Appalachian State University

Department of Economics Working Paper

Number 17-03| May 2017

Using Willingness to Travel to Estimate the Monetary Value of Intangible Benefits Derived from Active Sport Event Tourism

John C. Whitehead
Appalachian State University

Pamela Wicker
German Sport University Cologne

Department of Economics
Appalachian State University
Boone, NC 28608
Phone: (828) 262-2148
Fax: (828) 262-6105
www.business.appstate.edu/economics

Using Willingness to Travel to Estimate the Monetary Value of Intangible Benefits Derived from Active Sport Event Tourism[1]

May 2017

John C. Whitehead[1] and Pamela Wicker[2]

[1]Appalachian State University

[2]German Sport University Cologne

Abstract. This study examines the monetary value of intangible benefits to participants of an active sport tourism event. Willingness to travel greater distances for future events is assessed and converted into willingness to pay estimates using travel costs. Using survey data from the 2014 and 2015 Blood Sweat Gears bike race, the intended visitation models show that changes in travel cost have a significant negative effect. Willingness to pay to revisit the event was between 10% and 30% of the registration fee. The likelihood of return visit decreases as travel costs increase, indicating that the willingness to pay estimates can be considered internally valid. The willingness to pay estimates stemming from two years of data collection are stable, suggesting that they are also temporally reliable. This study demonstrated the feasibility of using stated preference intention to revisit questions to assign a monetary value to intangible benefits of active sport tourists.

Keywords: active sport tourism; cycling; intention to revisit; monetary valuation; non-market good; temporal reliability; willingness to pay

Introduction

[1] This paper was presented during the NAASE sponsored Sports Econ Miscellany II session at the 86th Annual Meeting of the Southern Economic Association, Washington DC, November 19-21, 2016.

During the last years, the number of recurring participant-driven sport events has increased (Hallmann & Breuer, 2010), particularly in endurance sports like triathlon (Wicker, Prinz, & Weimar, 2013), marathon running (Wicker, Hallmann, & Zhang, 2012), and cycling (Kaplanidou & Vogt, 2007). Following Jago and Shaw (1998), these events are referred to as small-scale events even though they can involve a large number of participants. Several hundreds or thousands of participants travel to these events, most of them with the purpose of competing in these events. Even though there may also be individuals who participate in such events for recreational purposes (Gammon & Robinson, 2003), both types of event participants represent active sport tourists who "travel to take part in sport" (Gibson, 1998, p. 45) as opposed to passive sport tourists where spectating is the main purpose of travel.

Despite large participant numbers, the focus of previous research was on large-scale and spectator-driven sport events, particularly from an economic perspective where research efforts concentrated on estimating the economic impact of sport events. For example, effects on the tourism industry, local economy, and employment have been investigated (e.g., Baade, Baumann, & Matheson, 2010; Feddersen & Maennig, 2013). Most previous studies have shown that economic impacts of large-scale sport events have often been overstated, particularly when estimated ex ante (see Kasimati, 2003 for an overview). In addition to methodological inconsistencies (Kirkup & Major, 2006), another shortcoming of economic impact studies is that they focus on tangible effects, thus neglecting intangible effects of an event. Accordingly, several scholars suggested moving beyond economic impact by also estimating intangible effects (Walker & Mondello, 2007).

Such intangible effects can relate to the host region, spectators, or event participants themselves. While effects on residents and spectators have been widely studied, specifically in the context of large-scale, spectator-driven events (e.g., Walton, Longo, & Dawson, 2008; Wicker, Whitehead, Mason, & Johnson, 2016), effects on participants have been largely neglected in previous studies despite their relevance to participant-driven sport events. Such intangible effects can include, for instance, happiness when finishing the race (Maxcy, Wicker, & Prinz, 2016), pride from having accomplished personal goals (Allen, Dechow, Pope, & Wu, 2016), or simply the travel element itself which can positively affect a participant's sporting identity (Shipway & Jones, 2008). These benefits reflect the non-market value of the event enjoyed by participants. The estimation of such intangible consumption benefits for event participants has been largely neglected in previous research with a few exceptions (e.g., Bakhtiari, Jacobsen, & Jensen, 2014; Whitehead, Weddell, & Groothuis, 2016).

The purpose of this study is to estimate the monetary value of intangible benefits of a sport event for active event participants. The research context for this study is the Blood Sweat and Gears (BSG) – a long distance road bike ride in Valle Crucis, North Carolina (NC) which is held annually in late June or early July.[2] Participant data were collected using an online survey that was administered after the race in two consecutive years. A question assessing respondents' willingness to travel increasing distances in the context of revisit intention was used in order to estimate the value of the event to the participant. Since willingness to travel is a stated, not revealed, preference measure of value, we checked its validity and reliability (Bishop & Boyle, 2017). The validity test is based on rational choice theory and considers whether revisitation is inversely related to the cost of revisitation. The reliability of willingness to pay estimates was tested by examining their stability over time. This study adds to the body of research on participant-driven events and monetary valuation of intangible effects.

