Constructing the structural model of the five-area model of sport consumption

Mária Törőcsik
Hungary / University of Pécs / Faculty of Business and Economics
László Csóka
Hungary / University of Pécs / Faculty of Business and Economics

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The aim of our study is to explore the relationship between different types of sport consumption using the five-area model of sport consumption. Our research was based on a representative sample for the Hungarian population which contains 2000 paper and pencil interviews. On our sample, we examined the relationship between active sport participation, professional sport, online and offline sport experience consumption, and the consumption of sport products and services with the help of a partial least squares structural equation modeling. By constructing the structural model, we proved that active sport participation has a positive effect on offline sport experience consumption and on the consumption of sport products and services. It also turned out that offline sport experience consumption has a positive effect on online sport experience consumption and professional sport has a positive effect on most of the sport consumption areas except on sport products and services consumption.

1. Areas of Sport Consumption

For companies involved in sports, due to the increasingly fierce competition, the role of marketing is becoming more important in achieving success. During this process, in order to define the target market as accurately as possible, it is becoming more and more important to understand the behavior of consumers involved in sports (Mullin, Hardy and Sutton 2014). The study of sport consumption generally consists of three major areas: active participation in sports (professional or amateur), consumption of sport events as a spectator live at the venue or through the media, and consumption of sport products and services (Stewart, Aaron, Smith, and Nicholson, 2003), (Shank & Lyberger, 2015), (Fernandes, Correia, Abreu, and Biscaia, 2013).

During active participation in sports, sport consumption is realized when individuals do sport activities by themself, spending their time, energy and money on it. The fact that an individual themself takes a direct part in the sporting process is a fundamental difference compared to the second area of sport consumption, where their role is limited to viewing sporting activities as a spectator. This is called spectator sport consumption, where the sporting activity is carried out by others, so the individual is only a passive enjoyer of the process, he consumes the experience provided by the sport (Shank & Lyberger, 2015). Spectator sport consumption of sport is also an activity that requires time, energy and money. In addition to attending sport events, this type of consumption includes the purchase of tickets, the range of food and drinks consumed at the venue, and the purchase of souvenirs locally. Spectator sport consumption also includes watching sport events through media, monitoring sport news and announcements about the lives of teams, athletes and events, as well as registering and sharing the results of one's own sports activities online on various digital platforms (Funk, 2008). The third area of sport consumption is the consumption of sport products and services, which includes various sport equipment, services related to their use and operation, and services related to doing sports (Mullin et al., 2014).

The literature usually tries to interpret and examine these areas from each in isolation. Researchers thus draw conclusions about each area separately, which obscures the connections between different areas (Csóka, 2020). The aim of our present study is therefore to explore the relationship between different areas of sport consumption. However, the types of sports consumption can be divided not only into three groups, but into a minimum of five, in addition to the generally accepted categorization. For the extended interpretation of sport consumption, the five-area model provides a great opportunity, which also recognizes

relationship between each area (Figure 1). According to the model, it is advisable to divide spectator sport consumption into two different areas, which are the offline and online sport experience consumption. This is justified by the increasing popularity of online experiences, acknowledging the influence of the virtual world. On the other hand, consumption related to the type of sport that is connected to the provision of livelihood and existence, thus leading to the world of professional athletes and those who live from sports, should be placed in a separate category (Csóka & Törőcsik, 2019).

Figure 1: The five-area model of sport consumption

Source: Csóka & Törőcsik, 2019

Traditional categorization, which divides sport consumption into three areas, approaches consumption categories mainly from an economic point of view. In contrast, the five-area model allows a categorization that is interpreted from the perspective of consumers and thus it is closer to actual sport consumer behavior. More importantly for the present study, in addition to examining each area separately, it also provides an opportunity to examine individual sport consumption issues across the entire sport consumption system in order to better understand the behavior of sport consumers.

2. Research Methodology

Our research question was if it is possible to explore relationships between different types of sport consumption using the five-area model of sport consumption. For this purpose a structural model was constructed to be analyzed using partial least squares path modeling

(PLS-SEM). In a detailed review of the sport consumption literature, we found that no validated scale can be identified which is suitable for measuring individual sport consumption types of the five-area model. Therefore, as a first step we developed a scale that is able to measure these dimensions. The item pool of it was quired on a sample of 2000 people, which is representative for the 15 to 74 year old Hungarian population in gender, age groups (10-year intervals) and the region of residence.

