

Excitement vs Entertainment – Intrinsic Motivations and Spending Habits of Spectators at Individual Sport Competitions: The Case of FINA World Championships

Research Article

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Received 13 May 2025; Accepted 03 September 2025

Abstract: Major international sports events are held in high regard by spectators, who contribute with their spending to the organizers and even to the given national economy where the event is organized. We investigated the intrinsic motivational factors of foreign spectators and their association with their event-related expenditure in the 2022 FINA World Aquatics Championships. The survey method was applied, and the sample consisted of $n = 385$ foreign spectators. Exploratory Factor Analysis was conducted on the event-related sports motivations of the foreign spectators, and regression models were calculated with these factors and economic and demographic variables. Convenience and Excitement, Fan of the national team, and Entertainment were the three event-related sports motivational factors of foreign spectators, and all of them were significantly associated with spectators' expenditure. The Entertainment factor on its own was negatively associated with expenditure, whereas the Convenience and Excitement, and the Fan of the national team factors had a strong positive association with spectators' expenditure. Economic factors were also significantly associated (positively) with expenditure, but from the demographic variables, age was the only one with a significant association (also positive). Excitement seems to be an event-related sports motivational factor that increases foreign spectators' expenditure, whereas only Entertainment focus decreases it.

Keywords: Sports motivational factors • Spectators' expenditure • Major international sports events • CAGE distance

1. Introduction

International sports competitions have been getting increasingly popular with spectators and researchers in the past few decades, not only in terms of sports and performance-related interests but also in business-related ones. From a sports perspective, the performance of the athletes is the primary goal (Szabó et al., 2018). However, the economic perspective is open to the organizing committee's budget, the spectators' expenditure, or the event's impact on the local or the given country's national economy (Carvalho et al., 2018). Sporting events are often promoted by

governments for economic development, sport tourism, or entertainment value-related reasons. However, many significant events create losses on a financial or even on an economic level, which raise controversy and public scrutiny over them and their promotion. A key factor in determining the economic success of an event is the spending behavior of attendees, especially the foreign spectators', as their expenditures flow into the host country's economy as additional cash inflow, contributing to the country's gross domestic product, and even providing tax income into the budget. Therefore, this study focuses on foreign spectators and their intrinsic motivations in association with their expenditure in a major international sports event. Gaining insight into the motivational drivers behind sports

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consumption can help design more engaging sports experiences that boost consumer spending. Event organizers can enhance the entertainment aspects of their events to maximize financial returns, and governments can guide event organizers to deliver more economic value. We use the 2022 FINA World Aquatics Championships as a case study to explore what motivates foreign spectators to spend, with the aim of informing future event planning to ensure positive economic outcomes for host countries. The Hungarian event is especially interesting, as this event was the first World Aquatics Championships after the lockdowns of the COVID-19 pandemic, and also the first major international sports event in Hungary. Whereas the FINA World Aquatics Championships are especially interesting as aquatic sports (swimming, diving, etc.) are very popular worldwide, with billions in viewership; e. g. the 2023 event had 5.59 billion in global digital reach (World Aquatics, 2023).

We build on the self-determination theory (SDT) (Deci & Ryan, 1985) to identify intrinsic motivational factors of foreign spectators, and connect them with their social and economic characteristics to be able to identify the association with event-related expenditures. Expenditure of foreign spectators serves as an additional cash inflow to the organizers' country, which can contribute significantly to an event's financial impact and serves also as an additional argument for organizers to win the support of their government to let them host high-profile, major international sports events.

2. Literature Review and Hypothesis Development

The SDT (Deci & Ryan, 1985; Ryan & Deci, 2017) is an empirically based motivation theory of human motivation, and an influential framework for understanding motivation in sports, focusing primarily on the fulfillment of three basic psychological needs: autonomy, competence, and relatedness. SDT helps to explain why individuals engage in certain behaviors, distinguishing between intrinsic motivations (such as enjoyment, identity, belonging, exploration, or personal growth) and extrinsic motivations (such as rewards, recognition, or external factors). Intrinsic motivation is the highest point of self-determination, when the individual is self-determined to act from her inner drive, which is based on the three basic psychological needs (Kiss & Nagy, 2024; Ryan & Deci, 2000). SDT's organismic perspective assumes that humans are proactive, self-motivated organisms who actively seek optimal challenges and new experiences to master and integrate into a coherent sense of self

