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Abstract

This study examines the contribution of one event quality attribute to participants' intention to revisit, assigns a monetary value to this attribute, and estimates the magnitude of hypothetical bias in revisit intention and monetary values. The event is the Blue Ridge Brutal amateur bike ride in North Carolina, USA. Participants received a post-event survey with different hypothetical scenarios after the 2021 and 2022 ride, including riding on the scenic Blue Ridge Parkway or not. Monetary values were obtained by converting willingness-to-travel into willingness-to-pay based on travel cost. The regression results show that including the Blue Ridge Parkway significantly increases intention to revisit. Respondents overstated their intention to revisit by 14% (2021) and 38% (2022). Willingness-to-pay for the parkway was $96 (2021) and $147 (2022) in the stated preference setting. Although the magnitude in hypothetical bias is significant, it can be mitigated by combining revealed and stated preference data.

Keywords: Contingent behavior method; Cycling; Stated preferences; Willingness-to-pay; Willingness-to-travel

Introduction

In recent years, the examination of nonmarket benefits of sport events has become more important (Orlowski & Wicker, 2019a). This increase in importance comes for at least two reasons. First, economic impact studies have typically shown only minimal and short-term effects on the local economy (e.g., Baade & Matheson, 2016), while only examining the tangible effects of sport events (e.g., Orlowski & Wicker, 2019a). Hence, they do not capture the full spectrum of event impacts. Second, economic impact studies focus on impacts on the local economy, while ignoring potential benefits (or costs) on the side of event participants. Therefore, a number of scholars have estimated the intangible (i.e., nonmarket) effects of sport events and assigned a monetary value to them to make them comparable to their tangible counterparts (e.g., Orlowski & Wicker, 2019a; Wicker & Downward, 2019).

These nonmarket effects can be estimated and monetized with several approaches, with stated preference methods such as the contingent valuation method (CVM) including an assessment of willingness-to-pay (WTP) being frequently applied (for an overview see Orlowski & Wicker, 2019a; 2019b). One problem with the assessment of WTP is that respondents become price sensitive and do not report their true WTP. Moreover, the data might suffer from hypothetical bias, meaning that respondents overestimate their WTP because of the hypothetical setting and would not pay the indicated amount of money in an actual purchase.

Therefore, scholars have turned their interest to the contingent behavior method (CBM) and assessed respondents' willingness-to-travel (WTT; e.g., Bakhtiari et al., 2014), which can be converted into a monetary value and WTP (based on travel costs), respectively. For example, Whitehead and Wicker (2018) estimated the WTP for a return visit to participate in a road bicycle ride with WTT questions. While the WTT assessment mitigates the issue of price

sensitivity, the potential of hypothetical bias remains: Respondents might still state they will participate in the event in the future and then fail to participate leading to a difference between stated preferences and revealed preferences.

Scholars have sought ways to address this issue. For example, Whitehead et al. (2016) find some evidence that stated preference data with a registration fee increase accurately predict actual behavior with the fee increase. Additionally, Whitehead and Wicker (2019) argue that combining revealed and stated preference data can be used to mitigate hypothetical bias in stated preference data. Using jointly estimated revealed and stated preference regression models, a possible mitigation approach is to include a dummy variable for the stated preference scenarios to control for hypothetical bias in WTT data. However, Whitehead and Wicker (2019) only considered the status quo quality of the event. This is problematic as event quality attributes can change over time which might affect participants' intention to revisit. For event organizers and tourism agencies it is important to understand how much changes in an event quality attribute affect participants' revisit intentions and what monetary value participants assign to specific event attributes.

The purpose of this study is to examine the contribution of one event quality attribute to participants' intention to revisit, to assign a monetary value to this event quality attribute, and to estimate the magnitude of hypothetical bias in a WTT setting with changes in the quality of a sport event. The event of interest is the Blue Ridge Brutal amateur cycling event in North Carolina, USA. The race route typically includes the Blue Ridge Parkway, a 469-mile long national park road that runs from Northeastern Virginia to Southwestern North Carolina along the Blue Ridge Mountains. This parkway is one of the most visited national parks in the United States. The Blue Ridge Brutal route included the Blue Ridge Parkway up to and including the

2021 edition of the event. In 2022, the National Park Service closed the Blue Ridge Parkway to the Blue Ridge Brutal, allowing for a test for its effect on participation in the 2022 event. The data allow estimating the magnitude of hypothetical bias, that is, the extent to which respondents misstate their return visitation with Blue Ridge Parkway closure. We use these data to estimate the monetary value of the Blue Ridge Parkway with and without mitigation of hypothetical bias. With this context in mind, the present study seeks to answer the following three research questions:

(1) How much do changes in event quality (i.e., usage/closure of the Blue Ridge Parkway) affect participants' intention to revisit the event?

(2) What is the monetary value of one event quality attribute (i.e., the Blue Ridge Parkway)?

(3) What is the magnitude of hypothetical bias in participants' intention to revisit and in the monetary value of the Blue Ridge Parkway?

Answering these research questions helps event organizers and tourism agencies to understand the significance of specific event quality aspects as the monetary value of one event attribute is isolated and estimated empirically. Moreover, the study has important implications for scholars applying stated preference approaches for estimating nonmarket benefits of sport events as it advices them both on the magnitude of hypothetical bias and how this bias can be mitigated.