[2] The 90 to 100 mile route includes 21 miles on the Blue Ridge Parkway, a linear National Park. The terrain is constantly changing with hills of all lengths and a large number of curves. The cumulative climbing elevation is 8800 feet with up 20% grades.

Conceptual framework and literature review

Willingness to pay and willingness to travel

The valuation of intangible effects is challenging given that these are non-market goods where prices cannot be observed (Walker & Mondello, 2007). Several methods have emerged to assign a monetary value to such goods. One prominent approach is the contingent valuation method where survey respondents are presented with a hypothetical scenario and asked for their willingness to pay for the scenario to occur or to be avoided (Carson, 2000; Walker & Mondello, 2007). The assessment of an individual's true willingness to pay is difficult because several methodological aspects must be considered (Carson, 2000). For example, questions should be incentive compatible, i.e., they should be designed in a way that respondents reveal their true preferences and neither over- nor underestimate their willingness to pay (Carson, Groves, & List, 2014). If this is not the case and, for instance, respondents anticipate price increases as a result of a survey asking for their willingness to pay, they may respond strategically and state a lower willingness to pay. Such strategic responses lead to hypothetical bias, meaning that hypothetical willingness to pay differs from actual willingness to pay. Hypothetical bias is also present when hypothetical willingness to pay exceeds actual willingness to pay, that means when respondents would have to make an actual purchase (Carson et al., 2014).

Willingness to travel is a concept similar to willingness to pay and is elicited using the contingent activity method (Heyes & Heyes, 1999) or, synonymously, contingent behavior method (Whitehead, Johnson, Mason, & Walker, 2013). Given the challenges of asking for willingness to pay directly, willingness to travel questions are used where the maximum distance an individual would be willing to travel under specific circumstances is assessed. Importantly, willingness to travel estimates can be easily converted into willingness to pay estimates when information about travel costs per mile or kilometer is available (Bakhtiari et al., 2014). Thus, measuring willingness to travel is another and more indirect way of assigning a monetary value to non-market goods like intangible effects. Monetary values obtained via willingness to travel questions were found to represent useful complements to measures derived with other methods such as the contingent valuation method or travel cost method (Heyes & Heyes, 1999).

Intention to revisit

Many willingness to travel questions are rooted in the intention to revisit literature as they assess whether users would be willing to travel again to a specific area under specific conditions which can be modified in an experimental setting (e.g., Bakhtiari et al., 2014; Sælen & Ericson, 2013). While intention to revisit reflects only stated preferences, the theory of planned behavior supports the notion that behavioral intentions are associated with actual behavior (Ajzen, 1991). From the perspective of event organizers, revisiting consumers can reduce marketing efforts and signal loyalty (Kim, Holland, & Han, 2013). Theoretically, past behavior is a significant predictor of future behavior (Ajzen, 1991). Most empirical studies also supported this relationship (e.g., Huang & Hsu, 2009; Kaplanidou, 2009; Petrick, Morais, & Norman, 2001).

In addition to past behavior, previous research examined other factors affecting behavioral intentions. For example, revisit intention was affected by novelty seeking behavior (Assaker & Hallak, 2013), attitudes (Kaplanidou & Gibson, 2010), image of the event and the destination (Kaplanidou, 2009; Wicker et al., 2012), image fit between event and destination (Hallmann & Breuer, 2010), satisfaction (Eusebio & Vieira, 2013), shopping (Huang & Hsu, 2009), and trust (Kim, Kim, & Kim, 2009). The role of travel costs in intention to revisit decisions has been largely neglected in previous research. Consequently, the application of intention to revisit questions to monetary valuation has been limited so far; the few existing studies are discussed next.

Estimating the non-market value of event participation

There are several ways to estimate the non-market value of event participation. The first is the contingent behavior method where respondents are presented with an increase in recreation trip costs and asked whether they would still have taken their current trip under these circumstances (e.g., Cameron, 1992; Gonzalez, Loomis, & Gonzalez-Caban, 2008). One problem of this approach is that – when estimated with the travel cost method – there may be significant measurement errors in the travel cost variable and inconsistency with the randomly assigned trip costs in the hypothetical trip question.

Another approach is to estimate the value of return visitation with the registration fee as the payment vehicle (Söderberg, 2012; Whitehead et al., 2016). A problem with this approach is that responses to registration fee questions may suffer from incentive compatibility. Participants may indicate that they do not want to revisit the event in order to signal that they do not want registration fees to increase. Thus, such questions are not incentive compatible as they invite strategic behavior of respondents. The willingness to pay estimates by Wicker and Hallmann (2013) likely suffer from the same problem.