(Standage & Ryan, 2020). The theory revealed that an individual's behavior is determined by their subjective experience and interpretation, and intrinsic motivations are not necessarily externally rewarded (Ajzen, 2002; Deci & Ryan, 2002; Ryan & Deci, 2008). The intrinsic motivation (Deci, 1975) gives rise to an individual's innate tendency to participate in an activity on their own free will and refers to behaviors that perform a task for their own sake (Ryan & Deci, 2000). When the people find an activity enjoyable and this activity itself is considered as a reward, it acts as intrinsic motivation on the other hand satisfying needs enhance intrinsic motivation and internalization, resulting in higher achievement. Extrinsic motivation refers to behaviors that perform a task due to the desire for some external rewards, whereas sanctions and evaluations can backfire, leading to lower quality motivation and performance (Ryan & Deci, 2000).

From this perspective, in sport consumption, autonomy can be the basis of intrinsic motivation, such as for athletes to empower them to make decisions in training and participation, which could increase their engagement and ultimately their personal growth, or for fans, the selection of athletes, teams, or sports to follow, which fosters a stronger personal connection. Feeling competent in sports activities or understanding the sport well as a spectator boosts intrinsic motivation to see more games, focus more on events, and even share their knowledge about the event. Relatedness is especially important in sport consumption, as the closer fans feel to the athlete or the team, the more they consume. Extrinsic motivation is a more controlled activity toward receiving benefits from sport consumption, or to conform to requirements or regulations (Standage, 2023).

Supporters may attend events for several reasons: they find the events enjoyable, they identify with a national team or community that provides a sense of belonging, or they want to observe top-tier athletes perform in order to learn from them. All of these examples are based on intrinsic motivations, which in turn are based mostly on relatedness needs satisfaction, but competence and autonomy are also included. Extrinsic motivation to attend an event can arise when the coach requires younger players to cheer for the senior squad.

2.1 Spectator Motivation and Spending Behaviors in International Sports Events

Spectator motivation is a complex and multifaceted phenomenon influencing attendance and consumption behavior in sports events, which can be well understood by utilizing SDT. Byon *et al.* (2010) found that competence-

related intrinsic spectator motivational factors are significantly associated with attendance behavior. Li (2024) found that spectators are driven by various intrinsic motivations when attending sporting events, which can include enjoyment of the game, social connection with other fans, and personal achievement aligned with the values of the sporting community. Wang et al. (2013) indicated that fulfilling spectator motivations correlates with their psychological well-being, reinforcing the concept that feeling competent during a sporting event increases satisfaction levels. Other streams of research have shown that various factors, such as affordability (Kim et al., 2016), attitude (Kim et al., 2023), satisfaction (Duan et al., 2020), attachment, involvement, and brand image (Adachi et al., 2022), as well as social, affective, and tension release (Ma et al., 2021), play significant roles in motivating spectators to attend sports events, whereas satisfaction is even significantly associated with revisiting sports events (Pahrudin et al., 2024).

Internal constraints, such as sports interest, interest in players, team identity, and socialization, have been identified by He (2022) as primary motivations for sports fans and spectators to participate in sports events. The role of supporting the team has been emphasized as motivation for spectators (Hoseini & Amani, 2018), whereas in a Taiwanese sample Chien and Ross (2013) identified entertainment and group affiliation as primary motives for fans. Yamashita and Muneda (2019) suggested that female spectators are more motivated by acquiring knowledge about sports than male spectators. The fulfillment of spectator motives has been found to mediate the relationship between motivation and behavior (Wang et al., 2013). Different spectator types, such as on-site versus off-site spectators and paid versus non-paid or complimentary spectators, may moderate the effects of travel motivations and purpose (Wong & Tang, 2015). These research results are either explicitly or implicitly connected with the satisfaction of autonomy, relatedness, and competence needs of spectators.

In this research, international sports events have been selected as the context of the study, where spectators' motivation will be investigated, especially in association with their spending behaviors.

International sports events have been categorized in several ways (e.g., Herstein & Berger, 2013; Stocker & Laczkó, 2020). Stocker and Laczkó (2020) distinguished mega-events, major, technical, mass-participation, medium, and minor events, from which major events have been selected as the specific context.

