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Abstract

Cities throughout the world continue to weigh the merits of hosting major sport events, including the Olympic Games. These events are considered desirable due to a range of benefits, including economic and/or tourism development. In addition, previous research has shown that hosting the Olympics may confer intangible benefits for cities and their residents. This paper presents the results of a contingent valuation method estimate of the monetary value of intangible benefits to Germans of hosting the Olympic Summer Games. In a nationwide online survey 6,977 respondents were asked if they would support a referendum to host the Games. The survey employed a payment card format containing monthly tax amounts to elicit willingness-to-pay to finance the Games over a five-year-period. In the weighted sample, 72 percent expressed a positive willingness-to-pay. Among those with a positive willingness-to-pay, average willingness-to-pay was €47. The results from grouped data hurdle models showed that various intangible benefits (e.g. pride and happiness in sporting success; increased German prestige) and policy consequentiality had a significant positive effect on willingness-to-pay. The findings have implications for policy makers since they show what population groups are more supportive of hosting the Games.

Keywords

Contingent Valuation Method; Willingness-to-pay; Olympic Games; Public goods; Sport event

Introduction

Despite substantial costs and questionable economic benefits, cities bound up in the logics of inter-urban competition (Begg, 1999) continue to compete for the right to host major sporting events (Burbank et al., 2001). While this may reflect the interests of city elites pursuing a pro-growth economic development agenda (Amin, 2003; Thornley, 2002), more recent research has identified that cities may receive other intangible benefits by virtue of hosting sport teams and events (Santo, 2008). As explained by Holcomb (1999: p. 59): “the Olympic Games represent the biggest prize for cities seeking mega-events.”

This is no different in Germany, where the German Olympic Sports Confederation has announced that it will submit a bid for Hamburg to host the 2024 Olympic Summer Games. Because the International Olympic Committee makes prospective cities consider public opinion before they bid, a referendum will be held at the end of November 2015 to officially gauge the support of Hamburg citizens. Elsewhere in Germany, a lack of public support cost Munich the chance to host the 2018 and 2022 Winter Olympic Games, the latter in 2013 when citizens of Munich and three nearby districts defeated a referendum to host the 2022 Winter Games. Given the failure of the Munich referendum, the question arises — will Hamburgers sizzle with desire to host the Summer Games?

As explained by Begg (1999: p. 800), “public support is crucial in supporting cultural activities and, more generally, for developing the civic amenities that become ‘key’ assets of the city.” Thus, local support for hosting the Games is critical, and will depend on the benefits, both tangible and intangible, that voters expect to receive. Previous research on tangible benefits, such as the economic impact or the labor market outcomes of the Games (e.g. Baade et al., 2010; Feddersen and Maennig, 2013; Preuss, 2004) has established that benefits are often overstated, particularly when estimated ex ante (Porter and Fletcher, 2008). A similar consensus on the tangible benefits of other major sport events exists (e.g. Coates

and Humphreys, 2003; Peeters et al., 2014). Consequently, tangible economic benefits cannot justify local support for event hosting.

However, tangible benefits are only part of the story. Intangible benefits of sport events include national and civic pride, general feel-good-factors, and image improvements (Allison and Monnington, 2002; Forrest and Simmons, 2003; Johnson, 2008; Rowe and McGuirk, 1999). These intangibles are public goods characterized by non-excludability and non-rivalry (Downward et al., 2009; Samuelson, 1954) and are not limited to those attending the event. Since no quantities and prices can be observed for non-traded public goods, it is difficult to assign monetary values to them. The contingent valuation method (CVM) has emerged as a way to do so (Carson, 2000). In a CVM survey, respondents are presented with a hypothetical scenario and asked to state their willingness-to-pay (WTP) for the public good described in the scenario (Walker and Mondello, 2007).

