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Combining visitor- related data of sport events; looking for patterns

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Summary

Large numbers of sport events are hosted every year, also in the Netherlands. These events all have some sort of impact on their host region, whether it is negative or positive. Multiple evaluation techniques such as the calculation of the economic impact are developed to determine this impact. However, a lot remains unknown about the precise impact of these events. What is known, is that great variety exists between the impact of all different kind of events, as also stated by the Dutch Sport Council in their report. One of their recommendations is to conduct event transcending research to obtain more knowledge about this topic.

This thesis tries to determine the most important factors which are related with the consumption of a visitor of a sport event. In order to do so, 25 datasets of the WESP used to calculate the economic impact of a sport event were combined into one large database. The database consists out of data of 25 Dutch sport events adding up to about 18000 respondents. The main goal was to try and explain what variables influence the consumption of the visitors. With this, event organizers might have a tool which helps them to maximize the impact of the sport event.

Furthermore, research within the field of sport events is not yet focussed on using a large amount of data. Assumptions are made, but no definite proof is provided. This thesis gives some insights into this way of doing research and provides proof for some assumptions one might have regarding the consumption of an event visitor.

The main question of this thesis is: Which factors influence the average consumption of the visitors of a sport event? To be able to answer this question, the available data was split up into five parts: personal and demographic features, transport, visitor characteristics, type of event and consumption patterns.

Furthermore, experts were interviewed to obtain more knowledge on the topic and to put the results into perspective. The data was analysed using Excel and SPSS and from this, it can be concluded that the following variables have a significant effect on the consumption of the visitors.

- Gender
- Age
- Nationality
- Grade
- Being a spectator or participant
- Staying longer
- Staying the night
- Being in the city because of the event
- Type of company
- Whether the event of free or not

- Whether the event is focussed on spectators or participants
- Whether the event lasts one day or multiple days

From this, it can also be concluded that a database is useful into determining and explaining certain event characteristics. However, the results were not considered to be special or unknown by the experts, as most of them already assumed these variables to influence the consumption. Nevertheless, this thesis provides the up to now non-existent proof for these assumptions and provides an overview of the scope of the effect these variables have on the average expenses.

Of course, one can have doubts about the generalisability of the results as not every type of event is equally represented within the database. Nevertheless, this thesis proves the usability of a large database in sports research and offers perspective into extending this way of doing research to explain other variables.

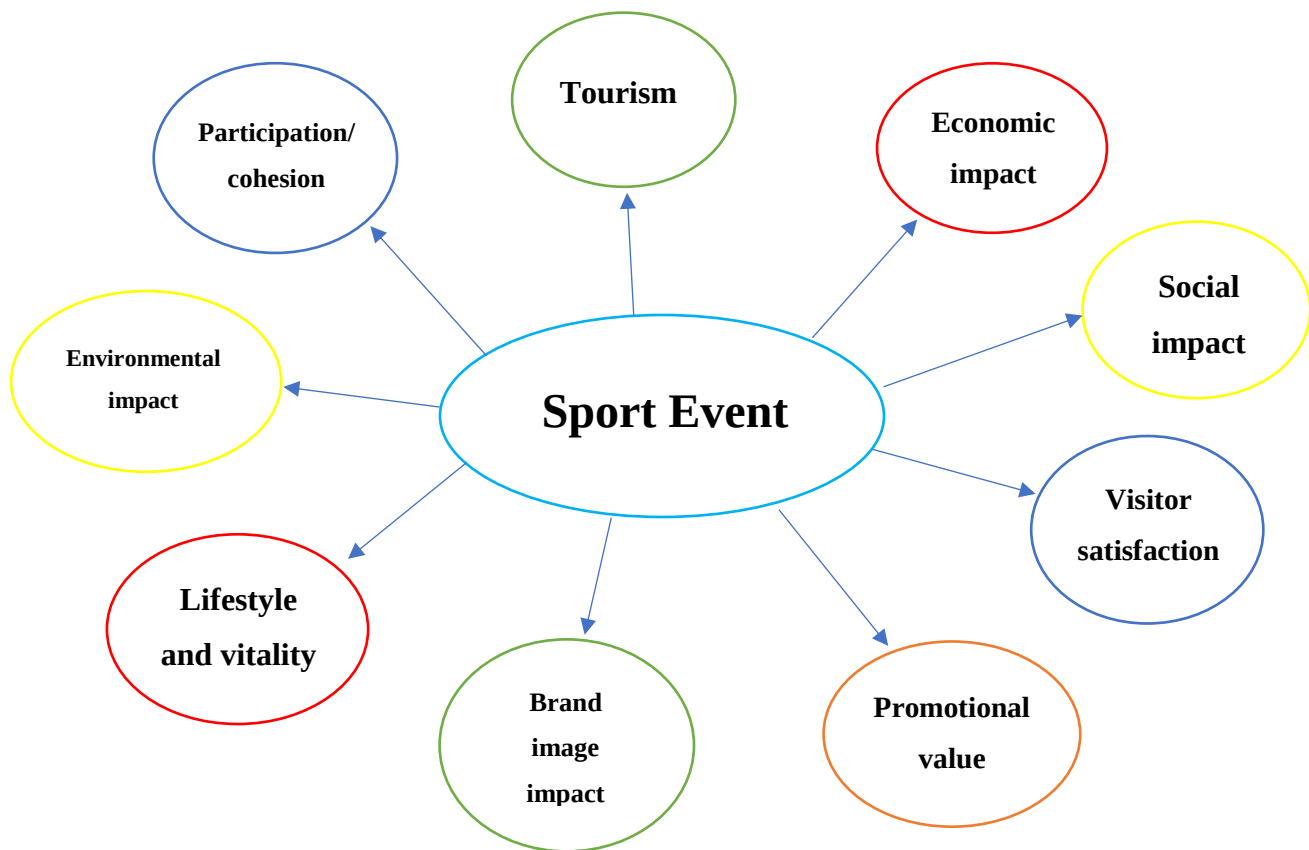
1. Introduction

All around the world cities and communities are hosting all kinds of sport events. Examples are the Olympic Games of 2016 in Rio de Janeiro, the world championships of football in South Africa but also smaller events such as the world championships of beach volleyball, hosted in The Hague in 2016. Even though hosting a large-scale sport event will take a lot of effort and will have high costs, (local) governments and sports associations are still continuing to host such events. Giga events (over 3 million tickets sold, elaborated on in section 2.1) such as the Olympic Games are even preceded by a competition between different communities and cities to convince the board of the event that they have the best location to host the events. As stated before, the hosting of an event will bring large costs. According to the NOC-NSF hosting the Olympic Games will already cost €2,1 billion without the costs of necessary changes of the infrastructure and accommodations taken into account (NOC NSF, 2017). So why is it that cities are still eager to even host a sport event? To answer this question, one must look at the impact hosting such an event might have on the host region.

Positive impact

First of all, hosting a sport event is (in most cases) about the sports. The event creates the opportunity for the best sportsmen and women to compete. When considering a giga event, fans from all over the world gather in the hosting city to enjoy their favourite sports and celebrate sporty success. Smaller events might be a lot more local but can still attract visitors from all over the region or country. Nevertheless, if this would be the only benefit a hosting sport event would bring, would cities still be so eager to host an event?

Hosting a sport event can have a lot of benefits for the host and creates opportunities for the host city, the host country, and as well for the inhabitants of the host city. According to Eduardo Paes, mayor of Rio de Janeiro, the main reason why cities are lining up to host sport events might be that a large-scale event creates the opportunity to help the city or country elevate themselves. Hosting a big event like the Olympic games is a guarantee for the world's attention, which is an opportunity to create a positive image and a legacy which can result in all kinds of returns to local communities. For example, in 1992 when the Games were hosted in Barcelona, the city took the opportunity to change from an old industrial town to a popular and modern touristic place. The beaches that were built specially for the Olympic Games are still widely used up to this day. If everything is planned well, the accommodations that were built in order to host the event will also be used well for the years to come after the event, preventing the existence of so called 'White Elephants' (Paes, s.d.), defined as buildings used for the event remaining empty for the years following the event.



Other reasons for hosting sport events can be found in tourism, economic impacts, social impacts, customer and visitor satisfaction, promotional value, brand image impacts, participation and cohesion, environmental impacts and effects on the lifestyle and vitality of the surrounding community (Pettinger, 2017). Every hosting city tries to maximize the positive impact of the event. However, some events are more known because of the negative impact it might have had on its host. For example, the Olympic Games of 2016 in Rio de Janeiro. USA Today and mayor Eduardo Paes state that in order to host the Olympic Games, massive investments on accommodations and infrastructure were necessary, even though the government could barely afford wages for teachers and doctors causing massive protests and disapproval amongst the residents. On top of that a lot of accommodations have become white elephants, just like the accommodations built for the Olympic Winter Games in Sochi 2014 (Scathing Report on 2016 Rio Olympics: venues 'White Elephants', 2017).

The positive impact uses examples of large, international sport events. However, national, regional and even local sport events can have those benefits as well. The DSP-Group describes six areas in which a sport event can have a positive (social) impact. These areas are: Health and vitality, participation and cohesion, perception and experience, economics and employment, environment and innovation, image and identity (de Groot, Blom, & van der Gugten, 2012). One of the benefits a sport event might have on the local surroundings is evaluated by van Lenthe (2017). He states that side events, events which have similarities

with the main event and are organised prior, during or post the event, might have a positive influence on the sports participation of locals. This thesis mainly focusses on one of these impact areas, economics and employment.

Negative impact

The hosting of large scale sport events can create positive impacts but can also have negative impacts. Throughout the history of sports, many large-scale events have been hosted and a lot of examples of the negative impact of such events can be found. As stated before, the Olympic Games of 2016 in Rio de Janeiro in combination with the World Championships of Football in 2014 have had negative consequences for the host country Brazil (GvA, 2016). Many of the venues used for the tournament remain empty (Scathing Report on 2016 Rio Olympics: venues 'White Elephants', 2017). Lack of money to maintain the venues combines with an economic recession and political crisis, which have worsened because of the Olympics (Financiële noodtoestand in Rio om Olympische Spelen, 2016), withheld Brazil from being able to transform the venues used for the Olympics into venues that can be used today. The world championships of football, which were hosted in 2014 in the same country, has the same negative consequences. All over the country cities have expensive mega stadiums which cannot be used. Simply because of a lack of money to maintain the venues, because of the national teams not having the money to rent the stadium or because the stadiums were built at a location without any large football club nearby. Four years earlier, the championships were hosted in South-Africa, leading to the same kind of negative impact (Haarsma, 2014).

Of course, the sport events hosted in Sochi, Rio de Janeiro, Brazil and South Africa were already surrounded by controversy and one might not be surprised about the large negative impact these sport events have had on those cities and countries. However, when considering the consequences of sport events in cities considered more 'sophisticated', one can see that negative impacts are also present. For example, the Olympic Games hosted in Athens, 2004 left a trail of White Elephants throughout the city (Elt, 2016).

The large amount of attention a city receives when hosting an event like the Olympics, creates the opportunity for the city to elevate themselves, as stated by Paes in the Huffington Post. However, he also says that attention gives people a possibility to elevate their cause in front of an enormous audience. Because of this, large-scale sport events and political movements have gone hand in hand. Examples of this are the Cold War boycotts in Moscow in 1980 and in 1984 during the Olympics in Los Angeles.

Dutch bid Olympics 2028

So, hosting an event like the Olympics can have a positive impact on the host region, but also a negative impact. While this differs per event and host region, a general decline in bids for hosting the Olympics can

be spotted. Normally, the Winter or Summer games would attract about half a dozen bids. However, for the 2022 Winter Games and the 2024 Summer games only 2 bids remain (Sanderson, 2017). This pattern also applied to the Netherlands, which had plans to bid for the Olympics of 2028. Minister of sport during that time, Edith Schippers, had plans to host the event together with Belgium ('t Sas & Belinfante, 2016). Also, the cities of Amsterdam and Rotterdam were enthusiastic about the idea (AD, 2012). However, the report of 't Sas & Belinfante also states that 60% of the people questioned were against hosting the Olympics, giving the expectation of the costs not weighing up to the benefits as main reason (94%). In 2012, the Dutch government stated in its plans that it would not financially support the bid for the Olympics anymore (VVD-PvdA, 2012)

The government might have multiple reasons for not supporting the bid for the Olympics anymore. For this, they will probably have outweighed all of the effects hosting a mega sport event might have on the country and concluded that hosting the Olympics would not be achievable and profitable. With this the question arises what effects a sport event will have on the host region. As stated before, sport events can boost tourism, can help create a positive image of the host region for the world to see, can create a legacy, can create a social impact and has an economic impact.

Report Dutch Sports Council

Up to now, the focus has been on mega events. However, these effects are also present with national, regional and local events. In the Netherlands, sport events are hosted on the regular, varying from national events the Nijmeegse Vierdaagse to larger, international events like the start of the Tour de France in 2015



**Event transcending
research is
recommended by the
Dutch Sport Council**

in Utrecht. The Dutch Sport Council researched the effects of 25 large sport events hosted in the Netherlands in the past five years and published the results in their report 'Nederland op de Kaart' on May 29th, 2017. This report was commissioned by the Dutch minister of Health, Wealth and Sports Edith Schippers. She wanted to be advised about the efficiency, impact and collaboration surrounding big sport events. In order to do so, the Council selected 25 sport events based on the diversity in sports, region and accommodation. These events were evaluated on different

including the reach of the event, the organisation, the strategy, the process, the businesscase and the economic and social impact. Also, collaboration between the events and the sharing of knowledge have been evaluated.

One of the conclusions of the report by the Council is that there is a lot of diversity between the 25 sport events. The impact of the events has a great variety, but the report does not give reasons as to why this variety exists. The original data might include important information about this subject and give insight in the difference between the sport events.

The report itself concludes by giving some recommendations, some of which are of importance for further research concerning the value and impact of sport events.

- Event organisers ask if it is possible to obtain and develop different revenue models which will help to understand more about the business case
- Event transcending research is needed to determine the economic and social value and impact of large sport events and the essential indicators concerning this impact. The question arises how to pursue the values and how to measure the value and impact.
- An international benchmark is recommended to determine the economic position concerning competition regarding the hosting of large sport events (Nederlandse Sportraad (Dutch Sport Council), 2017)

Economic impact

The second recommendation focuses on the measurement of the value and impact of a sport event. At the moment, multiple ways of determining a certain impact have been developed. First, one can measure the direct and indirect economic impact of the event. Second, one can measure the social impact of the event using a MKBA-analysis (Maatschappelijke Kosten en Baten Analyse¹). Lastly, the promotional effects of the event can be measured by considering the number of tourist in the host region before, during and after the event.