Major events are sports events like the World Championships of Olympic sports, which had significant research interest in the past decade (Gómez-Rodríguez et al., 2024; Kwiatkowski & Oklevik, 2017; Quirante et al.,

2024; Revindo et al., 2019), but are far from an over-researched area.

Most business-related research about international sports events focuses on the economic impact of the event (Csobán & Serra, 2014; Rowley & Smith, 2022; Szabó et al., 2021; Tien et al., 2011), several even highlighting the negative financial impact (Liu & Wilson, 2014; Toohey & Taylor, 2023). Spectator behavior is another important stream of the literature (Levental et al., 2022; Monfarde et al., 2014; Schreyer & Ansari, 2022; Schreyer et al., 2019).

Spectator expenditure consists of a significant part and is a major driver of the economic impact of international sports events (Carvalho et al., 2018; Giddy, 2019; Huang et al., 2014; Stocker & Szabó, 2017) and especially foreign spectators' expenditure as it creates a positive cash-inflow to the organizing country (Bátor et al., 2023; Laczkó & Stocker, 2020). Understanding why and how spectators spend in these events is important not only from the spectators' but also from the organizers' perspective as well. Spectator spending behavior and motivations are crucial factors for event organizers and host communities when making decisions related to sports events (Chiappa et al., 2014). Due to the positive economic impact of foreign spectators' expenditure, we narrowed down the focus of the study to the association of foreign spectators' motivation and spending behavior.

On the other hand, from the spectators' perspective, motivational factors have been found to influence sports consumption behavior (Balogh, 2015), with psychological attachment to sporting events being an essential predictor of sports spectator behavior (Choi et al., 2009). Personal values are related to spectator sports consumption, providing a better understanding of the motivation for sports consumption (Li-Shiue & James, 2014). Kim (2019) found that convenience is one of the primary factors that affect spectator sport consumers' decisions, whereas Correia and Esteves (2007) found that team affiliation plays an important role, especially among male spectators. Spectators are motivated by the entertainment value of the event experience holistically Kim et al. (2020). In addition to traditional sports, the rise of esports has also attracted attention regarding spectator motivation and spending behavior. Macey et al. (2020) investigated the relationship between esports spectating motivations and game consumption, highlighting the influence of motivations on watching, gaming, and purchasing intentions. Oğuzhan et al. (2018) classified fantasy football consumers by motivational factors into loyal gamblers, hedonists, and casual players.

The motivations behind spectator expenditure have been studied in various sports contexts, but mostly in team sports such as NFL games (Hu & Cole, 2016), premier

football league matches in South Africa (Stander & Van Zyl, 2016), and professional basketball games (Gençer et al., 2011). Perić et al. (2017) found that visitors who are motivated by “event attractiveness” tend to spend more per person compared to those motivated by “support and socialization” and “escape and relaxation.” These studies have utilized different scales and frameworks to analyze spectator motivations and spending behavior, such as the Motivation Scale for Sport Consumption (Gençer et al., 2011) and a Ten-Value-Type Framework associated with spectator sports (Gau & James, 2013). Ma et al. (2021) even explored the motives and streaming consumption of esports spectators, indicating that different game genres and live-streaming types can moderate the effect of motives on spectator spending behavior, whereas Pizzo et al. (2018) found that excitement is even higher in eSports than traditional sports. Understanding the motivational factors associated with sports consumption can provide valuable information for structuring sports experiences to enhance consumer spending (Stander & Van Zyl, 2016). Organizers can tailor the spectacle side of their events so that the financial return of the event can be increased.

In international sports events, the different kinds of sport-related motivations can be not only associated with spending behavior, but in their roots, we can find the SDT-related explanation as well. For example, enjoyment or excitement taps into the need for competence and relatedness by providing stimulating, engaging experiences that make consumers feel involved in understanding or appreciating the sport. The emotional thrill increases intrinsic motivation, encouraging fans to spend more on merchandise, tickets, or related services as part of their engagement.

Fandom fulfills the need for relatedness by fostering a sense of belonging and connection with a team or a community. This social connection motivates fans intrinsically and also extrinsically to spend on attendance, merchandise, to reinforce their group membership and personal identity linked to the sport or the community.