Carson and Groves (2007, 2011) and Carson (2012) argue that stated preference surveys will generate accurate statements of WTP if the valuation question is incentive compatible (e.g. a referendum vote) and consequential. An incentive compatible question is one where respondents have incentives to truthfully reveal their preferences (e.g. a referendum vote with majority rule). A consequential question is one where the respondent believes that his response has a chance to affect something that he cares about. There is mounting empirical evidence from laboratory and field experiments that efforts to make hypothetical questions be perceived as consequential will lead to more accurate statements of value (Carson et al., 2014; Landry and List, 2007; Poe and Vossler, 2011; Vossler et al., 2012; Vossler and Evans, 2009). Vossler and Watson (2013) and Groothuis et al. (2015) find that perceptions of inconsequentiality lead to lower statements of WTP.

This study uses CVM to estimate WTP in Germany for hosting Olympic Summer Games. We advance three main research questions: (1) what is the WTP of the German

population for hosting the Summer Olympics? (2) What factors influence WTP? And specifically (3) what is the effect of consequentiality on WTP? Data were collected nationwide from 6,977 Germans from December 2013 to March 2014 using an online survey. Respondents were asked to state their likelihood of supporting a referendum to host an Olympic Summer Games and were presented with a payment card containing monthly tax amounts to finance the Games over a five-year-period. Our findings have implications for policy makers since they show what groups are more supportive of hosting the Olympics than others. This study contributes to the developing body of stated preference literature within urban studies and to research on the public goods value of major sport events. It is the first study to consider policy consequentiality in a sport-related setting.

Related literature

The CVM has been used extensively to estimate the monetary value of environmental resources (e.g. Huhtala, 2004; Whitehead and Cherry, 2007). It has also been used to examine sport facilities and events: Johnson and Whitehead (2000) applied CVM to stadiums and Johnson et al. (2001) to professional sports teams. Other studies followed, with Johnson et al. (2007) and Owen (2006) estimating WTP for professional teams; Barlow and Forrest (2015) for small town professional football clubs and Harter (2015) for a small-city sports arena; Süssmuth et al. (2010) for hosting major sport events; and Humphreys et al. (2011), Wicker et al. (2012a), and Wicker et al. (2012b) estimating WTP for sporting success. Johnson et al. (2012) examined WTP for the vibrancy of a downtown via funding amenities including a new sport arena.

Given the focus of this study, this review concentrates on the few existing studies estimating the monetary value of hosting the Olympic Games. Two studies were conducted in the context of the 2012 London Olympics. While Atkinson et al. (2008) surveyed citizens of London, Manchester, and Glasgow; Walton et al. (2008) surveyed people living in Bath and

the South West of England. Atkinson et al. (2008) found that the average WTP was higher in London ($M=£21.95$) than in Manchester ($M=£12.40$) and Glasgow ($M=£10.87$); Walton et al. (2008) supported the notion that non-Londoners were also willing to pay to fund the London Games: the aggregated WTP was approximately £5.8 million (Bath) and £173.2 million (South West), respectively. Both studies support the proximity benefits evident in previous research (Coates and Humphreys, 2006), while also documenting that intangible benefits are not limited to the host city.

Heisey (2009) examined the WTP for hosting the 2016 Summer Olympics in three potential host cities: Berlin, Chicago, and San Francisco. The results showed that average WTP was higher in Chicago ($M=\$54.89$) than in San Francisco ($M=\$35.73$) and Berlin ($M=€16.35$). Aggregate yearly WTP was €81.75 million (Berlin), \$154.15 million (San Francisco), and \$439.1 million (Chicago). Coates and Szymanski (2015) examined the WTP of United States citizens to host the Summer Olympics. At the time of their survey, four cities were still in the running to be the US bidder. Average WTP of the full sample amounted to \$138.27, with mean WTP differing depending on the region; the range was from \$93 (Mountain) to \$151 (Mid Atlantic). Preuss and Werkmann (2011) estimated an aggregate WTP of €617 million to €803 million for hosting the 2018 Winter Olympics in Germany. All four studies support the notion that the intangible benefits of hosting Olympic Games have a large monetary value.