It depends on the goals of the organisation what method is used to determine a certain impact. This research will only focus on the calculation of the economic impact following the WESP guidelines. In short, this method calculates the expenses of the non-residential visitors, press, athletes, volunteers and teams as well as the organisation itself. These expenses boost income for the local residents, create employment, new jobs and an overall higher income (Crompton, Lee, & Shuster, 2001). To determine what type of visitors cause these 'extra' expenses, the visitor profiles of Preuss (2007) are used. The method of calculating the economic impact will be elaborated on in chapter 2.

The expenses of the organization will not be considered in this thesis as they are either too difficult to determine or too difficult to obtain information on. These expenses however may play an important role in

¹ The Dutch name is given by lack of a corresponding English term.

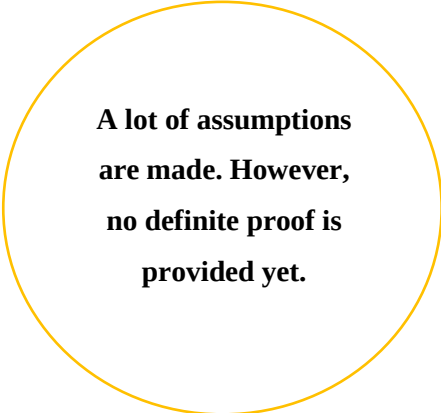
calculating the economic impact. For example, the report by the WESP about the economic impact of the World Championships Beach volleyball in The Hague calculates the economic impact of the organisation to be -€446.000, -, lowering the total economic impact by almost three quarters (van Herpen, Asselman, & van Meer, 2015). Contradictory, the economic impact credited to the organisation of the World Championships Shorttrack 2017 in Rotterdam is calculated to be €633.000, -, doubling the total economic impact (van Herpen N. , Prognose Economische Impact: WK Shorttrack, 2017). Nevertheless, organisational expenses completely depend on their budget and thus on the scale of the event, while the average consumption per visitor might be the same for events of all scales. It is because of this uncertainty and dependence of the budget that that organization expenses are not covered in this thesis. Because of excluding organization expenses, this thesis will use the average consumption of the visitors (press, athletes, volunteers are also considered in this group) as main subject.

Research goal

As stated before, there is a lot of diversity between the economic impact of sport events and thus between the consumption of the visitors of different events. It is however not clear why these diversities exist. Or stated differently: it is not known what variables contribute the most to a high average consumption of the visitors at the event which might not be present at an event with a lower average consumption. Because of this, event organisers, sport managers and other stakeholders do not know what variables to influence in order to obtain a higher average consumption (if wanted).

Nevertheless, a lot of assumptions exist about the variables that seem to influence consumption. However, no concrete proof yet exists about these assumptions. Also, no information yet exists about the scope of the assumptions. One might assume that gender influences the consumption but does not know whether this is a large difference or not. This thesis tries to provide the proof for such assumptions and tries to determine how much a certain variable really influences the consumption. The recommendations of this research can be used by future sport managers, event organisers and stakeholders of sport events.

In order to be able to say something about what variables are able to explain the economic impact and what variables are the most influential, data of multiple WESP studies will be combined into one large database. Noud van Herpen of the Hague University of Applied Sciences and Willem de Boer of the University of Applied Sciences of Arnhem/Nijmegen will provide the individual datasets.



**A lot of assumptions
are made. However,
no definite proof is
provided yet.**

Variables

First of all, what variables should be considered to find out whether they influence the average consumption? Laitila and van Herpen (2018) provide a list of possible indicators that might coincide with economic impact and consequently with the average consumption of the visitors.

- The number of foreign visitors
- The number of visitors who stay the night
- The location of the event
- The popularity of the sport

Furthermore, they list some tools which might help to explain the differences between the economic impact of events.

- Understanding the visitor's motives to visit the event
- The satisfaction and overall experience of the visitors
- Patterns in the consumption of the visitors
- Detailed visitor profiles and behavioural patterns of the visitors

From this, a list of possible explanatory variables can be constructed:

- **Visitor demographics:** Gender, age, education, nationality (host country or not)
- **Travel distance and transport:** Travel distance, way of transport
- **Visitor characteristics:** visitor type, type of company, in city despite event, stayed longer, stayed the night, accommodation type, grade given to event
- **Type of event:** One day/multiple days, Focus on participants/visitors, free or not
- **Consumption patterns:** Food/beverages, public transport, souvenirs/merchandising, shopping, parking, entrance fee

This list is divided into five categories, which itself consist out of multiple variables. These variables are thought to be able to influence the average consumption of the visitors. However, one of these variables is not considered. Travel distance is thought to be highly correlated with the duration of the stay. As travel distance is difficult to obtain from the dataset, this variable together with way of transport is not analysed during this research.

From this, the main question of this thesis can be formulated:

- Which factors influence the average consumption of the visitors of a sport event?

To be able to answer this question, five sub questions have been formulated to provide the information needed.

1. What personal and demographic features influences the average consumption of the visitors of a sport event?
2. What visitor characteristics influence the average consumption of the visitors of a sport event?
3. How does the type of event influence the average consumption of the visitors of a sport event?
4. What can be said about the consumption patterns of the visitors with regard to the average consumption of the visitors of a sport event?
5. What is the opinion of experts in the field of event organising and sports research on this research and the practical implementation of the results?

Chapter 2 of this thesis provides a more detailed insight in the measurement of economic impact, the typology of sport events and statistics that will be used later on. Chapter 3 describes the method used for this research, while chapter 4 gives the results. In chapter 5 general conclusions are drawn from chapter 4 which are discussed in chapter 6. Also, the research itself is discussed in this chapter. Finally, recommendations are given in chapter 7.

2. Literature Review

This thesis focusses on the consumption impact of the visitors of a sport event, which is a part of the larger concept of the economic impact. The first section focusses on the typology and classification of sport events. The second section elaborates on the idea and principals of economic impact studies, while the last section describes the statistics used in this thesis.

2.1 Event typology

According to Müller (2014), there is some ambiguity about what makes an event a mega-event. Because of this he analysed multiple sport events and came up with definitions for events considering the visitor attractiveness, mediated reach, cost and transformative impact.

Size	Visitor attractiveness	Mediated reach	Cost	Transformation
	<i>Number of tickets sold</i>	<i>Value of broadcast rights</i>	<i>Total cost</i>	<i>Capital investment</i>
XXL (3 points)	>3 million	>USD 2 billion	>USD 10 billion	>USD 10 billion
XL (2 points)	>1 million	>USD 1 billion	>USD 5 billion	>USD 5 billion
L (1 point)	>.5 million	>USD .1 billion	>USD 1 billion	>USD 1 billion
Giga-event	11–12 points total			
Mega-event	7–10 points total			
Major event	1–6 points total			

Figure 1: Scoring matrix for event classes according to size (Müller, 2014)

Using figure 3, he divided sport events into three categories. Giga-events, mega-events and major events. A giga-event has over 3 million tickets sold, has broadcasting rights with a value exceeding 2 billion dollars, has total costs exceeding 10 billion dollars and requires over 10 billion dollars of capital investment. Events like the Summer Olympics can be categorised as giga-events. Mega-events are somewhat smaller than giga-events but still sell over 1 million tickets. The football world cup or winter Olympics can be categorised as mega-events. Major events are the smallest of the three categories but still sell over half a million tickets. The events considered in this thesis however are mostly significantly smaller than mega-events. Taks et al (2014) give some categories into which these events can be divided.

- Spectator events and Participant events
- Single-sport events and Multi-sport events
- One-day events and Multiple-day events

As most of the events considered in this thesis are relatively small, the typology of Müller is not used. For example, the largest event considered in this thesis is the Euro League Hockey of 2014 in The Hague. This event would score a mere 5 points on the scoring matrix of Müller, so it would be considered a major event. There might be a few more major events considered in this thesis, but most will be smaller causing the typology of Müller not to be of use.

However, the typologies given by Taks et al. are partly used in this thesis. A comparison is made between spectator events and participant events and one-day events and multiple-day events. As there is only one multi-sport event (Olympic Experience) considered in this thesis, the comparison single-sport/multi-sport is not made.

2.2 Economic Impact

The main concept behind economic impact studies is explained by Crompton, Lee & Shuster (2001) with a figure. This figure shows the cycle of expenses within a community. It starts off by residents paying taxes to the city council, which are then used by this council to subsidize the development of recreation services, facilities and special events, such as sport events. These events attract non-residential visitors who spend money in the community which creates income and jobs for the residents. This income is then partly used for paying taxes again, completing and restarting the cycle.

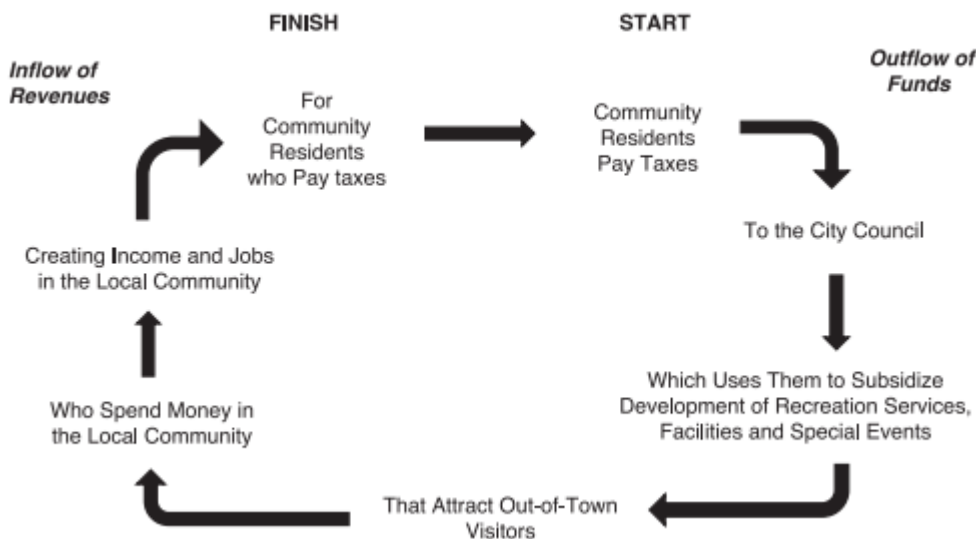


Figure 2: The conceptual rationale for undertaking economic impact studies (Crompton, Lee & Shuster, 2001)

According to Crompton et al., the main purpose of economic impact studies is to measure the economic return to residents with its main function being to estimate the magnitude of this return to the community. Following this key principle, multiple definitions can be given for the economic impact of sport events. First of all, Kasimati (2003) states that the economic effect of a sport event occurs when hosting a sport event generates an inflow of funds to the economy of the host region, which otherwise would not have entered this community. Multiple event stakeholders cause this inflow of funds such as media, sponsors, athletes and non-local event visitors and spectators who can be considered as tourists. Furthermore, Lieber and Alton (1983) state that the economic impact of the event can be described as the net change in an economy which is the result of the sport event.

Kasimati (2003) states that the evaluation of the total economic impact can be divided into three main parts. First, when studying the economic impact, one starts with investigating the direct consumption generated by the non-local event visitors who only visit the host region because of the event and thus create an inflow of funds which otherwise would not have occurred. This part is called the direct economic impact. Second, one should consider the use of multipliers which estimate how the initial direct economic impact continues to benefit the local economy after the event and thus the direct consumption has stopped. This indirect economic impact is used to investigate the value of post-event effects of the injected money by non-local visitors. Last, the induced economic impact measures the proportion of extra income consumed in businesses within the economy.

Direct economic impact

Measuring something abstract as the economic impact brings some challenges. According to Preuss (2011), one of the top challenges in economic impact studies is the lack of knowledge and information about the consumption patterns of the event visitors and residents, and the lack of reliable information regarding the number of people visiting the event. Preuss (2007) states that the number of visitors is an important aspect of the overall economic impact, just like the crowding-out effect which is caused by people avoiding the host region because of the event. He mentions individual consumption patterns, number of nights in accommodation, visitors' motivation to visit the event and the gross number of visitors as the crucial aspects in economic impact evaluation.

Preuss (2005) states that there are ten groups of event stakeholders which should be considered when evaluating the economic impact. These groups are presented in figure 2. Four groups of these ten can be described as event-affected persons who leave or do not enter the host region because of the event. These groups are the Runaways, Changers, Cancellers and Pre/Post Switchers. The Cancellers and Pre/Post Switchers are described as Avoiders. The Runaways and Avoiders contribute negatively to the economic impact. Home Stayers, Event Visitors and Extentioners however contribute positively to the economic impact by spending money during their visit of the event. The casuals and time switchers would have spent money in the community anyways and are consequently not considered when calculating the economic impact.