Convenience can support the need for autonomy by giving consumers control and ease in how they access and engage with events or sport-related content (e.g., easy access to the venue or seamless ticket purchase). When consumers feel their choices are self-directed and convenient, they experience more autonomous motivation, which is linked to more positive and sustained spending behaviors.

Based on all of these, we derived Hypothesis 1:

H1: Sports event-related motivational factors are significantly associated with spectators' expenditure.

2.2 Spectator Characteristics, Event-Related Experiences, and Spending Behavior

Expenditure-based segmentation of sports tourists has revealed significant differences in spending patterns, trip characteristics, and preferences among different spectator segments (Dixon et al., 2011). Empirical evidence indicates that participants and spectators often spend significant time in hosting cities (Daniels & Norman, 2003; Györi et al., 2015; Laczkó & Stocker, 2018).

Spectator spending habits at sporting events can vary significantly across countries, influenced by economic conditions, cultural factors, and demographics. This is connected to the three basic psychological needs of the SDT also, such as spectators from certain countries may feel more competent in engaging with the sports event based on cultural familiarity or prior experience, other spectators from countries with more purchasing power can feel more autonomy to spend on services in international sports events, and foreign spectators' relatedness should also associate with their country of origin which shapes their social identity and group belonging.

Lera-López and Gárate (2005) research highlighted that the socioeconomic factors, including gender, education, and income level, significantly influence the amount of money individuals are willing to spend on sports. Paár et al. (2021) conducted a comparative analysis of sports consumption in Hungary, Poland, and Germany, identifying key patterns in household spending on sports within these nations; in Hungary, sports spending was influenced by lower economic stability compared to Germany and Poland. Kwiatkowski and Oklevik (2017) found that the non-local sports event attendees have a double positive impact on the regional economy than the local spectators. Laczkó et al., (2020) research indicates that in lower-income regions, the absence of economic stability restricts spectators' ability to spend on sports events, with many directing their resources toward basic necessities rather than entertainment.

As this paper is focused on foreign spectators at a major international sports event, we assumed that the country of origin of the spectators has a significant association with their spending behavior; therefore, we hypothesize:

H2: The country of origin of the spectators has a significant association with their expenditure.

H2a: Spectators from countries with a greater level of cultural, administrative, geographical, and economic distance spend more in a major international sports event.

The general characteristics of the spectators should also be related to their spending behavior. Won and

Kitamura (2007) and Casper (2007) found that demographic variables (e.g., age, gender, and education level) have significant effects on consumer behavior and consumer motivation. Ozhamaratli et al. (2022) even demonstrated their interrelatedness as income and expenditure have a clear relationship with age, especially until retirement age, and a similar connection can be found in general statistics about educational level and income. The general characteristics of foreign spectators are also related to the motivational differences behind their spending behavior. Younger spectators may exhibit higher intrinsic motivation driven by enjoyment and social connection, leading to spending on experiences and merchandise; however, restricted budgets can decrease this impact. As for gender, males are assumed to have higher intrinsic motivation in competitive sports, which can be related to more expenditure on attendance or merchandise. And higher education levels are often associated with greater internalization and competence-based motivation, which are enhanced with higher budgets.

Therefore, we hypothesize:

H3: Age, gender, and educational level have a significant association with spectators' expenditure.

It can also be interesting to see how much spectators like the event, either from an organization or from an experience-related perspective; although we did not find evidence in the literature about these factors, we wanted to explore whether event-related factors are associated with spectators' expenditure. We assume, based on the SDT, that when spectators like an event, their relatedness needs should be satisfied better, and when the organization of the event is smooth, then their autonomy needs should be satisfied better. Based on these, we hypothesize:

H4: Event-related factors are significantly associated with spectators' expenditure.

3. Methods

After the lockdowns of the COVID-19 pandemic, the 19th edition of the FINA (now known as World Aquatics) World Aquatics Championships was the first significant major sports event in Hungary. The world championships were held from 17th June to 3rd July 2022 in four different cities: Budapest, Debrecen, Szeged, and Sopron. This research is part of a comprehensive research program that focuses on major sports events' economic impact and spectator motivation. The researchers conducted several questionnaire surveys at several international sports events from 2018 to 2025.