Previous studies also examined the determinants of WTP. Males report higher WTP than females (Coates and Szymanski, 2015; Walton et al., 2008). Age had a negative effect in one study (Walton et al., 2008), while being insignificant in others (e.g. Atkinson et al., 2008; Coates and Szymanski, 2015; Preuss and Werkmann, 2011). Those employed full-time had lower WTP, while those listing homemaker as their primary occupation stated higher WTP (Walton et al., 2008). Whites reported lower WTP values than non-whites (Coates and

Szymanski, 2015). Previous studies consistently found a positive effect of income on WTP (Atkinson et al., 2008; Coates and Szymanski, 2015; Heisey, 2009; Preuss and Werkmann, 2011; Walton et al., 2008).

A general interest in sport and taking part in organized exercise tend to be positively associated with WTP (Preuss and Werkmann, 2011; Walton et al., 2008). Similarly, watching any TV and the number of hours following sport had a positive effect (Heisey, 2009; Preuss and Werkmann, 2011). Moreover, the intention to attend significantly added to WTP (Atkinson et al., 2008; Preuss and Werkmann, 2011; Walton et al., 2008) as did the respondents' level of planned spending on the Olympics (Heisey, 2009). Moreover, individuals anticipating a successful bid and that London would be a good host stated higher WTP (Atkinson et al., 2008). Moreover, individuals anticipating positive effects of the event (Preuss and Werkmann, 2011) and stating that the intangible benefits would be more important than the tangible benefits reported higher WTP (Atkinson et al., 2008), while a payment of more than ten years was negatively associated with WTP (Atkinson et al., 2008).

In summary, there are some studies which have examined the monetary value of hosting Olympic Games. Most of them used a tax increase as the payment vehicle (Atkinson et al., 2008; Coates and Szymanski, 2015; Walton et al., 2008), while one study asked for a donation to a private organization (Heisey, 2009) and another did not specify the payment vehicle (Preuss and Werkmann, 2011). Different question formats were used including a payment card (Atkinson et al., 2008; Coates and Szymanski, 2015; Preuss and Werkmann, 2011), closed-ended questions with several answer categories (Heisey, 2009), and double-bounded dichotomous choice (Walton et al., 2008). What previous research on hosting mega events has not yet considered is policy consequentiality (Carson and Groves, 2007). Moreover, the sample sizes of most previous studies were relatively small which may

compromise the reliability of WTP estimates (Carson, 2000). The present study attempts to address these shortcomings.

Method

Data collection

Primary data were collected to examine the support for hosting Olympic Summer Games in Germany using a nationwide online survey from December 2013, a month after the Munich referendum failed, to March 2014. In the aftermath of Munich, German officials announced their efforts to attract Olympics would shift to the Summer Games, but did not specify a particular host city. The online survey was hosted by Sosci Survey (www.soscisurvey.de). The link to the survey was distributed using social media and city websites throughout Germany, resulting in a convenience sample rather than a representative random sample. To compensate, weights will be used to improve the representativeness of the sample (further discussed below). Participation in the survey was limited to respondents aged 16 years or older, and the questionnaire could only be completed once per internet protocol (IP). Altogether, 7,721 people participated in the survey. After data cleaning, in which respondents providing implausible and incomplete answers were removed, the sample contains 6,977 observations.

Questionnaire and variables

An overview of the variables is provided in Table 1. The present research also included two football club scenarios (not examined in this article). Since ordering effects may affect WTP in CVM studies including multiple valuation scenarios (Johnson et al., 2006) respondents were randomly assigned either one of two football scenarios first or the Olympic scenario (FIRST). The Olympic section started with questions about respondents' general interest in sport. They were asked to state their level of agreement with a set of statements on a five-point Likert scale, from strongly disagree (1) to strongly agree (5). The statements

referred to the respondent's interest in sport in general (INTEREST), regular sport practice (PLAY); whether they identify with Germany (IDENTIFY); whether they feel proud (PROUD) and happy (HAPPY) when German athletes and teams succeed at international competitions; whether they think Germany's reputation is burnished by German success at international competitions (REPUTATION); and whether they regard German athletes as role models (ROLEMODELS). These variables were recoded into 1 when the respondents replied *strongly agree* or *agree* and 0 otherwise.