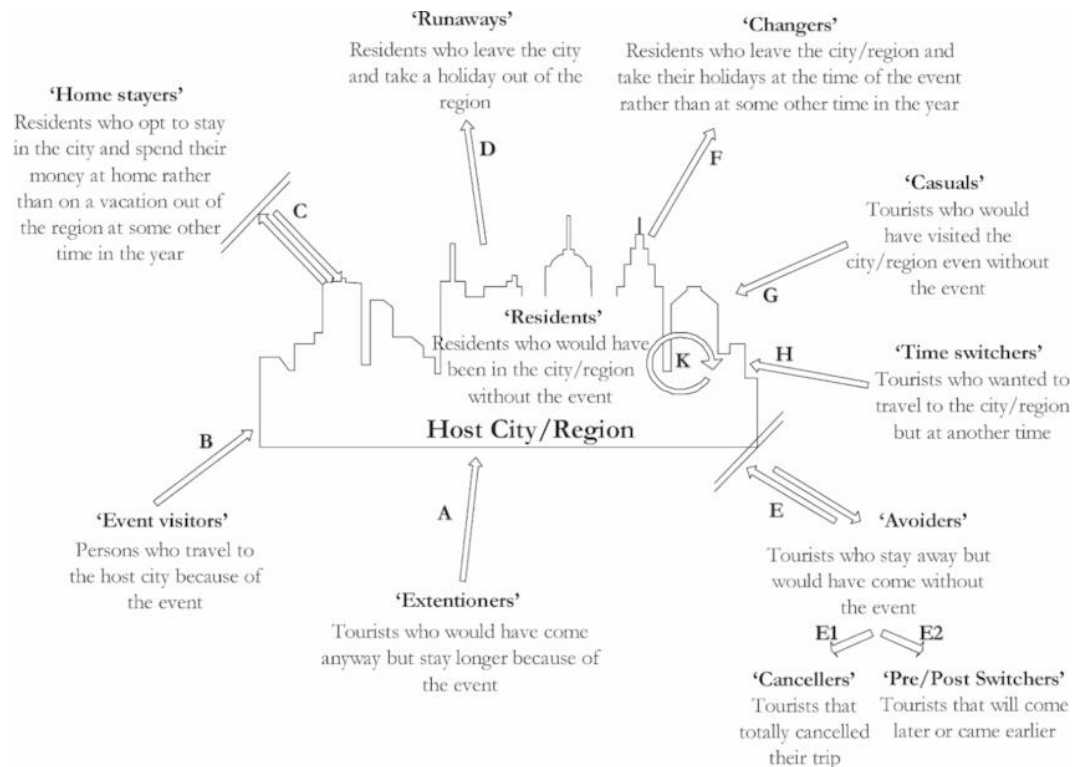


Figure 3: Event-affected persons during event-time (Preuss, 2005)

Laitila and van Herpen (2018) give insight in the practical part of researching the economic impact of a sport event. Following the visitor types of Preuss (2005), four different sub-groups are considered to contribute to the economic impact. The first group is the spectators who are non-residential and come to visit the host region because of the event. The second group is the sports participants such as athletes, coaches and team/athlete staff members. Third there are the media representatives and fourth there are the persons who take part in the event as a part of the organizing committee. Volunteers and event staff members are considered in this last group. To obtain the necessary data about the visitors, they were interviewed during the event using tablet and structured questionnaires. This data is then analysed in Excel to estimate the economic impact. These raw datasets have been used to create the database used for this thesis.

WESP

In the Netherlands research concerning the economic impact is conducted by the Workgroup for Evaluating Sport Events (WESP). The WESP is an organisation which consist out of individual researchers, research organisations and universities and which specialises in economic impact of sports events. To simplify the research and to equalize the results, the WESP agreed on using guidelines which are registered in the Handbook of Guidelines for measuring Economic Impact. The latest version dates from 2016. According to this handbook economic impact gives a rendition of (additional) expenses on a short term in a bordered area,

like a municipality, province, region or country where the event takes place, because of the event. The bordered area is called the 'area of impact'. The expenses include expenditures of present target audiences, as well as the expenditures from the organisation.

The WESP emphasizes the importance of having one reliable and standardised instrument for measuring the impact of sport events (Oldenboom, 2015). According to the WESP, calculating the economic impact of a sport event gives insight into the short-term expenses in the impact area as a direct consequence of the event. Overall, the analysis calculates the total expenses by multiplying the number of visitors by the average expenses per visitor following the typology of Preuss, Seguin and O'Reilly (2007). These average expenses are obtained by surveys and available data.

According to the WESP, the main advantage of this analysis is to have a reliable and standardised event which creates the opportunity to compare events with each other. Also, the results can be used in a dialogue with potential sponsors and other stakeholders of the event contributing to the professionalisation of the event and increasing the efficiency. The results might show how to increase the impact with some simple changes in the event structure and can consequently be used as a management tool (Barajas, Coates & Sanches-Fernandez, 2016).

However, the analysis only considers the short-term impact of the event even though some of the effects might only become visible after a longer period of time, such as the event legacy and the use of it. This shows whether the accommodations used for the event are also used by residents for years to come (Preuss, 2007). Furthermore, it only considers one of the many effects an event has according to Paess (2017) and the Dutch Sport Council.

As the direct economic impact contains the consumption of the event visitors, this thesis only focusses on this part of the economic impact. However, the questions asked in the previous section are not focussed on the economic impact. Consumption is a part of the impact and this thesis tries to determine what factors influence this consumption. The conclusions are therefore focussed on explaining this consumption and are not related to the economic impact itself.

2.3 Statistics

This section is based on the Syllabus Inleiding Econometrie (2017) and the readers Probability Theory and Statistics 1 and 2 (2017) and will focus on the statistics that have been used during this research. The techniques used will be briefly discussed to provide some background of the research itself.

First, three types of data are considered within the database: Numerical, ordinal and nominal data.

- Numerical data has meaning as a measurement or are a count. Examples are the average expenses of the visitors or the number of nights stayed in the community.
- Ordinal data is a type of data where the variables have natural, ordered categories. The distance between the numbers however is not known. Examples are the grade a visitor gives to the event and education.
- Nominal (categorical) data represents characteristic. This data can take on numerical values, but those numbers do not have a further mathematical meaning. Examples are the accommodation type or visitor type.

Second, the data has been analysed using descriptive statistics. This type of statistics is used to describe the basic features of the available data and to provide a simple summary of this data. The descriptive statistics are mostly represented in a table or graph to simplify the results. Three main parts should be considered when using descriptive statistics.

- Frequency: This step shows the frequencies of the variables within the dataset. By presenting the frequencies in a table, one can easily see the number of respondents belonging to a certain category. Frequencies are particularly useful to analyse nominal and ordinal data.
- Mean: The mean shows the average of a certain variable. It is useful when considering numerical data and, in some cases, also ordinal data. The mean cannot be used for nominal data, as the numbers appointed to the variables do not have a further meaning.
- Minimum/maximum: By analysing the data on the extreme values, one can spot the outliers and correct the data for these strange values.

As stated before, it can be useful to present the descriptive statistics of a certain variable in a graph. In this thesis three kinds of graphs have been used, bar graphs, circle diagrams and a scatter plot.

- A bar graph is a graphical display of data using the heights of bars. A variable which has a higher frequency or higher mean will have a higher bar compared to a variable with lower values.
- A circle diagram is quite self-explaining. It puts the given data in a circle, where the part of each variable in the circle is based on the proportion of this variable in the total dataset. If for example

the proportion of a certain variable is 25%, a quarter of the circle will be coloured with the colour assigned to this variable.

- A scatter plot is used to plot two variables for a set of data. With one variable on the y-axis and the other variable on the x-axis, the corresponding values to those axes are plotted as a dot in the graph. From this graph one might be able to see a relation between the variables. Figure 4 shows an example of a scatter plot which might imply a linear relationship. This relationship implies that a straight line can be drawn to the datapoints. A quadratic relationship implies that a parabola can be drawn through the datapoints. An example of this relation is shown in figure 5.

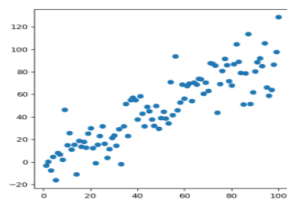


Figure 4: Linear relation

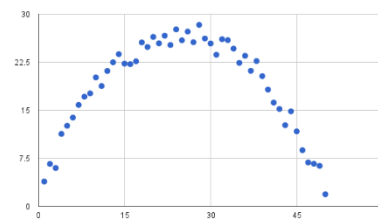


Figure 5: Quadratic relation

Third, the data was checked for patterns. In order to do so, two different tools have been used.

- Correlation

The coefficient of correlation describes the strength of the relationship between variables. The value of this relationship can vary from -1 to 1. A coefficient with a value close to 1 describes a strong positive relationship between the variables, meaning that large values of one variable coincide with large values of the other variable(s). In a graph this can be seen as an upward sloping line. If the coefficient is close to -1, this describes a strong negative relationship with large values of the one variable coinciding with small values of the other variable(s). Last, if the coefficient of correlation is close to 0, this describes a weak relationship or complete independence of the variables if the coefficient equals 0.

No analyses have been ran based on the coefficient of correlation. However, the term itself is used multiple times.

- Regression

A regression analysis tries to explain and predict one variable, the dependent variable, by adding multiple independent variables to an equation of the following type:

$$Y = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n \text{ etc. } + e$$

This equation is one of the type of a linear regression. Of multiple variables are used, it is called a multiple linear regression. A linear regression analysis tries to find a best fitting line through all of the data, which can then be used to predict the value of Y for certain values of X. Figure 4 provides an impression of a regression analysis.

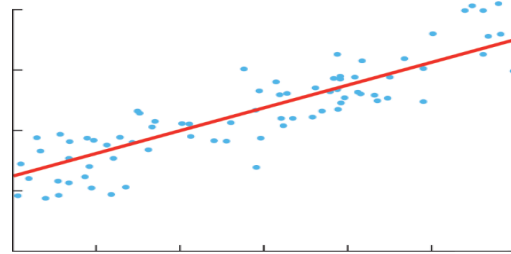


Figure 4: Example of regression analysis (Harvard Business Review, 2014)

X_1 to X_n are the independent variables used to explain the dependent variable Y. The numbers b_1 to b_n are the coefficients of the independent variables. For a change of one in the independent variable, the dependent variable will change with b . The term b_0 gives the intercept, which is the starting point of the regression line when all X equals 0. The last term, e , is called the error term and is used to correct for unexplainable features within the data.

The best fitting line is calculated using the Ordinary Least Squares method (OLS). This line is the line from which the total of the squared deviations is minimal. This deviation is the difference between the line and one point of data.

A regression analysis works fine when using numerical data. With nominal data however, some adaptations are necessary in order to be able to work with a regression on this type of data. Of one variable, for example education, all of the possible options should be transferred into dummy variables. So: No education: 1=yes, 0=no. Primary school: 1=yes, 0=no etc. One of the options of a nominal variable must be left out of the regression to prevent multicollinearity. This occurs when all the dummy variables are put into one regression, causing this data to be perfectly correlated, as all the dummy variables added together will be one for each row. The option that is left out will be used as referent. The coefficients of the other options are to be compared to this option. So, if 'No Education' is chosen as referent, and the coefficient of 'Primary School' is 5, it means that respondents who only finished primary school contribute 5 more to the value of the dependent variable compared to respondents who have no education at all.

Furthermore, coefficients which are obtained by a regression analysis can be significant or insignificant. Significance implies that the results are not likely to be based on a coincidence. In this thesis the p-value is used as a measure for significance. The p-value gives the chance of the results being a coincidence. In

general, a p-value of below 0.05 is considered significant. It implies a chance of less than 5% that the results are a coincidence. Also, the coefficient of determination (R^2) is used as measure for the quality of the regression analysis. The R^2 gives the proportion of variance in the dependent variable that can be explained by the independent variables used in the analysis. The value can vary from 0 to 1, with 1 being a perfect fit. The value of the R^2 can however be manipulated by adding non-relevant variables to the regression, as the value will never decline and most likely rise when more variables are added. Because of this, the R^2 should not be used as a measure on its own but should always be evaluated using relevant theory.

A regression analysis and the terms accompanied with this are used in section 4.3 to analyse the variables which are assumed to have influence on the consumption. Based on this regression in combination with the graphs, a substantiated list is made with variables which are strongly believed to influence the average consumption of the visitors.

3. Method

This section discusses the methods used during this research. It starts of by discussing the database and then provides an overview of the techniques used to evaluate this database. Lastly, it is explained how the interviews with the experts have taken place and were prepared.

3.1 The database

For this research, a database has been constructed consisting out of datasets of individual events. The WESP obtained data from different sport events by having surveys during those events. Visitors and stakeholders were asked questions about fixed subjects and the answers have been used to calculate the economic impact of the events. As stated by the WESP in their guidelines for collecting data, multiple measures were taken to obtain the highest reliability of the data as possible. For example, the respondents were interviewed face to face with the researcher noting the answers given by the respondent himself. The researchers have been briefed and trained, should be recognisable and know exactly at what place they must conduct the research. Also, they are instructed on how to approach the respondents. Also, the composition of the sample is of great importance. This composition is influenced by the selection of the respondents during the field research. Because of this, the questionnaires are conducted on multiple times at different times, at different location on the event site and for example every 10th visitor is approached for an interview to obtain an unbiased sample (Hover & Postma- de Groot, 2015). Also, the datasets have already been checked on outliers, causing the datasets to already be rather clean before working with them. These datasets have been aligned and combined in one large database using Microsoft Excel and consists out of the following events:

Event:	# of respondents
CAI	320
City Pier City 2016	568
Cycling Nationals The Netherlands	400
Europacup Skeeleren	137
European Champs. Inline Skating	309
European Champs. Volleyball	466
FIVB Beach Volleyball Swatch World Championships 2015	2954
Giro Gelderland	1202
ITU World Triathlon Grand Final 2017	577
KLM Open	1061
KPN WC Shorttrack 2017	491
Mariekenloop	331
North Sea Regatta 2016	104
Olympic Experience 2016	503
Outdoor Gelderland 2013	252
Outdoor Gelderland 2014	241
Pro Freestyle 2016	166
Rabobank Hockey World Cup 2014	1993
The Hague Grand Prix Judo 2017	425
The Hague Open 2016	402
Volvo Ocean Race 2015	646
WC BMX (Framed Festival)	410
World League Volleybal	492
Zevenheuvelenloop	425
Zevenheuvelenloop (participants)	2141
Total	17016

Furthermore, the following data is present in the database:

Event, year, gender, age, education, lives in host country, postal code, visitor type, way of transport to the event, grade, days/hours present, in city despite event, stayed longer, days/hours extra, type of company, additionality, stayed the night, accommodation, number of nights in community, number of nights in other

community, costs per person per night, way of spending money, total expenses per person, expenses on food/beverages, expenses on souvenirs/merchandising, entrance fee, expenses on public transport/parking. A complete overview of the data and variables present in the database is given in appendix 1.

Using this database, and the tools Microsoft Excel and SPSS provide, the data has been analysed in order to find answers to the questions stated earlier. Using the answers provided by the research, experts have been interviewed to discuss the conclusions.

3.2 Data-analysis

With the database constructed, it was possible to conduct data-analysis, a form of secondary analysis. The sample used during the analysis of these questions consists out of all the respondents of the Dutch events present in the database. Both Microsoft Excel and SPSS Statistics have been used to analyse the data. All the data needed for the analysis has been obtained by the WESP with questionnaires during the sport events. This data was put into Excel by the researchers to be able to determine the economic impact and evaluate the sport event. These datasheets were used to construct the database. Some of the data had to be changed or left out to align the data and make it useable for analysis. All of the statistical techniques discussed in this section are elaborated on in section 2.3.

First, using Excel and SPSS a general analysis of the data was conducted. In this analysis, the frequencies of each variable option within a nominal variable were determined and presented in a table. Options within a variable which had a frequency of less than 100 respondents have been transferred to the category 'other'. Also, the numerical and ordinal data was analysed by determining the means, minimum values and maximum values. These results were presented in a table.

