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Factors influencing time allocation of sport event volunteers

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Factors Influencing Time Allocation of Sport Event Volunteers

Abstract

Purpose: Given the increasing demands placed on a sport event workforce in servicing the needs of spectators, to attract and recruit volunteers to the industry, it is important for sport event managers to know what is driving how much time volunteers allocate to an event. We investigate the individual and macro level factors influencing the allocation of time to volunteer at sport events.

Design/Methodology/Approach: Survey data were collected from volunteers at 25 sport events ($n=2,303$). Multi-level modelling was used to identify common effects controlling for event differences.

Findings: Male gender significantly influences time allocated to an event at the individual level. At the macro level, the number of local inhabitants has a significant negative effect whereas the status of an international event and duration contribute positively to time allocation.

Practical implications: The results provide clear evidence that macro level variables can stimulate interest in event volunteering opportunities.

Originality/Value: This paper uses a multi-level approach to assess the influence of micro and macro level variables on time allocation by sport event volunteers. Using this approach, event heterogeneity can be controlled.

Key words: volunteering; multi-level analysis; decision-making

Article classification: Research paper

Word count: 7,971

1 Introduction

The global sports event industry was worth \$80 billion of a total sports market value of \$700 billion in 2014. Since 2007 the sports event industry has continually grown faster than international GDP (Collignon and Nicolas, 2014). The industry is unusual in that it relies heavily on a volunteer labour force, particularly outside of the major professional leagues (Kim and Cuskelly, 2017). Volunteers consequently offer their services to sports event organisers by allocating their discretionary time (Holbrook and Lehmann, 1981). From an organisational perspective, therefore, the amount of time a volunteer allocates is of utmost importance for volunteer managers (Cuskelly *et al.*, 2006) as the consumers (spectators and participants) look for a high-quality service experience. It is the volunteer manager's job to effectively recruit volunteers and to allocate roles and workloads dependent upon the time available and skills of the volunteer to ensure good service delivery. The volunteer manager needs to acknowledge that volunteers are servicing the event but also need to be service managed (Mulder *et al.*, 2015). This paper focusses upon the first of these issues, which is to examine the factors that contribute to the decision of volunteers to allocate time to volunteering at events. These factors are neglected in sport-event volunteering research as will be outlined.

A volunteer's individual motivation is an important determinant of both the decision to volunteer and the amount of time allocated in non-profit sport clubs (Hallmann, 2015, Flatau *et al.*, 2012). However, there is a dearth of research regarding the relationships between motivations and the amount of time allocated by sport event volunteers. Attempts to recruit and retain volunteers will lead to better service delivery if the volunteer opportunity meets the underlying motivations to volunteer. From a human resources perspectives, sport events must recruit and retain talent to ensure marketplace competitiveness (Hiltrop, 1999). Moreover, Roza *et al.* (2017) and Wicker (2017, in press) argue that more research is needed

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that investigates how higher level organisational and environmental features of the volunteering opportunity influence volunteer decisions. This paper addresses these gaps in research by integrating individual level variables such as socio-demographics and motivation, with macro level variables addressing the event status, size of local population etc. on the allocation of time by sport event volunteers. This is made possible because whilst previous event-volunteering research tends to focus on single events (e.g., Wollebæk *et al.*, 2014, Alexander *et al.*, 2015), this research draws on data across a number of events and international contexts. The latter is also important because it adds to the generalisability of the research. In the current literature , when two or more events are researched, they are usually from the same country (e.g., Hallmann and Harms, 2012, Bang and Chelladurai, 2009), In this study data from multiple events in three countries – Germany, Italy and New Zealand are analysed to address the following research question: What individual and macro level factors influence the time allocated to volunteering at sport events? The purpose of our research is to investigate the *general and common effects* of socio-economic (i.e. individual level) and event (i.e. macro level) characteristics on the allocation of time to volunteering, thus controlling for potential event differences.