Literature review and theoretical framework

Several scholars have examined individuals' intention to revisit a destination or a (sport) event (e.g., Hallmann & Breuer, 2010; Newland & Yoo, 2021). Intention to revisit is a concept that captures future behavioral intentions in terms of return visitation of typically a destination or

an event. Having said this, it falls within the spectrum of stated preferences (Whitehead & Wicker, 2020). Following the theory of planned behavior (Ajzen, 1991), behavioral intentions are a strong predictor of actual future behavior. This is one reason why behavioral intentions in terms of intention to revisit is frequently studied.

Behavioral intentions are characterized by situations where individuals tend to have several alternatives, such as activities for spending their leisure time in the present study. Theoretically, and in line with previous research (e.g., Whitehead & Wicker, 2018; 2020), this study draws on a random utility framework to explain individuals' behavioral intentions in terms of their intention to revisit a sport event. According to random utility theory (Louviere et al., 2010; McFadden, 1973), individuals tend to choose the alternative that provides the highest utility to them. Note that the received utility is subjective and differs among people based on individual perceptions. In the present context of a recurring sport event, participants will choose whether to revisit the event in the following year or e.g., stay at home. In a random utility framework, they will compare the utility of all alternatives available and choose the alternative that provides the most utility (Whitehead & Wicker, 2020).

Intention to revisit occurs under specific conditions. A number of scholars have examined the effects of destination attributes, individual and external factors, and event attributes in explaining individuals' revisit intentions. Concerning destination attributes, previous research has examined the role of preferences for different attributes such as shopping and nightlife (Newland & Yoo, 2021), overall evaluation of destinations' attributes (Eusebio & Vieira, 2013), destination image (e.g., Hallmann et al., 2013; Kaplanidou & Gibson, 2010; Milovanovic et al., 2021), safety image (Pai et al., 2023), place attachment (George & George, 2004; Zou et al., 2022), and social conflicts (Miocevic, 2024). Moreover, scholars studied the role of past visits

(George & George, 2004; Petrick et al., 2001), satisfaction with the last visit (Petrick et al., 2002), satisfaction with specific destination attributes including lodging, restaurants, signage, and admission fee (Philips et al., 2013), and nostalgic emotions (Cho et al., 2020; Karagöz & Ramkissoon, 2023; Takata & Hallmann, 2022).

Intention to revisit is also shaped by individual and external factors that are less controllable by event organizers. For example, individuals' level of satisfaction with their sporting performance at the event (Hyun & Jordan, 2020) and satisfaction with their training regime was found to play a role (Whitehead & Wicker, 2020). Pertaining to external factors, weather conditions in terms of temperature and rainfall also affected participants' intention to revisit a sport event (Whitehead & Wicker, 2020).

With respect to event attributes, previous research examined the effects of perceived event image and image fit between event and destination (Hallmann & Breuer, 2010), event quality (e.g., Kim et al., 2024; Milovanovic et al., 2021), service quality at the event (Hyun & Jordan, 2020), service product features (Vassiliadis et al., 2021), satisfaction with the event experience (e.g., Hyun & Jordan, 2020; Zouni et al., 2020), and overall evaluation of the event experience (Zouni et al., 2020). Furthermore, the role of preferences for different event attributes such as reputation, cost, and scenery was investigated (Newland & Yoo, 2021).

The aspect of scenery is closely related to the present research context as the Blue Ride Parkway is a scenic event attribute. In Newland and Yoo's (2021) study, scenery had the lowest score of all six assessed event attributes, indicating that it was considered less relevant by respondents. Nevertheless, scenic landscapes might shape memorable tourism experiences, which were found to positively affect travelers' intention to revisit (Vada et al., 2022). Likewise, landscape fascination had a positive effect on revisit intentions (Dat et al., 2024). Scenic

landscapes typically inspire travelers to take photos, but photo taking only increases their satisfaction, while it decreases their revisit intention (Lee et al., 2020). Importantly, photo taking is not possible or at least highly unlikely in the present study as participants ride the scenic parkway during a physically demanding and competitive bike race.

While previous research has studied a number of determinants of intention to revisit, a few shortcomings can be observed. For example, previous research has focused on examining the correlates of revisit intentions, while their monetary value has largely been neglected. Some scholars studied perceived values of a destination visit (e.g., Meng & Cui, 2020; Petrick et al., 2001; Philips et al., 2013) or perceived economic values (Hyun & Jordan, 2020), but these values were measured with a set of statements assessing the perceived value for the price. Respondents were asked to state their agreement using some Likert-type scale, meaning that these values were not monetized.

Even when WTP for specific destination attributes such as an environmentally certified hotel restaurant was studied, it was not assessed using CVM, only with a set of statements (Ko et al., 2023), making the estimation of monetary values difficult. Only a few studies have provided monetary values for revisiting a sport event based on an assessment of WTP (e.g., Whitehead et al., 2016) or WTT (e.g., Groothuis et al., 2023; Whitehead & Wicker, 2018; 2019) as well as for specific event attributes such as temperature and rainfall (Whitehead & Wicker, 2020). In a study of revisiting national parks in China, WTP was measured with an open question (Yuan et al., 2021), which is associated with several problems as outlined by Orlowski and Wicker (2019a).

