

Impact of market demand on recurring hallmark sporting event spectators: an empirical study of the Shanghai Masters

Recurring
hallmark
sporting event
spectators

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Abstract

Purpose – The current study was designed to (1) identify core and peripheral market demand for a recurring hallmark sporting event, testing their impact on event identification and behavioral intentions; and to (2) explore the effect of core and peripheral market demand on event identification between first-time and repeat spectators.

Design/methodology/approach – Research participants ($N = 540$) were spectators at the Shanghai Masters over a span of seven days. Data were analyzed using partial least squares structural equation modeling (PLS-SEM) and partial least squares multi-group analysis (PLS-MGA).

Findings – Significant, positive relationships were found between core market demand and event identification, and between core market demand and behavioral intentions. In contrast, peripheral market demand only had significant, positive effect on event identification; however, findings revealed that event identification fully mediated the relationships between peripheral market demand and behavioral intentions. Additionally, the effect of peripheral market demand on event identification was greater among first-time spectators than repeat spectators.

Originality/value – This study contributed to the application of PLS-SEM in sport management research by adopting a formative-formative hierarchical component model (HCM) to address the prevailing measurement model misspecification of market demand constructs. The findings highlighted the merits of promoting market demand associated with recurring hallmark sporting events and the importance of enhancing event identification through differential market penetration schemes across different spectator groups.

Keywords Market demand, Event identification, Behavioral intentions, Spectator type, PLS-SEM, PLS-MGA

Paper type Research paper

Introduction

Since the International Olympic Committee (IOC) awarded the 2008 Olympics to Beijing, Chinese interest in hosting hallmark sporting events has grown. In particular, the number of hallmark tennis events held in China has grown from three events in 2009 to ten events as of 2019 (Gao *et al.*, 2020; Wang, 2009). Among them, the Shanghai Masters holds special status as it is the only Association of Tennis Professionals (ATP) Masters 1,000 event staged outside North America and Europe. The tournament has enjoyed significant growth since its inception in 2009. With annual attendance of approximately 110,000 spectators, it has become one of the most influential hallmark sporting events in China (Rolex Shanghai Masters, 2020).



Like other hallmark sporting events, the Shanghai Masters faces several challenges. For instance, ever-increasing alternative entertainment options in a crowded marketplace are threatening its profitability and sustainability (Gong *et al.*, 2015; Qian *et al.*, 2017; Zhang *et al.*, 2018). The imperative exists for event managers and researchers to understand the market demand for hallmark sporting events to improve marketing communication, enhance the event experience, and identify key elements of spectators' decision-making processes (Braunstein *et al.*, 2005; Byon *et al.*, 2013; Watanabe *et al.*, 2020; Zhang *et al.*, 2003). For spectator sports, market demand pertains to consumers' evaluations of the features and attributes of a sport game, event or tournament (Byon *et al.*, 2010, 2013; Qian *et al.*, 2020a). Although prior market demand studies have identified a few context-specific market demand elements for collegiate or professional team sporting events in North America (Braunstein *et al.*, 2005; Cianfrone *et al.*, 2015; Zapalac *et al.*, 2010), there has been limited scholarly endeavor examining the role of market demand from an integrated perspective that would enable the generalization of research findings to other event settings. It is plausible that the influence of market demand might be distinct for recurring hallmark sporting events. When segmenting spectators, the recurrent nature necessitates consideration (e.g. first-time vs repeat spectators) since each spectator group may possess unique market demand preferences (Fu *et al.*, 2019; Lee *et al.*, 2015). This notion underscores the importance of cultivating a strong and lasting spectator–event relationship for event viability and long-term growth.

An investigation into the relationship between market demand and event identification presents an opportunity to establish original, operational practices through a more nuanced understanding of spectator engagement and retention (Chi, 2012; Fu *et al.*, 2019). Therefore, the purpose of this study is to examine how market demand for a recurring hallmark sporting event would impact spectators' behaviors through an empirical investigation of the Shanghai Masters. A conceptual framework is developed that adopts a formative-formative hierarchical component model (HCM) to measure core and peripheral market demand. We investigate the relationships among core and peripheral market demand, event identification, future attendance intentions, and word of mouth (WOM) intentions by conducting a survey at the event. Data are analyzed through partial least squares structural equation modeling (PLS-SEM) and partial least squares multi-group analysis (PLS-MGA). Following these data analyses, we present our findings and elaborate on the theoretical and managerial implications.