A third approach is to investigate willingness to travel using discrete choice experiments and choice-based conjoint analysis (Kerr & Abell, 2014; Sælen & Ericson, 2013; Unbehaun, Pröbstl, & Haider, 2008). Here, respondents are presented with several choice options including different travel distances as well as other attributes such as number of days in the area and access options. Willingness to travel estimates can be converted into willingness to pay values using travel costs. Since conjoint measurement is also more indirect in nature as respondents make global statements about alternative products, hypothetical bias and incentive compatibility represent less of an issue (Sattler & Nitschke, 2003).

A fourth method is to assess respondents' willingness to travel additional distances to estimate the value of recreation trips (Bakhtiari et al., 2014; Heyes & Heyes, 1999). These questions allow construction of travel costs for direct comparison with revealed preference travel cost models and are incentive compatible. Consequently, this approach also addresses the shortcomings of the first two approaches in that it is incentive compatible and does not invite strategic behavior. While still being indirect in nature, it can be considered less complex than a conjoint analysis design. In this study, a willingness to travel increasing distances question is used in the context of revisit intention in order to estimate the value of the event to the participant.

Method

Data collection

Following the 2014 and 2015 events, online surveys were administered to participants using Survey Monkey©. In 2014, email invitations were sent to 1,315 riders who had registered for the race. After the initial email invitation on July 10, a reminder was sent on July 16. Altogether, 458 riders participated in the survey and 440 completed it. The completed response rate was 33.4%. After the 2015 edition of the race, email invitations were sent to 1,281 registered riders. Following the initial email invitation on July 2 and a reminder on July 9, 455 responses were received and 418 riders completed the survey, yielding a completed response rate of 32.6%. In both years the focus is on those respondents who traveled to the event, participated in the ride, and answered all of the stated preference questions. The corresponding sample sizes are n=327 for 2014 and n=304 for 2015.

Measures and variables

In the introduction of the survey, respondents were informed that participation in the survey is completely voluntary and that they can end the survey at any time. They were reassured that the provided information will only be used for research purposes and that the survey was completely anonymous. The questionnaire started with a filter question assessing whether the respondent was at least 18 years old as the target group of the survey were adult riders. An overview of the variables used in this study and their summary statistics are provided in Table 1. None of the differences across survey years are statistically different from zero. The variables can be categorized into rider characteristics, travel behavior, and socio-demographics.

Insert Table 1 here

Starting with rider characteristics, respondents were asked if they participated in the 50 mile race or the longer (100 mile in 2014, 90 mile in 2015) ride. In 2014, 40% of respondents participated in the 50 mile ride. In 2015, 42% of respondents had registered for the longer race which was, however, cancelled due to poor weather conditions and, thus, everybody participated in the 50 mile ride. Most respondents (86%) felt that this was an appropriate decision at the time it was made. Respondents were also asked about their experience in this race. On average, respondents of the 2015 survey have participated in four prior races relative to three BSG races of the 2014 respondents. Then, respondents were asked about their satisfaction with BSG and to what extent the race met their expectations using a 7-point Likert scale. About 70-72% of respondents were satisfied with their most recent BSG experience. Between 49% and 55% of respondents stated that the race was better than expected. Recreational biking expenditures (incl. gear) during the last twelve months were assessed using a question with eleven categories with the midpoint of the categories being assigned as the dollar amount. On average, respondents spent over $2000 on biking during this period.

With regard to travel behavior, the present study distinguished between revealed preferences, i.e., information about actual race participation in the year of the survey, and stated preferences, i.e., information about behavioral intentions and future race participation, respectively. Starting with revealed preferences, respondents were asked if they stayed overnight when traveling to the BSG and if so, how many nights they stayed, what the size of the travel party was, and how much money the whole travel party spent on this stay. Over 80% of respondents spent the night away from home when traveling to the BSG. On average, these respondents stayed two nights, travelled with 2.5 friends or family members, and spent over $500. About one fifth of respondents also traveled away from home to the event site to train on the course before the race. For these respondents, the average number of nights stayed was between zero and one. One-way driving distance was measured from the self-reported home zip code to the Valle Crucis, NC zip code using the website zip-codes.com. The average one-way driving distance was 188 and 210 miles for the 2014 and 2015 sample of respondents, respectively.

Turning to stated preferences, two return visit questions were asked, the first under status quo conditions and the second with additional driving miles. The first return visit intention question read as follows (example for the 2015 survey follows): "Do you plan to participate in the 2016 Blood Sweat and Gears?" The answer categories were *definitely yes, probably yes, not sure, probably no,* and *definitely no*. Those respondents who did not choose the *definitely no* answer were directed to the second return visit question which assessed their willingness to travel greater distances:

> "Suppose that you had to drive further to get to Blood Sweat and Gears in 2016 compared to your driving distance in 2015. For example, you might move further away from Valle Crucis. Would you plan to participate in the 2016 Blood Sweat and Gears if you had to drive _____ more one-way miles?"