Second, the data was analysed per sub-question. The sub-questions have a certain topic with variables present in the database assigned to those topics. For the variable options, for example primary school, high school etc. within the variable education, the average expenses per person were determined. These values were then presented in a graph which suited the data most. For this, bar graphs, circle diagrams and scatter plots were used. The variables per sub-question are discussed in section 1. A small overview is given here:

1. Gender, age, education nationality
2. Visitor type, type of company, in city despite event, stayed longer, stayed the night, accommodation type, grade given to event
3. One day/multiple days, focus on participants/visitors, free or not
4. Food/beverages, public transport, souvenirs/merchandising, entrance fee

Based on the graphs and the interpretation of the graphs and known literature, a list of variables was constructed which are thought to have influence on the average expenses per person. These variables were used as independent variables in a regression analysis with the average expenses per person as the dependent variables. The results of this regression are given in a table. This table gives the estimated coefficient per variable option and gives the level of significance as a p-value.

3.3 Interviews with experts

As this research is about events which have already taken place, but also tries to provide advice for upcoming events, the results have been evaluated together with experts on the topic of event organising. The goal of these interviews was to get the opinion of some experts on the results, and to find out whether they have further recommendations and ideas for implementation of the results. This part of the research is covered in sub-question 6:

- What is the opinion of experts in the field of event organising and sports research on this research and the practical implementation of the results?

Multiple organizations, researchers and other stakeholders have been approached by mail for an interview. The population relevant for this type of research can roughly be divided into two categories: event organizers and sports researchers. From this population, 17 experts have been approached, of which 7 experts on event organising and 10 experts on sports research. They were approached by e-mail asking for an interview via the phone. The experts that were approached are given below:

1. Event organizers

Organization	Person contacted
TIG Sports	Niels van Markensteijn
Sportvibes	Michiel Verheem
NeVoBo	Michel Everaert
University of Bayreuth/ASO	Jan Grönewald
Den Haag Topsport	Marlies vd Kolk
Volvo Ocean Race	Ilse Jansen /Frank vd Peet

2. Research

Organization	Person contacted
University of applied sciences of Arnhem/Nijmegen	Jelle Schoemaker
WESP	Egbert Oldenboom
JAMK University	Osmo Laitila
Sport2Be	Pieter Verhoogt
Economic research and Advice	Michiel de Nooij
WESP & Kirki Company	Rik Burger
Nederlandse Sportraad	Lennart Langbroek
Kenniscentrum Sport	Peter-Jan Mol
OGV Sportadvies	Wouter de Groot

Given the time and the number of persons who responded, nine interviews were conducted. The experts that were interviewed are: Niels van Markensteijn, Jan Grönewald, Frank vd Peet, Jelle Schoemaker, Osmo Laitila, Michiel de Nooij, Rik Burger, Peter-Jan Mol and Wouter de Groot. Seven interviews were held by phone and two by e-mail. For the interviews, a topic list was used to obtain the most relevant information for this thesis. This list can roughly be divided into three parts: the evaluation of sport events, the research and the practical implementation of the results. The topic list is provided in appendix 2. Two of the interviews were recorded and with every interview notes were taken using a laptop, while also focussing on interesting quotes. The notes and recordings were then used to write a report of the interview. This was done by summarizing the answers of the experts into a structured report and adding the interesting quotes where considered necessary. These reports are given in section 4.4.

4. Results

In this section the results of the analyses are given. The section starts of with a general overview of the data and will after that go more in debt per sub-question.

4.1 General statistics database

First, a general analysis of the data was conducted. As the database consists out of nominal data as well as numerical data, two different techniques had to be used to analyse the data. As the nominal data consists out of categories, this data was analysed for the frequencies per variable. The results are given in table 1. The percentage of an option with the N being 100% is given between brackets

Table 1: Frequencies nominal data									
	0	1	2	3	4	5	6	7	8
Gender	Female	Male							
N=16963	7264 (42,8)	9699 (57,7)							
Education	Other	Primary	High school	Vocational	Bachelor +				
N=16811	266 (1,6)	245 (1,5)	3091 (18,4)	3167 (18,4)	10042 (59,7)				
Foreigner	Yes	No							
N=17009	5842 (34,3)	11167 (65,7)							
Visitor type	Own behalf	Participant	A/C/R of p	Invited	Press/media	Volunteer	Other		
N=16977	10174 (59,9)	2993 (17,6)	615 (3,6)	2100 (12,4)	151 (0,9)	217 (1,0)	727 (4,3)		
Transport	Airplane	Bike/scooter	Bus/tram/metro	Car/motorbike	Train	Walking	Other		
N=8755	197 (2,3)	1621 (18,5)	1406 (16,1)	3826 (43,7)	1119 (12,8)	449 (5,1)	137 (1,6)		
Longer	No	Yes							
N=11880	10220 (86,0)	1660 (14,0)							
In city despite event	Yes	No							
N=15874	6436 (40,5)	9203 (58,0)							
Comp type	Alone	w children	Mixed	w friends	Other relatives	w partner	Partner&children	School/org	Other
N=8820	802 (9,1)	1056 (12,0)	473 (5,4)	2031 (23,0)	846 (9,6)	1769 (20,1)	1074 (12,2)	707 (8,0)	62 (0,7)
Additional	No	Yes							
N=14510	7398 (51,0)	7112 (49,0)							
Stayed the night	No	Yes							
N=16976	14120 (83,2)	2855 (16,8)							
Accommodation	Apartment	At friends	B&B	Bungalow	Hotel 0-3	Hotel 4-5	Other		
N=2831	84 (3,0)	554 (19,6)	206 (7,3)	274 (9,7)	831 (29,4)	644 (22,8)	238 (8,4)		
Payer type	Someone else	Nothing	For myself	For others					
N=16966	1987 (11,7)	1289 (7,6)	6302 (37,1)	7388 (43,5)					

First, one might wonder why the sample size N is different for every other variable. This is because not every respondent might have answered the question, or the question might not have been applicable to the respondent. Furthermore, the percentages do not always add up to 100% which is because of rounding errors or some values not being valid but still being counted within the sample.

From table 1 it can be seen that the largest part of the visitors of the sport events were male (57,7%). Furthermore, most of the visitors can be considered as higher educated with 10042 respondents having obtained a bachelor's degree or higher. About 34% of the respondents are foreign. 1660 respondents, or 14% stayed longer and 16,8% stayed the night. Respondents who stayed the night did this mostly in a hotel (52,1%). Also, most respondents can be considered as visitors on own behalf (60%) or participant (17.6%). About half of the respondents can be considered as additional (49%) and 58% of the respondents would not have been in the city if it was not for the event taking place.

The numerical data was analysed by looking at the means and extreme values. These results are presented in table 2. From this table, the average age of the respondent is 42,54 years. However, children have not been interviewed as according to the guidelines of the WESP, only visitors of 16 years and older are interviewed. Because of this, the average age will be lower and the minimum of 5 years old given in table 2 is probably an error in the data. The average grade given to the event by the respondents is 8,13. The respondents were present at the event for an average of 1,95 days and stayed on average 3,3 days extra. People who stayed the night, stayed 4,32 nights in the community. The expenses per respondent are on average €33,91. When considering the specific expenses, it can be stated that most (almost all) of the money is spent on food and beverages with €32,55 on average.

Table 2: Descriptives numerical data				
	N	Mean	Minimum	Maximum
Age	16800	42,54	5	98
Grade	15735	8,13	1	95
Days present	14043	1,95	1	44
Days extra	946	3,3	1	33
Number of company	14590	4,12	1	100
Nights community	1374	4,32	1	70
Nights other	312	4,97	1	42
Accommodation costs pp	2964	35,62	10,00	300
Total expenses	12591	68,39	0,00	7500
Expenses pp	14900	33,91	0,00	1000
Exp. Food/beverages	9217	32,55	0,00	2200
Exp. Merchandise/souvenirs	1467	14,65	0,00	275
Exp. Public transport	3427	7,67	0,00	1000

4.2 Statistics per sub-question

In this section, the first five sub-questions stated in chapter 1 are covered. The first four sub-questions cover the relation between certain variables and the average expenses per person. The results are mostly given in bar graphs and once in a scatter plot. The most interesting findings from the graph are discussed in this section.

4.2.1 Personal and demographic features

Graph 1 gives the average expenses per gender. While the results of 4.1 already stated that most of the respondents were men, graph 1 states that male respondents also spend more than their female counterparts. The difference in expenses between these two groups is on average slightly more than €4, with €4,06 being the estimated difference in expenses between males and females.

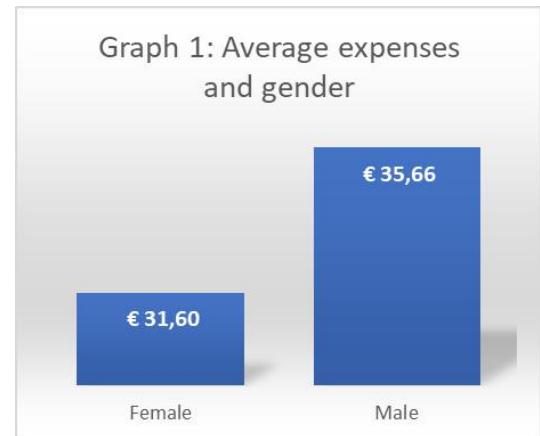
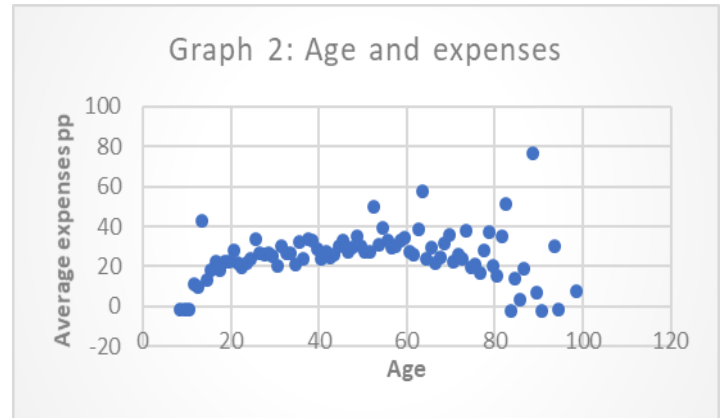


Table 3: Gender and payer type

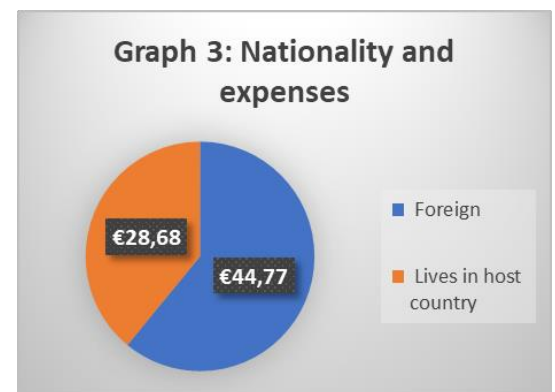
	Someone else pays	No-one pays	For myself	Myself and others
Female	0,13	0,07	0,36	0,41
Male	0,10	0,07	0,36	0,41

This difference in expenses between male and females could be appointed to males being more tempted to pay for their female partner. Table 5 shows this assumption. However, from the table it can be seen that a difference merely exists. When comparing the payer types, only a difference can be found in the variable ‘someone else pays for me’ with a larger percentage of the females choosing this option. This might imply that some males indeed do pay for other females. The other percentages however are the same. From this, the difference in expenses between gender can not be explained by considering the payer type implying that males really spend more than females.

Graph 2 shows the relation between age and the average expenses per person. This scatter plot implies a quadratic relationship between the two variables. Average expenses tend to rise from childhood to an age of about 40. It then stays at an equal level up to an age of 60. The expenses then tend to decline as age increases. This can be explained by children and youth not having as much money to spend as adults, and parents mostly paying for their children. Furthermore, adults between the 40 and 60 will mostly have the most money to spend as they work and earn more than the youth and the elderly. To find out whether there really is a quadratic relationship between age and expenses, events purely focussed on youth and events focussed on the elderly should also be considered in the analysis.



The relationship between nationality and average expenses is shown in graph 3. From this graph it can be stated that foreigners on average tend to spend an amount of about €16 euros more than respondents who come from the same country as the event is hosted in.

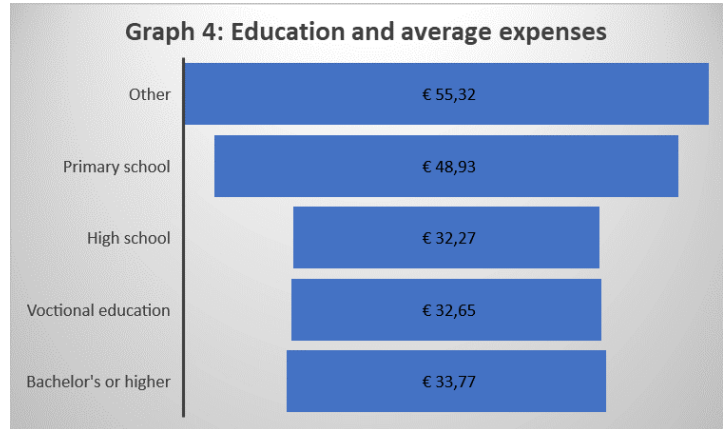


This difference might be explained by foreigners staying in the host region for a longer time than visitors who come from the host country.

This is shown in table 6. This table clearly shows that a larger proportion of the foreign visitors stayed longer, giving some explanation for the difference.

Table 4: Nationality and staying longer		
	Foreigner	From host country
Did not stay longer	0,85	0,88
Stayed longer	0,15	0,12

The last graph of this section gives the average expenses based on the education of the respondents. These results are shown in graph 4. From this graph, no clear relationship can be spotted between the education of the respondent and the average expenses. Furthermore, the graph gives rather strange results with the categories 'Other' and 'Primary school' making up for the highest average expenses. This might be because of challenges in the data, as it does not seem plausible for visitors who have only finished primary school to account for such high average expenses. When not considering these two categories, still no clear relationship can be found. The differences between the other three categories are marginal and do not imply that the level of education has any effect on the average expenses of a visitor.