The data collection was based on interview surveys (Babbie, 2013). Several interviewers were trained about

the questionnaire and conducted surveys in different locations, they administered small batches of questionnaires, and their work was supervised by one of the authors. Respondents provided their answers themselves (i.e., the data were self-reported), but the questionnaire was administered by trained interviewers rather than being completed independently by the respondents. From foreign spectators, 397 answers were recorded. After data validation, $n = 385$ answers remained in the sample, as multiple recordings and foreign-born, but actual Hungarian residents have been excluded. The questions about spending habits were collected in Hungarian Forint, and the motivation-related questions were measured with the seven-point Likert scale. Additionally, basic demographic questions were included in the survey to obtain an overall image of the sample population, and attitude questions about how spectators rated the organization and the event's hospitality.

Questionnaire items were created by professional experts with organizational experience from European Championships, World Championships, and World Cup events, inspired by well-known scales in sport motivation research, such as the SII scale (Funk & James, 2001), SPEED scale (Funk et al., 2009), SPEEDE-H scale (Kajos et al., 2017), which had to be adjusted as these scales were focused on team sports, and the focus of this research program is about individual sports, e.g. if a question had a minor difference in the wording of the Hungarian validated version from the original, we used the Hungarian validated version, or we changed "team name" in the question to "my nation's athletes" as team name was not applicable to individual athletes and in this case the real meaning was captured better with the updated item.

The survey database has been extended with additional variables from the country of origin of the spectators. GDP per capita (current international \$) has been added from the World Trade Organization's database (WTO, 2024), and the CAGE distance between Hungary and the country of origin of the spectators has been added from NYU Stern's CAGE Comparator database (NYU, 2024).

For statistical calculations, SPSS 29 was used, combined with the Omega expansion package from Hayes (Hayes & Coutts, 2020), and the significance level was set to $p < 0.05$. For independent variables, 11 variables were selected and tested for correlation with adequate results, thus making them favorable for factor analysis.

After the Shapiro-Wilk test, we could conclude that the sample is not normally distributed; therefore, we used the Principal Axis Factoring method with the regular criteria of Eigenvalue 1, and we used Varimax rotation to avoid multicollinearity (similarly to Stocker & Erdélyi, 2024).

The factor solution includes 3 factors, which explain 69.837% of the variance with a very high KMO measure (0.853, $p < 0.001$). All factors had very high reliability, based on their McDonald's ω score, which can be seen in Table 1.

The threshold for the factor loading was set to 0.5 (based on Hair *et al.*, 2018); factor loadings are shown in Table 1. Communalities of the extraction were high and medium, with 0.857 as the highest and 0.534 as the lowest commonality.

Based on the factor analysis, we identified the following factors: Convenience and Excitement ($\omega = 0.889$), Fan of the national team ($\omega = 0.812$), and Entertainment ($\omega = 0.714$). The factors are well differentiated from each other. At the same time, the variables in certain groups belong together statistically and in meaning, thus validating the consistency of the responses given. These factors were later used as independent variables in the (OLS) linear regression analysis (enter method) for which each model's statistical requirements were met. Several models

were selected based on the created factor model and other variables.

4. Results

Several regression models have been calculated to understand the relationship between event-related sports motivational factors, different demographic variables, and spectators' spending behavior. The results of the regression models can be seen in Table 2.

Each calculated model was significant not only in $p < 0.05$ but also in $p < 0.001$. The explanatory power of the models increased until it reached its peak in model 3 and took a slight downward turn in model 4.

Regarding model 1, we only used the event-related sports motivational factors to explain the total expenditure of spectators. The model was significant, and each factor was significant as well.

Items of survey	Factors		
	Convenience and excitement ($\omega = 0.889$)	Fan of the national team ($\omega = 0.812$)	Entertainment ($\omega = 0.714$)
It is important to me to reach the venue of the competitions easily and conveniently	0.836	0.214	0.128
The convenient and high-level venue is important to me	0.820	0.195	0.081
The good price/value ratio of spectating the competitions is important to me	0.768	0.087	0.183
Attending competitions helps get away from the routine of everyday life	0.647	0.351	0.045
I enjoy the excitement associated with the games	0.645	0.236	0.181
I am ready to do everything as a fan for the success of our nation's athletes	0.165	0.746	0.166
I trust my nation's athletes do their best	0.226	0.726	0.087
Being a fan of my nation's athletes is very important to me	0.350	0.651	0.264
The main reason I watch the competitions is that I find the players physically attractive	0.057	-0.005	0.775
It is important for me that there are other entertainment programs/promotions in addition to the match	0.114	0.211	0.672
I will come to a competition if I can see my nation's athletes' victory for sure	0.202	0.226	0.534

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 1. Factors of event-related sports motivation.