The response categories were presented in a payment card format, i.e., a table with additional distances, 30, 60, 90, 120, and 150 in the first row, and five rows of the probabilistic answer categories (Figure 1).

Insert Figure 1 here

The two revisit intention questions were used to construct the stated preference return visit variables (Table 2). Whitehead et al. (2016) asked a similar question and found that revealed and stated preferences were similar if the stated preferences return visitation response was coded as visit if the respondent answered *probably* or *definitely yes* relative to *definitely yes*. Altogether, 46% (2014) and 47% (2015) of respondents answered *definitely yes* under status quo distance conditions, while 85% (2014) and 80% (2015) of respondents answered *definitely yes* or *probability yes* under status quo distance conditions.

One response from the five potential additional driving distances was randomly selected for the empirical analysis. As the additional driving distance increases, the percentage of respondents stating that they would participate in the next BSG falls. Considering those who answer *definitely yes*, the percentage falls from 46% to 1% in 2014 and from 50% to 5% in 2015 as the additional one-way mileage rises from 30 to 150. For the *probably yes* answer, the percentage falls from 77% to 7% in 2014 and from 83% to 17% in 2015 as the additional one-way mileage increases.

Insert Table 2 here

The survey finished with a set of questions assessing the socio-demographic characteristics of respondents including gender, age, employment, marital status, household size, education, and income (Table 1). Most respondents were male, about 50 years old, worked full-time, and were married. The average household size was almost three people. Education was measured with a categorical question and the number of years of schooling was estimated by assigning years to categories. The average number of years of schooling was approximately 16 years. Individual annual gross income was assessed using a closed-ended question with eleven categories. The dollar amount was measured as the midpoint of these categories. Average annual income was between $137,000 and $139,000.

Empirical analysis

Stated preference OLS models for each year of the intended visitation measures were estimated.[3] The two stated preference (SP) observations (status quo and increased distance) stacked and intended visitation linear probability models were estimated with random effects to account for the correlation across scenarios. The models were specified as:

$$\pi(IV = 1) = \alpha + \beta \Delta TC + \delta' X + \mu_i + e_{it} \quad (1)$$

where $\pi(IV)$ is the probability of intended visitation; ΔTC is the change in travel cost faced by respondents; X is a vector of control variables; μ_i is an individual specific error term, $i = 1, \ldots, n$; and e_{it} is a random error term, $t = 1, 2$. The coefficients are interpreted as the change in the probability from a one unit change in the variable.

The change in travel cost was measured as the sum of out-of-pocket travel costs and the opportunity cost of time using the following equation:

$$\Delta TC = (c \times 2 \times \Delta d) + \big(\gamma \times w \times (2 \times \Delta d / mph)\big) \quad (2)$$

[3] Similar results were obtained using probit models.

where $c = 0.13$ is the operating cost per mile (American Automobile Association, 2015), Δd is the change in one-way distance (in miles), $\gamma = 0.33$ is the fraction of the wage rate – a standard value in the travel cost method (Parsons, 2017), and $w = income/2000$, and mph is 50 miles per hour – the average driving speed in North Carolina. The additional travel cost (ΔTC) was approximately $24 with a minimum of $8 and a maximum of $39.

The intangible monetary value of a revisit is the difference between what the consumer is willing and able to pay and the actual cost. In a simple model with just constant and slope terms (Figure 2), $\pi(IV = 1) = \alpha + \beta\Delta TC$, the monetary value (i.e.,. willingness to pay for the event) is the consumer surplus triangle from the demand curve bounded by the probability of intended visitation at an additional travel cost of zero, α, and the additional travel cost that makes this probability equal to zero, $-\alpha/\beta$: $WTP = 0.5\times\alpha\times(-\alpha/\beta)$, when $\beta < 0$.

Insert Figure 2 here

Altogether, eight models were estimated. The first set of models only included the travel cost as an independent variable, while the remaining variables from Table 1 were entered in the second set of models. Within each set of models, separate estimates were provided for each survey year and for each of the two dependent variable measuring return visitation, i.e., *definitely yes* and *probably yes*.

Results and discussion

Table 3 shows the four intended visitation models that do not include the vector of control variables. In each model, the intercept shows that the probability of a return visit with no additional travel cost is statistically significant. These probabilities are 0.47 (2014) and 0.49 (2015) in the *definitely yes* models and 0.86 (2014) and 0.83 (2015) in the *probably yes* models, respectively. In each model, the coefficient on the change in travel cost variable is negative and statistically significant. In the *definitely yes* models, a $1 increase in travel cost would decrease the probability of a return visit by 0.012 in 2014 and 0.010 in 2015, respectively. In the *probably yes* models, a $1 increase in travel cost would decrease the probability of a return visit by 0.02 (2014) and 0.016 (2015).