Theoretical Framework

This paper builds on the premise that volunteering can be explained with decision-making theory (Bauer *et al.*, 2013, Brown and Lankford, 1992). Each individual makes a decision whether or not to allocate their time as a volunteer. Neo-classical economics emphasizes decision-making under the constraints of time and income (Frey, 2000). The individual is assumed to act rationally, with perfect foresight and preferences, and tastes are considered invariant when making a choice (Altman, 2006). According to this perspective, the act of giving (i.e., contributing time through volunteering) generates utility for the individual, suggesting that self-interest need not imply selfishness (Apinunmahakul *et al.*, 2009). Yet, the

1 underlying assumptions of rationality do not hold true for every decision. For example,
2 emotions influence decisions, a feature which emphasizes that preferences are not invariant
3 (Kahneman *et al.*, 1997). Individuals also use heuristics (Tversky and Kahneman, 1971) and
4 intuition (Klein *et al.*, 1986) when making decisions. Nonetheless, the premise that decisions
5 to allocate time to volunteering are made under conditions of scarcity remain shared by both
6 neo-classical and behavioural economists (Angner, 2012). Therefore, determinants such as
7 time, income and education are pivotal for understanding any form of decision-making
8 (Becker, 1965). Time allocated to leisure (e.g., volunteering) is time that cannot be allocated
9 to work and income generation (Burgham and Downward, 2005, Apinunmahakul *et al.*,
10 2009).

11 Demographic indicators, such as age and gender are also related to the availability of
12 time and income. Schlesinger and Nagel (2013) discuss how career opportunities (i.e.,
13 retirement or raising children) impact the decision to allocate time to volunteering. Finally,
14 psychological indicators like preferences and attitudes (i.e. motives) also determine
15 volunteering either by implicitly regarded as fixed in the utility function (Cappellari *et al.*,
16 2011), or characterised by "...malleability and context-dependence ..." (Fudenberg, 2006) in
17 behavioural economics research. Behavioural economics research makes clear that the
18 environment/context (i.e., the available set of alternatives and how these are presented)
19 influences decisions (Simonson and Tversky, 1992). It follows that macro level
20 characteristics such as organisational or socio-cultural factors can also influence individual
21 behaviour (Dixon and Bruening, 2007). Put differently, macro level characteristics can
22 constrain the amount of time allocated to volunteering (Wicker and Hallmann, 2013,
23 Schlesinger and Nagel, 2013, Schlesinger and Nagel, 2016, Studer and von Schnurbein,
24 2013). This theoretical underpinning features in sport volunteering studies, though most

1 studies do not consider all of these potential constraints (e.g., Emrich *et al.*, 2012, Schlesinger
2 and Nagel, 2013, Schlesinger and Nagel, 2016).

3 **Empirical Review**

4 The economic, demographic, psychological, and macro level constraints discussed above
5 have been explored empirically. However, the research focusing on time allocation by sports
6 volunteers has only been studied within the context of organised, non-profit sport clubs
7 (Taylor *et al.*, 2012, Flatau *et al.*, 2012, Dawson and Downward, 2013, Hallmann, 2015).
8 Factors affecting the decision how much time to allocate by event volunteers remain un-
9 investigated. Due to the frequency of occurrence and time-compressed nature of events,
10 volunteers invest their time differently from club volunteers. Event volunteers are likely to
11 commit many hours during a relatively short time frame as they are responsible for the actual
12 operative activities (Ingerson, 2001). It is this feature that makes a study about volunteers and
13 time allocation so valuable.

14 There are mixed findings for the influence of income, time and education on the time
15 allocation of sports-club volunteers. Burgham and Downward (2005) report a positive effect
16 for income and a negative effect for working hours. Dawson and Downward (2013) refer to
17 an individual’s income and substitution effects in complex time allocation tasks to explain
18 this finding. Demanding work and/or family commitments can make episodic (i.e. event)
19 volunteering more attractive than continuous volunteering, for example, in clubs (Holmes,
20 2014). Ziemek (2006) emphasizes that educated individuals derive more utility from
21 volunteering. However, Taylor et al. (2012) find no significant relationship for education on
22 time allocation.

23 The evidence regarding the influence of demographic factors on time allocation is also
24 mixed. Factors related to age (e.g., retirement) or gender (e.g., raising children) are important
25 as both may restrict time and income (Schlesinger and Nagel, 2013). Some scholars report

1 that females allocate more time than males in the context of their children's swimming
2 lessons (Burgham and Downward, 2005), whereas most research finds that males allocate
3 more time to sport volunteering (Taylor *et al.*, 2012, Dawson and Downward, 2013, Skirstad
4 and Hanstad, 2013) or do not find any significant effect of gender on hours volunteered.
5 Becker's (1991) intra-family resource allocation model suggests that those with the lowest
6 opportunity costs are likely to allocate more hours to volunteering. In support of this model,
7 there is evidence that adults whose children play sport are more likely to allocate time to their
8 club (Burgham and Downward, 2005). Similarly, divergent results exist for the influence of
9 age on time allocation. Age is positively associated with the time allocated to volunteering
10 (Taylor *et al.*, 2012), or negatively (Dawson and Downward, 2013), whilst others report no
11 significant effect (Burgham and Downward, 2005). Competence building has been also
12 identified as pivotal motive to volunteer (Skille and Hanstad, 2013). Competencies can be
13 only built through performing a certain task over a certain time period and might therefore
14 also be related to time allocation to volunteering.