Source: Authors' Edition based on SPSS calculations.

Based on this, Hypothesis H1 is supported as sports event-related motivational factors are significantly associated with spectators' expenditure.

It is very interesting, however, that the entertainment factor had a strong negative association, while both convenience and excitement and fan of the national team factors had a strong positive association. These results mean that higher Convenience and Excitement or being a Fan of the national team motivation were associated with higher expenditure, while higher Entertainment motivation was associated with less expenditure. Although these results seem to be counterintuitive at first glance, it should not be forgotten or excluded that those spectators who would like to see their team's good-looking competitors win will be more motivated just to see their athletes and not to overspend in the event. In contrast, those supporters who are there for the excitement could just spend more in the heat of excitement, not to mention those who focus on their national team. It should also be considered that only those people who came to the event had already expressed their desire for entertainment. Buying the entry ticket and traveling to Hungary to watch the event already serves as an immense entry barrier; those who did not want to be entertained or did not want it by a major sports event did not spend on the event. SDT also helps to explain our result, as those whose main motivation is entertainment in an international sports event can satisfy less relatedness and

competence-related needs, which in turn decreases their motivation to spend, and it seems their main intrinsic motivation is to be entertained. The convenience motivation satisfies the autonomy need, and excitement satisfies relatedness and competence needs; also, these higher satisfaction levels are associated with higher spending as well. The main need satisfaction of fandom is relatedness, but competence and autonomy needs could also be satisfied, and this higher intrinsic motivation is also associated with higher spending.

In model 2, we included tourism-related CAGE distance and GDP per capita in Purchasing Power Parity, and both variables were significant at <0.001 or <0.01 , respectively.

Based on model 2, Hypothesis H2 is supported as the country of origin of the spectators has a significant association with their expenditure.

The model's explanatory power increased significantly (from 0.131 to 0.223), strengthening this argument. Although their β values were minuscule, CAGE distance and GDP per capita were measured on a different scale, and their standardized beta coefficients were 0.255 and 0.174, respectively, which is in harmony with the standardized beta of sports event-related motivational factors as well. The results mean that the increase in the CAGE distance of the spectators' country of origin from Hungary means a significant increase in their expenditure, which can be understood as those spectators who came a long

Variable/Measure	Model 1	Model 2	Model 3	Model 4
const.	895.948***	88,418	-841,344	-1,168,256
Convenience and excitement	243.566**	222.203**	200.226*	207.96*
Fan of the national team	272.975**	330.816***	315.096***	317.674***
Entertainment	-380.964***	-282.902**	-253.685**	-267.470**
CAGE distance (tourism-related)		0.077***	0.084***	0.077***
GDP per capita, PPP (current international \$)		0.012**	0.008	0.008
Gender			287,649	369.746*
Age			24.672***	20.585*
Degree of education			-61,442	-106,209
Event was well-organized				157,706
The event was an amazing experience				-87,716
Hungarian hospitality				43,719
R^2	0.131	0.223	0.257	0.254
F statistics	$F = 11.450$	$F = 12.833$	$F = 8.625$	$F = 5.821$
	$p = 0.001***$	$p = 0.001***$	$p = 0.001***$	$p = 0.001***$
Durbin-Watson	1,277	1,157	1,233	1,189

Significance codes: 0 '***' 0.01 '**' 0.05 '*' 0.1 '.'.

Table 2. Regression models.

Source: Authors' Edition based on SPSS calculations.

way would spend more. According to GDP per capita, the results are similar; the increase in spectators' country of origin's GDP per capita results in spectators' higher expenditure, which is also understandable as higher GDP per capita is related to higher disposable income and the more disposable income someone has, the more they can spend, and in this case, they were not only able but willing to spend more as well. Their willingness can be explained with the help of SDT, as those who were coming from very distant countries, such as New Zealand, had a very high level of autonomy need satisfaction, even to make the trip to the event, which also catalyzes spending when they are at the event itself.

In model 3, gender, age, and degree of education were included as we assumed that older, more educated men would spend more. This assumption was not met as neither gender nor degree of education was significant, although age was, as older spectators actually spent more.