Review of the literature

Core and peripheral market demand

In the sport marketing literature, market demand is defined as consumers' perceptions of sport products or service performances and subsequent willingness to purchase based on their expectations of how those sport products or services can satisfy their needs (Byon *et al.*, 2010, 2013; Zhang *et al.*, 2003). It is formulated by a multitude of attitudinal constructs that represent multilayered, quality-related judgments of a sport product or service. (Byon *et al.*, 2013; Zhang *et al.*, 1995, 2003, 2006). Over the past three decades, researchers have made significant strides in identifying dimensions of market demand associated with sporting events. Market demand factors for attending National Basketball Association (NBA), National Football League (NFL) and Major League Baseball (MLB) events (Braunstein *et al.*, 2005; Zhang *et al.*, 1995, 2004, 2006), collegiate volleyball events (Zapalac *et al.*, 2010), high school basketball tournaments (Cianfrone *et al.*, 2015) and team sports in general (Byon *et al.*, 2010; Zhang *et al.*, 2003) have been explored and examined by a rich body of empirical research.

Nevertheless, a common approach in the aforementioned research – the sole use of a few context-specific event attributes to capture spectators' market demand perceptions – might lead to a tenuous dimensional structure and undermine research validity. To address this

issue, [Byon et al. \(2013\)](#) adopted an approach that categorized market demand into core and peripheral dimensions. This conceptualization of core and peripheral market demand acknowledges that consumers would form market demand perceptions at various abstraction levels ([Martinez Garcia and Martinez Caro, 2010](#)). To elaborate further, [Byon et al.'s \(2013\)](#) categorization recognizes the existence of context-specific event attributes at the disaggregate level while positing two universal dimensions at the aggregate level that could be applied to most sporting event contexts.

Specifically, core market demand focuses on athletic competition and includes components that embody sport service encounters: team performance, game schedule, star player appearance and ticket affordability ([Byon et al., 2013](#); [Zhang et al., 1995](#)). In contrast, peripheral market demand is germane to the event's operation and management ([Zhang et al., 2004](#)). Game amenities, staff friendliness, venue design and ambient conditions are representative elements of peripheral market demand. Hence, based on the prior market demand literature, [Byon et al.'s \(2013\)](#) categorization and the unique characteristics of the Shanghai Masters, we propose that core market demand is formed by five lower-order components (i.e. player quality, event activity, game schedule, game promotion and economic consideration) and peripheral market demand by two lower-order components (i.e. peripheral services and venue characteristics) ([Sarstedt et al., 2019](#)).

Event identification

In the contemporary sport management and marketing literature, social identity theory (SIT; [Tajfel, 1978](#)) has been widely used to explain the role of sport identification across a variety of settings ([Carlson and Donovan, 2013](#); [Demirel et al., 2018](#); [Prayag et al., 2020](#); [Wang and Tang, 2018](#)). Sport identification is a variant of social identification, whereby the social group to which one identifies is a particular sport entity ([Gwinner and Bennett, 2008](#)). In the current study, we seek to examine event identification, which is defined as individuals' psychological connections to sporting events and is reflected by their perceived belongingness to specific events, akin to social identification ([Branscombe and Wann, 1991](#)).

Fans' psychological attachments to specific sporting events are positively linked to key sponsorship outcomes, including positive attitudes toward sponsorship, perceived sponsor-event fit, sponsor trust and sponsor patronage ([Gwinner and Bennett, 2008](#); [Mazodier and Merunka, 2012](#); [Speed and Thompson, 2000](#); [Wang and Tang, 2018](#)). Moreover, positive affect with a sporting event may lead to fans exhibiting supportive behaviors toward it, such as attending the event, making event-related purchases, revisiting the host city and recommending the event and host city to others ([Kaplanidou et al., 2012](#)). This notion is particularly relevant to recurring hallmark sporting events since a continuous development of event identification is conducive to the cultivation of a sustainable spectator fan base, resulting in their re-patronage and other prosocial behaviors ([Kaplanidou et al., 2012](#)). As such, given the potential benefits associated with strong event identification, our study uses the Shanghai Masters as a case study for examining how event identification could be fostered by core and peripheral market demands to encourage desirable spectator behaviors.