On the results of the survey an exploratory factor analysis was conducted in order to develop the measurement dimensions of the five-area model. The dimensions determined by the factors are finally able to measure four different dimensions of the five-area model of sport consumption, which are active sport participation, professional sport, online and offline sport experience consumption. Measuring the fifth area, the consumption of sport related products and services by Likert scale did not prove to be an appropriate solution. This area was therefore measured through the aggregated monetary value of 13 different sport related product and service categories.

After developing the measurement dimensions, we used them to create a structural model in order to examine the relationship between active sport participation, professional sport, online and offline sport experience consumption, and the consumption of sport products and services with the help of a partial least squares structural equation modeling. During the development of the relationship system between the variables, the following hypothesis system was used:

H1: If sport is also a livelihood, it has a positive effect on all the sport consumption categories for the individual.

H2: Active participation in sport has a positive effect on the consumption of online and offline sport experiences, as well as the consumption of sport products and services.

H3: Offline sport experience consumption has a positive effect on online sport experience consumption and consumption of sport products and services.

H4: Consumption of online sport experience has a positive effect on consumption of sport products and services.

Data processing was performed with IBM SPSS for Windows 25, Microsoft Office Excel 2016, and SmartPLS 3 software.

3. Results

First part of our research 22 questions of the item pool were developed based on the literature and on our own previous research, with which we would like to examine four different areas of the five-area model. Regarding the structure of these questions, we asked our respondents to express the degree of their agreement with specific statements on a five-point Likert scale. A value of 5 meant that the respondent fully agreed with the statement, while a value of 1 meant that the respondent did not agree at all. After the conduction of a representative survey of 2000 people a thorough data cleansing was performed to eliminate biases due to data collection limitations. During this process all the cases were excluded where the standard deviation of responses for the entire item pool was 0.

Thus, the exploratory factor analysis finally included 1902 key responses that correspond to the generally accepted rule of factor analysis, "n / q> 10", where "n" represents the sample number of the sample and "q" represents the number of variables used. Our sample meets this criteria, as there are 22 variables per 1902 people. Examining the correlations between the variables to be included in the factor analysis, it turned out that 208 of the 231 correlation coefficients were significant. The highest correlation was 0.816. Based on the correlation results, we found that the variables are suitable for factor analysis. For factor analysis, due to the number of elements and our aims, we chose the maximum likelihood method with promax rotation. Our exploratory factor analysis was run for fixed number of factors, which was set to 4. We then subtracted variables below 0.5 factor loadings and those with high cross-loadings (secondary factor weight to at least half of the primary factor weight) from the analysis one by one. Finally, a factor structure consisting of four factors and thirteen items was obtained, which has a total explanatory power of 66.96%. With the variables included in the final structure, factor analysis can also be performed based on the KMO value and the results of the Bartlett test. The KMO is 0.875, which is considered to be a very good value. The significance level of the Bartlett's test was 0.000, which is within the acceptable range of 0.05. Examining the factors according to their content, we clearly regained the four dimensions of the five-area model of sport consumption.

To check the internal reliability of the factors, three indicators were used, which are Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE). The expected minimum value for the Cronbach's alpha and composite reliability was 0.70, while for the average variance extracted the threshold was 0.50 (Hair et al., 2010). The values obtained are summarized in Table 1. It can be concluded that in all cases, all the pre-established criteria have met the requirements. The developed factors are therefore suitable for further analysis and can be included in a structural model.

Table 1: Internal reliability of the factors

	Cronbach's alpha	CR	AVE
Active sport participation	0,854	0,853	0,662
Online sport experience consumption	0,802	0,802	0,509
Online sport experience consumption	0,876	0,875	0,702
Sport as livelihood	0,913	0,913	0,778

Source: own edition

To build the structural model, the four factors presented above were used to construct latent variables related to the four areas of the five-area model. In addition we also had to include a fifth variable in order to measure all the consumption areas of the five-area model. The fifth area is the consumption of sport-related products and services, for which the Likert scale-based method was not considered appropriate. Instead, we asked our respondents to determine, in the case of 13 different product and service categories, how much was spent on a given category in HUF in the year preceding the data collection. The answers were aggregated per respondent, obtaining the value of a given person's sport spending in HUF for the year preceding the research, which thus means a simple continuous variable in addition to the four latent variables. After including the appropriate variables, we worked with the hypothesis system presented above when developing the relationships between variables.