One shortcoming with stated preference questions is the potential for hypothetical bias, meaning that respondents tend to overstate their future behavioral intentions in terms of the likelihood of intention to revisit, WTT, and WTP because of the hypothetical setting. One way to

mitigate this bias is through the question format in the survey, with a payment card format yielding lower WTP estimates than a random selection format (Whitehead & Wicker, 2019). Another option is to address the issue empirically by jointly estimating stated and revealed preference data (e.g., Whitehead et al., 2016; Whitehead & Wicker, 2019). However, such estimations have not yet been conducted for specific event quality attributes, meaning that existing studies might overestimate the monetary value of these attributes. The present study seeks to contribute to the body of work on intention to revisit and monetary valuation by addressing these issues.

Methods

Event context

The Blue Ridge Brutal is an amateur long-distance road bicycle ride typically held in August. The starting point and the finish point is the Ashe Civic Center in West Jefferson, North Carolina. The race has been in existence for over 30 years, with the Covid year of 2020 being the only break. Prior to 2022, all riders spent at least 20 miles on the Blue Ridge Parkway. In 2021, there were 100, 75, and 57-mile scenic ride options. In 2022, there were the same ride options of 100, 75 and 57 miles; however, the Blue Ridge Parkway was closed to riders. Thus, similar events were offered in 2021 during-pandemic and in 2022 post-pandemic, with eth exception of then parkway. Thus, the pandemic should not materially affect the findings, especially given the empirical contribution and analytical focus of the study. The two years of the Blue Ridge Brutal include 733 unique riders. Altogether, 18% of riders participated in both editions of the ride, 36% participated in the 2021 ride only, and 46% competed in the 2022 ride only.

Sampling procedure

Following the 2021 ride, an online survey was administered to participants using

Qualtrics© software. Email invitations were sent to all 399 riders who had registered for the Blue Ridge Brutal. After the initial email, a reminder was sent to those who had not responded 10 days later. Eleven emails bounced due to bad email addresses. Altogether, 216 responses were received and 211 riders completed the survey. The response rate is 54%. After deleting respondents who registered but did not participate and those with incomplete information on key variables, the sample size is 197 riders for the 2021 ride. Concerning the different ride lengths, 41% of respondents participated in the 57-mile ride, 26% in the 75 mile-ride, and 32% in the 100-mile ride.

The same sampling procedure was employed after the 2022 ride. Email invitations were sent to 377 riders who had registered for the Blue Ridge Brutal. After the initial email, a reminder was sent to those who had not responded. Six emails bounced due to bad email addresses. Overall, 194 responses were received and 191 riders completed the survey. The completed response rate is 51%. The distribution of ride length is similar, with 42% of respondents participating in the 50-mile ride, 26% in the 70 mile-ride, and 33% in the 100-mile ride.

Non-response analysis

The two samples were checked for non-response bias, which is possible as participant gender and ZIP code were available from the registration list in both years. In 2021, 80% of the survey respondents and 77% of the non-respondents were male. This difference is not statistically significant ($\chi^2 = 0.71; p = 0.40$). We calculated the distance traveled to West Jefferson, NC using Google Maps. The mean one-way distance traveled from the respondent's home zip code is 184 miles, while it is 220 miles for non-respondents. This difference is not statistically significant ($t = 1.64;\ p = 0.11$). Thus, the comparison of the gender and distance

distribution of respondents with non-respondents does not indicate response bias.

In contrast to the 2021 survey, there are significant differences in the 2022 survey. Regarding the gender distribution, 83% of respondents and 73% of non-respondents are male. This difference is statistically significant ($\chi^2 = 5.47, p = 0.02$). The mean one-way distance traveled to the event destination from the home zip code is 164 miles for respondents and 246 miles for non-respondents. This difference is statistically significant ($t = 3.69; p < 0.01$). Thus, there are indications of non-response bias in the 2022 sample as males and participants who live closer to the event are overrepresented.

Survey and variables

The variables used in the study are presented in Table 1, while Table 2 summarizes the data by scenario. The 2021 and 2022 surveys included three WTT scenarios assessing intention to revisit under different conditions. The different versions of the scenarios are captured with three variables (Table 1). ΔTC captures the change in travel cost. *BRP* is equal to 1 if the Blue Ridge Brutal route includes the Blue Ridge Parkway and 0 otherwise. *SP* is equal to 1 if the data are stated preference and 0 if the data are revealed preference (Table 1).

Table 2 presents the stated preference and revealed preference participation for the 2021 and 2022 surveys. We only consider those respondents who answered the post-event surveys and indicated that they actually participated in the event. In 2021, the estimation sample size is n=788 with 197 riders and 4 observations (i.e., Time 1-4) for each respondent. For the 2022 survey, the estimation sample size is n=640 with 160 riders and 4 observations for each respondent.

The dependent variable is *Revisit intention* which is equal to 1 if the respondent participates in the Blue Ridge Brutal and 0 otherwise (Table 1). The response categories for the

intention to revisit questions were ‘definitely yes’, ‘probably yes’, ‘not sure’, ‘probably no’, and ‘definitely no’. With the stated preference data, we do not have a clear distinction between who intends to participate and those who do not. Whitehead et al. (2016) and Whitehead and Wicker (2018, 2019) investigated alternative recodings of the intention to revisit variable (e.g., ‘definitely yes’ vs. ‘probably yes’ and ‘definitely yes’). The present study follows Whitehead et al. (2016), who found that the ‘probably yes’ and ‘definitely yes’ respondents more accurately predicted actual behavior, and Whitehead and Wicker (2018; 2019), showing that ‘definitely yes’ models are less statistically robust. We code the answer as a stated preference return visit if the respondent answered either ‘probably yes’ or ‘definitely yes’ (Table 1).