Afterwards, the Olympic scenario was presented:

The Olympic Games may be the most famous and prestigious of all sporting competitions in the world. Some cities have hosted multiple Olympic Games. For instance, in 2012, London hosted its third Summer Olympics. Up to now Munich is the only German city which has hosted Olympic Games after World War II, i.e., the 1972 Summer Olympics. Its bid to host the 2018 Winter Olympics was unsuccessful. Moreover, the outcome of the referendum in the Munich region in November 2013 was that people did not support another bid of Munich for Winter Olympics.

Suppose the German Olympic Sports Confederation considers submitting a bid for Olympic Summer Games in the future. To pay the extra cost of hosting the Olympics, the German government would impose a monthly income tax surcharge on each individual for the next 5 years.

Given the possibility of temporal embedding effects in CVM surveys (Johnson et al., 2006), the duration of the monthly tax payment, five years, was clearly specified. After the above introduction, respondents were asked if they thought that Germany's prestige and standing in the world would rise if Germany hosted the Summer Olympics (PRESTIGE). Afterwards, the respondent's likelihood of voting for specific tax amounts was assessed on a five-point scale, from very unlikely (1) to very likely (5). Respondents were presented with a payment card including seven different tax amounts (€10, €25, €50, €100, €150, €200, and €250). Then they were asked, "Suppose that this proposal was put to a referendum vote for all Germans ... how likely do you think it is that you would vote for the proposal at the following tax amounts?" Two variables result from the scenario. The first is POS_WTP

which is equal to 1 if the respondent is very likely to support the referendum at €10 or higher. Respondents who said they would only be *somewhat likely* to vote in favor were coded as no votes, to mitigate hypothetical bias (Loomis, 2011). WTP was coded at the midpoint of a *very likely* vote and next highest amount at some less likely response. For example, if a respondent stated *very likely* to €10 and *somewhat likely* to €25, then WTP was coded at €17.50.

After the scenario, respondents stated their level of agreement, on a five-point scale from *strongly disagree* (1) to *strongly agree* (5), with several policy related statements. They were asked whether they think that a referendum would be a good way for citizens to express their preferences for sport in Germany (REFERENDUM), whether they believe that the results of this survey would be shared with policy makers (SHARED), whether they believed the results would affect the decisions on sport in Germany (AFFECT), and whether they have confidence in the ability of the German government to achieve the goals of sport policy (CONFIDENCE). Moreover, a statement capturing the understanding of the information presented to the respondent in the survey was included (INFO). These variables were recoded as 1 when the respondents replied *strongly agree* or *agree* and 0 otherwise. The questionnaire finished with a set of questions about the respondent's socio-economic characteristics including her gender (MALE), age (AGE), education (SCHOOLING), personal monthly net income (INCOME), postcode (POSTCODE), and the number of years she has lived in the current city (TENURE).

Insert Table 1 here

Initial sample and use of weights

The age and gender distribution of the initial sample shows that 76 percent of the respondents were male and the average age was 31.7 years (SD: 12.3). In the German population, the share of males aged 15 years and older is 48.5 percent and the average is 44 years (Federal Statistical Office, 2014). Thus, males and younger people are overrepresented