The final structural model is illustrated in Figure 2. After performing the partial least squares path modeling (PLS-SEM), a bootstrap sampling was performed to test the significance of the path coefficients, where the number of subsamples was set to 5000. The results presented below were generated during these two procedures. As described above, the internal reliability of the measurement scales of the latent variables was examined during the factor analysis. In addition to that, the discriminant validity of the latent variables was examined by means of the heterotrait-monotrait ratio of correlations (HTMT). The highest value was found between the latent variables of active sport participation and offline experience consumption. Its value is 0.735, which is lower than the maximum acceptable threshold of 0.9, so our latent variables can be considered adequate according to the HTMT values (Henseler, Ringle and Sarstedt, 2015). The acceptability of the model was assessed through model fit, for which SRMR (standardized root mean squared residual), the most common indicator for PLS-SEM models was used. In our case its value is 0.044, which is within the threshold of 0.08, so we found that the fit of our model is acceptable (Henseler, Hubona and Ray, 2016).

Figure 2: Structural model of the five-area model of sport consumption
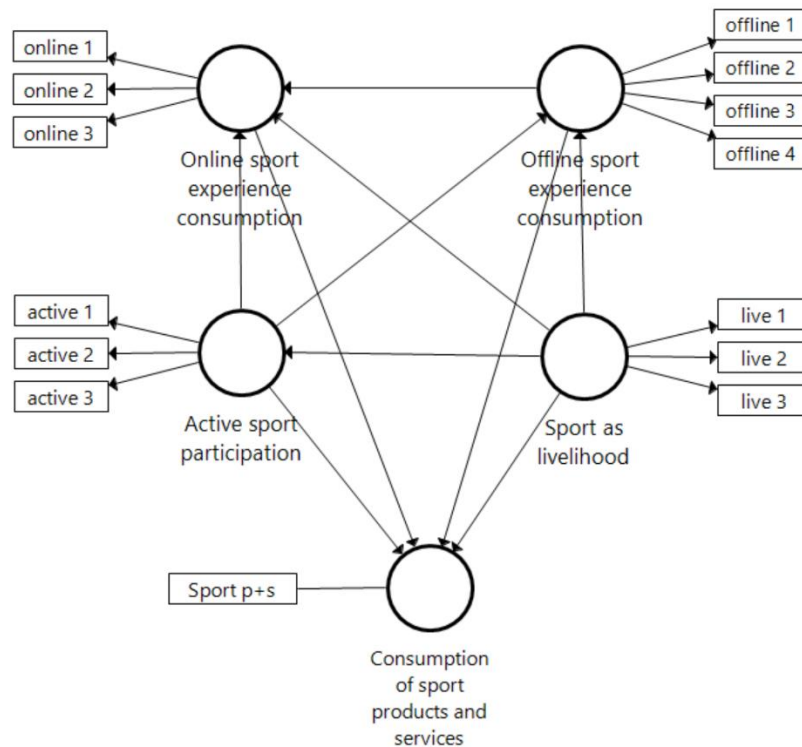
Source: own edition

In order to understand the relationships between areas of sport consumption as accurately as possible, direct, indirect and total effects of each variable were examined separately during the analysis of path coefficients (Table 2). Our results revealed that active sport participation has a remarkable direct effect on offline sport experience consumption (β = 0.673). Active sport participation also has a positive direct effect on the consumption of sport-related products and services (β = 0.547). Offline sport experience consumption has a positive direct effect on online experience consumption (β = 0.532), while sport as a livelihood has a positive direct effect on active sport participation (β = 0.479).