Revisit intention was assessed with different CBM scenarios – in line with previous research (e.g., Whitehead & Wicker, 2018; 2019). Recall that CBM is preferred over CVM as respondents do not get price sensitive, while monetary values and WTP can still be estimated afterwards. These hypothetical scenarios are reflected by Time 1-3 (Table 2) and make up the stated preference data. Time 4 is the revealed preference measure ($SP = 0$), capturing whether the respondent actually revisited the event in the following year and registered for the event. The CBM scenarios are described next for both years.

In 2021, participants were first asked if they planned to participate in the 2022 Blue Ridge Brutal (Time 1; Table 2). Altogether, 45% responded with definitely yes, 41% with probably yes, and 14% were not sure. Hence, the intention to revisit for the next ride year under previous year conditions was 86% in the 2021 survey.

We then asked participants to “suppose that the Blue Ridge Brutal was not able to use the Blue Ridge Parkway in 2022” and asked “would you still plan to participate in the 2022 Blue Ridge Brutal?” (Time 2). For this question, 18% responded with definitely yes, 40% responded

with probably yes, 29% were not sure, 11% said probably no, and 3% said definitely no. Hence, when closure of the Blue Ridge Parkway is proposed, intention to revisit falls to 57%.[1]

Afterwards another scenario was presented to respondents: "Now suppose that you moved further away from Ashe County. Suppose that you lived ΔD miles further away from West Jefferson than you do now." ΔD is a randomly assigned value from a uniform distribution that ranged from 50 to 300 miles (Time 3). In the scenario with a change in travel distance, 15% percent responded with definitely yes, 22% responded with probably yes, 24% were not sure, 28% said probably no, and 10% said definitely no. When the increased travel cost is proposed, intention to revisit falls to 38%.

The change in travel distance (ΔD), capturing the change in one-way travel distance (in miles), leads to a change in travel cost (ΔTC), which is measured as the out-of-pocket travel costs: $\Delta TC = (c \times 2 \times \Delta D)$, where $c = 0.1823$ is the operating cost per mile in 2021 (American Automobile Association, 2021) and $c = 0.2504$ is the corresponding cost in 2022 (American Automobile Association, 2022). The use of operating costs per mile for the estimation of travel cost is in line with previous research (e.g., Whitehead & Wicker, 2018; 2019). Integrating the opportunity cost of time in such estimations is controversially discussed and we follow Pascoe et al. (2014), arguing that opportunity cost for travelling to a recreational activity in one's leisure time are zero. The mean change in travel cost is about $100 in the 2021 survey. Actual return visitation for the 2022 race is 42% (Time 4; Table 2).

In 2022, after a ride that did not include the Blue Ridge Parkway, we first asked participants to "Suppose that the Blue Ridge Brutal is not able to use the Blue Ridge Parkway in 2023, just like in 2022." And then asked "Would you plan to participate in the 2023 Blue Ridge

[1] Some numbers do not add up because of rounding.

Brutal?" (Time 2). This question was asked first as it is includes the status-quo lower-quality condition from 2022. For this question, 52% answered definitely yes, 39% answered probably yes, and 9% were not sure. Thus, the intention to revisit for the next ride year is 91% if the route does not include the Blue Ridge Parkway.

We then asked respondents to "Now suppose that the Blue Ridge Brutal is able to use the Blue Ridge Parkway in 2023, like in 2019 and previous years. Would you plan to participate in the 2023 Blue Ridge Brutal?" (Time 1). In this scenario, 60% responded with definitely yes, 34% responded with probably yes, and 6% were not sure. Thus, intention to revisit the ride when the route includes the Blue Ridge Parkway is 94%.

As in the previous year, we asked respondents to "Now suppose that you moved further away from Ashe County. Suppose that you lived ΔD miles further away from West Jefferson than you do now." (Time 3). Again, ΔD is a randomly assigned value from a uniform distribution that ranged from 50 to 300 miles. In the scenario with changing travel distance, 14% responded with definitely yes, 23% responded with probably yes, 25% were not sure, 30% said probably no, and 9% said definitely no. When the increased travel cost is proposed, intention to revisit falls to 36%. The mean change in travel cost is $128 in the 2022 survey. Actual return visitation in 2022 is 41% (Time 4; Table 2).