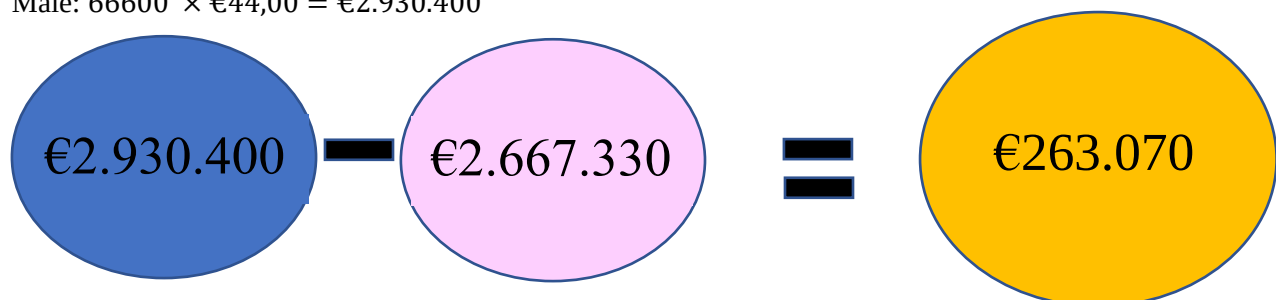
Intermezzo

Up to now, the amounts given in the graphs and tables might not mean that much to the reader. A difference in expenses of €3,95 might even seem irrelevant to some. Because of that, this intermezzo is meant to put these amounts into perspective. As almost every respondent is considered to have a gender, this variable applies to almost all the visitors of a sport event and is therefore taken as example.

First, let us consider the Rabobank Hockey World Cup, which might be the largest event considered in this thesis. This sport event attracted approximately 90434 individual visitors of which 66600 were considered additional. The economic impact was estimated to be €12.8 million (van Herpen, Kloek, Joosse, & Verheem, 2014). Now let us consider the following question: What if all the visitors were of only one gender? This would account for the following total expenses:

Female: $66600 \times €40,05 = €2.667.330$

Male: $66600 \times €44,00 = €2.930.400$



When considering such a large number of visitors, the difference which was just €3,95 suddenly became €263.070. As stated before, the economic impact of the event was calculated to be €12.8 million. So, with a little bit of maths, the following can be concluded: When only considering gender, which is only one of the many variables which seem to influence the average expenses, the difference in expenses makes up already 2% of the total economic impact!

$$\frac{€263.070}{€12.800.000} \times 100\% = 2,06\%$$

If one beer is considered to cost €2,50. The difference accounts for 105.228 beers!

Another example is the Marikenloop 2015. This is one of the smaller events contained in the database and is a running event for women only. In 2015, 8871 women participated in this event, 3638 were considered additional and the total economic impact was calculated to be €135.800 (Schoemaker, 2015). As the event is for females only, the average expenses (as calculated in this thesis) should be about:

$$3638 \times €40,05 = €145.701,90$$

But what if the event was for males only? That would account for the following expenses:

$$3638 \times €44,00 = €160.072$$

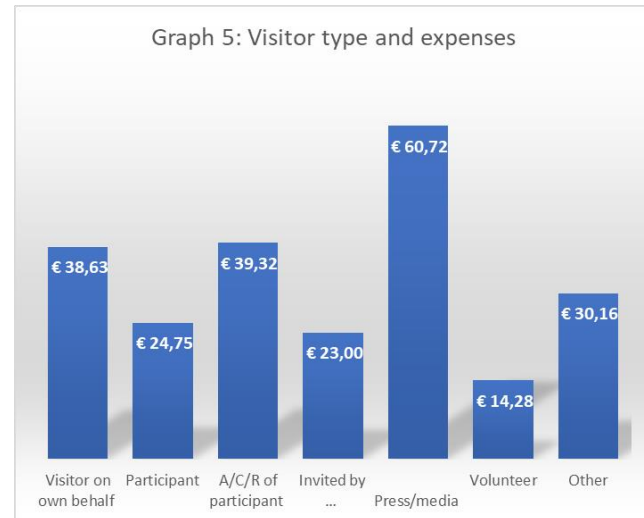
The difference in expenses is now €14.370,10. Doing the same maths as before, this difference makes up an astonishing 10,6% of the total economic impact!

Of course, one may not draw conclusions from these simple calculations as the true expenses of the visitors and participants might be very different from the average expenses as calculated in this thesis. However, one might now understand why a difference in expenses of only €3,95 might eventually still be a big deal for the total economic impact.

4.2.3 Visitor characteristics

The average expenses per person when considering the visitor types, are given in graph 5. This graph shows that representatives of press/media on average spend the most. However, comparing the amount this group spends on average (€60,72) with the other groups, one might think that there are some challenges within the data.

Attendants, coaches or relatives of participants and visitors on own behalf spend less than the representatives of press/media but can still be considered as two groups with high expenses. Volunteers have on average the lowest expenses, which is logical as volunteers mostly get their food and beverages for free. From table 1 it could already be seen that this makes up a large proportion of the total expenses. Furthermore, participants spend less than visitors on own behalf. This can be explained by the fact that participants spend most of their time doing sports, which implies that they have less time to buy food, beverages and souvenirs.



Graph 6 shows the average expenses by the respondents based on whether they stayed longer in the host region. From this graph it follows that respondents who opt to stay longer in the also have higher expenses (€21 more) than respondents who do not stay longer. The respondents who stay longer have more time on their hands to spend their money and might also need to buy more food and beverages during this time.

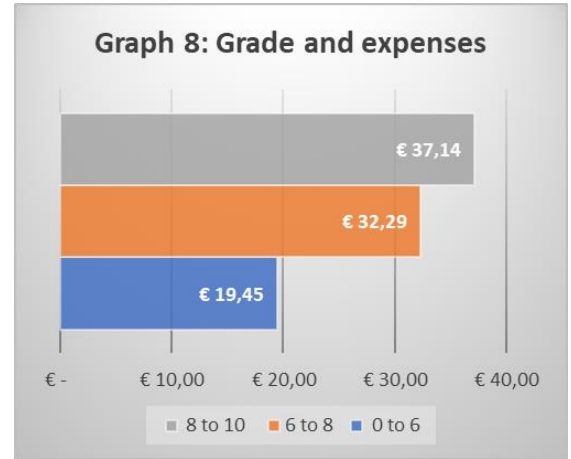


The respondents were asked whether they were in the city because of the event or would have been in the city nevertheless. Graph 7 shows the relationship between this variable and the expenses. Respondents coming to the host city because of the event tend to spend more than respondents who would have been in the city nevertheless. This can be explained by the assumption that people who come to the city because of the event, consider this the goal of their trip causing them to have higher expenses compared to visitors who were in the same city of the event by coincidence and do not consider the event as the main goal of their trip, causing this group to have lower expenses as they might not be as interested in the event or might be at the event for a shorter period. The visitors who are in the city



because of the event can be considered as fans and might therefore be more tempted to buy merchandise and souvenirs and stay at the event site for a longer time.

Graph 8 is about the grade given to the event by the respondent and the average expenses. The results in this graph seem rather logical with visitors giving a higher grade to the event also spending more on average at the event. Visitors who value the event the lowest, so between the 0 and 6, on average spend a little more than half the amount what visitors who value the event highest, 8 to 10, spend during the event. Visitors valuing the event between the 6 and 8 spend on average €3 less than the visitors who rate the event higher. If one considers a rating below 6 as bad and above 6 as good, the difference in expenses follows quite logically from this.

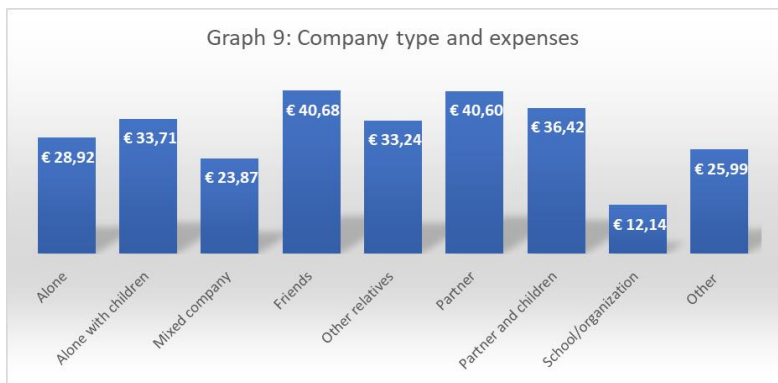


To elaborate on the topic of grade given to the event and average expenses, a further analysis per event is given in table 5. From this table, events 16, 3 and 4 are the three events with the highest rating (coloured green). These events are the Europacup skating, KPN WC Shorttrack and the Olympic Experience in The Hague. The average expenses of these events are respectively €59,93, €59,93 and €22,37. Two of these events score well above the average of €35. The Olympic Experience however, scores below the average expenses per person. The lower expenses might be explained by this event being focussed on kids attracting a different type of visitors who do not spend as much as the regular sport event visitor. The three events with the lowest rating: 5, 10 and 22, respectively the ITU World Triathlon Grand Final, North Sea Regatta and Giro Gelderland (coloured red). These events have following average expenses: €62,01, €25,62 and €75,03.

Event	Average expenses	Average grade
0	€ 23,27	8,13
1	€ 26,55	8,17
2	€ 45,62	8,31
3	€ 67,59	8,45
4	€ 22,37	8,39
5	€ 62,01	7,13
6	€ 17,08	8,11
7	€ 7,83	7,72
8	€ 18,49	7,87
9	€ 33,76	8,06
10	€ 25,62	7,34
16	€ 59,93	8,61
17	€ 81,88	7,63
18	€ 74,86	7,76
19	€ 28,29	7,94
20	€ 21,30	7,89
21	€ 16,19	
22	€ 75,03	7,57
23	€ 39,18	8,07
24	€ 106,51	8,31
25	€ 26,01	7,87
26	€ 28,75	8,12
27	€ 23,94	8,07
28	€ 35,03	7,95
29	€ 25,86	7,81

While one of these events is below average, the other two are above the average of €35. One might conclude that the grade given to the event also influences the expenses, however as can be seen from table 8, the differences in average expenses are huge while all the average grades are between the 7 and 9, making it difficult to draw a general conclusion. The average expenses really seem to depend more on the type of event itself. However, considering graph 9 and common sense, it is always best to satisfy the visitors as much as possible and go for a high rating. One might ask himself the question whether it is more important to obtain high profits or to obtain a high customer satisfaction. In the case of sport events, the answer will probably always be the customer satisfaction.

Graph 9 implies some relationship between the expenses and the type of company of a respondent. Visitors who come to the event with their partner or with friends tend to spend a larger amount than people who visit the event with another type of company. Visitors who come with a school or organization spends the lowest. This can be explained by the organization accounting for the expenses. Furthermore, visitors who come to the event with friends might be more tempted to drink and eat more together to have a good time, explaining the higher expenses.



Graph 10 shows a large difference in the expenses between respondents who stayed the night and respondents who did not stay the night. This relationship is rather logical. Respondents who stayed the night, will probably also have stayed longer in the host region and thus accounting for higher expenses, as also stated in graph 6. Accommodation expenses are not considered within the average expenses, dropping that possible explanation.

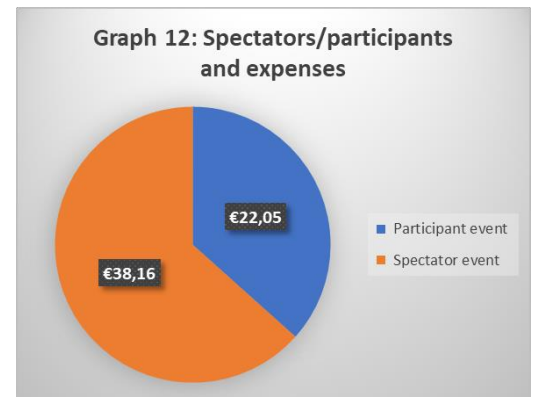


The average expenses per accommodation type are given in graph 11. From this graph, respondents who spend the night in a bungalow had the highest expenses followed by respondents who stayed in an apartment or a 4-5 stars hotel. The average expenses of those respondents are €25 to €40 higher than the total average. This difference might be explained by respondents opting for a more luxurious accommodation, also having more money to spend during the event. Furthermore, respondents who stayed the night at friends on average have the lowest expenses from this group. This seems rather logical as food and beverages will probably have been provided for free. Nevertheless, their average expenses still exceed the total average, which can probably be explained by those respondents staying longer in the host region, as also stated in graph 7.



4.2.4 Type of event

The fourth sub question considers the type of event as explaining variable for the average expenses per person. Graph 12 shows the average expenses based on whether the event was mainly focussed on spectators or participants. From this graph, a clear difference can be spotted between the two types of events with respondents who went to spectator events spending on average €16 more than respondents who went to participant events. As participants are busy doing sports most of the time and do not as much time to buy food, beverages and souvenirs as spectators have, this difference can easily be explained. Spectators spend most of their time watching the sports and will be more tempted to buy their food or souvenirs at the event site.



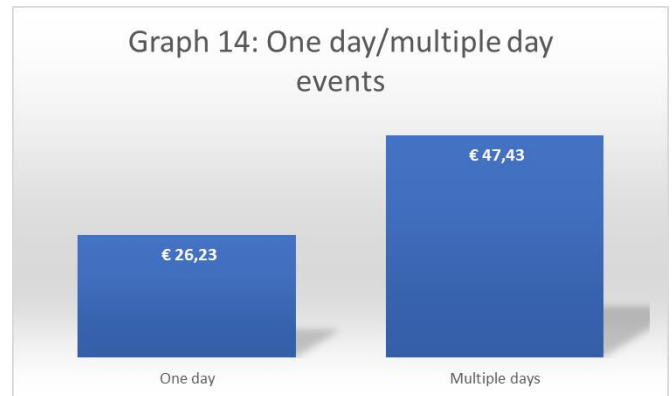
When comparing events which were free and events which required an entrance fee, also a clear difference can be spotted. This result is shown in graph 14. Respondents who visited an event which required an entrance fee spent on average €13,65 more than respondent who went to a free event. As the entrance fee is not included in the calculation of the average expenses, it can be stated that respondents who had to pay to visit the event, also spend more at the event. This can be explained by events requiring an entrance fee mostly being bigger and taking a



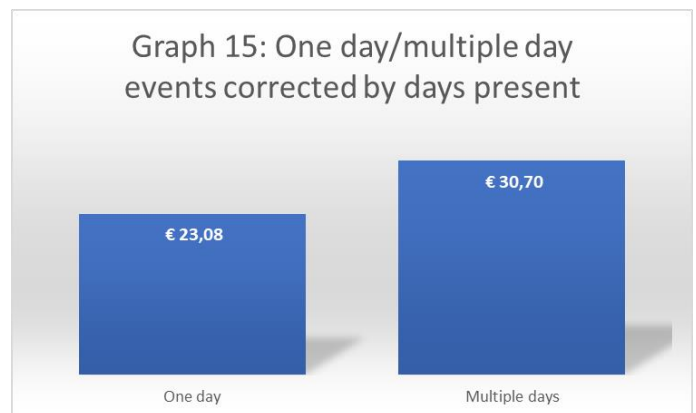
longer time. Also, respondents who visit an event requiring an entrance fee probably are ‘real’ fans of the sport and will therefore be tempted to spend more at the event, as they took the effort to get tickets. This in contrast with free events, which might attract more ‘coincidental’ visitors not tempted to spend as much money at the event.