Table 2: Significant effects in the model

	Beta value of direct effects	Beta value of indirect effects	Beta value of total effects	The f-square value of the total effect
Active sport participation -> Offline sport experience consumption	0.673	-	0.673	**0.803**
Active sport participation -> Online sport experience consumption	-	0.358	0.314	0.001

Active sport participation -> Consumption of sport products and services	0.547	-	0.504	**0.165**
Offline sport experience consumption -> Online sport experience consumption	0.532	-	0.532	**0.184**
Offline sport experience consumption -> Consumption of sport products and services	-	-0.043	-	-
Online sport experience consumption -> Consumption of sport products and services	-0.081	-	-0.081	0.006
Sport as livelihood-> Active sport participation	0.479	-	0.479	**0.298**
Sport as livelihood-> Offline sport experience consumption	0.142	0.322	0.465	**0.036**
Sport as livelihood-> Online sport experience consumption	0.136	0.226	0.362	**0.021**
Sport as livelihood-> Consumption of sport products and services	-	0.221	0.161	0.003

Source: own edition

The positive direct effect of sport as a livelihood on online ($\beta = 0.136$) and offline ($\beta = 0.142$) sport experience consumption is questionable due to low beta values, even if this can be considered significant based on p values. We could not identify a direct effect between active sport participation and online sport experience consumption ($p = 0.396 > 0.05$), as well as offline experience consumption and consumption of sport products and services ($p = 0.116 > 0.05$). It also turned out that the consumption of sport products and services is not directly influenced by sport as a livelihood ($p = 0.116 > 0.05$).

In addition to the direct effects, we also managed to identify indirect effects in five cases. Based on our results, active sport participation has a positive effect on online sport experience consumption ($\beta = 0.358$) through its effect on offline sport experience consumption. Sport as a livelihood has similarly positive effect on offline sport experience consumption ($\beta = 0.322$) through active sport participation. Examining the indirect effects of sport as a livelihood, it was found that it has a positive effect on online sport experience consumption ($\beta = 0.226$) as well as on the consumption of products and services ($\beta = 0.221$). A negative indirect effect was also found between the consumption of offline sport experience and sport products and services ($\beta = -0.043$), which is exerted through online sport experience consumption. It is a significant effect, but it can be considered negligible based on the beta value.

Summarizing the direct and indirect effects in the structural model, the total effects can be determined between different areas of sport consumption. To interpret these total effects, we used Cohen's f-square values, which simultaneously take into account the R-square values of each variable and the beta values of relationships between them. This

provides an opportunity to determine the strength of the effects between sport consumption areas. According to Henseler, Ringle and Sinkovics (2009), the following thresholds were used in connection with Cohen's f-square values:

- f^2 <0.02: the effect between two variables is incomprehensibly small

- $0.02 <= f^2$ <0.15: the effect between two variables is small

- $0.15 <= f^2$ <0.35: the effect between two variables is medium

- $0.35 < f^2$: the effect between two variables is large (Henseler et al., 2009).

In the structural model, in several cases there are significant total effects between variables, which however, can be considered negligible based on the f-square values. Therefore, we were able to explore a total of six relationships in the structural model that are truly able to have a meaningful effect between different areas of sport consumption, taking into account practical considerations. Overall, sport as livelihood has a small effect on offline (f^2 = 0.036) and online (f^2 = 0.021) sport experience consumption, but its effect on active sport participation is medium (f^2 = 0.298). The positive effect of offline sport experience consumption on online sport experience consumption is considered medium (f^2 = 0.184), while active sport participation has a medium effect on consumption of sport products and services (f^2 = 0.165). Based on our model, the greatest effect is clearly exerted by active sport participation on offline sport experience consumption. It can be considered as a large effect with an outstanding f-square value (f^2 = 0.803).

4. Conclusions, suggestions

In our study the relationships between different areas of sport consumption were explored, by applying the framework of the five-area model of sport consumption. Based on our results, if sport is also a livelihood, it has a positive effect on almost on all other sport consumption areas. The exception is the consumption of sport products and services, in which case the nature of sports equipment as a work equipment can be a logical explanation, as they are not purchased by those who live from sports. A sport-related job is presumably accompanied by a wide range of sport-related products and services that are most often provided by the employer. With our structural model the positive effect of offline sport experience consumption on online sport experience consumption was also proved. It means that if somebody increases their consumption of sport experiences offline, i.e. watches more sport events live at the venue or on offline media devices, they are expected to consume more sport experience content online as well. Examining active sport participation, it turned out that

it is closely related to offline sport experience consumption. Doing sports greatly increases an individual's consumption of offline sport experiences. In line with this, it is also expected that spending on sport-related products and services will also rise, although this effect is smaller. Limitation of our research is that our hypothesis system did not allow the examination of effects between active sport participation and offline sport experience consumption in the opposite direction, because of the PLS-SEM methodology. As a future direction of research, this certainly offers opportunities.

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