Relationships among market demand, event identification and behavioral intentions

A plethora of studies have shown that market demand could be used to predict game attendance or re-patronage intentions, including WOM intentions ([Braunstein et al., 2005](#); [Qian et al., 2020a](#); [Zhang et al., 1995, 2003, 2004](#); [Zhang and Byon, 2017](#)). However, many prior market demand studies have focused solely on specific event characteristics, yet failed to conceptualize, operationalize and assess market demand in a holistic and aggregate manner, limiting the validity and generalizability of findings. To address this issue, we adapt [Byon et al.'s \(2013\)](#) modeling of market demand and propose to examine the effects of both core and

peripheral market demand on spectators' behavior. Accordingly, the following hypotheses are developed:

- H1.* Core market demand will be positively associated with future attendance intentions.
- H2.* Core market demand will be positively associated with WOM intentions.
- H3.* Peripheral market demand will be positively associated with future attendance intentions.
- H4.* Peripheral market demand will be positively associated with WOM intentions.

In contrast to a well-established body of research on the relationship between market demand and behavioral outcomes, empirical research investigating how market demand would impact event identification is sparse. Even so, it is reasonable to argue that both core and peripheral market demand would be positively associated with event identification. From one perspective, core market demand is perhaps the most vital contributor to event identification development. For example, the presence of top tennis players, such as Roger Federer and Rafael Nadal, is likely to motivate spectators to exhibit greater interest in, and commitment to, the Shanghai Masters. From another perspective, peripheral services could also positively influence event identification. Wang and Tang (2018) found that both group experience and team history have a positive effect on fans' team identification. Similarly, individuals who share experiences at the Shanghai Masters – for instance, interacting with event staff – may obtain a sense of belonging to the event. As such, the following hypotheses are proposed:

- H5.* Core market demand will be positively associated with event identification.
- H6.* Peripheral market demand will be positively associated with event identification.

Numerous studies have found sport identification would positively impact behavioral intentions. Researchers have noted the importance of identification in explaining intentions to purchase event tickets and merchandise, engage in positive WOM, and patronize sponsoring brands (Carlson and Donovan, 2013; Prayag *et al.*, 2020; Wang and Tang, 2018). In the current research setting, we anticipate that the stronger the spectators identify with the Shanghai Masters, the more likely they re-patronize the event and recommend the event to others in the future. Respective of these predictions, the following hypotheses are proposed:

- H7.* Event identification will be positively associated with future attendance intentions.
- H8.* Event identification will be positively associated with WOM intentions.

Given the hypothesized positive effects of core market demand and peripheral market demand on event identification (H5, H6), and of event identification on future attendance intentions (H7) and WOM intentions (H8), event identification is thus hypothesized to mediate the positive effects of core market demand and peripheral market demand on future attendance intentions and WOM intentions.

- H9.* Event identification will mediate the positive effect of core market demand on (a) future attendance intentions and (b) WOM intentions.
- H10.* Event identification will mediate the positive effect of peripheral market demand on (a) future attendance intentions and (b) WOM intentions.

The moderating effect of spectator type

A profusion of tourism studies have compared first-time and repeat visitors, and have found significant differences in motivations (Lim *et al.*, 2016), expenditure patterns (Lee *et al.*, 2015), and destination images and attachments (Morais and Lin, 2010), among other things.

Findings from the extant literature suggest that individuals with varying degrees of acquaintance with an event or destination are likely to possess different perceptions and attitudes, resulting in distinct experiences and engagement levels (Fu *et al.*, 2019; Lim *et al.*, 2016; Morais and Lin, 2010). While repeat spectators are more likely to form a sense of belonging to a sport team or place, first-time spectators could also develop psychological bonding with a sport team or destination as a result of shared on-site experiences and landscape elements (Cheng and Kuo, 2015; Wang and Tang, 2018). However, it is our contention that event identification would be fostered more by repeat spectators than first-time spectators for both core and peripheral market demand. A repeat spectator has already made the decision to attend the event more than once, supporting the rationale that their evaluation of market demand components is likely stronger (see Figure 1). Therefore, we posit the following hypotheses:

H11. The effect of core market demand on event identification will be stronger for repeat spectators than for first timers.

H12. The effect of peripheral market demand on event identification will be stronger for repeat spectators than for first timers.

Method

Participants

The study received approval from the primary author's affiliated institution's ethics committee. A survey was designed to test the hypotheses, initially being written in English. The survey was then translated into Chinese and back-translated independently. With the event's organizing committee's approval, the main study survey was administered on-site by trained staff over a seven-day period, with spectators randomly intercepted and interviewed at various venue locations.