Empirical analysis strategy

The empirical analysis is grounded in utility theory and follows existing research (e.g., Whitehead & Wicker, 2018, 2019). The four observations (i.e., Time 1-4) for each respondent are combined. To answer the first research question, regression models were estimated for each survey year. The dependent variable is *Revisit intention,* while the scenario variables from Table 2 were entered as independent variables. Joint revealed and stated preference logistic regression

models for intention to revisit were estimated in line with previous research (Whitehead & Wicker, 2019):

$$(1)\ \text{Prob}(Revisit\ intention_{it} = 1) = \frac{1}{1 + \exp\left(-(\beta_0 + \beta_1 \Delta TC_{it} + \beta_2 BRP_t + \beta_3 SP_t)\right)}$$

Since each model includes four observations per respondent, the standard errors were clustered at the individual level. As a robustness check, alternative model specifications were tested. Similar results were found with random effects models in both years. Estimating a random parameters model yields similar results for the 2021 data, but the model does not converge with reasonable parameter estimates using the 2022 data. Another robustness check is run with a different code of the dependent variable, i.e., only respondent replying 'definitely yes' are coded as 1.

The second research question relates to assigning a monetary value to event quality attributes such as the Blue Ridge Parkway. Generally speaking, the monetary value of return visitation is the difference between what the respondent is willing and able to pay and the actual cost of the trip (e.g., Whitehead & Wicker, 2019). The WTP for a return visit without the Blue Ridge Parkway as part of the route is calculated as: $WTP = \frac{-1}{\beta_1}(\ln\left(1 + \exp\left(\beta_0\right)\right)$ (Hanemann, 1989). Alternative combinations of the stated preference and Blue Ridge Parkway dummy variable coefficients are included to estimate *WTP* under different valuation scenarios. The WTP for the ride that includes a portion of the Blue Ridge Parkway on the route is $WTP = \frac{-1}{\beta_1}(\ln\left(1 + \exp\left(\beta_0 + \beta_2\right)\right)$. Including β_3 in the parenthetical terms provides an estimate of the WTP with stated preference data. In the WTP estimations, standard errors were estimated using the Delta method. The 2021 WTP estimates were inflated to 2022 US Dollars with the consumer price index. Thus, the present study indirectly estimates WTP through WTT using a revisit

intention equation.

The third research question relates to the identification of the magnitude of hypothetical bias, meaning the extent to which respondent overstate their intended behavior in the hypothetical scenario. This estimation is possible as the data include stated preference (Time 1-3) and revealed preference (Time 4) scenarios. The difference in WTP with and without β_3 (i.e., the coefficient of the SP variable) gives an estimate of hypothetical bias.

Results and Discussion

Table 3 displays the regression results for both survey years. Both the 2021 and 2022 models are reliable based on the model χ^2 and pseudo-R^2 statistics. The coefficients on the change in the travel cost variable are negative and statistically significant in both the 2021 and 2022 models. This means that the likelihood of intention to revisit decreases as travel cost increases. This finding suggests that the data are internally valid – similar to previous WTT research (e.g., Groothuis et al., 2023; Whitehead & Wicker, 2018; 2019; 2020). An alternative specification (not shown in the table) with a different coding of the dependent variable (i.e., intention to revisit is only coded as 1 when respondents clicked on 'definitely yes'), the coefficient on the change in travel cost variable suggests that those who say that they will definitely return are less sensitive to cost increases.

Concerning the first research question, the coefficients on the Blue Ridge Parkway variables are positive and statistically significant, indicating that including the parkway on the route increases the attractiveness of the event. The results are similar in the alternative coding of the outcome variable intention to revisit (i.e., if only the respondents would answer the return visitation question with a "definitely yes"). The logistic regression coefficients can be interpreted as marginal effects on the probability of participation when scaled by the odds ratio: $ME =$

$\frac{p}{1-p}\beta$. In the 2021 model, the probability of participation is estimated to be 25% higher if the route includes the Blue Ridge Parkway. The corresponding probability for the 2022 model is 13% (higher).

With respect to the first research question, this finding suggests that this particular event quality attribute shapes respondents' intention to revisit and significantly increases the chances that they return to the event the following year. This finding is important for event organizers as this attribute is at least partially controllable: While the decision about the inclusion of the parkway is not at their discretion, they do at least know about its inclusion/exclusion in the route in advance and can plan capacities accordingly. This situation is different to the factors weather and individuals' satisfaction with their training efforts in Whitehead and Wicker (2020), which are beyond the control of event organizers.

The coefficient on the stated preference dummy variable is positive and statistically significant, indicating that the stated preference data overstates actual return visitation behavior. The coefficient on the stated preference variable suggests that respondents overstate their future participation in the event by 14% in 2021 and by 38% in 2022. These values represent the first part of the answer to the third research question investigating the magnitude of hypothetical bias. The values are similar to existing research (Whitehead & Wicker, 2019), where respondents of another amateur cycling race (Blood Sweat and Gears) overstated their intention to revisit by 21%. In the model with the alternative coding of intention to revisit, the coefficient on the stated preference dummy variable is negative, indicating that this coding of the dependent variable understates behavior because some respondents who are uncertain about return visitation and answer 'probably yes' do return.

Table 4 summarizes the WTP estimates for a return visit for each regression model.

Setting the stated preference variable equal to zero simulates the revealed preference (*RP*) value of a return visit. Starting with the revealed preference values and the 2021 model, the WTP for a return visit *with* the Blue Ridge Parkway included on the route is \$68 ($SP = 0, BRP = 1$). The WTP for a return visit *without* the Blue Ridge Parkway included on the route is \$30 ($SP = 0, BRP = 0$). The difference in WTP estimates is statistically significant ($t = 5.04; p < 0.01$). In the 2022 model, the WTP for a return visit *with* the Blue Ridge Parkway included on the route is \$52 ($SP = 0, BRP = 1$). The WTP for a return visit *without* the Blue Ridge Parkway included on the route is \$28 ($SP = 0, BRP = 0$). Again, the difference in WTP estimates is statistically significant ($t = 2.09; p < 0.05$).