Graph 14 shows the comparison of average expenses between one day events and multiple day events. From this graph, respondents who visited a multiple day event spend more money than respondents who visited a one-day event. Again, this difference seems quite logical as visitors of multiple day events have more time to spend their money. However, not every respondent who visited a multiple day event also spent multiple days at that event.

They might just have been there for one day. Because of this, the analysis should be corrected by the amount of days the respondent spent at the event.

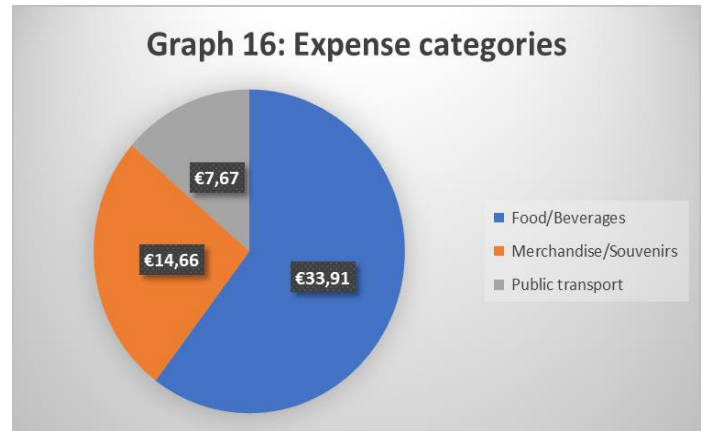


This correction is shown in graph 15 where it can be seen that the difference becomes about one third of the difference in graph 14. However, a difference still exists with visitors of multiple day events paying €7 more than visitors of single day events. This might be explained by the multiple day mostly being bigger and therefore attracting more ‘real’ fans who are willing to spend more. However, the fact that also the average expenses for ‘One day’ change in graph 15 implies some challenges within the data, as the correction should not have changed this amount. The difference would even be a bit smaller when the ‘One day’ expenses in graph 15 would be the same as the expenses in graph 14.



4.2.5 Consumption patterns

Finally, the expense categories were evaluated. Graph 16 shows the results. From this graph, souvenirs and merchandise makes up for the highest expenses of the respondents. This might be explained by merchandising being more expensive than food/beverages and public transport. As might be expected, the expenses on public transport are on average the lowest.



To find out whether the results of graph 16 are generalisable, a table has been made with the averages of the three categories for each event with data of all three categories in the database. First a disclaimer: one might think that adding up the three categories will lead to the total average expenses. However, this is not the case as completely different people might have spent their money on food/beverages or merchandise. Each category has a different sample.

	0	1	2	3	4	5	6	7	8	9	10
Food/beverages	€ 44,21	€ 28,37	€ 29,62	€ 31,13	€ 48,79	€ 67,34	€ 16,06	€ 8,58	€ 35,18	€ 40,77	€ 68,42
Souvenirs/merchandise	€ 54,75	€ 11,30	€ 3,43	€ 3,85	€ 10,33	€ 41,77	€ 5,71	€ 0,41	€ 24,87	€ 30,00	€ 40,00
Public transport	€ 11,26	€ 1,75	€ 1,73	€ 4,85	€ 2,84	€ 21,51	€ 0,78	€ 1,01	€ 6,83	€ 7,19	€ 17,50

Table 6 seems to confirm the result of the expenses on public transport being the lowest. Also, the average expenses on food are higher for 10 of the 11 events considered here. This confirms the result of graph 16, which state that a visitor spends most on food and beverages. The numbers of the events in the first row of table 6 coincide with the numbers given to the events in the database. For example, event 0, the Euro League Hockey, gained (as only event considered here) considerably higher expenses on merchandise than for example event 3, Short track, at which the expenses on merchandise were only about 10% of the expenses on food/beverages. The reason for this might be that some events focus more on selling merchandise and will offer the visitors more opportunities to do so. Also, some events might attract visitors who are more tempted to buy merchandise while other events might attract visitors who are not tempted to buy merchandise but will buy food and beverages.

4.3 United model

In the previous section, some suggestions have already been drawn about certain variables possibly being able to explain and predict the average expenses of a visitor. From this section, the following variables can be considered as explanatory variables:

- Gender (Female)
- Age
- Nationality (Foreigner)
- Visitor type (Participant)
- Stayed longer (No)
- In city despite event (Yes)
- Grade (0-6)
- Type of company (Alone)
- Stayed the night (No)
- Spectator/participant event (Participant event)
- Free event/entrance fee required (Entrance fee)
- Single day/multiple day events (Single day)

These variables have been used as independent variables in a regression analysis with the average expenses per person as dependent variable. The referent of the variables is given between brackets behind the variables considered above. Age² is added as extra variable and is the age squared. This variable added to correct for the quadratic behaviour of age on expenses.

The results from the regression analysis are given in table 3. This table gives the variables, its corresponding beta value and the significance as a p-value. P-values below 0,05 are considered significant. Furthermore, it is important to consider that the amounts which are given do mostly not coincide with the differences as calculated in the graphs of section 4.2. This is because of all the variables being linked in a regression model. However, if a difference still exists and if the difference does approximately coincide with the earlier determined difference, this difference can be considered as being proven even more by the regression.

Table 7: Regression analysis

Variables	Beta	P-value
Constant	-30,12	0,000
Male	3,86	0,001
Age	1,67	0,000
Age ²	-0,17	0,000
From host country	-16,59	0,000
In city despite event	11,30	0,000
Stayed longer	9,53	0,000
Stayed the night	24,78	0,000
6 to 8	-1,811	0,761
8 to 10	5,266	0,365

On own behalf	17,16	0,000
A/C/R of participant	-0,38	0,922
Alone w children	8,08	0,001
Mixed company	1,18	0,707
With friends	14,57	0,000
Other relatives	6,88	0,006
With partner	6,15	0,004
Partner and children	6,74	0,005
School/organization	1,07	0,690
Other	-1,26	0,849
Spectator event	4,05	0,136
Free event	-10,40	0,000
Multiple days	8,90	0,003
$R^2 = 0,184$		

From table 3, if a respondent is male, he will spend €3.86 more than if the respondent would have been a female. This coincides with graph 1, where the difference was slightly more than €4 with males spending more. The variable age adds €1.67 to the average expenses per extra year. However, as seen in graph 2, expenses tend to decline after a certain age. This is also seen in table 3 with the age^2 variable being negative. The variables ‘from host country’, ‘in city despite event’, ‘stayed longer’ and ‘stayed the night’ also coincide with the results from the graphs of those variables in the previous section. With foreign respondents who would not have been in the city if it were not for the event, who stayed longer and who stayed the night spending more than their counterparts. Even though graph 9 implied that there is a relationship between the grade given to the event and the expenses, both variables fail to be significant in this regression. However, as graph 9 stated some clear results, it is still thought that the grade given to the event is related to the expenses.

When considering the visitor type, only two variables are considered in the output with the other variables missing correlations. Of the two considered variables, only the visitor on own behalf is significant and tends to spend €17,16 more than a participant. This again coincides with the relevant graph. However, graph 5 gives a slightly lower difference between the two groups of €13. If the type of company is considered, it can be stated that all the significant variables, ‘alone with children’, ‘with friends’, ‘with other relatives’, ‘with partner’ and ‘with partner and children’ contribute to higher expenses compared to visitors who come to the event on their own. Visitors who come with friends tend to have the highest expenses according to table 7. This is different from graph 10, which implies that visitors who come to the event with their partner spend the most. The difference in this graph, however, is minimal while the difference in table 3 is more than €8. Lastly, the event types are considered in the regression analysis. The results of table 3 are similar to the results in graphs 13-16, confirming those results.

4.4 Interviews with experts

The last phase of this research was to discuss the results with experts in the field of event organizing and sports research. Out of the 15 experts that were approached, 8 responded. A short summary of each interview is given in this section. The interviews were held using a topic list. The topic list consisted of three main topics: economic impact/evaluation of events, the research itself and the practical implementation of the results.

4.4.1 Experts in event organizing

1. Niels van Markensteijn; Owner of TIG Sports

As the owner of a company focussed on event organising, Niels' answers were focussed on the practical side of this research. According to Niels, big data is already used in event organizing in the field of communication and ticketing. However, collecting data is not often done by the organizer. The evaluation reports of the WESP are not really used by the organizer and are more a tool for the local governments. When asked about the research, he stated that determining which factors contribute to a higher consumption of visitors can be useful as the catering industry can align its supply with the demand of the visitors which are expected to come to the event. The results of the research were not surprising to him and he does not consider them to be something which is not yet known in the field of event organizing.

2. Frank van der Peet; Volvo Ocean Race

As expert on event organising, Frank was asked about the research and the practical implementation of the results. According to Frank, trying to determine the most important factors related to consumption can be useful information for event organizers. One of the goals of a sport event might be to create economic spinoff and this spinoff can be enlarged by knowing what factors are related with a higher consumption. He considers the results to be logical variables which can be used by organizers. He names the variable 'Type of company' as something event organizers can use to align the supply of for example the catering with.

"Economic spinoff can be enlarged by knowing what factors lead to a higher consumption."

3. Jan Grönewald; Organiser at ASO, researcher in sports economics at Bayreuth University

First, Jan commented on the research itself. Jan can not think of other research about this topic using a database of this kind. He names the researcher Kwiatkowski who compared three completely different events in his research. He considers the statement that the outcomes are not a surprise for the experts as a good thing, as the data seems to confirm the opinion of sport event experts.

“It’s a good sign that the data confirms the opinion of sport event experts.”

Second, he answered the question about the evaluation of sport events. He considers the main problem of evaluating sport events that there is not one reliable, valid methodology to measure the economic impact but loads of different opinions mostly depending on the motivation of the researchers. Jan considers it important to know the economic impact of sport events as these events would not be feasible without public subventions. Because of this there must be some sort of return on investment for the public authorities so that they know if they had invested the money well or not. In his opinion, the best option is to measure all money streams generated by the event and check if they are an additional income for the city which is subsidizing the event.

“There must be some kind of return on investment for the public authorities.”

Jan evaluated the research and results from the point of view from an event organizer, stating that he is not sure how helpful the data is as most of the variables are not really changeable for an event organizer. Also, he does not consider increasing consumption as his first priority. According to Jan, most of the variables are self-explaining but he considers it a good thing to have a big database which confirms the assumptions. When asked about the implementation of the results, he gave two examples. First of all, it would be useful to know what kind of people tend to stay the night and tend to spend more at events. This however mostly helps the partner hotels and catering companies and not the event organiser himself.

“The data is more interesting for sports politicians to decide which event to host in their city.”

Second, the results might help him to get to know his clients better and thus to make the event more attractive to sponsors. He considers the results mostly interesting for sports politicians who have to decide which events they want to host in their city and which not.

4.4.2 Experts in sports research

1. Michiel de Nooij; Research in sporteconomics, expert on MKBA-analysis

Michiel had his doubts about the whole economic impact research. He stated that the approach of determining the economic impact is rather dubious as it stated that expenses of non-local visitors will flow fully and directly to the residents. According to him, this is not the case as a lot of other factors determine this cash inflow.

When asked about research using a database within the field of sport events, he replied that since the budget of an organiser is often marginal, extensive data research is often too expensive.

“How useful research using a database is, really depends on the question that is asked.”

However, a database could be useful depending on the question which needs an answer. From this point of view, he also commented on whether measuring the consumption is useful, stating that it really depends on the question an organiser has.

2. Peter-Jan Mol; Kenniscentrum Sport

As expert on sports research, Peter-Jan was first asked about this topic itself. According to Peter-Jan, who tries to bring results of research within sport events in practice and tries to pass on knowledge from event to event, research about sport events is getting more and more topical. No specific research programs yet exist about this topic, but with the Dutch Sport Council being installed in 2016 and the recent Sportakkoord, the topic becomes more and more interesting for politics and research. There has not been much research regarding combining big data and sport events yet, but this also is growing.

When asked about the research, he stated that trying to determine factors for consumption would be useful for companies.

“By determining what type of visitors to expect and combining this with the knowledge obtained by this research, an organiser could be one step ahead.”

However, he doubted if consumption could really be explained by the used datasets, as the respondents were not asked about their intentions regarding the expenses. The results could be implemented by determining beforehand what kind of visitors a certain event would attract. Based on this, an organiser could be one step ahead. Furthermore, a database could be used to cluster certain visitor types and events. By doing this, a city can decide to host more events that attract different kind of visitors, causing every visitor type to have somewhere to go to.

3. Rik Burger; WESP & Kirko Company

According to Rik, the economic impact should not be the only thing evaluated when trying to determine the impact of a sport event. It is however valuable in providing a clear overview of the impact for the organizers, could be used to determine whether subsidies are given fairly and has as its main power that its a uniform method which creates the opportunity to compare events. However, he states that the concept of economic

impact and the reasoning behind it is not well-understood by most people and therefore the results are not always used in the correct way causing discussion between the researchers and the organiser/subsidizer. Furthermore, he thinks that insufficient meta-analyses are conducted using the WESP data. As far as he knows, the datasets have not been combined yet, while it could give some interesting results.

He considers to goal of the research, 'explaining' the consumption of event visitors, as an interesting variable to do research on. However, he doubts whether the datasets of the WESP can be used to do so.

“The datasets of the WESP do not contain other useful variables like the weather. One can doubt whether these datasets can be used to explain the average expenses”

The datasets contain information about the respondents used to calculate the economic impact, but do not contain variables like the weather, which would probably have some influence on the expenses of visitors. When asked about the usefulness of the results for event organisers, he named the results considering free events and paid events as something interesting for organisers. If obtaining high visitor consumption is a goal, then asking for a entrance fee would probably be a wise thing to do, while this intuitively maybe would not be a decision you would make.