Willingness to pay was calculated with horizontal intercepts. In the 2014 and 2015 *definitely yes* models, the willingness to pay estimates are $9 and $11, respectively. The willingness to pay estimates were larger in the *probably yes* models with higher return visit probabilities. The respective estimates are $18 in the 2014 model and $21 in the 2015 model. The 2014 and 2015 willingness to pay estimates are not significantly different, indicating that they are temporally reliable. Overall, willingness to pay ranged between $9 and $21 which is about 10% to 30% the magnitude of the registration fee – registration fees amount to $70 for the 50 mile race and $80 for the 90 mile ride, respectively (BSG, 2016). Recall that the willingness to pay estimates are conservative estimates. Similar willingness to pay values were obtained when using the models with control variables from Table 4.

Insert Table 3 here

Table 4 reports the four intended visitation models including the vector of control variables. Initially, all of the candidate variables from Table 1 were included. If a variable is not statistically significant in any of the preliminary models, it was dropped from the final estimates in Table 4. Overall, these models suggest that the effects of the change in travel cost variable are relatively robust when further variables are added to the models. In each of the models the coefficient on the change in travel cost variable is still statistically significant and negative with little change in magnitude.

In each of the models, respondents who were satisfied with the BSG were more likely to indicate return visitation. The respective change in probability is 0.13 (2014) and 0.24 (2015) in the *definitely yes* models and 0.09 (2014) and 0.21 (2015) in the *probably yes* models. Respondents who reported that their experience was better than expected were significantly more likely to indicate a return visit in the 2014 *definitely yes* model; the corresponding change in probability is 0.12. In the 2015 *definitely yes* model, males and those who have greater expenditures on biking gear were significantly more likely to state a return visit intention. In both 2015 models, the opinion that canceling the longer ride was the appropriate decision increases the probability of intended visitation. The respective changes in probability are 0.11 and 0.20 in the *definitely yes* and *probably yes* models, respectively.

Insert Table 4 here

Conclusions

This study set out to estimate the experiential value of an active sport tourism event to participants using stated preference willingness to travel questions which could be converted into willingness to pay estimates. Respondents stated their revisit intentions as theory would predict in the stated preference questions. As hypothetical travel distance and travel cost increase, the intention to revisit decreases. Given the negative effect of the change in travel cost variable and the incentive compatibility of questions, the willingness to pay estimates can be considered valid. The stability of estimates over time suggests that the willingness to pay estimates can also be considered reliable. Hence, we demonstrated the feasibility of using stated preference intention to revisit questions to assign a monetary value to the intangible benefits experienced by participants of an active sport tourism event.

This study contributes to the literature in at least three ways. First, it extends the monetary valuation literature by suggesting an alternative approach to the usual willingness to pay questions. The approach applied in the present study, i.e., assessing willingness to travel additional distances, is more indirect in nature and hypothetical bias is expected to be less of an issue as the questions are incentive compatible. The second contribution to the monetary valuation literature lies in the object of investigation: while previous research efforts have focused on the intangible benefits for residents and spectators, this study examined these benefits for active event participants and assigned a monetary value to them. Third, this study adds to the intention to revisit literature by integrating travel costs into the return visitation equation. Hence, this research was able to drive the intention to revisit literature towards monetary valuation.

The findings of this study are relevant for tourism management in general and all stakeholders interested in the economic value of sport events. Since existing studies estimating the economic impact of sport events tend to concentrate on tangible effects (Kasimati, 2003), intangible benefits are neglected. The estimates obtained in the present study could be integrated in cost-benefit analysis of sport events in an effort to provide a more complete picture including both tangible and intangible effects.

This study is not free of limitations which can represent avenues for future research. First, the present study is limited to one event in one particular sport. Future studies should extend the present research design to other sports and mass participation events such as running competitions, marathon races, or (long distance) triathlon competitions. Second, the finding of changing baseline probabilities for return visitation in the 2015 survey may be further investigated. Third, this study used a payment card format for the return visitation question. Future studies may use different approaches for eliciting willingness to travel.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.

Allen, E. J., Dechow, P. M., Pope, D. G., & Wu, G. (2016). Reference-dependent preferences: Evidence from marathon runners. *Management Science* (in press). doi:10.1287/mnsc.2015.2417

American Automobile Association. (2015). *Your driving costs: How much are you really paying to drive?* Retrieved 22 February 2017 from http://exchange.aaa.com/wp-content/uploads/2015/04/Your-Driving-Costs-2015.pdf

Assaker, G., & Hallak, R. (2013). Moderating effects of tourists' novelty-seeking tendencies on destination image, visitor satisfaction, and short- and long-term revisit intentions. *Journal of Travel Research, 52*(5), 600-613.

Baade, R. A., Baumann, R. W., & Matheson, V. A. (2010). Slippery slope? Assessing the economic impact of the 2002 Winter Olympic Games in Salt Lake City, Utah. *Région et Développement, 31*, 81-91.