Turning to the stated preference setting and the WTP estimates in the 2021 model, the WTP for a return visit *with* the Blue Ridge Parkway included on the route is \$96 ($SP = 1, BRP = 1$). The WTP for a return visit without the Blue Ridge Parkway included on the route is \$48 ($SP = 1, BRP = 0$). The difference in WTP estimates, with and without the parkway, is statistically significant ($t = 6.42; p < 0.01$). In the 2022 model, the WTP for a return visit with the Blue Ridge Parkway included on the route is \$147 ($SP = 1, BRP = 1$). The WTP for a return visit without the Blue Ridge Parkway included on the route is \$106 ($SP = 1, BRP = 0$). The difference in WTP estimates, with and without the parkway, is statistically significant at the $p = 0.05$ level ($t = 2.47$).

Concerning the second research question, this finding implies that this particular event quality attribute significantly contributes to the monetary value of the event. The partial monetary value can be obtained by subtracting the WTP without the parkway from WTP with the parkway. Accordingly, the value of including the parkway in the route is \$38.40 (=\$68.41-\$30.01) in 2021 and \$23.59 (=\$51.84-\$28.25) in the revealed preference setting. In the stated

preference setting, the corresponding values are $48.02 (2021) and $41.18 (2022), respectively. Overall, the monetary value of the Blue Ridge Brutal ride would increase by 125% in 2021 and 86% in 2022 if the Blue Ridge Parkway was included on the route. These findings suggest that scenery in terms of the scenic Blue Ridge Parkway is more important in the present study than in previous research (Newland & Yoo, 2021). The present findings do not only echo existing research in the sense that landscape fascination (Dat et al., 2024) and memorable tourism experiences (Vada et al., 2022), such as riding on the scenic Blue Ridge Parkway, have a positive effect on revisit intentions. They also provide a quantitative monetary value for this scenic event attribute.

The monetary values can be (cautiously) compared with previous research. For example, Whitehead and Wicker (2019) estimated the value of a revisit for another amateur road ride, the Blood Sweat and Gears ride. This ride is more popular as evident in the higher monetary value of $155 – following the 2017 ride expressed in 2022 dollars. Groothuis et al. (2023) estimated a return visit monetary value of $17 for the Beech Mountain Metric, which is significantly lower than the monetary value of the Blue Ridge Brutal in the present study. The Beech Mountain Metric was canceled before the pandemic due to declining participation and bad weather. These point estimates lie outside the confidence intervals of the WTP for a return visit to the Blue Ridge Brutal, suggesting differences in preferences among riders for the different events.

The third research question examines the magnitude of hypothetical bias in monetary values. A comparison of the monetary values of the stated preference setting with the revealed preference setting indicates that the WTP values are higher in the stated preference setting. In 2021, the difference between revealed and stated preference WTP estimates is statistically significant with the parkway ($t = 3.24; p < 0.01$) and without the parkway ($t = 2.94; p <$

0.01). Likewise, in 2022, the difference in revealed and stated preference WTP estimates is statistically significant at the $p = 0.01$ level ($t = 8.16$ with the parkway and $t = 9.21$ without the parkway). These significant differences imply that hypothetical bias is present and that respondents significantly overestimate their WTP in the stated preference setting. With the parkway, the magnitude of hypothetical bias is $27 (2021) and $95 (2022). Without the parkway, the corresponding magnitude of hypothetical bias is $18 (2021) and $78 (2022).

Conclusions

This study set out to examine the effect of one event quality attribute to participants' intention to revisit a sport event, to estimate its monetary value, and to assess the magnitude of hypothetical bias in intention to revisit and monetary values. Specifically, we have estimated the effect on revisit intention and the monetary value of including the Blue Ridge Parkway on the route of the Blue Ridge Brutal with two years of return visitation data collected following the ride. The study provides evidence on the magnitude of hypothetical bias and suggests ways how it can be mitigated: The WTP for the Blue Ridge Brutal ride with and without the parkway is lower when hypothetical bias is mitigated with the revealed preference data.

The present work makes several contributions to the literature. First, it estimates the contribution of one particular event attribute to participants' intention to revisit a sport event. In doing so, it does not only provide evidence of statistical relationships, but also on the monetary values and WTP, respectively. Specifically, respondents are not asked for their WTP in a direct assessment. Instead, WTP is indirectly estimated using a WTT approach based on an intention to revisit equation, reducing the likelihood of hypothetical bias. This information about monetary values of specific event attributes is crucial for event organizers as it helps them with forecasting participant numbers and corresponding capacity planning. Second, this research adds to both

utility theory as well as the CBM and WTT literature by providing insights about the role and importance of changes in event quality. Third, this study is among the few providing evidence on the magnitude of hypothetical bias. Such quantitative insights are important to understand the extent to which survey respondents might mispredict their future behavior and typically overestimate their intention to revisit in stated preference surveys. Fourth, this research does not only identify the extent of hypothetical bias, but it also suggests ways to mitigate it. Since it is one of few studies drawing on a combination of stated and revealed preference data, it can provide jointly estimated models to address this issue.