Figure 1.
Conceptual framework
of the current study

The dataset consisted of 540 useable responses obtained from spectators who were 18 years or older. Of the participants, 57.8% ($n = 312$) were male and 42.2% ($n = 228$) were 23 to 30 years of age. Many participants (96.1%, $n = 519$) held a college degree or above, while 40% ($n = 216$) were company employees. In addition, 35.5% ($n = 192$) were first-time spectators. Overall, the sample demographics were consistent with those indicated in the organizing committee's report ([Organizing Committee of Shanghai Masters, 2018](#)).

Measurement

An extensive review of market demand operationalization suggests that reflective measurement models, which have been widely implemented in prior studies, might not be an optimal measurement approach ([Braunstein et al., 2005](#); [Byon et al., 2010, 2013](#); [Cianfrone et al., 2015](#); [Qian et al., 2020a](#); [Zapalac et al., 2010](#); [Zhang et al., 2003, 2006](#); [Zhang and Byon, 2017](#)). In our study, core and peripheral market demands were measured by using a formative-formative HCM, which contained 23 formative indicators under seven lower-order components that ultimately formulate two higher-order components ([Sarstedt et al., 2019](#)). The two-stage approach was used to specify the higher-order constructs. As shown in [Table 1](#), core market demand was operationalized as a second-order formative construct

Higher-order constructs	Lower-order constructs/items	Weights	VIF
Core market demand	<i>Event activity</i>	0.246	1.415
	AC1: Meet-and-greet (e.g. fans meeting)	0.345	1.305
	AC2: Sponsor activities (e.g. Heineken Beer Garden; family day activities)	0.388	1.487
	AC3: Official activities (e.g. giving away)	0.506	1.535
	<i>Player quality</i>	0.295	1.286
	PQ1: Presence of star players	0.413	1.655
	PQ2: Players overall performance	0.245	2.121
	PQ3: Players' reputation	0.510	1.843
	<i>Game schedule</i>	0.251	1.379
	GS1: Day of the week (game is held on weekend or not)	0.335	1.515
	GS2: Game time (the time at which a match begins)	0.353	1.913
	GS3: Convenient game schedule	0.518	1.550
	<i>Game promotion</i>	0.350	1.296
	GP1: TV commercial	0.411	1.738
	GP2: Social media promotion (e.g. Facebook, Twitter, Weibo, WeChat)	0.500	1.784
	GP3: Signage advertising	0.262	1.642
	<i>Economic consideration</i>	0.480	1.277
	EC1: Ticket price	0.442	1.594
	EC2: Concession price	0.103	1.978
EC3: Licensed commodity price	0.423	2.223	
EC4: Travel expense (transportation, lodging and meals)	0.247	1.644	
Peripheral market demand	<i>Peripheral services</i>	0.486	1.680
	PS1: Concession (food and beverage choices)	0.218	1.208
	PS2: Staff quality	0.404	1.628
	PS3: Information board	0.374	1.613
	PS4: Public transportation (e.g. shuttle bus service)	0.313	1.425
	<i>Venue characteristics</i>	0.608	1.680
	VC1: Ease of entrance/exit	0.457	1.606
VC2: Stadium ambience (e.g. lighting, seat, music)	0.410	1.666	
	VC3: Parking	0.370	1.274

Table 1.
Statistical properties of formative constructs

Note(s): All weights were significant ($p < 0.01$); VIF = variance inflation factor

composed of five first-order formative constructs: event activity, player quality, game schedule, game promotion and economic consideration. Similarly, peripheral market demand was also operationalized as a second-order formative construct composed of two first-order constructs: peripheral services and venue characteristics. Items were measured by using a five-point Likert scale, ranging from 1 (*very poorly operated*) to 5 (*very well operated*). As shown in Table 2, five items developed by Wang and Tang (2018) were adapted to measure event identification in the current study context. Similarly, two three-item scales were adapted from Byon et al. (2013) to measure future attendance intentions and WOM intentions, respectively. Outcome variables were all measured reflectively on a five-point scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

Several procedures to mitigate the effect of common method variance/bias (CMV) were implemented. Following the recommendations of Hulland et al. (2018), a pretest was conducted prior to the main study, a physical separation of dependent constructs from independent constructs was enforced, and item sets were randomized to minimize order effects and reduce the potential for response sets.

