe a general decrease in the percentage of for responses as the tax surcharge increases. This is the case for those voting for and those who are also certain of their response.

Table 3 breaks out the percentage of respondents in favor of the referendum based on their beliefs as to whether the funding will *IMPROVE* the National Team's chances of future success. As expected, we observe a greater percentage of for votes at each bid level for those that believe that the funding will improve the National Team's chances of success. We also typically observe the same decrease in the percent for votes as the bid amounts increase.

Definitions and detailed statistics for all variables used are shown in Tables 4 and 5. The socio-demographic details indicate that the sample characteristics are very similar for the pre- and post-World Cup samples. Respondents in both samples are an average of 31 years of age, earning around $50,000 per year. The majority of respondents indicate that they have an interest in both soccer in general and the U.S. national team. Also, the average number of games that respondents stated they watched is very much in line with the number of games that respondents expected to watch before the event. On average, respondents anticipated and watched between 1 to 10 games.

Results from the bivariate probit models are shown in Table 6. First of all, in both models the coefficient on the rho parameter is positive and significant, so those that believe that additional funding will improve future team performances are more likely to support a

player development tax for some unmeasured, underlying reason. The positive coefficient also supports the use of a bivariate probit model.

Comparing results from the improve equation before and after the tournament provides some similarities and differences in factors that influence respondents' perceptions of the usefulness of funding on future team success. Income and respondent level of interest in soccer do not influence individual perceptions of the potential success of additional player development funding for the U.S. team. Factors that are influential, both prior to and after the event, are identification with the U.S. National Team and the number of World Cup games respondents' expected to watch before the event and actually watched. All signs on these coefficients are positive so respondents with a stronger identification with the National Team and those watching more games are more likely to believe that the investment will improve performances. This is an intuitive result as these individuals more likely have a stronger sense of the national pride that is associated with following the National Team and so are more likely to support the program. Age is the only parameter whose impact changes due to the event. While age of respondent has no impact before the World Cup, younger respondents are more likely to believe that the funding will improve future performances after the event. Perhaps this is picking up the effect that younger viewers are more likely to be influenced by the National Team's strong performance during the World Cup, and so after the tournament now think that more funding could promote future success.

In the willingness to pay for player development equation, the coefficients on the proposed tax amount are negative and significant, indicating that, as expected, an

increase in tax will typically lead to lower support.[5] Those respondents with a stated identification with the team and an interest in soccer are more likely to support the proposal before and after the tournament. Interestingly, the effect of age and income on support for the proposal changes due to the event. Younger and lower income respondents are more likely to support the proposal after the World Cup, but not before.

In terms of estimating WTP measures, to avoid the issue with referendum models of contingent valuation predicting negative WTP, using the WTP frequencies, we calculate Turnbull lower bound nonparametric WTP estimates (Haab and McConnell 2002). This estimate is appealing in policy-based research because it presents a more conservative estimate of WTP. As shown in Table 7, pre-World Cup WTP for player development for an average American household is approximately $39. Adjusting for potential hypothetical bias using certainty statements, WTP falls to $35 (corrected model). This point estimate is similar to the $30 WTP figure estimated by Wicker, Prinz, and von Hanau (2012), although they were measuring the WTP of German residents to win the World Cup. After the World Cup, the WTP estimate falls to $36, or a corrected $29. However, standard errors indicate that these estimates are not statistically different from one another, so households' willingness to pay for player development does not change statistically from before to after the event. This result differs from other studies that find willingness to pay to host an event or for Olympic gold medals increases after the event, with individuals' feel-good factor likely buoyed by the event itself (see Sussmuth, Heyne, and Manning 2010). Our findings indicate a temporal reliability of our CVM estimates, as individuals perceive the intangible benefits of player development to be the same

[5] Chi-square tests indicate that the slope of both bid curves are statistically significant (p-values = 0.025 for pre-World Cup and 0.031 for post-World Cup models)

before and after the event.