Despite these contributions, the present study is not without limitations. One limitation is the concern that the estimates of hypothetical bias may be overstated for two reasons. Specifically, survey respondents have incentives to understate their intention to revisit without the parkway included on the route in order to try to influence event organizers to include the parkway in the following year. Such strategic answering might reduce the identified magnitude of hypothetical bias. Second, the probabilistic format of the stated preference question may be coding some riders who answer ‘probably yes’ and are not likely to return as returning. Future research should investigate hypothetical bias with a return visitation question format with ‘yes’ and ‘no’ responses. Another limitation is that the present study only included one event attribute. Riders might also value other event attributes which might affect their intention to revisit a bike ride. Comparing the effects and the monetary values of several event attributes will be a fruitful avenue for future research.

References

American Automobile Association. (2021). *Your driving costs 2021*. https://newsroom.aaa.com/wp-content/uploads/2021/08/2021-YDC-Brochure-Live.pdf

American Automobile Association. (2022). *Your driving costs 2022*. https://newsroom.aaa.com/wp-content/uploads/2022/08/2022-YourDrivingCosts-FactSheet-7-1.pdf

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

Baade, R. A., & Matheson, V. A. (2016). Going for the Gold: The Economics of the Olympics. *Journal of Economic Perspectives, 30*(2), 201–218.

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.

Dat, L. T., Wu, H. C., Li, T., Huang, W., Liou, G., & Hsieh, C. (2024). The effects of landscape fascination on subjective well-being and revisit intention: Evidence from agritourism destinations. *International Journal of Tourism Research, 26*, e2621.

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.

George, B. P., & George, B. P. (2004). Past visits and the intention to revisit a destination: Place attachment as the mediator and novelty seeking as the moderator. *The Journal of Tourism Studies, 15*(2), 51–66.

Groothuis, P., Rotthoff, K., & Whitehead, J. C. (2023). The Consumer Surplus and Economic Impact of a Participatory Micro-Event: The Beech Mountain Metric. In V. A. Matheson

& R. Baumann (Eds.), *The Economic Impact of Sports Facilities, Franchises, and Events* (pp. 89-99). Springer.

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.

Hallmann, K., Zehrer, A., & Müller, S. (2013). Perceived Destination Image: An Image Model for a Winter Sports Destination and Its Effect on Intention to Revisit. *Journal of Travel Research, 54*(1), 94-106.

Hanemann, W. M. (1989). Welfare evaluations in contingent valuation experiments with discrete response data: reply. *American Journal of Agricultural Economics, 71*(4), 1057-1061.

Hyun, M., & Jordan, J. S. (2020). Athletic goal achievement: A critical antecedent of event satisfaction, re-participation intention, and future exercise intention in participant sport events. *Sport Management Review, 23*, 256–270.

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.

Karagöz, D., & Ramkissoon, H. (2023). Nostalgic emotions, meaning in life, subjective well-being and revisit intentions. *Tourism Management Perspectives, 48*, 101159.

Kim, T. H., Ko, Y. J., & Rhee, Y. C. (2024). The Impact of Event Quality and Psychological Commitment on Fan Attendance in College Basketball Events in the U.S. *Journal of Global Sport Management, 9*(1), 182-201.

Ko, J., Kang, H., & Seo, J. (2023). Experiential Value, Overall Image, Revisit Intention, and Willingness to Pay a Premium in the Context of Environmentally Certified Hotel

Restaurants: The Moderating Effect of Environmental Consciousness. *Sustainability*, *15*, 12913.

Lee, J. C., Cui, Y., Kim, J., Seo, Y., & Chon, H. (2020). Photo Taking Paradox: Contrasting Effects of Photo Taking on Travel Satisfaction and Revisit Intention. *Journal of Travel Research, 60*(4), 833-845.

Louviere, J. J., Flynn, T. N., & Carson, R. T. (2010). Discrete choice experiments are not conjoint analysis. *Journal of Choice Modelling, 3*, 57–72.

McFadden, D. (1973). Conditional logit analysis of qualitative choice behaviour. In P. Zamembka (Ed.), *Frontiers of econometrics* (pp. 105–142). Academic Press.

Meng, B., & Cui, M. (2020). The role of co-creation experience in forming tourists' revisit intention to home-based accommodation: Extending the theory of planned behavior. *Tourism Management Perspectives*, *33*, 100581.

Milovanovic, I., Matic, R., Alexandris, K., Maksimovic, Z., & Drid, P. (2021). Destination image, sport event quality, and behavioral intentions. The cases of three World Sambo Championships. *Journal of Hospitality & Tourism Research, 45*(7), 1150-1169.

Miocevic, D. (2024). Baby Come Back: Resident-Digital Nomad Conflicts, Destination Identification, and Revisit Intention. *Journal of Travel Research* (in press). https://doi.org/10.1177/00472875231220945

Newland, B., & Yoo, J. J. (2021). Active sport event participants' behavioural intentions: Leveraging outcomes for future attendance and visitation. *Journal of Vacation Marketing, 27*(1), 32–44.

Orlowski, J., & Wicker, P. (2019a). Monetary valuation of non-market goods and services: A review of conceptual approaches and empirical applications in sports. *European Sport Management Quarterly, 19*(4), 456-480.