4. Jelle Schoemaker; Sports researcher at HAN, WESP

When asked about the concept of measuring the economic impact, Jelle replied that the usefulness of this method depends on the goal of the sport event itself. Some (local) governments want to create economic spinoff for the residents and sport events can be used to do so. Because of this, measuring the economic impact is a useful tool when used for the right cause. Other pros are that the method is relatively easy and that events can be compared with one another.

According to Jelle, large amounts of data are barely used in sports research. He already combined a number of evaluation reports of the WESP in order to find out the most important indicators of economic impact. However, he thinks that the possibilities of a meta-analysis of multiple WESP studies are limited as the results would probably be limited caused by the large differences that exist between the events. Furthermore, he stated that the results probably would not change the way we look at sport events.

“Do males really have higher expenses or do they just pull out their wallets more often?”

Jelle considers consumption as an interesting variable to do research on but does not think that the results can/will be used to change the policy of event organising to maximize the consumption. He considers the

possibility of the difference in consumption in gender existing because of males being more tempted to pay for others. Age could be a coincidental result as events focussed on the elderly are not considered. The difference between spectators and participants could depend on the type of event as participants of for example golf events might spend quite some money.

“Are the results really as they seem to be, or do they depend on the type of event?”

Also, he has the same kind of doubts when talking about the difference between free and paid events. Events that attract ‘rich’ visitors with incredibly high expenses mostly also require an entrance fee. He names equestrian sports as an example. He recommends to analysing some of the results again but now based on the type of sports.

5. Wouter de Groot: OGV Sportadvies

Wouter considers the calculation of the economic impact as one of the ways to evaluate the effects of a sport event on the city and surroundings. However, he still sees some problems with the method. Nevertheless, the method is improving, and he sees this as a good thing which should be stimulated.

“The economic impact method still has some problems, but it is getting better. We should stimulate this.”

Whether sports research based on large amounts of data is a good thing depends on what questions one wants to answer according to Wouter. If one could combine data in the correct way and asks the right questions, the data research might lead to some interesting findings.

Wouter gave two reasons as of why the consumption might be a useful variable to try to explain. Firstly, the local government might be interested to know what strings to pull to get as many cash inflow as possible into the community. Secondly, the results might be used to attract businesses to the event, so they could help with developing new revenue models.

“The results could help to develop new revenue models and could be used to attract more companies to invest in the event.”

The organising party might use the predicting variables for consumption to predict the expected income of the events and to find out where opportunities lie. This can be used to attract and persuade businesses in investing in the event. Of course, trying to predict the consumption will never provide predictions with 100% certainty, but this is an entrepreneurial risk that companies take all the time.

However, he states that one should always consider the goal of the event itself. Not every event is about maximizing the economic impact and therefore not every event can use this result. Also, if every event would be focussed on making as many profits, only that one type of event that is most profitable will be organised. He emphasizes the importance of diversity in events that are organised. For example, sports events could also be used to promote the practice of sports, membership of a sports federation or to fight obesity.

“Economic impact should not be the only way to look at a sport event. Societal goals are also important. Diversity in events is key.”

Lastly, he tells about his own research which is about improving knowledge about event organising. He tries to come up with ways to obtain this knowledge. He states that a lot of data obtained by evaluation reports is not used for anything else but the evaluation itself. One of his recommendations is to re-use this data for secondary analysis. He states that Sem van den Bogaert’s thesis might prove the importance of researching data obtained over a period of multiple years.

5. Osmo Laitila; Researcher at Jamk University

According to Osmo, event impact research is a very extensive field of research and especially in sports there are several different methodologies to determine the impact. All of which will lead to significant differences in the estimation of impacts. In the field of economic impact research, as well as in the overall development of sport events, the only step forward is to collect data and utilize it with a purpose in order to justify more valid and better decision making for the organization of future events.

“The only step forward is to collect data and utilize it in order to justify more valid and better decision making.”

He states that the concept of economic impact had both its pros and cons. When research is used with a purpose to make conclusions for event development based on data, it can be a very beneficial tool to manage events and deliver better quality for spectators, participants and partners. It can also be used for political justification. However, he states that this should not solely be the purpose of the research. According to him, one of the main issues in producing reliable data is the lack of understanding the event population and its characteristics which leads to overestimated impacts.

“The measurement of the economic impact is a very complex process which should always be based on primary data.”

When asked about the research, Osmo states that he finds it important to look for factors which affect consumption. He says this information might be important for event organizers, partners and stakeholders to align their services according to the spectators’ and participants’ willingness to spend money. However, every sport event is different due to different target groups and nature of the event. This causes a big variety and what factors can explain the consumption and how much these factors can explain.

“The results were somewhat expected, but definitely useful as nobody ever checked this vast amount of data from that perspective.”

Osmo considers the main conclusions to be logical and the profile of the ideal visitor to be somewhat expected. However, he also stated that it would not apply to one of the events he evaluated, again implying the large differences that exist between sport events. He also considers the results to be useful as nobody ever checked this vast amount of data from that perspective. It provides a good opening for further investigation and brings out new ideas to connect different factors to research of direct economic impact. For example, he stated that it would be interesting to combine visitors’ motivation and level of fan engagement to the factors explaining consumption as this would be important for events that take place regularly on the same environment and facilities.

4.4.3 General results of interviews

When combining the answers given by the experts, one might notice some answers given multiple times by different experts. From this, the general results of the interviews can be derived.

Firstly, the opinions on the economic impact of sport events seem to differ. Most experts consider the method to be useful when used in the right way stating that the calculation on itself might not say that much, but that it provides a powerful tool to compare similar events over time.

Secondly, when asked about the research itself most of the experts acknowledge the usefulness of a database in sports research. Most consider it as something which has not yet been done on this scale and think it offers perspective for future research. The experts do not all agree on the usefulness of this research which focussed on explaining consumption. A general doubt was that not all events are focussed on obtaining a high economic impact and will not want to focus on maximizing the expenses of their visitors. Most experts stated that one should never consider the economic impact of an event as the only

tool to evaluate an event. One should always consider the goal of the event when choosing an evaluation method and might even use more methods to obtain a complete overview.

Lastly, when asked about the practical implementation of the results, the event organisers did not consider the results to be special or not already known. The researchers shared this opinion, but most of them also acknowledged that it was a good thing that someone finally combined large amounts of data in order to explain a variable like consumption. Even though the results did not lead to new insights, it is a good thing that the assumptions most experts had regarding the consumption are now ‘proved’ by research based on data as it provides a basis for further research based on large amounts of data.

5. Conclusions

In this section, the conclusions based on the results presented in section 4 are given. First, the conclusions for each sub-question are given and elaborated on after which an answer to the main research question will be given, based on the other ‘sub-conclusions’.

5.1 Personal and demographic features

- What personal and demographic features influences the average consumption of the visitors of a sport event?

To answer this question, gender, age nationality and education were analysed. Based on graph 1 and the regression analysis, it can be stated that male visitors on average spend €3.86 (in the regression) to €3,95 more than female visitors. From table 5, no explanation could be found for this difference when considering the payer type. Graph 2 shows a quadratic relation between age and expenses. The graph implies that the expenses of a visitor between 40 and 60 years will be highest and that expenses will decline below 20 years and after 60 years. Both graph 3 as the regression show that foreign visitors spend significantly more than visitors from the host country. This can be explained by foreigners mostly staying longer in the host region than visitors from the host country, as proved in table 7. No clear relationship between education and average expenses was found in graph 4. This might be because of challenges in the data, However, the three groups with the highest amount of responses have about the same average expenses, really implying no relationship exists.

The general conclusion is that gender, age and nationality do influence the average consumption of a visitor.

5.2 Visitor characteristics

- What visitor characteristics influence the average consumption of the visitors of a sport event?

The variables visitor type, staying longer, in city despite event, grade, type of company, staying the night and accommodation were analysed to answer this question. Graph 6 shows some clear differences between the visitor type and the average expenses. However, in the regression only two variables remained useful. From this regression and the graph, it can be concluded that visitors on own behalf spend more than participants. Furthermore, it can be stated that visitors who stay longer in the host region and visitors who stay the night will spend more money than their counterparts. Whether the visitor is in the city because of the event or not also seems to play a role in their expenses, with visitors not being in the city if it were not for the event spending significantly more. From graph 9, a relationship between the grade given to the event and the average expenses can be spotted, with visitors grading the event the highest, also spending the most. When considering the average expenses and average grade per event, as done in table 8, it is difficult to draw a general conclusion whereas events with high ratings still might have average expenses which fall below the general average and vice versa. From this, it can be concluded that it also depends on the type of event how high the expenses will be. Still, using graph 9 and common sense, it can be concluded that organisers should strive towards getting a highest grading as possible.

Furthermore, graph 12, which shows the accommodation type and expenses, does imply some relationship between the type of accommodation a visitor stays the night in and their average expenses. A relationship can be found between the more luxurious accommodations and higher expenses. Lastly, the type of company implies to have some influence on the expenses of a visitor. Graph 10 shows respondents who visited the event with their partner or with friends to have the highest expenses and respondents who visited the event with their school/organization to have the lowest. Except for the latter one, these results are confirmed by the regression.

In general, it can be concluded that a difference exists between spectators and participants, and thus that visitor type does influence the expenses. Furthermore, staying the night, staying longer, being in the city despite the event or not and the type of company seem to influence the expenses of a respondent.

5.4 Type of event

- How does the type of event influence the average consumption of the visitors of a sport event?

For this question, three variables were considered: whether the event was free or not, whether the event focussed on spectators or participants and whether the event took place one single day or multiple days. First of all, both the regression as graph 13 imply a significant difference in expenses between spectator events and participant event, with visitors of the former spending more. Second, from graph 14 and the regression

it can be stated that events that visitors who go to an event that require an entrance fee tend to spend a significant amount more than visitors of a free event. Last, visitors who visit events that last multiple days spend more than visitors who visit single day events, even when the expenses are corrected by the number of days a visitor was present. It can be concluded that all three variables influence the average consumption of visitors of a sport event.

5.5 Consumption patterns

- What can be said about the consumption patterns of the visitors with regard to the average consumption of the visitors of a sport event?

From graph 17, it can be concluded that visitors on average spend most on souvenirs and merchandise. Followed by food and beverages and lastly public transport. These results seem logical as merchandise mostly is more expensive than food/beverages. Also, food and beverages can be brought to the event by a visitor himself. However, when considering the events individually, the conclusions from graph 17 do not seem to be generalisable, as shown in table 7. Some events have higher average expenses on food/beverages while others have higher expenses on merchandise. The expenses on public transport do coincide with graph 17. It can be concluded that it depends on the event whether visitors will spend more on food or on merchandise. One event might focus more on the selling of merchandise than the other, explaining this difference. To find out whether this is true, further research should be done regarding this topic.

5.6 Opinions of experts

- What opinions do experts (event organisers and stakeholders) have on the findings?

The general opinion of the experts is that the findings are not that astonishing. A lot of the results were already known or assumed to be true. However, it is a good thing that research had been done using a large database. The experts consider it a good thing that one found proof for the assumptions.

Whether trying to explain the most important factors related to consumption is useful gave some different reactions. However, in general it can be stated that knowing what factors determine consumption is useful for event organizers as they can align the catering services with the demand of the expected visitors. Nevertheless, it is important to keep in mind the main goal of the event. If this has nothing to do with creating economic spinoff or earning money, trying to obtain higher consumption of the visitor is not useful or might even contradict the main goal of the event.

5.7 Main conclusions

- Which factors influence the average consumption of the visitors of a sport event?

Based on the answers on sub-questions 1 to 5, the following variables are considered to be useable in determining the consumption of a visitor:

- Gender
- Age
- Nationality
- Grade
- Being a spectator or participant
- Staying longer
- Staying the night
- Being in the city because of the event
- Type of company
- Whether the event of free or not
- Whether the event is focussed on spectators or participants
- Whether the event lasts one day or multiple days

From this list of variables, the ‘ideal’ visitor can be constructed which will have the highest expenses at an event. The ‘ideal visitor is:

- Male
- Between 30 and 50 years of age
- Foreign
- Spectator
- Staying longer
- Staying the night
- In the city just because of the event
- With friends
- Going to a paid event focussed on spectators and lasting multiple days

From this it can be concluded that it indeed is possible to determine certain factors which influence the consumption of a visitor. However, as also stated by most of the experts, the results are rather logical and are not considered to be new or ground breaking. Nevertheless, this research is the first in its kind, and as also stated by the experts, it is good thing that the assumptions are now proven for the first time as this provides a strong basis for further research.

The coefficient of determination of the regression analysis is 'just' 0.184. This coefficient implies that a lot of other unknown variables might also influence the consumption. These variables however are not present in the database, which contains rather global and straightforward information of the respondents. It also implies that every respondent might have different reasons as to why to spend their money. If one wants to obtain a higher coefficient of determination and thus find more explain variables, one should ask more detailed questions to the respondents regarding this topic.

All in all, the general conclusion of this research is that it is possible to use a database to find certain variables that influence the consumption of a visitor. The results might not be useful for event organisers itself, they do provide a basis for further research as this thesis proves that it is possible to draw general conclusions from combining data of all sorts of different events.

6. Discussion

In this section, the research and results are discussed from different perspectives. In the first section, the research is reflected on. The second section compares the research and results with the literature and other research about this topic. The last section discussed whether the results are useful for the clients.

6.1 Reflection on research

The research provided some answers to the sub-questions and gave a general answer to the main question. However, one can still have doubts about the way the research was conducted and how the results were obtained. Because of this, this section provides a reflection and evaluation of the research based on the reliability and validity.

First, the validity is discussed. The validity gives a measure for the correctness of the results. It focusses on whether the right instruments were used to obtain the results and whether the results can be considered generalisable.

The internal validity focusses on the correctness of the research itself. It is about whether the research was prepared and conducted well. A doubt one might have about this research is if a database is the correct way of trying to determine variables like the consumption of visitors. The questionnaires given to the respondents contained questions about consumption but were not completely focused on determining just this variable. The question arises if these questionnaires are a correct way of trying to determine the consumption. However, as these datasets are the only ones available of their kind and follow widely accepted guidelines from the WESP, they should be a good way of trying to explain certain variables. As the questionnaires are used for calculating the economic impact, which for a large part is about the

consumption of the visitors, the data obtained for this thesis can be considered as a good way to determine the consumption of the visitors.