Based on model 3, Hypothesis H3 was not supported, as gender and educational level are not significantly associated with spectators' expenditure.

This model had the most explanatory power with 25.7%, which is regarded as very high in motivational research, and in this case, although neither gender nor educational level was significant, an increase in spectators' age was associated with higher expenditure. This result is interestingly against our previous assumption that younger spectators could have more intrinsic motivations to spend, but it seems that although their intrinsic motivation is higher, their ability to spend is lower due to their lower purchasing power. It is also interesting that the correlation of age and Entertainment motivation ($r = -0.209$, $p = 0.002$) is a significant weak negative correlation, whereas age does not have a significant correlation with the other two sports motivational factors, which shows that younger generations came mostly with entertainment motivation and older with more complex sports motivations which was associated with higher expenditure as well.

In model 4, we included several other assumed explanatory factors. We assumed that those supporters who enjoy the hospitality, appreciate the organization, or just feel good, will spend more. None of those assumptions met statistical tests, as none of them were significant.

Based on model 4, Hypothesis H4 was not supported because spectators' expenditure is not associated with perceived hospitality, experience, or organization quality, so event organization-related factors did not increase the motivations of foreign spectators to spend.

This model's explanatory power was slightly less than model 3, which means these variables even worsened the explanatory power of other variables.

In view of this, we would still suggest organizers focus on these experience-related features of international sports events; although it will not manifest in the spectators' expenditure, but will still have a positive evaluation from the international federation, which can have several additional advantages.

5. Discussion

In the major international sports event of the FINA World Aquatics Championships, intrinsic motivational factors of foreign spectators could be clearly identified on which we built on SDT and extended it with its association with spending behavior. The finding that convenience, excitement, and national team support are associated with higher expenditure aligns with SDT. These characteristics contribute to an attendee's sense of enjoyment, identity, and belonging, all of which are key drivers of intrinsic motivation. Similarly, the finding that entertainment is associated with lower spending may indicate that entertainment alone does not sufficiently meet the deeper psychological needs outlined in SDT.

Foreign spectators' expenditure was not only associated with event-related sports motivational factors but also with financial and distance-related variables. Whereas financial variables could explain the ability to spend more in an international sports event, SDT helps to understand the willingness. Although several studies in the literature studied sport motivation-related factors, they were mostly focused on team sports. In contrast, we focused on a major international sports event of mostly individual sports and investigated the association of sports motivational factors and spectators' expenditure of foreign spectators. Even with the difference in the focus, our results are mostly in line with or extend the results of earlier studies.

Our results are in line with Correia and Esteves (2007), as in our study, even in individual sports, the Fan of the national team factor was a significant factor, which had a positive association with spectators' spending.

Visitors who are motivated by "event attractiveness" tend to spend more per person, according to Perić *et al.* (2017), which is partly in line with our results, as Convenience and Excitement motivation was associated with higher expenditure in our results as well. However, the Fan of the national team motivation was associated even stronger.

Our finding about the Convenience and Excitement factor, which had a significant positive association with spectators' expenditure strengthens Kim (2019) result

about convenience which they found as one of the primary factors that affect spectator sport consumers' decisions, whereas the Excitement part of the factor is in line with the results of Funk et al. (2009) and Pizzo et al. (2018) who found excitement as an established motive in traditional and esports as well. According to our results, the excitement is even positively associated with spectators' expenditure. According to the Entertainment factor, our results are complementing Kim et al. (2020) findings as we also found entertainment as a significant factor, but we argue that if the foreign spectators of a major international sports event are in focus, then entertainment motivation serves as a threshold for qualifying into the population. If the spectators only possess entertainment motivation, however, they will spend less than if they possess other factors (either Fan of the national team or Convenience and Excitement). These are also in line with the affordable entertainment factor found by Kim et al. (2016) in association with attendance.

Stocker and Laczkó (2020) found that CEE spectators spend less in Hungarian international sports events than their non-CEE counterparts, which is in line with our results as well, as we found that the higher the CAGE distance of the country of origin of supporters from Hungary, the more they spend. It should also be noted that CEE countries have the lowest CAGE distance ratio from Hungary, actually.