Bakhtiari, F., Jacobsen, J. B., & Jensen, F. S. (2014). Willingness to travel to avoid recreation conflicts in Danish forests. *Urban Forestry & Urban Greening, 13*(4), 662-671.

BSG. (2016). *Register.* Retrieved 10 November 2016 from http://www.bloodsweatandgears.org/register

Bishop, R. C., & Boyle, K. J. (2017). Reliability and validity in nonmarket valuation. In P. A. Champ, K. J. Boyle, & T. C. Brown (Eds.), *A primer on nonmarket valuation* (pp. tba.). Kluwer.

Cameron, T. A. (1992). Combining contingent valuation and travel cost data for the valuation of nonmarket goods. *Land Economics, 68*(3), 302-317.

Carson, R. T. (2000). Contingent valuation: A user's guide. *Environmental Science and Technology, 34*(8), 1413-1418.

Carson, R. T., Groves, T., & List, J. A. (2014). Consequentiality: A theoretical and experimental exploration of a single binary choice. *Journal of the Association of Environmental and Resource Economists, 1*(1), 171-207.

Eusebio, C., & Vieira, A. L. (2013). Destination attributes' evaluation, satisfaction and behavioural intentions: a structural modelling approach. *International Journal of Tourism Research, 15,* 66-80.

Feddersen, A., & Maennig, W. (2013). Employment effects of the Olympic Games in Atlanta 1996 reconsidered. *International Journal of Sport Finance, 8,* 95-111.

Gammon, S., & Robinson, T. (2003). Sport and tourism: A conceptual framework. *Journal of Sport & Tourism, 8*(1), 21-26.

Gibson, H. J. (1998). Sport tourism: A critical analysis of research. *Sport Management Review, 1*(1)*,* 45-76.

Gonzalez, J. M., Loomis, J. B., & Gonzalez-Caban, A. (2008). A joint estimation method to combine dichotomous choice CVM models with count data TCM Models corrected for truncation and endogenous stratification. *Journal of Agricultural and Applied Economics 40*(2), 681-695.

Hallmann, K., & Breuer, C. (2010). Image fit between sport events and their hosting destinations from an active sport tourist perspective and its impact on future behaviour. *Journal of Sport & Tourism, 15*(3), 215-237.

Heyes, C., & Heyes, A. (1999). Willingness to pay versus willingness to travel: Assessing the recreational benefits from Dartmoor National Park. *Journal of Agricultural Economics 50*(1), 124-139.

Huang, S., & Hsu, C. H. C. (2009). Effects of motivation, past experience, perceived constraint, and attitude on revisit intention. *Journal of Travel Research, 48*(1), 29-44.

Jago, L., & Shaw, R. N. (1998). Special events: A conceptual and definitional framework. *Festival Management & Event Tourism, 5*(1-2), 21-32.

Kaplanidou, K. (2009). Relationships among behavioral intentions, cognitive event and destination images among different geographic regions of Olympic Games spectators. *Journal of Sport & Tourism, 14*(4), 249-272.

Kaplanidou, K., & Gibson, H. J. (2010). Predicting behavioral intentions of active event sport tourists: The case of a small-scale recurring sports event. *Journal of Sport & Tourism, 15*(2), 163-179.

Kaplanidou, K., & Vogt, C. (2007). The interrelationship between sport event and destination image and sport tourists' behaviours. *Journal of Sport & Tourism, 12*(3/4), 183-206.

Kasimati, E. (2003). Economic aspects and the Summer Olympics: a review of related research. *International Journal of Tourism Research, 5,* 433-444.

Kerr, G. N., & Abell, W. (2014). *What's your game? Heterogeneity amongst New Zealand hunters*. Paper presented at the NZARES Annual Conference, Nelson, 28-29 August 2014.

Kim, S., Holland, S., & Han, H. (2013). A structural model for examining how destination image, perceived value, and service quality affect destination loyalty: a case study of Orlando. *International Journal of Tourism Research, 15*, 313-328.

Kim, T., Kim, W. G., & Kim, H. (2009). The effects of perceived justice on recovery satisfaction, trust, word-of-mouth, and revisit intention in upscale hotels. *Tourism Management, 30*, 51-62.

Kirkup, N., & Major, B. (2006). Doctoral foundation paper: The reliability of economic impact studies of the Olympic Games: A post-Games study of Sydney 2000 and considerations for London 2012. *Journal of Sport & Tourism, 11*(3), 275-296.

Maxcy, J., Wicker, P., & Prinz, J. (2016). *The reward for torture: Is participation in a long distance triathlon a rational choice?* Paper presented at the ESEA Conference from 31.08.-02.09.2016 in Groningen, Netherlands.