15 Psychological factors have also been investigated as motives influencing volunteer
16 time allocation (Flatau *et al.*, 2012, Hallmann, 2015). This is not surprising because people
17 direct their behaviour to fulfil needs (Iso-Ahola, 1989, Shank, 2009) and time-allocation
18 decisions are related to those needs. Intrinsic-egoistic and altruistic motives have been shown
19 to foster time allocation to voluntary activity whereas extrinsic-egoistic motives have no
20 influence (Flatau *et al.*, 2012). In addition, the motives such as 'meeting people' and 'shaping
21 society' (also understood as contributing to society) are positively associated with time being
22 allocated to longer term sport volunteering (Hallmann, 2015). It is clear that such motives are
23 not specifically sport-related and can be fulfilled in other contexts. Consequentially, research
24 suggests that social interaction is essential for volunteers and that a sense of community
25 follows from a feeling of belonging to a group (Kodama *et al.*, 2013). Volunteering more

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3 1 hours can foster the ‘group feeling’, because it enables people to interact with each other
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5 2 more. Fulfilling the motive of social interaction can lead to social integration and a strong
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7 3 sense of community. High levels of social integration and a strong sense of community foster
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9 4 volunteer retention (Kristiansen *et al.*, 2015). It follows that a certain time allocated to
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11 5 volunteering is needed so that that sense of community can be created.
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14 6 Macro level characteristics (i.e., context) can also constrain individual behaviour
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16 7 (Dixon and Bruening, 2007) and thus the amount of time allocated to volunteering (Wicker
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18 8 and Hallmann, 2013, Schlesinger and Nagel, 2013, Schlesinger and Nagel, 2016, Studer and
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20 9 von Schnurbein, 2013). For instance, some volunteers might be more interested in
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22 10 volunteering for mega events because of their reputation while others volunteer because of
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24 11 their interest in the sport being played. Reputation and sport type provide the context in this
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26 12 regard. Wicker and Hallmann (2013) identified the potential influence of macro-variables
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28 13 such as institutional characteristics (e.g., type of organisation), financial resources, human
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30 14 resource capacity, planning and development capacity, or infrastructure and resources
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32 15 capacity. Empirically, Schlesinger and Nagel (2013) find that organisational variables such as
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34 16 the structural conditions of the club or their policies influence the decision to volunteer.
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36 17 People are more willing to volunteer for clubs in rural areas which indicates that clubs
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38 18 located in rural areas might have a stronger community character or that there are fewer
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40 19 leisure choices in rural areas (Schlesinger and Nagel, 2013). Growth-oriented policies impact
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42 20 the decision to volunteer negatively, a feature which could be related to greater anonymity
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44 21 within the club.
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47 22 However, such macro level variables have not been investigated for their connection
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49 23 with the time allocated to volunteering at sport events. However, there are several
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51 24 ‘institutional characteristics’ (Wicker and Hallmann, 2013) of an event such as the event’s
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53 25 status, duration, edition, number of athletes, number of sports played or the size of the
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1 destination the event is hosting that could be relevant. Indeed, some sport event literature has
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3 introduced these characteristics to classify events (Stettler *et al.*, 2010, Jago and Shaw, 1998,
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7 Hallmann and Breuer, 2010, Getz, 1997).
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Events can be classified as national or international events (i.e., being part of the
international federation's calendar and having international athletes/teams competing).
International events might offer a more exciting atmosphere and opportunities to experience
national pride (Ralston *et al.*, 2004), both of which can induce volunteers to allocate more
time to those events. Moreover, the length of the event (i.e., one day vs. multiple days) is
likely to constrain the time allocated to volunteering. Multi-day events almost certainly
require more volunteer hours. Finally, the provenance of the event might also constrain the
allocation of time. Individuals might perceive that well-established events have greater
organisational capability and the opportunity costs associated with time allocated to
volunteering lower. The size of the destination as well as the number of competing athletes
and the number of sports (single sport events vs. multi-sport events) might also impact the
decision to allocate time to volunteering. These characteristics can influence the image of the
event which can influence decision-making when several alternatives exists (Ferrand, 1999).
The uniqueness of the event has been identified as a key motivated for event volunteers
(Dickson *et al.*, 2014)

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Reviewing the literature above, therefore, leads to a multi-level theoretical framework
presented in Figure 1 which is developed from Wicker and Hallmann (2013). The model
recognises that both individual and macro level factors might influence the time allocated to
volunteering, a claim which is now investigated empirically in the remainder of the paper.
Therefore we focus in particular on two exploratory objectives: (1) To determine which
individual level factors influence the decision to allocate time to volunteering and (2) to
identify which macro level factors influence the decision to allocate time to volunteering.