Data analysis

Statistical package for the social sciences (SPSS) Version 25 (IBM Corp, 2017) and SmartPLS 3 (Ringle et al., 2015) were employed for statistical analyses. Component-based PLS-SEM was preferred over co-variance based structural equation modeling (CB-SEM) because of the following: (a) one or more formative constructs are included in the structural model (constructs are operationalized as composites); (b) the structural model is complex with many indicators, constructs, and path relationships; and (c) the research objective is concerned with the prediction of critical constructs (Cepeda-Carrion et al., 2019; Hair et al., 2019).

Data analyses in this study underwent two steps. First, the measurement model was assessed to ensure both formative and reflective constructs were valid and reliable. Second, the structural model paths (significance and path coefficients) were tested through the bootstrapping procedure with 5,000 iterations of resampling (Hair et al., 2016). PLS-MGA was performed by following the three-step procedure for testing measurement invariance of composite models (MICOM; Henseler et al., 2016). Results were obtained through the nonparametric permutation test (Chin and Dibbern, 2010; Hair et al., 2016; Henseler et al., 2016).

Constructs/items	Loadings	α	CR	AVE
<i>Event identification</i>		0.913	0.935	0.742
EI1: I feel a strong sense of belonging to the Shanghai Masters	0.857			
EI2: I identify strongly with the Shanghai Masters	0.872			
EI3: The Shanghai Masters embodies what I believe in	0.887			
EI4: The Shanghai Masters is like a part of me	0.855			
EI5: The Shanghai Masters has a great deal of personal meaning for me	0.836			
<i>Future attendance intentions</i>		0.754	0.860	0.675
AI1: I am likely to attend more games this year	0.678			
AI2: I am likely to re-attend the Shanghai Masters next year	0.878			
AI3: I plan on attending more games in the future	0.892			
<i>WOM intentions</i>		0.904	0.940	0.839
WOM1: I will speak favorably of this event to others	0.910			
WOM2: I will encourage others to attend this event	0.926			
WOM3: I will recommend this event to my friends	0.912			

Note(s): All loadings were significant ($p < 0.01$); α = Cronbach's alpha; CR = construct reliability coefficient; AVE = average variance extracted

Table 2.
Statistical properties of
reflective constructs

Results

We assessed the formative measurement model through an examination of collinearity and the relevance of formative indicators. First, we used variance inflation factor (VIF) value to detect possible issues of collinearity. The PLS algorithm results showed that collinearity was not a concern given VIF scores were all below three (Hair *et al.*, 2019). Second, we determined the relevance of formative indicators by examining the significance of their outer weights and loadings. The bootstrapping results revealed that the formative indicators' outer weights and loadings were all statistically significant ($p < 0.01$), suggesting that the indicators had adequate relative and absolute contributions to their respective formative constructs. Table 1 displays the size and significance of the weights generated using the bootstrapping procedure with 5,000 subsamples.

The reflective measurement model was evaluated through an examination of each reflective indicator's loading on its intended underlying construct ($\lambda > 0.7$), Cronbach's alpha ($\alpha > 0.7$), composite reliability value (CR > 0.7), average variances extracted value (AVE > 0.5) and the Fornell–Larcker criterion (Hair *et al.*, 2010, 2016). The reflective measurement model demonstrated good psychometric properties with the reflective indicators all surpassing recommended thresholds. The square roots of AVE values were all greater than inter-construct correlations. In addition, the heterotrait–monotrait ratio (HTMT) values were all below the conservative cut-off value of 0.85 (Henseler *et al.*, 2015). Thus, the reliability, convergent validity and discriminant validity of the reflective constructs were established (see Table 2).

We used the PLSpredict procedure to assess the predictive power of the model in predicting the outcome variables (Shmueli *et al.*, 2019). As shown in Table 3, Q^2_{Predict} values were greater than zero. The root mean squared error (RMSE) of the PLS model indicators were all lower than those of the corresponding linear regression model (LM), indicating a high predictive power of the PLS model (Shmueli *et al.*, 2019).