in the initial sample. This overrepresentation may be explained by at least two circumstances, i.e., interest in sport and *digital divide*. First, it seems that males and younger people were more likely to self-select into the online survey, probably because they are more interested in the topic of sports in general. Research shows that these population groups are more likely to participate themselves (e.g. Downward and Rasciute, 2010; Humphreys and Ruseski, 2007; Wicker et al., 2009) supporting the notion of a higher interest in sports. This has also been acknowledged by Wicker et al. (2015) in their CVM study. Second, the *digital divide* may be advanced as an explanation. Research shows that males and younger people are more likely to use the Internet than females and older people (Emrich et al., 2014; Korupp and Sydlik, 2005). Since the present sample is not representative of the German population, weights for age and gender were used. Following Carson (2000), the sample size and composition are critical to the reliability of CVM studies and the use of an appropriate set of weights is recommended when samples are not representative. The weights were based on the detailed population statistics by age and gender provided by the Federal Statistical Office which was available at the time of writing (Regionalstatistik, 2012). The empirical analysis is based on the weighted sample.

Empirical analysis

Because a respondent may first decide whether she would be willing to pay at all and then on the amount (Castellanos et al., 2011), two regression models are estimated. In the first model, POS_WTP serves as the dependent variable, while LN(WTP) is used as the dependent variable in the second model. We first ran a Heckman model to test for sample selection; the lambda indicated that this is not an issue. Thus, we can proceed to the grouped data hurdle model which is appropriate for payment card interval data (Cameron and Huppert, 1989). It can be described as follows:

$$(1) \text{ Probit: POS_WTP} = f(X)$$

(2) Grouped data: $\text{LN}(\text{IWTP}) = f(X)$

where $\text{IWTP} = 1$ if $\text{WTP} < 25$, 2 if $25 \leq \text{WTP} < 50$, 3 if $50 \leq \text{WTP} < 100$, 4 if $100 \leq \text{WTP} < 150$, 5 if $150 \leq \text{WTP} < 200$, 6 if $200 \leq \text{WTP} < 250$, 7 if $\text{WTP} \geq 250$.

The first part is a probit model where POS_WTP is a function of all remaining variables from Table 1. In the second part the log of the thresholds is used for the grouped data. We limit our discussion to variables with coefficients that are statistically significant at the 5 percent level.

Results and Discussion

Table 2 displays the summary statistics of the weighted sample. As a result of using weights, 49 percent of the respondents are male and the average age is 45.5 years. On average, respondents earn a monthly net income of €1986, have 13.5 years of school and university education, and have been living for 28 years in their current city. Altogether, 78 percent are interested in sport, 56 percent regularly play sport, 73 percent identify with Germany, 69 percent are proud and 65 percent are happy when Germans succeed in international competition, 63 percent think that that German success in international competition enhances Germany's reputation, and 71 percent regard German athletes as role models.

Seventy-two percent would be willing to pay a monthly income tax over a five-year-period of at least €10 to host the Olympic Summer Games. In contrast, Preuss and Werkmann (2011) found that 42.5 percent reported a positive WTP to host the Winter Olympic Games in Munich. This may be because fewer Germans are interested in the Winter Games. Certainly, fewer Germans live in regions with winter sports such as skiing, for instance. Another possible explanation is that in the present survey, no host location was specified. Perhaps many or most respondents imagined their own city or region as the host of the Summer Games.

For those willing to pay, average WTP is €47.13, substantially higher than the €16.35 found by Heisey (2009); who assessed the WTP for Berlin hosting the 2016 Olympic Summer Games. However, his sample was smaller and not representative. Our result is similar to the average €46 WTP identified by Wicker et al. (2015) for Olympic medal success, i.e., for Germany being ranked first in the final medal table. Thus, the intangible benefits from hosting Olympic Games can be considered as high as the intangible benefits from medal success. The high WTP may reflect a general German desire to host Summer Olympics, perhaps because most of the population has not experienced an Olympic Summer Games on German soil.