INSERT FIGURE 1

2 **Methods and Data**

3 This study aimed to identify the *general and common effects* influencing the decision to
4 allocate time to volunteering at the individual and macro levels which requires a quantitative
5 research design. This was because the data are clustered by events, i.e. we deal with multiple
6 observations (Rabe-Hesketh and Skrondal, 2012).

7 **Measures**

8 For the dependent variable, participants were asked to indicate their time allocation to the
9 event in hours. For individual characteristics, data on working time (i.e., hours worked
10 including commute time) were collected using an open-ended question. Education levels
11 were converted into a binary variable (‘1’=having at least a university entrance diploma/high
12 school certificate; 0=else). Income data categories were also converted to a binary variable
13 (i.e., affluent or not affluent) based on official statistics (DIW Berlin, 2010, Statistics New
14 Zealand, 2014). Education and income were converted into binary variables to enable a more
15 accurate comparison between countries, all of which had different education systems and
16 income levels. A small number of socio-demographic data were also collected, including
17 gender, age, and having children.

18 At the psychological level, motives captured preferences. The Volunteer Motivation
19 Scale for International Sporting Events ((VMS-ISE); Bang *et al.*, 2008, Bang and
20 Chelladurai, 2009) was selected over other scales such as the Volunteer’s Function Inventory
21 (Clary *et al.*, 1998, Clary *et al.*, 1992) or the Special Event Volunteer Motivation Scale
22 (Farrell *et al.*, 1998) because it includes a love of sport dimension. MacLean and Hamm
23 (2007) showed that love of sport is important for volunteer’s motivation. The six motivational
24 dimensions were expression of values (five items), interpersonal contacts (four items), career
25 orientation (five items), personal growth (four items), extrinsic rewards (two items), and love

of sport (four items). In our use of the VMS-ISE, we excluded free food from the extrinsic reward dimension, because volunteers in our sample were not always provided with free food and we excluded the patriotism/community involvement construct as we had small-scale and major events. All dimensions were measured using a five-point Likert Scale anchored by strongly disagree (1) to strongly agree (5).

The macro level variables were based on secondary data. They included the binary variables 'status' which indicated whether or not the event was part of the international calendar of its federation and 'multi sports' which indicated whether the event was a single sport event or a multi-sport event. The duration of the event was a metric variable as were the edition of the event, number of athletes, and the host community population (see Table 1).

INSERT TABLE 1

Although several variables (e.g., socio-demographics) will be interpreted consistently by researchers and respondents from different countries (MacInnes, 2006), interpretations may vary for other variables. Therefore it was important to establish equivalence to ensure consistent instrumentation (Lee and Jung, 2006). The original motivation scale was in English (VMS-ISE) and was translated and back-translated into both German and Italian by two independent researchers (Brislin, 1970). Pre-testing avoided construct bias (Lee and Jung, 2006). The scales were pilot tested with 12 respondents, five in Germany and seven in Italy. Some items were marginally reworded to increase the ease of understanding and capture the intended meaning (Harkness and Schoua-Glusberg, 1998). Through using existing validated measures, and using the common country and linguistic units and categories for items, we achieved a high degree of comparability.

Sampling Procedures

We employed a convenience sampling approach. The events were chosen based on accessibility. Data in Germany were collected from April 2011 to May 2014 at 21 different

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1 sport events. Access to the volunteers was always facilitated by the respective event owner.
2 Both online and paper-pencil questionnaires were used, depending on the preference of the
3 event owner. At two events (i.e., Paderborner Osterlauf and Hamburg Marathon), both
4 distribution methods were employed. We tested for demographic differences between both
5 methods but none were evident. In Italy, an online survey was distributed to volunteers of the
6 Winter Universiad held in Val di Fiemme in 2013. In New Zealand, data were collected using
7 an online survey from February to April 2015 at three different events. Table 2 presents an
8 overview of the events. Overall, the sample size was $n=2,302$.