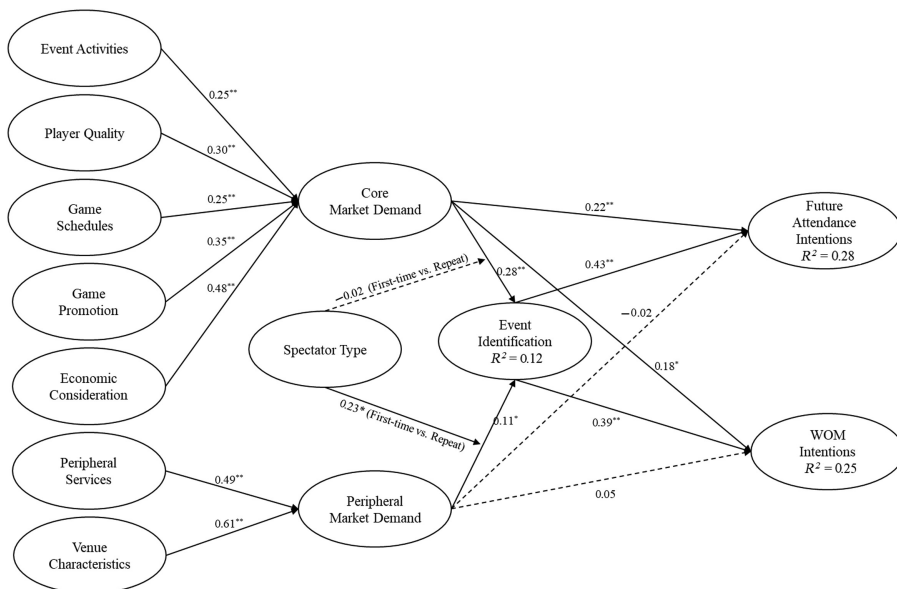
The structural model accounted for 12% of the variance of event identification, 25% of WOM intentions and 28.1% of future attendance intentions. In addition, as shown in Figure 2 and Table 4, core market demand had a significant, positive effect on future attendance intentions ($\beta = 0.216, p < 0.01$) and WOM intentions ($\beta = 0.181, p < 0.01$), providing support for H1 and H2. In contrast, we did not find peripheral market demand to positively affect future attendance intentions ($\beta = -0.019, p = 0.328$) and WOM intentions ($\beta = 0.052, p = 0.176$). Hence, H3 and H4 were not supported. Further, both core ($\beta = 0.277, p < 0.01$) and peripheral ($\beta = 0.114, p = 0.033$) market demand were found to exert a significant, positive effect on event identification, supporting H5 and H6. Lastly, H7 and H8 were supported as event identification had a significant, positive impact on future attendance intentions ($\beta = 0.433, p < 0.01$) and WOM intentions ($\beta = 0.388, p < 0.01$).

Next, the indirect effects of core and peripheral market demand on behavioral intentions through event identification were examined. The bootstrapping results revealed that the

Items	PLS RMSE	Q^2_{predict}	LM RMSE	PLS-LM RMSE
AI1	1.063	0.044	1.083	-0.02
AI2	0.870	0.058	0.871	-0.001
AI3	0.860	0.097	0.859	-0.001
WOM1	0.733	0.09	0.74	-0.007
WOM2	0.767	0.098	0.779	-0.012
WOM3	0.736	0.078	0.754	-0.018

Note(s): PLS = partial least squares path model; LM = linear regression model; RMSE = root mean squared error

Table 3.
PLS predict
assessment of
manifest variables



Note(s): Dashed lines indicate insignificant paths; ** $p < 0.01$; * $p < 0.05$; moderation paths are differences between path coefficients

Figure 2.
Results of the
proposed model

indirect effects of core market demand on future attendance intentions ($\beta = 0.120, p < 0.01$) and WOM intentions ($\beta = 0.107, p < 0.01$) were significant and positive. Given the direct effects of core market demand on the behavioral intention variables were also significant and positive, we followed the decision rule proposed by Nitzl *et al.* (2016) and concluded that event identification partially mediate the relationship between core market demand and behavioral intentions. Thus, H9 was supported. In a similar vein, we examined the indirect effects of peripheral market demand on behavioral intentions. Both paths were found to be significant and positive (future attendance intentions: $\beta = 0.049, p = 0.036$; WOM intentions: $\beta = 0.044, p = 0.034$). However, given the insignificant direct effects of peripheral market demand on the behavioral intention variables, it was surmised that event identification fully mediated peripheral market demand effects on behavioral intentions (Nitzl *et al.*, 2016). Hence, H10 was supported.