Most respondents agree that Germany's prestige and standing in the world would rise if Germany hosted an Olympic Summer Games. Half of the respondents agree that a referendum is a good way for citizens to express their preferences for sport in Germany. Most respondents think that the results of this survey will be shared with policy makers, while just under a third think that these results will affect decisions on sport in Germany. Only 20 percent are confident in the ability of the German government to achieve the goals of sport policy.

Insert Table 2 here

The results are summarized in Table 3. Model 1 examines the determinants of a positive WTP and Model 2 analyzes the drivers of the amount of stated WTP. While a general interest in sport is not significantly associated with WTP in either model, playing sport adds to the probability of stating a positive WTP. Similarly, identification with Germany and pride derived from sporting success increase the likelihood of a positive WTP. Happiness when German athletes are successful at international sporting competitions has a significant positive effect on both WTP_POS and WTP. Perceiving athletes as role models only adds significantly to the amount of WTP. REPUTATION is negatively associated with

the amount of WTP, probably because people think that other aspects than Olympic Games are responsible for a country's reputation. Both the likelihood and amount of WTP are higher when people think that Germany's prestige and standing in the world would rise if Germany hosted the Summer Olympics. In sum, the results indicate that intangible benefits increase the likelihood of stating a positive WTP, or the amount of WTP, or both. Anticipation of positive and intangible effects was also positively associated with WTP in previous research (Atkinson et al., 2008; Preuss and Werkmann, 2011).

People who think that the results of this survey will be shared with policy makers and also affect decisions on sport in Germany are more likely to report a positive WTP, in line with research showing that policy consequentiality is positively associated with WTP (Groothuis et al., 2015; Vossler and Watson, 2013). Also in line with previous research is the positive income effect on WTP (e.g. Coates and Szymanski, 2015; Heisey, 2009; Walton et al., 2008). Males, younger, and more educated people are less likely to state a positive WTP, but in the case of a positive WTP, being male, younger, or more educated increases the amount of WTP. The effect of the scenario order (FIRST) is significant in both models indicating the presence of ordering effects (Johnson et al., 2006). Respondents were significantly more likely to state a positive WTP when they received the Olympics scenario first, but were significantly less likely to state a high amount of WTP.

Insert Table 3 here

Looking at both models, it becomes evident that different variables are statistically significant and that the nature of some effects differs between the two models, supporting the two-fold decision. Specifically, the pattern of a positive effect in Model 1 and a negative effect in Model 2 can be observed for several variables. This difference in the sign of many coefficients between Model 1 and Model 2 may be explained by the payment vehicle (taxes). Tax increases are not very popular in Germany (as probably in any other country) and given

the recent cases of excessive, but inefficient government spending on large-scale projects (e.g. Airport Berlin-Brandenburg, Elb Philharmonics in Hamburg), German citizens are hesitant to give more money to the government. Recent research by Breuer and Hallmann (2011) indicates that tax increases are not the preferred payment vehicle of the German population. In their CVM study, they asked for the preferred payment vehicle and only 15.3 percent of their respondents said that they would like to give the money for supporting Olympic athletes to the government. The preferred institutions were a sport federation (43.4 percent) and a foundation (33.5 percent). Our two models suggest that Germans want to support hosting the Olympics, but object to the idea of funding it through taxes.

Conclusion

This paper estimates Germans' WTP for hosting Olympic Summer Games. A nationwide online CVM survey asked Germans to state their WTP for specific tax increases using a payment card format. Seventy-two percent stated a positive WTP. Among those with a positive WTP, average WTP was €47. The perception of positive intangible effects of the Olympics, including pride and happiness derived from sporting success and greater German prestige, had a positive effect on WTP. Policy consequentiality also adds to WTP. The results suggest that people are generally willing to financially support hosting the Games, but that taxes are probably not the payment vehicle that would maximize revenue.