9 INSERT TABLE 2

10 *Data Analysis*

11 Preceding the analysis, missing data were evaluated. There was no variable with missing data
12 exceeding 3% of observations. Missing data for the motivation variables were imputed using
13 regression analysis. Additive indices were created for each motivational dimension as the
14 dimensions have been validated in previous literature (Bang *et al.*, 2008, Bang and
15 Chelladurai, 2009, Hallmann and Harms, 2012, Wang and Wu, 2014). Cronbach's Alpha
16 varied between .714 to .863 (Values $\alpha=.714$; Interpersonal $\alpha=.863$; Career $\alpha=.858$; Growth
17 $\alpha=.781$; Extrinsic $\alpha=.718$; Love of Sport $\alpha=.844$).

18 Multi-level modelling was employed because the data were nested into groups (i.e.,
19 the participants were volunteers at different events). The underlying assumption was that
20 macro level effects (i.e., external to the individual) can influence the individual's behaviour.
21 This implied that multi-level modelling should be applied because, for example, standard
22 regression variances do not account for the error decomposition that is implied in having
23 repeated observations on a higher level unit (Tabachnick and Fidell, 2007) and standard
24 errors can be biased (Cameron and Miller, 2015).¹ Tabachnick and Fidell (2007) emphasized
25 that large sample sizes are required to conduct multi-level modelling (> 20 cases at the higher

level). Besides the absolute number of cases at the macro level, the number of cases per event was also important (O'Connell and McCoach, 2008). Although some authors recommend 30 cases per level (Snijders and Bosker, 1999), depending on effect sizes, power, and the modelling approach, the sample size can be as low as nine, 'if one is willing to accept a standard error that is five percent higher than this minimum' (Snijders and Bosker, 1999, p.150). Summing up, we were not, by design, interested in exploring the differences between events. Our focus was the factors influencing the time allocated to volunteering at events generally.

Results

The time allocated to volunteering averaged 39 hours per event. The majority of volunteers across all sport events were women (62%). The mean age of the volunteers was 32 years. The mean working time of the volunteers was 33 hours. Based on income only 11% of the sample could be described as affluent (remembering that we measure income as a binary variable – see Table 1). Of the respondents, 26% had children. The connection to sports and volunteering was high, with 84% indicating that they participate in any sport weekly. Most of the participants (i.e., 70%) had previous volunteer experience. The summary statistics are displayed in Table 3.

INSERT TABLE 3

The model was tested for multicollinearity using the Variance Inflation Factor (VIF). Multi-collinearity was not an issue because no VIF was higher than 3 (Hair *et al.*, 2010). White's General Test for Heteroscedasticity also revealed no concerns ($\chi^2(214)=215.34$, 201, $p=.882$). Using multi-level modeling, initially an intercept-only (or null) model (a model without any independent variables) was estimated. This is compared to a null (intercept-only) model to test the significance of event effects by means of a likelihood ratio test. It was calculated as two times the difference in the log likelihood values for two models. The result

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($2*(-11,667.526-12,045.87) = 756.688$ on one degree of freedom) was significant suggesting that events are associated with the number of hours volunteered. The appropriateness of the multi-level approach was also supported by an intraclass correlation of .264. This exceeded .05 suggesting that the simultaneous estimation of individual and context variables is appropriate (Hox, 2002). Thereafter, a full multi-level model with individual and event variables was estimated

R^2 at the individual level amounted to 21.76% and at the macro level to 73.28%.

Gender ($\beta = -5.193$) was the only individual level variable which had a significant impact on hours volunteered. Of the macro level variables, local population ($\beta = -.00001$), status ($\beta = 31.000$), and duration ($\beta = 2.437$) served as significant predictors for hours volunteered.

Table 4 displays the multi-level model.

INSERT TABLE 4

Discussion and Conclusion

This research provides a more nuanced examination of volunteers by focusing on the amount of time a volunteer is prepared to allocate to a sport event in the context of examining the role of macro-level event factors on the decision to volunteer. The focus was thereby to determine common effects of individual and macro level characteristics controlling for event heterogeneity. This is the first paper applying a multi-level model for sport event volunteering.

The results indicate that the model provides a significant prediction of hours volunteered and that variables at the individual and macro level are significant predictors of time allocated to volunteering. At the individual level, gender was the sole significant variable whereas at the macro level, the variables local population, status, and duration were significant. Therefore, it seems that event characteristics are capturing previous significant individual effects.