To aggregate these results, we need an appropriate estimate of the number of U.S. households that are interested in the U.S. National Team's performance. The average Major League Soccer game in the U.S. draws TV viewing figures of approximately 200,000 viewers. However, in terms of the National Team, over 24 million viewers tuned in to watch the U.S. play Portugal at the 2014 World Cup. We consider these to be a lower and upper bound for interested households. A highly conservative figure to draw on is perhaps the 1.6 million households that watched the U.S. play Mexico in a World Cup qualifier. Using this figure, a lower bound aggregate willingness to pay for player development is estimated at approximately $44 million before the event and $34 million after the event. This assumes, rather conservatively, that all those not included (i.e., the households that do not typically watch U.S. games) have a zero WTP. From a benefit-cost perspective, this is an annual measure but the stated preference scenario used inferred a four-year surcharge. Using a discount rate of 5 percent, this gives a present value of approximately $126 million. The current annual amount of funding directed at player development is $17 million. Over an equivalent four-year period and again discounted at 5%, this equates to a present value cost of $64 million. Therefore, our findings indicate that even the conservative estimates of the benefits associated with player development are roughly double the cost, so clearly more than sufficient to justify funding U.S. player development at the current level.

Conclusion

This research uses CVM to examine the intangible benefits associated with federal funding for U.S. soccer player development and potential team success. The overarching goal of such a policy would be to improve the chances of success for the National Team at major international competitions, such as the FIFA World Cup. With television viewing figures of almost 25 million for a single U.S. game at the 2014 FIFA World Cup, interest in soccer and perhaps a growing appreciation of the national unity and pride associated with following the National Team in international competition is rising in the U.S.

The application is novel as most CVM studies related to sport typically measure the WTP to host a major sporting event, such as the Olympics or World Cup, or to host a local sporting team. One notable exception examines German residents' WTP for success at the 2010 World Cup. Our application is more grounded, and therefore, realistic, in the sense that gauging residents' WTP for success assumes any policy can provide an appropriate guarantee. Here, the policy goal is to improve player development via more funding, which in turn may improve the chances of team success at future tournaments. As other major soccer nations continue to fund player development through new "Centers of Excellence", the results take a first look at whether U.S. households are willing to further fund player development in order for the National Team to compete on the international stage.

We use a novel and cost-effective technique of developing online survey instruments administered through Amazon's MTurk marketplace. Respondents were surveyed

nationally both prior to and following the 2014 World Cup. The focal point of both surveys was to elicit respondents' WTP for funding the development of U.S. soccer players to potentially facilitate the success of the National Team. We find that WTP estimates are temporally reliable with no statistical difference in WTP prior to and following the event. It should be noted that this result is specific to American households and their valuation of success of the national soccer team.

From a policy perspective, a lower-bound present value aggregate WTP estimate for the proposal of $126 million exceeds the present funding cost of player development. Of course, this does not suggest that the policy is optimal in the sense that we do not consider the host of other potential policy initiatives that could be provided with these funds. Rather, results provide a justification of the current use of funds for player development from a strictly benefit-cost perspective.

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Table 1. Interest in Soccer and Performance Expectations

	Pre World Cup Survey	Post World Cup Survey	Percent Change
	Percent Stating "Interest" or "Strong Interest"		
On a scale of 1 (no interest at all) to 4 (very strong), how would you rate your interest with the U.S. national team.	54.8	56.3	2.7
	Percent Stating "Important" or "Very Important"		
On a scale of 1 (no interest at all) to 4 (very strong), how would you rate the importance **to the country** that the U.S. national team performs well at the World Cup.	56.2	59.8	6.4
On a scale of 1 (no interest at all) to 4 (very strong), how would you rate the importance **to you** that the U.S. national team performs well at the World Cup.	56.4	55.9	-0.9
	Percent Believing that U.S. Will Get Out of Group Stage		
Expectation of performance at next World Cup	55.7	62.4	12.0
Expectation of performance at next World Cup with funding	70.8	75.0	5.9
Percent Change in Performance Expectation With versus Without Funding	27.1	20.2	N/A

Table 2. Responses to Referendum Question

	Pre World Cup Survey			Post World Cup Survey		
Bid	N	%For	%Certain	N	%For	%Certain
$5	114	29.0	18.4	117	25.6	23.9
$25	122	21.3	15.6	123	22.0	22.0
$75	110	19.1	15.4	121	15.7	9.9
$125	109	16.5	11.9	123	13.0	10.6
$250	108	12.0	10.2	125	12.8	10.4