Although we assumed from Won and Kitamura (2007), Casper (2007), and Ozhamaratli et al. (2022) that demographic variables (e.g., age, gender, and education level) have significant effects on consumer behavior and consumer motivation, we could only report a significant association with age; all other demographic variables were not significant on spectators' spending. Although we accept that general consumer behavior and even motivation can be associated with gender and educational level, it seems that if we focus only on foreign spectators' expenditure in a major international sports event, these factors do not have a significant association.

6. Conclusions

Our findings are built on the intrinsic motivational factors of SDT from the perspective of foreign spectators but contribute to its extension by taking into account their economic and social characteristics, which resulted in expenditure models with significantly higher explanatory power.

Foreign spectators' expenditure is a significant driver of the economic impact of major international sports

events. In the 2022 FINA World Aquatics Championships, foreign spectators' expenditure was significantly associated with their event-related sports motivations, especially with convenience and excitement, being a fan of the national team, and entertainment motivation, and it seems that the more autonomy, relatedness, and competence needs could be satisfied, the more spectators showed a higher willingness to spend. Younger spectators' main motivation was entertainment, and their lower ability to spend served as a barrier. It seems that younger spectators came mostly for entertainment, whereas more mature spectators had richer motivations and therefore were more open to a more holistic experience.

We realized that entertainment motivation also serves as a threshold for foreign spectators. Therefore, all foreign spectators had this motivation, but those spectators whose motivation was only or mostly just entertainment spent significantly less than those with convenience and excitement or fan of the national team motivation.

The cultural, administrative, geographic, and economic distance were also significantly associated with foreign spectators' expenditure as the longer the journey they traveled and the bigger their cultural difference were, the more commitment they needed and the more they spent. Factual data about the spectators' country of origin's GDP per capita was also significantly associated with their expenditure; spectators' higher ability to spend was met with willingness. According to demographic variables, only age was significant, as the increase in the age of the spectators was positively associated with expenditure as well.

Our study is useful to understand motivational factors of foreign spectators' expenditures in major international sports events, from which our recommendation to event organizers is that they should focus on engaging with potential foreign spectators' autonomy, relatedness, and competence need satisfaction to catalyze more spectators' decision-making to come to the event. We also recommend increasing the excitement of their event, provide ample opportunities to spectators of different nations to express their support, e.g. Instagram campaign with event merchandise, as these tend to increase foreign spectators' expenditure, and focus also on event organization and hospitality to strengthen the foreign spectators' desire to come back and visit the country.

We recommend that policymakers require event organizers of major international sports events to create a report detailing the exposure and expenditure of foreign spectators, or even an economic impact calculation, as this report can help support their financial decisions and provide transparency to the public.

Our study has the limitations of the survey method, such as the questionnaire items could be understood differently by different respondents, which we tried to mitigate with the usage and education of the interviewers. The Hungarian context could serve as a limitation as well, as the identified factors in other major international sports events in other countries can have a different influence intensity. It is a very interesting future research direction to see how foreign spectators' expenditure or even their overall experience in any other country (excluding those who are domestic in the host country but foreign in Hungary and including Hungarians) is associated with the identified sports motivational factors.

Future research direction will be the cost-benefit analysis of major international sports events, as well as understanding foreign spectators' prerequisite motivation to start the journey to a major international sports event in a foreign country, and the promotional tools to influence this decision to actively engage with their autonomy, relatedness, and competence need satisfaction. The research gap on the association of CAGE distance elements with spectator expenditure in team sports will be another interesting avenue for future research.

Acknowledgements

We would like to express our acknowledgement to the anonymous reviewers for the valuable feedback, which helped us improve the quality of our paper.

Funding information

This research was funded by the National Research, Development and Innovation Fund of Hungary, grant number TKP-2021-EGA-10.

Author contributions

Péter Szabó, Tamás Laczkó, Miklós Stocker: conception and design of the study, acquisition of data, analysis and interpretation of data, manuscript preparation; Tamás Laczkó: obtaining funding.

Conflict of interest statement

There are no competing interests.

Ethics approval and informed consent

Although we did not perform any experiment, we did obtain the approval of the research ethics committee of Corvinus University of Budapest (KRH/369/2024). All surveyed participants were informed about the usage of their answers, they gave consent, and they were allowed to terminate their answers if they wished.

Data availability statement

The data that support the findings of this study are available upon reasonable request from the corresponding author.

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