The findings have implications for policy makers. First, they document a general support for hosting Olympic Summer Games, suggesting that Hamburg's referendum in November 2015 might find support. Since half of the respondents say that referenda are a good way for citizens to express preferences for sport in Germany, the decision to vote on bidding for the Olympics can be supported by this study. Second, research on mega events such as the Olympic Games has focused on the potential economic and tourism development impacts of hosting (Baade and Matheson, 2004; Gratton et al., 2005; Hotchkiss et al., 2003;

Lee and Taylor, 2005; Ritchie and Smith, 1991), and hosting in the context of inter-urban competition (Andranovich et al., 2001; Hiller, 2000; Richards and Wilson, 2004; Whitelegg, 2000). The findings here suggest that a more powerful argument for hosting may be the public goods benefits the local residents receive, rather than any forecasted economic impacts. Thus, given the positive association of intangible effects of the event (happiness, pride, prestige) with WTP, policy makers should highlight the intangible effects in the public debate rather than any economic impact estimates when discussing the possible benefits of hosting.

This study has some limitations which represent opportunities for future research. First, the study relies on cross-sectional data collected during a period when the actual German candidate city had yet to be decided. Future studies should survey Hamburg citizens. In doing so, panel data should be collected to examine the development of WTP over time and during periods when opposition parties express their concerns. Second, CVM researchers should continue to test the sensitivity of WTP to alternative payment vehicles. Tax increases as a payment vehicle enhance perceived consequentiality which increases WTP. But, dislike of taxes may decrease WTP. It would be interesting to see if the likelihood of positive WTP, the amount of WTP and perceived consequentiality differ when the scenario payment vehicle involves a federation or foundation rather than the government.

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Table 1. Overview of variables.

| Variable | Description |
|------------|---|
| POS_WTP | Positive WTP (1 if WTP>€10) |
| WTP | Willingness-to-pay (in €) |
| FIRST | First scenario (1=yes; 0=third scenario) |
| INTEREST | I am interested in sports in general (strongly agree/agree=1) |
| PLAY | I practice sport regularly (i.e. at least once per week; strongly agree/agree=1) |
| IDENTIFY | I identify with Germany (strongly agree/agree=1) |
| PROUD | I am proud when German athletes/teams are successful at international sport competitions (strongly agree/agree=1) |
| HAPPY | I am happy when German athletes/teams are successful at international sporting competitions (strongly agree/agree=1) |
| REPUTATION | It is important for the reputation of Germany that German athletes/teams are successful at international sporting competitions (strongly agree/agree=1) |
| ROLEMODELS | German athletes are role models (strongly agree/agree=1) |
| PRESTIGE | Do you think Germany's prestige and standing in the world would rise if Germany hosted the Summer Olympics? (1=yes) |
| REFERENDUM | A referendum is a good way for citizens to express their preferences for sport in Germany (strongly agree/agree=1) |
| SHARED | I believe the results of this survey will be shared with policy makers. |
| AFFECT | I believe the results of this survey could affect decisions on sport in Germany (strongly agree/agree=1) |
| INFO | I understand all of the information presented to me in this survey (strongly agree/agree=1) |
| CONFIDENCE | I have confidence in the ability of the German government to achieve the goals of sport policy (strongly agree/agree=1) |
| INCOME | Individual monthly net income (from 1=up to €500 to 9=over €4000) |
| MALE | Gender of the respondent (1=male, 0=female) |
| AGE | Age of the respondent (in years) |
| TENURE | Number of years living in the city |
| SCHOOLING | Years of schooling |
| POSTCODE | Postcode region within Germany (from 0 to 9) |

Table 2. Summary statistics (weighted sample; n=6,977).