To establish partial measurement invariance (Henseler *et al.*, 2016), the MICOM procedure was executed. The sample was divided into two sub-groups of spectators: (a) first-time spectators ($n = 192$) and (b) repeat spectators ($n = 348$), and the three-step procedure suggested by Hair *et al.* (2016) was implemented. Permutation test results (Table 5) confirmed partial measurement invariance as the correlations across two sub-groups were not significantly different from one (i.e. permutation p -values > 0.05 ; Henseler *et al.*, 2016).

Following the confirmation of partial measurement invariance, we then proceeded to test the effect of spectator type by following a permutation-based procedure for multi-group analysis (MGA) (Chin and Dibbern, 2010; Hair *et al.*, 2016). The results revealed no difference between first-time spectators and repeat spectators with respect to the core market demand effects on event identification ($\Delta\beta = -0.015, p = 0.912$). Therefore, H11 was not supported. Surprisingly, the results also revealed the opposite of the hypothesized relationship as the path from peripheral market demand to event identification was found to be significantly stronger among first-time spectators ($\Delta\beta = 0.225, p = 0.041$). It was indicated that peripheral

Hypothesized relationships	Effect	β	<i>t</i> -value	90% CI		Hypothesis supported
				Lower	Upper	
H1: Core market demand → future attendance intentions	Direct	0.216**	3.504	0.125	0.283	Yes
H2: Core market demand → WOM intentions	Direct	0.181**	2.885	0.088	0.239	Yes
H3: Peripheral market demand → future attendance intentions	Direct	-0.019 ^{ns}	0.447	-0.099	0.033	No
H4: Peripheral market demand → WOM intentions	Direct	0.050 ^{ns}	0.933	-0.023	0.128	No
H5: Core market demand → event identification	Direct	277**	4.338	0.181	0.340	Yes
H6: Peripheral market demand → event identification	Direct	0.114*	1.847	0.029	0.187	Yes
H7: Event identification → future attendance intentions	Direct	0.433**	10.091	0.380	0.485	Yes
H8: Event identification → WOM intentions	Direct	0.388**	9.168	0.334	0.447	Yes
H9a: Core market demand → event identification → future attendance intentions	Indirect	0.120**	3.787	0.079	0.152	Yes
H9b: Core market demand → event identification → WOM intentions	Indirect	0.107**	3.785	0.069	0.138	Yes
H10a: Peripheral market demand → event identification → future attendance intentions	Indirect	0.049*	1.809	0.016	0.085	Yes
H10b: Peripheral market demand → event identification → WOM intentions	Indirect	0.044*	1.824	0.014	0.075	Yes

Table 4.
A summary of
PLS-SEM results

Note(s): One-tailed; β = path coefficient; SD = standard deviation; CI = confidence interval; ** $p < 0.01$; * $p < 0.05$; ns = not significant

MICOM step 1: Configural invariance: established					
MICOM step 2: Compositional invariance: across first timers vs. repeat visitors					
Constructs	Original correlation	Correlation permutation mean	5% quantile	Permutation <i>p</i> -value	Compositional invariance
Core market demand	0.997	0.997	0.997	0.565	Yes
Peripheral market demand	1.000	0.999	0.999	0.742	Yes
Event identification	1.000	1.000	1.000	0.512	Yes

Table 5.
A summary of
MICOM results

market demand had a stronger impact on event identification for first-time spectators than repeat spectators (Table 6). As such, H12 was not corroborated. We will further discuss this counterintuitive finding in the next section.

General discussion

In an attempt to address the prevailing measurement model misspecification among sport market demand research, our study joins recent efforts (e.g. Ahrholdt *et al.*, 2017; Hulland

et al., 2018; Qian *et al.*, 2020a, b) that draw attention to the theoretical and methodological distinctions between formative and reflective measurement models. The formative-formative HCM (Hair *et al.*, 2012, 2016) approach recognizes consumers' higher-order levels of abstraction and takes both explicit market demand components and general market demand components into consideration, thereby augmenting the generalizability of the findings (Martinez Garcia and Martinez Caro, 2010). As such, a methodological contribution is made by showcasing PLS-SEM and PLS-MGA as viable statistical methods for assessing the impact of market demand, while facilitating the employment of these methods in sport marketing research (Hair *et al.*, 2012, 2016).