Parsons, G. R. (2017). Recreation demand models. In P. A. Champ, K. J. Boyle, & T. C. Brown (Eds.), *A primer on nonmarket valuation* (pp. tba.). Kluwer.

Petrick, J. F., Morais, D. D., & Norman, W. C. (2001). An examination of the determinants of entertainment vacationers' intentions to revisit. *Journal of Travel Research, 40*(1), 41-48.

Sattler, H., & Nitschke, T. (2003). Ein empirischer Vergleich von Instrumenten zur Erhebung von Zahlungsbereitschaften. *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung, 55*(4), 364-381.

Sælen, H., & Ericson, T. (2013). The recreational value of different winter conditions in Oslo forests: A choice experiment. *Journal of Environmental Management, 131*, 426-434.

Shipway, R., & Jones, I. (2008). The great suburban Everest: An insider's perspective on experiences at the 2007 Flora London Marathon. *Journal of Sport & Tourism, 13*(1), 61-77.

Söderberg, M. (2012). Willingness to pay for nontraditional attributes among participants of a long-distance running race. *Journal of Sports Economics 15*(3), 285-302.

Unbehaun, W., Pröbstl, U., & Haider, W. (2008). Trends in winter sport tourism: challenges for the future. *Tourism Review, 63*(1), 36-47.

Walker, M., & Mondello, M. J. (2007). Moving beyond economic impact: A closer look at the contingent valuation method. *International Journal of Sport Finance, 2*, 149-160.

Walton, H., Longo, A., & Dawson, P. (2008). A contingent valuation of the 2012 London Olympic Games: A regional perspective. *Journal of Sports Economics, 9*, 304-317.

Whitehead, J. C., Johnson, B. K., Mason, D. M., & Walker, G. J. (2013). Consumption benefits of National Hockey League game trips estimated from revealed and stated preference demand data. *Economic Inquiry, 51*, 1012-1025.

Whitehead, J. C., Weddell, M. S., & Groothuis, P. A. (2016). Mitigating hypothetical bias in stated preference data: evidence from sports tourism. *Economic Inquiry 54*(1), 605-611.

Wicker, P., & Hallmann, K. (2013). Estimating consumer's willingness-to-pay for participation in and traveling to marathon events. *Event Management, 17*(3), 271-282.

Wicker, P., Hallmann, K., & Zhang, J. J. (2012). What is influencing consumer expenditure and intention to revisit? An investigation of marathon events. *Journal of Sport & Tourism, 17*(3), 165-182.

Wicker, P., Prinz, J., & Weimar, D. (2013). Big spenders in a booming sport: Consumption capital as a key driver of triathletes' sport-related expenditure. *Managing Leisure, 18*(4), 286-299.

Wicker, P., Whitehead, J. C., Mason, D. S., & Johnson, B. K. (2016). Public support for hosting the Olympic Summer Games in Germany: The CVM approach. *Urban Studies* (in press). doi:10.1177/0042098016675085

Table 1

Overview of variables and summary statistics

Variable	Label	2014			2015		
		n	M	SD	n	M	SD
race	Type of race (0=50 mile; 1=90 or 100 mile)	327	0.40	---	304	0.42	---
experience	number of times participated in BSG	327	3.13	2.52	304	4.24	2.74
satisfaction	Satisfaction with BSG (1=extremely satisfied)	327	0.72	0.45	304	0.70	0.46
expectation	Extent two what expectations of BSG were met (1=slightly, somewhat, or much better than expected	327	0.55	0.50	304	0.49	0.5
cancel	Cancellation of 90 mile ride was appropriate decision (1=yes)	327	---	---	304	0.86	0.35
spend_bike	Expenditures on biking incl. gear in the last 12 months (in $)	327	2222.48	1725.07	304	2154.61	1760.24
overnight	Overnight stay (1=yes)	327	0.81	---	304	0.82	---
nights	If overnight=1, number of nights stayed	266	1.98	1.40	249	2.11	1.69
party	If overnight=1, travel party size (number of friends and family members who came with the respondent)	266	2.50	2.05	249	2.45	1.87
spend_travel	If overnight=1, total money of travel party spent on food/supplies, lodging, traveling, tourist attractions (in $)	266	518.86	829.91	249	522.69	692.25
train	Respondent traveled to train on course (1=yes)	327	0.21	---	304	0.22	---
train_days	Average number of days on a typical training trip	327	0.42	1.01	304	0.44	1.09
distance	One-way distance traveled (in miles)	327	187.97	169.78	304	210.42	200.39
Δtravel cost	Change in travel cost; see equation (2)	327	23.83	11.17	304	23.92	11.19
male	Gender (1=male)	327	0.84	---	304	0.85	---
age	Age of respondent	327	49.30	9.98	304	50.49	10.04
fulltime	Employment (1=full-time)	327	0.77	---	304	0.74	---
married	Marital status (1=married)	327	0.81	---	304	0.83	---
household	Number of people living in the respondent's home	327	2.88	1.28	304	2.78	1.24
schooling	Number of years of schooling	327	16.53	1.65	304	16.43	1.66
income	Personal annual gross income (in $1000)	327	139.43	78.86	304	136.99	75.86

Notes: In 2015, the 90 mile ride was cancelled the night before due to bad weather. Everyone rode the 50 miler. The 2015 route variable reflects the type of route the respondent registered for.