Orlowski, J., & Wicker, P. (2019b). Willingness to pay in sports. In P. Downward, B. R. Humphreys, B. Frick, T. Pawlowski, J. E. Ruseski & B. P. Soebbing (Eds.), *The SAGE Handbook of Sports Economics* (pp. 415-427). Sage.

Pai, C. K., Chen, H., & Wang, Y. (2023). The moderating effect of safety image on Guests' perceived risk and revisit intentions in luxury hotels. *International Journal of Tourism Research, 26,* e2614.

Pascoe, S., Doshu, A., Dell, Q., Tonks, M., & Kenyon, R. (2014). Economic value of recreational fishing in Moreton Bay and the potential impact of the marine park rezoning. *Tourism Management, 41*, 53-63.

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.

Phillips, W. J., Wolfe, K., Hodur, N., & Leistritz, F. L. (2013). Tourist word of mouth and revisit intentions to rural tourism destinations: A case of North Dakota, USA. *International Journal of Tourism Research, 15*, 93–104.

Takata, K., & Hallmann, K. (2022). Sport fans' nostalgia and revisit intention to stadiums during the Covid-19 pandemic. *International Journal of Event and Festival Management, 13*(4), 406-421.

Vada, S., Prentice, C., Filep, S., & King, B. (2022). The influence of travel companionships on memorable tourism experiences, well-being, and behavioural intentions. *International Journal of Tourism Research, 24*, 714-724.

Vassiliadis, C. A., Mombeuil, C., & Fotiadis, A. (2021). Identifying service product features associated with visitor satisfaction and revisit intention: A focus on sports events. *Journal of Destination Marketing & Management, 19,* 100558.

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.

Whitehead, J., & Wicker, P. (2018). Estimating willingness to pay for a cycling event using a willingness to travel approach. *Tourism Management, 65,* 160-169.

Whitehead, J., & Wicker, P. (2019). Valuing nonmarket benefits of participatory sport events using willingness to travel: Payment card versus random selection with mitigation of hypothetical bias. *International Journal of Tourism Research, 21,* 180-186.

Whitehead, J. C., & Wicker, P. (2020). The effects of training satisfaction and weather on revisiting sport events and their monetary value: The role of attribute non-attendance. *Tourism Management Perspectives, 35,* 100713.

Wicker, P., & Downward, P. (2019). Positive and negative externalities of sport events: From well-being, pride, and social capital to traffic and crime. In P. Downward, B. R. Humphreys, B. Frick, T. Pawlowski, J. E. Ruseski & B. P. Soebbing (Eds.), *The SAGE Handbook of Sports Economics* (pp. 428-438). Sage.

Zou, W., Wei, W., Ding, S., & Yue, J. (2022). The relationship between place attachment and tourist loyalty: A meta-analysis. *Tourism Management Perspectives, 43,* 100983.

Zouni, G., Markogiannaki, P., & Georgaki, I. (2020). A strategic tourism marketing framework for sports mega events: The case of Athens Classic (Authentic) Marathon. *Tourism Economics, 27*(3), 466–481.

Table 1

Overview of variables

Variable	Description
Revisit intention	Respondent would definitely/probably revisit the Blue Ridge Brutal in the following year (1=yes; 0=no)
ΔD	Change in travel distance to the Blue Ridge Brutal
ΔTC	Change in travel cost to the Blue Ridge Brutal
BRP	Blue Ridge Brutal route includes the Blue Ridge Parkway (1=yes; 0=no)
SP	Stated preference data (1=yes; 0=revealed preference data)
Return	Return visit (1=yes; 0=current visit)

Table 2

Intention to revisit by scenario

2021 Survey (n=197)				
		Scenario		
Time	Revisit intention (yes)	ΔTC	BRP	SP
1	86%	0	1	1
2	57%	0	0	1
3	38%	99.98	1	1
4	42%	0	0	0
2022 Survey (n=160)				
		Scenario		
Time	Revisit intention (yes)	ΔTC	BRP	SP
1	94%	0	1	1
2	91%	0	0	1
3	36%	127.88	0	1
4	41%	0	0	0

Table 3

Logistic regression models of revisit intention

	2021			2022		
	Coefficient	Clustered SE	*t*	Coefficient	Clustered SE	*t*
Constant	-0.338**	0.145	-2.33	-0.354**	0.161	-2.19
ΔTC	-0.0194***	0.0021	-9.24	-0.0188***	0.00227	-8.28
BRP	1.22***	0.0195	6.24	0.857***	0.303	2.82
SP	0.63***	0.203	3.13	2.21***	0.243	9.09
χ^2		128.62			234.86	
Pseudo R^2		0.119			0.285	
Cross sections		197			160	
Time periods		4			4	
Sample size		788			640	

Note: **p<0.05; ***p<0.01.

Table 4

Willingness-to-pay estimates ($2022)

		2021			2022		
BRP	SP	WTP	*SE*	*t*	WTP	*SE*	*t*
1	0	68.41***	10.22	6.69	51.84***	14.34	3.61
0	0	30.01***	4.53	6.63	28.25***	4.99	5.67
1	1	95.54***	8.52	11.21	147.28***	22.23	6.62
0	1	47.52***	6.69	7.11	106.10***	10.24	10.36

Note: ***$p<0.01$.