Table 3. Respondents in Favor of Referendum Based on Whether They Believe Funding Will Improve National Team Performances

	Pre World Cup		Post World Cup	
	Funding Will Improve Chances	Funding Will Not Improve Chances	Funding Will Improve Chances	Funding Will Not Improve Chances
Bid	% For	% For	% For	% For
$5	31.5	16.7	30.0	17.1
$25	20.9	18.8	24.7	11.4
$75	21.7	10.9	22.5	2.2
$125	18.2	10.8	11.8	10.3
$250	12.8	6.7	17.7	0.0

Table 4. Variable Definitions

Variable	Definition
TAX	Dollar amount by which respondent's annual household tax bill would rise if referendum passes.
FOR	Equal to 1 if respondent would vote in favor of referendum for higher taxes, 0 otherwise
INT SOCCER	Equal to 1 if respondent indicates an interest in soccer, 0 otherwise
ID TEAM	Equal to 1 if respondent indicates an interest in the U.S. national team, 0 otherwise
WATCH	Scaled variable indicating the expected or actual number of games watched at the 2014 World Cup where "1=0 games"; "2=1-5 games"; "3=6-10 games"; "4=11-20 games"; "5=21-30 games"; and "6=31 or more games"
AGE	Respondent's age in years
INCOME	Respondent's income in thousands of dollars

Table 5. Summary Statistics

Variable	Pre World Cup Survey				Post World Cup Survey			
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
TAX	93.85	86.66	5.00	250.00	97.15	97.94	5.00	250.00
FOR	0.18	0.38	0.00	1.00	0.16	0.37	0.00	1.00
INT SOCCER	0.60	0.50	0.00	1.00	0.54	0.50	0.00	1.00
ID TEAM	0.55	0.50	0.00	1.00	0.57	0.50	0.00	1.00
WATCH	2.24	0.92	1.00	6.00	2.23	0.83	0.00	6.00
AGE	30.88	8.66	18.00	69.00	30.87	9.07	18.00	69.00
INCOME	48.44	34.92	5.00	150.00	50.71	36.18	5.00	150.00
Sample Size	526				576			

Table 6. Bivariate Probit Model

	IMPROVE			
	Pre World Cup Survey		Post World Cup Survey	
	Coefficient	Standard Error	Coefficient	Standard Error
Intercept	-0.937***	0.196	-0.239	0.269
ID TEAM	0.279***	0.075	0.189***	0.067
INT SOCCER	-0.033	0.089	0.020	0.082
WATCH	0.090*	0.056	0.091*	0.050
INCOME	0.001	0.001	-0.000	0.001
AGE	0.000	0.000	-0.021***	0.006
	FOR			
	Pre World Cup Survey		Post World Cup Survey	
	Coefficient	Standard Error	Coefficient	Standard Error
Intercept	-2.422***	0.285	-1.434***	0.401
TAX	-0.002***	0.001	-0.003***	0.001
ID TEAM	0.268***	0.097	0.278***	0.084
INT SOCCER	0.344***	0.107	0.297***	0.104
WATCH	-0.025	0.065	0.076	0.061
INCOME	0.000	0.002	-0.004**	0.002
AGE	0.001**	0.000	-0.035***	0.010
ρ	0.342***	0.094	0.647***	0.105
LL Function	-547.0		-562.0	

Note - *** indicates significance at the 1% confidence level; ** indicates significance at the 5% confidence level; * indicates significance at the 10% confidence level

Table 7. Consumer Surplus Estimates

		Standard Model	Corrected Model
Pre World Cup	Mean WTP	$39.10	$35.02
	Lower Bound	$29.77	$25.94
	Upper Bound	$48.43	$44.11
Post World Cup	Mean WTP	$36.27	$28.95
	Lower Bound	$27.59	$21.10
	Upper Bound	$44.95	$36.79
Aggregate Annual WTP (millions)	Lower Bound	$44.1	$33.8