1 Considering gender, our research is consistent with previous findings and theory that
2 males contribute significantly more time than females (Dawson and Downward, 2013, Taylor
3 *et al.*, 2012). However, we can add that the effects are stable irrespective of the event. One
4 explanation for this finding is that although the majority of volunteers are female, they still
5 have more commitments (e.g., child care) than males. The results at the macro level cannot
6 be compared with previous findings because this is the first study to include macro event
7 variables as determinants of time allocation at sport events controlling for events. The local
8 population had a significant, but small, negative effect on hours volunteered. One reason for
9 this finding could be that life in larger communities is often more anonymous, thus mitigating
10 an individual's willingness to contribute time to event volunteering. In this respect a weaker
11 sense of community ('communitas') may weaken the potential to foster social capital that is
12 expressed in volunteering (Chalip, 2006, p.111). Thus, opposite relationships seem to be
13 more prevalent in smaller communities. This corresponds to the finding by Kristiansen *et al.*
14 (2015) who found a strong sense of community as key driver for volunteer retention. It might
15 be easier to achieve a sense of community in smaller communities. However, the effect was
16 relatively small.

17 There was a positive effect of an event's international status on time allocation. This
18 could be related to the self-identity of the volunteer; the volunteer wants to be affiliated with
19 the event which enriches them personally; and the volunteer might assume that an
20 international event has more potential in this regard. This reflects to some degree the findings
21 of Kristiansen *et al.* (2014) who found that the target group of the event looks for certain
22 motivations to be accomplished. This leads to certain interrelationships of event
23 characteristics and individual characteristics. It is not surprising that as the duration of the
24 event increases, the hours volunteered also increase significantly. If an event's duration is

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3 1 longer, more volunteer hours are needed. In the absence of having to volunteer for specific
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5 2 durations, this could also show that that longer duration events elicit greater commitment.
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7 3 *Theoretical, Methodological, and Practical Contributions*
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9 4 This study has advanced our understanding of volunteers in a number of ways. Overall, our
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11 5 investigation considered volunteering in the context of decision-making theory, rooted in the
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13 6 neoclassical economic theory of behaviour (Angner, 2012). The inclusion of motivation and
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15 7 context (i.e. macro level variables) necessitated a shift towards accepting insights from
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17 8 behavioural economics (Burgham and Downward, 2005, Wicker and Hallmann, 2013,
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19 9 Emrich *et al.*, 2012, Dawson and Downward, 2013, Schlesinger and Nagel, 2013, Hallmann,
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21 10 2015). Including macro level characteristics in the model proved insightful as the results
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23 11 clearly suggest that it is not only individual characteristics that influence decision-making.
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25 12 This finding complements previous macro-variable research conducted with sport club
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27 13 volunteers (Schlesinger and Nagel, 2013). Moreover, the findings suggest that macro level
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29 14 variables matter more than individual level variables within the decision-making process to
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31 15 allocate time to volunteering. This is indicated by the higher R² at the macro level. Therefore
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33 16 this paper provides a platform for additional research into the macro level variables that
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35 17 impact the allocation of a volunteer's time. This finding also has practical implications
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37 18 because context (i.e. event characteristics) can be steered by event managers.
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40 19 There are some practical implications for event managers. The first is that managers
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42 20 of international sports events should stress the international status of the event because it
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44 21 increases the time allocated to the event. Having motivated volunteers within the workforce
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46 22 will likely increase the quality of the volunteer's service delivery. If events are not
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48 23 international themselves, then links to international competition or event status could be
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50 24 reinforced. It may also be the case that event managers could focus on attracting male
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52 25 volunteers as recruiting them will increase the number of people willing to volunteer for
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1 longer hours. More fundamentally, it might be that job-tasks need to be designed such that
2 shorter duration activities can be dove-tailed together to greater facilitate current patterns of
3 female volunteering.

4 *Limitations and Future Research*

5 There are a number of limitations to the research. It would have been ideal having the
6 opportunity to investigate similar events of a more balanced number in and across all (and
7 ideally more) countries (e.g. three running events, three equestrian events, three tennis events
8 and three triathlon events plus several multi-sport events in each country). This is because the
9 type of sport matters for volunteering (Hallmann and Harms, 2012). However, this was not
10 possible for pragmatic reasons and we controlled for the events.

11 Although we carefully managed potential measurement issues across the three
12 countries using multi-level modelling, bias is certainly possible. We carefully selected the
13 events in New Zealand and Italy to ensure comparability to some of the German events.
14 Another useful approach for future research is to include not only scales but also self-
15 assessment components to control for country effects (King *et al.*, 2004).