Table 2

Summary statistics: Stated preference return visit

	2014					2015				
		Definitely yes		Probably yes			Definitely yes		Probably yes	
ΔMiles	Cases	Number	Percent	Number	Percent	Cases	Number	Percent	Number	Percent
0	327	152	46%	278	85%	304	144	47%	244	80%
30	65	30	46%	50	77%	60	30	50%	50	83%
60	61	10	16%	33	54%	56	18	32%	34	61%
90	64	15	23%	25	39%	61	14	23%	25	41%
120	68	7	10%	15	22%	61	12	20%	21	34%
150	69	1	1%	5	7%	66	3	5%	11	17%

Table 3

Results of the random effects linear probability models for intended visitation: Models without control variables

	Definitely yes						Probably yes					
	2014			2015			2014			2015		
Variable	Coeff.	S.E.	t-value	Coeff.	S.E.	t-value	Coeff.	S.E.	t-value	Coeff.	S.E.	t-value
Intercept	0.468	0.039	11.99*	0.488	0.029	17.00*	0.860	0.023	37.57*	0.825	0.025	33.59*
Δtravel cost	-0.012	0.0011	-10.63*	-0.010	0.0014	-7.71*	-0.020	0.0010	-20.75*	-0.016	0.0013	-12.08*
Cross-sections	327			304			327			304		
Time-series	2			2			2			2		
R^2	0.126			0.097			0.348			0.228		
WTP	$9.37	0.996	9.41	$11.42	1.42	8.04	$18.44	0.865	21.30	$21.21	1.65	12.85

Note: *$p<0.05$.

Table 4

Results of the random effects linear probability models for intended visitation: Models with control variables

	Definitely yes						Probably yes					
	2014			2015			2014			2015		
Variable	Coeff.	S.E.	t-value	Coeff.	S.E.	t-value	Coeff.	S.E.	t-value	Coeff.	S.E.	t-value
Intercept	.41044	0.18	2.28*	0.1613	0.2429	0.66	1.0495	0.1525	6.88*	0.6056	0.2130	2.84*
Δtravel cost	-.0117	0.001	-11.54*	-0.0102	0.0012	-8.93*	-.02007	0.0009	-22.04*	-0.0158	0.0012	-13.06*
experience	0.0096	0.013	0.76	0.0192	0.0085	2.27*	.02074	0.0068	3.06*	0.0085	0.0077	1.10
satisfaction	.12661	0.039	3.24*	0.2409	0.0483	4.99*	.09208	0.0371	2.48*	0.2145	0.0499	4.30*
expectation	.12479	0.0511	2.44*	0.0593	0.0485	1.22	.06501	0.0343	1.89	-0.0355	0.0446	-0.80
spend_bike	.00001	.00001	1.38	0.0276	0.0125	2.20*	-0.0102	0.0088	-1.16	0.0150	0.0112	1.34
male	-0.0041	0.0491	-0.08	0.1427	0.0523	2.73*	-0.0098	0.0409	-0.24	0.0964	0.0521	1.85*
schooling	-0.013	0.0117	-1.09	-0.0149	0.0133	-1.12	-.02356	0.0088	-2.67*	-0.0152	0.0111	-1.37
income	0.0003	0.0003	1.03	0.0002	0.0003	0.75	.00046	0.0002	2.16*	0.0001	0.0002	0.53
cancel	---	---	---	0.0974	0.0484	2.01*	---	---	---	0.1950	0.0563	3.46*
Cross-sections	327			304			327			304		
Time-series	2			2			2			2		
R^2	0.180			0.209			0.385			0.312		

Note: *p<0.05; coefficients are interpreted as the marginal change in probability of return visit, spend_bike and income are in thousands.

Figure 1. *Return visitation question.*

Blood Sweat and Gears 2015 Survey

Suppose that you had to drive further to get to Blood Sweat and Gears in 2016 compared to your driving distance in 2015. For example, you might move further away from Valle Crucis.

Would you plan to participate in the 2016 Blood Sweat and Gears at the following additional driving distances (one-way)?

	Definitely no	Probably no	Not sure	Probably yes	Definitely yes
30 more one-way miles	○	○	○	○	○
60 more one-way miles	○	○	○	○	○
90 more one-way miles	○	○	○	○	○
120 more one-way miles	○	○	○	○	○
150 more one-way miles	○	○	○	○	○

Figure 2. *Intended visitation demand.*