Results from the PLS-SEM analyses confirmed that both core and peripheral market demand were capable of influencing event identification, which positively affected future attendance intentions and WOM intentions. Therefore, we partially confirm previous findings on the relationship between market demand variables and spectators' behavioral intentions, further contributing to the literature by identifying the positive effect of core and peripheral market demand on event identification. Only core market demand had a direct, positive effect on future attendance intentions and WOM intentions. The findings for core market demand were consistent with those of prior studies that have stressed the importance of these market demand components being pivotal to athletic competition quality (Byon *et al.*, 2010, 2013; Cianfrone *et al.*, 2015; Zapalac *et al.*, 2010; Zhang and Byon, 2017).

The PLS-SEM analyses also showed that event identification possessed a positive effect on future attendance intentions and WOM intentions. Ample evidence exists in the extant literature to assert that sport identification is critical to the explanation of sport consumers' behaviors (Carlson and Donovan, 2013; James *et al.*, 2019; Wang and Tang, 2018). However, event identification, a distinct variation of sport identification, has received relatively less scholarly consideration. Although peripheral market demand did not have a direct, positive effect on behavioral intentions, our findings did show that it was positively associated with event identification, serving as a full mediator that enabled peripheral market demand to positively influence behavioral intentions indirectly. Notably, compared to the fluid nature of athletic competition, the quality of peripheral market demand elements is more stable and can be controlled and monitored by the event management team. As such, support programs dedicated to the improvement of peripheral market demand often play an important role in optimizing spectators' experiences and determining their overall event evaluations (Ahrholdt *et al.*, 2017; Byon *et al.*, 2013).

Our study pioneered testing the different effects of core and peripheral market demand on event identification between first-time and repeat spectators. Through this endeavor, we provided a more granular understanding of the impact of market demand in the context of recurring hallmark sporting events. As revealed by the PLS-MGA results, the influence of peripheral market demand on event identification was more powerful among first-time spectators as opposed to repeat spectators. In other words, there is now evidence to suggest

Hypothesized relationships	β (first-time spectators)	β (repeat spectators)	$\Delta\beta$	Permutation p -value	Hypothesis supported
H11: Core market demand → event identification	0.261	0.276	-0.015	0.912	No
H12: Peripheral market demand → event identification	0.265	0.01	0.225	0.041	No

Note(s): One-tailed; β = path coefficient; $\Delta\beta$ = path coefficient difference (first-time spectators – repeat spectators)

Table 6.
A summary of PLS-MGA results

that satisfying first-time spectators' peripheral market demands could be an effective approach for initial development of event identification. This novel finding might be attributable to first-time spectators primarily relying on their interactions with the tangible and intangible environments (e.g. venue designs, staff hospitality) for building relationships with events or destinations (Fu *et al.*, 2019; Morais and Lin, 2010). In this sense, focusing on the planning and management of peripheral service aspects of a recurring hallmark sporting event might be more important in establishing first-time attendees' initial event perceptions than its uncontrollable elements, such as player performances. Indeed, recurring hallmark sporting events such as the Shanghai Masters, which occur in the same venue annually, are advised to monitor and improve the peripheral market demand aspects that shape first-time attendees' event perceptions to develop sustained relationships oriented around long-term consumer satisfaction. From a long-term planning and capital budgeting perspective, means for improving food and beverage service capabilities should be considered when determining facility renovations or new facility construction, or changing permanent event locations. For example, if food and beverage services are consistently receiving high scores, ticket packages should be developed that include food offerings and be marketed accordingly.

Limitations and future research

There are several limitations that need to be recognized when interpreting the results of the study. Conducting future studies to address these limitations can help extend the scale and scope of sport market demand research and enrich the ever-growing literature on sport marketing. First, as is commonplace with survey-based studies, the data were collected using self-reported measures, and some responses might not be an accurate reflection of actual behavior. Second, we only utilized PLS-SEM and PLS-MGA to assess the impact of market demand. Future scholars are advised to conduct importance–performance map analysis (IPMA) to compare the importance (total effects) and the performance (average latent variable scores) of the predecessor constructs (e.g. event activity) or indicators in predicting endogenous constructs (Ringle and Sarstedt, 2016). Third, we did not examine if differences existed between local residents and nonlocal visitors in terms of their perception of market demand. Also, local attractions are anticipated to be an important pull factor that might influence event attendance decisions (Cianfrone *et al.*, 2015). Consequently, we encourage future research efforts to distinguish local spectators from nonlocal spectators and investigate how natural attractions (e.g. national parks) or cultural attractions (e.g. museums, temples) would impact spectators' event-related behavior.

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