| Variable | Mean | SD | Min | Max |
|------------|---------|---------|------|------|
| POS_WTP | 0.72 | --- | 0 | 1 |
| WTP | 47.13 | 58.70 | 17.5 | 275 |
| FIRST | 0.51 | --- | 0 | 1 |
| INTEREST | 0.78 | --- | 0 | 1 |
| PLAY | 0.56 | --- | 0 | 1 |
| IDENTIFY | 0.73 | --- | 0 | 1 |
| PROUD | 0.69 | --- | 0 | 1 |
| HAPPY | 0.65 | --- | 0 | 1 |
| REPUTATION | 0.63 | --- | 0 | 1 |
| ROLEMODELS | 0.71 | --- | 0 | 1 |
| PRESTIGE | 0.59 | --- | 0 | 1 |
| REFERENDUM | 0.51 | --- | 0 | 1 |
| SHARED | 0.54 | --- | 0 | 1 |
| AFFECT | 0.29 | --- | 0 | 1 |
| INFO | 0.80 | --- | 0 | 1 |
| CONFIDENCE | 0.22 | --- | 0 | 1 |
| INCOME | 1986.15 | 1201.83 | 250 | 4250 |
| MALE | 0.49 | --- | 0 | 1 |
| AGE | 45.49 | 15.21 | 16 | 99 |
| TENURE | 27.85 | 18.21 | 0 | 90 |
| SCHOOLING | 13.46 | 3.15 | 5 | 17 |

Table 3. Determinants of WTP (weighted sample; grouped data hurdle model).

| | Model 1: Probit POS WTP | | | Model 2: Grouped data LN(WTP) | | |
|---------------------|----------------------------|-------|-------|----------------------------------|-------|-------|
| | Coeff. | SE | t | Coeff. | SE | t |
| Intercept | -1.907* | 0.205 | -9.31 | 1.639* | 0.418 | 3.92 |
| FIRST | 0.357* | 0.035 | 10.12 | -0.475* | 0.069 | -6.90 |
| INTEREST | -0.015 | 0.048 | -0.30 | -0.167 | 0.096 | -1.73 |
| PLAY | 0.103* | 0.037 | 2.75 | -0.002 | 0.073 | -0.03 |
| IDENTIFY | 0.236* | 0.053 | 4.48 | -0.024 | 0.116 | -0.21 |
| PROUD | 0.211* | 0.059 | 3.58 | -0.220 | 0.123 | -1.79 |
| HAPPY | 0.142* | 0.052 | 2.72 | 0.292 | 0.106 | 2.76 |
| REPUTATION | 0.025 | 0.045 | 0.56 | -0.309* | 0.093 | -3.31 |
| ROLEMODELS | 0.102* | 0.043 | 2.38 | 0.331* | 0.092 | 3.59 |
| PRESTIGE | 0.919* | 0.040 | 23.21 | 0.275* | 0.097 | 2.84 |
| REFERENDUM | 0.065 | 0.036 | 1.78 | 0.059 | 0.071 | 0.83 |
| SHARED | 0.119* | 0.039 | 3.09 | -0.071 | 0.076 | -0.93 |
| AFFECT | 0.087* | 0.042 | 2.09 | 0.111 | 0.079 | 1.41 |
| INFO | -0.003 | 0.045 | -0.07 | 0.152 | 0.090 | 1.68 |
| CONFIDENCE | 0.066 | 0.042 | 1.57 | -0.084 | 0.078 | -1.07 |
| LN(INCOME) | -0.034 | 0.023 | -1.48 | 0.108* | 0.045 | 2.39 |
| MALE | -0.111* | 0.038 | -2.90 | 0.378* | 0.076 | 4.95 |
| AGE | 0.003 | 0.001 | 1.94 | -0.012* | 0.003 | -4.28 |
| TENURE | 0.001 | 0.001 | 0.66 | 0.010* | 0.002 | 4.43 |
| SCHOOLING | -0.013* | 0.006 | -2.24 | 0.040* | 0.011 | 3.60 |
| POSTCODE Dummies | Included | | | Included | | |
| Chi-square | 1173 | | | | | |
| Sigma | | | | 1.25 | 0.04 | 34.04 |
| LL Function | | | | -2411.00 | | |
| Obs. | 6977 | | | 1997 | | |

Note: * $p < 0.05$; reference for POSTCODE is region 2 (Hamburg).

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