16 Future research should include more and other independent variables such as
17 involvement with the sport that is played/practiced at the event (looking at single-sport
18 events) or whether peers (family and friends) are also part of the volunteer workforce. We
19 acknowledge that previous research identified that volunteering can stand for a shared
20 lifestyle in communities (Kristiansen *et al.*, 2015) and a lot of interaction with peers who also
21 volunteer. Nonetheless, we suggest including this into future quantitative research to control
22 for further event heterogeneity. As there are differences between episodic and continuous
23 volunteering (Holmes, 2014), previous experience should also capture this which was not the
24 case in our research. We focused on a single binary variable for previous experience. We also
25 suggest integrating perceptions of the local culture on the individual level – some insights

1 have been already provided by qualitative studies (Randle and Dolnicar, 2009, Hoeber, 2010)
2 – and destination attributes on the macro level into future quantitative research. It might be
3 useful to conduct research about the extent to which volunteers perceive a moral obligation to
4 volunteer because the event hosted concerned their ‘beloved sport’. The extent to which
5 volunteers might want to promote their destination might be also an interesting variable for
6 future studies. In general, more comparative research is needed to fully understand the
7 underlying drivers of time allocation by volunteers to different types of events.

8

Footnotes

¹ While the multi-level approach is the correct procedure to use with hierarchical data when focusing on the higher-level coefficients, problems arise if sample sizes at the macro level are small. Having 25 cases at the second level is appropriate. However, the results are robust as we also estimated an OLS model with cluster-corrected standard errors and obtained similar results.

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Table 1. Overview of variables.

Variable	Description	Scale
Time allocation		
Time	Hours the volunteer worked at the event.	Metric
Economic and socio-demographic variables		
Income	Being affluent based on individual monthly net income (For the German and Italian sample, a cut was made at EUR 2,500 monthly net income; 0= not being affluent and earning EUR 2,500 or less, 1=being affluent and earning at least EUR 2,501; For the New Zealand sample, a cut was made at NZD 50,000 yearly net income; 0=not being affluent and earning NZD 50,000 or less, 1=being affluent and earning at least NZD 50,001 or more)	Dummy
Work time	How many hours do you work weekly?	Metric
Education	Highest educational level attained (1 = <i>at least A-levels/university entrance diploma</i> , 0 = <i>else</i>)	Dummy
Gender	Gender of the participant (1 = <i>female</i> , 0 = <i>male</i>)	Dummy
Age	Age in years	Metric
Nationality	Nationality of the respondent (1 = <i>country of data collection; i.e. Germany, Italy or New Zealand; 0=else</i>)	Dummy
Children	Having children (1= <i>yes</i> ; 0= <i>no</i>)	Dummy
Psychological variables		
Volunteer motivation (five-point Likert scales: from 1=strongly disagree to 5=strongly agree)		
Values1	I want to help out in any capacity.	Ordinal
Values2	I want to do something worthwhile.	Ordinal
Values3	I feel it is important to help others.	Ordinal
Values4	I want to make the event a success.	Ordinal
Values5	Volunteering creates a better society.	Ordinal
Interpersonal1	I want to interact with others.	Ordinal
Interpersonal2	I want to work with different people.	Ordinal
Interpersonal3	I want to meet people.	Ordinal
Interpersonal4	I want to develop relationships with others.	Ordinal
Career1	Volunteering experience will look good on my resume.	Ordinal
Career2	I want to gain some practical experiences.	Ordinal
Career3	I can make new contacts that might help my business or career.	Ordinal
Career4	I want to gain work-related experience.	Ordinal
Career5	I want to gain experience that would be beneficial in any job.	Ordinal
Growth1	Volunteering makes me feel needed.	Ordinal
Growth2	I can explore my own strengths.	Ordinal
Growth3	Volunteering makes me feel important.	Ordinal
Growth4	Volunteering allows me to gain a new perspective on things.	Ordinal
Extrinsic1	I want to get event uniforms/licensed products	Ordinal
Extrinsic2	I want to get tickets/free admission	Ordinal

Variable	Description	Scale
Sport1	I like any event related to sport.	Ordinal
Sport2	I like any event related to this sport (e.g. triathlon, golf, etc.).	Ordinal
Sport3	Sport is something I love.	Ordinal
Sport4	I enjoy being involved in sport activities.	Ordinal
Experience	Any previous sport volunteering experience (<i>1=yes, 0=no</i>)	Dummy
Sport Participation	Weekly sport participation (<i>1=yes, 0=no</i>)	Dummy
Macro level variables		
Status	Part of the federation’s international calendar (<i>1=yes; 0=no</i>)	Dummy
Duration	Duration of the event	Metric
Edition	Edition of the event	Metric
Multi Sports	Type of sport event (<i>1=multi-sport event; 0=single sport event</i>)	Dummy
Local population	Number of people living in the host community	Metric
Athletes	Number of athletes competing	Metric

Table 2. Overview of events.

Event	Country	Year of data collection	Multi-Sports
EHF Final 4	GER	2011	Single Sport (Handball)
CHIO Aachen	GER	2011	Single Sport (Equestrian)
Wake the line	GER	2013	Single Sport (Wakeboard)
Race for the Cure	GER	2013	Single Sport (Athletics)
Ahrathon	GER	2013	Single Sport (Triathlon)
Come Together Cup	GER	2013	Single Sport (Football)
Triathlon Forchheim	GER	2013	Single Sport (Triathlon)
Triathlon Siegburg	GER	2013	Single Sport (Triathlon)
Winter Universiad Val di Fiemme	ITA	2013	Multi Sports
National Special Olympics	GER	2014	Multi Sports
Schliersee Triathlon	GER	2013	Single Sport (Triathlon)
Ironman Berlin	GER	2013	Single Sport (Triathlon)
Chiemsee Triathlon	GER	2013	Single Sport (Triathlon)
Frankfurt City Triathlon	GER	2013	Single Sport (Triathlon)
Cologne Triathlon	GER	2013	Single Sport (Triathlon)
Erlangen Triathlon	GER	2013	Single Sport (Triathlon)
Borken Triathlon	GER	2013	Single Sport (Triathlon)
Paderborner Osterlauf	GER	2014	Single Sport (Athletics)
Hamburg Marathon	GER	2014	Single Sport (Athletics)
International German Gymnastics Festival	GER	2013	
Rund um Köln	GER	2014	Single Sport (Cycling)
EHF Final Four	GER	2014	Single Sport (Handball)
New Zealand Masters Games	NZL	2015	Multi Sports
Volvo Ocean Race	NZL	2015	Single Sports (Sailing)
Holden PGA New Zealand Championships	NZL	2015	Single Sports (Golf)

Note. Rund um Köln: The race itself is only on one day; however, volunteers are needed already prior for handing out the race package. Hamburg Marathon: The marathon is just on one day, but the day before a kid's race is held and volunteers are needed for an entire weekend.

Table 3. Summary statistics based on mean values and for binary variables as sample proportions.

Variable	Mean value	Standard deviation	Minimum value	Maximum value
Individual variables				
Time	39.842	45.334	1	792
Income (being affluent)	.111	.314	0	1
Work time	33.105	16.521	0	80
Education	.456	.498	0	1
Gender	.618	.486	0	1
Age	32.603	16.220	12	85
Nationality	.929	.257	0	1
Children	.262	.440	0	1
Values Index	4.343	.544	1.4	5
Interpersonal Index	3.994	.781	1	5
Career Index	3.322	.977	1	5
Growth Index	3.501	.813	1	5
Extrinsic Index	1.978	1.026	1	5
Love of Sport Index	3.841	.860	1	5
Experience	.701	.458	0	1
Sport Participation	.841	.366	0	1
Macro level variables				
Status	.516	.500	0	1
Duration	5.801	4.192	1	20
Edition	23.231	22.219	1	98
Multi Sports	.627	.484	0	1
Local population	1,026,789	833,234.8	4527	3,502,000
Athletes	10,087.24	16,196.61	20	50,000

Table 4. Results of regression analyses using time allocated to volunteering as dependent variable (displayed are the coefficients).

	Model 1a (intercept only model)	Model 1b (full model)
Income (being affluent)		.369
Work time		-.002
Education		1.613
Gender		-5.193*
Age		-.063
Nationality		1.323
Children		-2.033
Values Index		3.196
Interpersonal Index		.499
Career Index		.363
Growth Index		.523
Extrinsic Index		-.164
Love of Sport Index		-1.845
Experience		3.159
Sport Participation		2.994
Status		31.000***
Duration		2.437***
Edition		-.144
Multi Sports		11.654
Local population		-.00001***
Athletes		-.00004
Constant/Intercept	31.257***	7.988
	-	χ^2 : 108.73***
Variance individual level:	1,435.769	1,556.231
Variance event level:	516.526	75.456
		R ² individual level:
		21.76% [#]
		R ² event level: 73.28% [#]
Intraclass Correlation	.265	.046 ^{##}
n	2,302	2,302

Note. *p ≤ .05; **p ≤ .01; ***p ≤ .001; [#] based on Snijders & Bosker (1999); ^{##} residual

intraclass correlation; bold highlights imply that the variable is significant;

Figure 1. Theoretical model: Three-level model with individual and macro level characteristics influencing the decision to allocate time to sport event volunteering.