The external validity is about the generalisability of the results. It is difficult to state whether the results of this research are generalisable for each sport event. First, one cannot really compare one sport event to another if it is not the same event taking place. A hockey world championship attracts different kind of visitors than a freestyle skating event. However, all kinds of events are considered in the database causing a lot of completely different events with different kinds of visitors all being present within the results. Problem is that the number of respondents per event, and thus its share in the results varies greatly. For example, the Euro League Hockey had a share of almost 2000 respondents in the total of 18000 while the Pro Freestyle event only had a share of 200 respondents. Because of this not every kind of event is considered in an equal way causing the results not to be generalizable for every event. However, as 25 events are considered, one can expect a large part of the results being generalizable for many different sport events.

Second, the reliability of the research and results is discussed. The reliability of a research focusses on the repeatability of the research. It asks the question if the same results would be obtained if the research would be conducted again.

The database consists out of different datasets produced by different researchers. Because of this not every dataset consisted out of the same variables as the other ones. All the datasets were based on the WESP questionnaire used for calculating economic impact. However, some questions which were included in one dataset, were not included in the other or were provided with different options as the questionnaires also were event specific. However, as the questionnaires followed the same guidelines the results should be about the same if they are held at other events by other researchers.

By aligning these datasets into one large database, data might have been lost or not considered. Also, input errors might have been made. It is difficult to prevent such mistakes. Especially when working with such a large amount of data. As outliers and strange inputs have been deleted from the dataset, these input errors are not thought to have changed the results insignificantly and thus will not cause the results of a similar research to be very different.

Another point regarding the reliability of this research is the way the interviews were held. Most of them were held by phone and were not recorded. Because of this, some of the reports might miss some information as not all was noted. To prevent wrong citations or opinions to be stated in this thesis, the summaries of the interviews were sent to the experts so that they could check whether they were cited in the correct way.

Based on a recommendation by the Dutch Sport Council, the possibility of conducting an international benchmark was given in section one. However, with the available data this was not considered possible. German and Finnish data was added to the database. As stated before, even the Dutch data was sometimes difficult to align. The German and Finnish data were used to calculate the economic impact, but other or less questions were used than the WESP did with the Dutch events. This made alignment of the data only possible for a few variables making it too difficult to obtain significant results for a benchmark.

6.2 Broader perspective

While this research is based on economic impact studies, and uses data of such studies, it can not be seen as a true economic impact study. Kasimati (2003) states that the economic effect of an event occurs when the event generates an inflow of funds to the host region which otherwise would not have occurred. Lieber and Alton (1983) describes economic impact as the net change of the economy because of the sport event. This research however only focussed on the consumption of the visitors and did not take into account whether the expenses were made by a non-residential visitor or a local. Because of this, one can not compare this research with economic impact studies as conducted by the WESP, as they based their calculation of the direct economic impact, and thus the consumption, on whether the visitor could be considered additional. So far known, no other similar studies have taken place, making it impossible to compare the results of this research with similar research.

Preuss (2011) concluded that one of the top challenges in economic impact studies is the lack of knowledge and information about the consumption patterns of the event visitors and residents. With this research, a first step is taken into discovering and describing the consumption patterns of visitors of sport events. However, lack of data about the true consumption intentions of the visitors causes this research to only have obtained rather global and already widely assumed results. This was confirmed by the experts that were interviewed. Based on this, it can be stated that a lot remains unknown about the consumption patterns of the visitors.

During this research, secondary analysis was conducted. Verhoeven (2014) explains this as collecting existing data which has been used by other researchers before and trying to answer a new question using this data. However, Verhoeven also states that secondary analysis can have some disadvantages. One does not have any influence on how the data is collected and what data is collected as the questionnaires have already been made and conducted. Often, the data must be adjusted intensively before being able to work with these datasets. Sometimes the main question of a research even must be changed before being able to work with certain datasets. This research has as one of its main problems that the questionnaires were not

made to explain consumption but to determine economic impact, causing a lot of (probably) important variables not to be present in the database, which coincides with one of the disadvantages stated by Verhoeven.

In section 1, it was already stated that the DSP-group divided the impact a sport event can have on its surroundings into six groups, with economic impact being one of them. Pettinger (2017) even divided the impact into nine categories with economic impact just being one of those categories. Because of this, it is of extreme importance to put the focus and the results into perspective. While it might be a good thing to determine factors that explain consumption to maximize the economic benefits of a sport event, multiple other reasons exist to host sport events. A lot of the sport events might not even want to obtain high visitor expenses but might have a completely different goal. Because of this, one should be careful with implementing the results of this thesis, as they might only be applicable to certain events. This diversity in goals an event might have is important as it also causes diversity in sport events which are being hosted. If every event would be focussed on maximizing their profits, only events for males of 40 years of age would be hosted. However, one does not only want 40-year-old males visiting their event and 40-year-old males will not be visiting 35 events per year. From this, one should first determine carefully the goal of the event being hosted before deciding what factor should be maximized. This advice might be applicable to the city of the Hague, which has as one of its goals to become the number one sports city at sea (Gemeente Den Haag, 2015). Also, Ziakas and Costa (2011) describe the usefulness of an event portfolio with diverse events being organised in the host region in order to achieve a certain goal.

However, if an organiser has as its main goal to maximize their profits, this organiser should still be careful when implementing these results. From the intermezzo in section 4, it can be seen that the number of visitors is one of the key factors that determine whether the difference in certain variables could really make a difference in income for the organiser. If one focusses too much on getting one certain type of visitor to the event, other visitor types might be 'lost' causing maybe only 5000 people to visit the event instead of the 6000 the event might have attracted if they would have focussed on more visitor types. One could doubt whether this loss of visitors but gain of a certain visitor type would still result in more profits.

To conclude, this research and future similar research might be part of something bigger. The Dutch Sport Council (2018) advises in their starting advice to appoint a multi- or mega sport event as a sport on the horizon. This spot should give direction to the sports policy of the coming years. The road to this spot should be more important than the spot itself, as it helps the society to work together towards a joint goal.

New types of research regarding sport events such as this one, might be one of the many things that can be accomplished during this period.

6.3 Usability for client

This research was commissioned by Noud van Herpen and Willem de Boer, both sports researchers and lecturers at a university of applied sciences. The idea originally came from Noud, who wanted to investigate the possibility of combining individual datasets of the WESP into one large dataset in order to draw general conclusions about the economic impact. The main conclusion of this thesis, which is about the factors which are proved to influence the average consumption, is not really useful to the clients as they are researchers and not event organisers. However, when considering the research from a wider perspective, it can be stated that it is possible to create a large database and draw general conclusions about the variables present in the database. This conclusion might help or inspire the clients for further research. Also, the conclusions, recommendations and general approach of this research might be something for other students to elaborate on in their thesis or in a subject at school.

7. Recommendations

As most of the results were already known or assumed to be true, this section will not focus on recommendations to event organisers based on the results but will focus on recommendations and thoughts for further research regarding this topic and approach.

First, this research can be expanded in multiple ways. In this research, datasets of the WESP were used to try and explain the average consumption. The datasets however were not completely focussed on this topic as they were used to determine the economic impact. Because of this, to be able to really determine what factors influence the consumption, it is recommended to create an own questionnaire which focusses more on this topic. With this, new variables can be added to the database which might help explain what factors influence the consumption a bit more.

Furthermore, it is recommended conduct this research again, but now focussing on one specific type of event. If one can find variables that influence the consumption for just one type of event, an organiser might be more tempted to use the results of this research as they are focussed on the type of event that is organised. This research draws general conclusions based on data of completely different events. The results might therefore not be applicable to every type of event. Narrowing down the range of events considered in the database might make the results more useable.

Also, as was originally planned in this research, a database can be used to benchmark the Netherlands as a hosting country with other countries. By adding data of foreign events to the database, a comparison can

be made which can be used to learn from other countries when it comes to event organising. However, other countries should use about the same method as is used by the WESP.

Second, the database constructed for this research can be used to explain other things than just the consumption. It can be used to draw other general conclusions about Dutch sport events. This has already partly been done in section 4.1 of the results, but a whole research can be dedicated to trying to find and explain factors like that.

Third, the concept of a database can be used to help event organisers or local governments in deciding that events to host. A new database might be constructed to find out what type of people visit certain type of events. This information can be used to organize events in the city for every population group, causing everyone to have something organized by the city which appeals to them or to preserve the city from organising to many events for one specific population group.

In general, the results of this research can be used by event organisers. However, as some experts already stated, most of the results were already known and are already used in event organizing. Nevertheless, the results and the way of research provide a basis for further research regarding this topic.

Appendix 1: Overview database

Variable	Options	Type
ID	#	Nominal
Event	0 – Rabobank Hockey World Cup 1 – Volvo Ocean Race 2 – FIVB Beach Volleyball Swatch World Championships 3 – KPN WC Shorttrack 4 – Olympic Experience 5 – ITU World Triathlon Grand Final 6 – The Hague Grand Prix Judo 7 – City Pier City 8 – The Hague Open 9 – Pro Freestyle 10 – North Sea Regatta 16 – Europacup Skeeleren 17 – Outdoor Gelderland 2013 18 – CAI 19 – World League Volleyball 20 – Zevenheuvelenloop 21 – Zevenheuvelenloop (particip.) 22 – Outdoor Gelderland 2014 23 – EC Volleyball 24 – EC Inline Skating 25 – KLM Open 26 – Giro Gelderland 27 – Mariekenloop 28 – WC BMX (Framed Festival) 29 – Cycling Nationals	Nominal
Year	2014 - 2017	Nominal
Gender	0 – Female 1 – Male	Nominal

Year of birth	#	Ordinal
Age at event	#	Ordinal
Education	0 – Other 1 – Primary school 2 – High school (vmbo, havo, vwo) 3 – Vocational education (LBO, MBO) 4 – Bachelor and higher	Ordinal
Lives in the host country	0 – No 1 – Yes	Nominal
Postal Code	#	Numerical
You are: (Visitor Type)	0 – Visitor on own behalf 1 – Participant 2 – Attendant/coach/relative of participant 3 – Visitor invited by sponsor/organization 4 – Representative of press/media 5 – Volunteer 6 – Other	Nominal
Way of transport to the event	0 – Airplane 1 – Bike/Scooter 2 – Bus/Tram/Metro 3 – Car/Motorbike 4 – Train 5 – Walking 6 – Other	Nominal
Grade	1 - 10	Ordinal
Days/hours present	#	Numerical
In city despite event?	0 – Probably 1 – Probably not 2 – Don't know/depends	Nominal
Stayed Longer	0 – No	Nominal

	1 – Yes	
Days/hours extra	#	Numerical
Company	0 – Alone 1 – Alone with children 2 – Mixed company 3 – With friends 4 – With other relatives 5 – With partner 6 – With partner and children 7 – With school/organization 8 – Other 9 – With fellow participants	Nominal
Additional	0 – No 1 – Yes	Nominal
Stayed the night	0 – No 1 – Yes	Nominal
Number of nights in community	#	Numerical
Number of nights in other community	#	Numerical
Accommodation	0 – Apartment 1 – At friends 2 – Bed & Breakfast 3 – Bungalow park 4 – Hotel 0 – 3 stars 5 – Hotel 4 – 5 stars 6 – Other	Nominal
Costs per person per night	€	Numerical
Costs per night (# of persons unknown)	€	Numerical
Number of persons	#	Numerical
What applies to you: (expenses)	0 – I don't pay for anything, but someone else does	Nominal

	1 – I don't spend anything, neither anyone else does this for me 2 – I only pay for myself 3 – I pay for myself and other(s)	
Total expenses	€	Numerical
Number of persons	#	Numerical
Expenses per person	€	Numerical
Expenses on food/beverages	€	Numerical
Expensed on merchandising	€	Numerical
Expenses on public transport/parking	€	Numerical
Entrance fee	€	Numerical

Appendix 2: Topic list

Main topic	Sub Topics
Explanation of the research and the results of the research	
Evaluation reports of sport events	• Use in organisation • Implementation of results • Own research of the organisation
Research	• Opinions on the use of a database • Opinions on the way of analysing
Results	• Most interesting results; what was already known and what not • What results are useful for the organisation
Implementation	• Possible implementation of the results
Recommendations	• Recommendations for further research • General recommendations regarding the topic of event organising

References

- AD. (2012, Juni 25). *Amsterdam en Rotterdam partners bij bid Olympische Spelen 2028*. Opgehaald van AD: <https://www.ad.nl/sport/amsterdam-en-rotterdam-partners-bij-bid-olympische-spielen-2028~aaca2338/>
- Bun, M., & van Ophem, H. (2017). *Syllabus Inleiding Econometrie*. University of Amsterdam.
- Crompton, J., Lee, S., & Shuster, T. (2001). A guide for undertaking economic impact studies: The Springfest example. *Journal of Travel Research*, 79-87.
- de Groot, M., Blom, S., & van der Gugten, M. (2012). *Meer halen uit sportevenementen*. DSP Groep.
- Elt, G. d. (2016, August 19). *De Ruïnes van Rio*. Opgehaald van Het Financieele Dagblad: <https://fd.nl/economie-politiek/1163998/de-ruines-van-rio>
- Financiële noodtoestand in Rio om Olympische Spelen*. (2016, June 18). Opgehaald van Volkskrant: <https://www.volkskrant.nl/buitenland/financiele-noodtoestand-in-rio-om-olympische-spielen~a4322754/>
- Gemeente Den Haag. (2015, Oktober). *Sport maakt Den Haag sterker*. Den Haag.
- Haarsma, J. (2014, June 18). *WK Voetbal: De voor- en nadelen voor het gastland Brazilië*. Opgehaald van Ibiss Foundation: <http://www.ibiss.info/wk-voetbal-de-voor-en-nadelen-voor-het-gastland-brazilie/>
- Hover, P., & Postma- de Groot, M. (2015). *Basismodule*. WESP.
- Kasimati, E. (2003). Economic aspects and the Summer Olympics: A review of related research. *International Journal of Tourism Research*(5), 433-444.
- Laitila, O., & van Herpen, N. (2018). The significance of direct economic impact on international events for the hosting city. In M. Dodds, K. Heisey, & A. Ahonen, *RH of international Sport* (pp. 155-166). New York: Routledge.
- Müller, M. (2014). What makes an event a mega-event? Definitions and sizes. *Leisure studies*, 34(6), 627-642.
- Nederlandse Sportraad (Dutch Sport Council). (2017). *Nederland op de Kaart*. The Hague: Nederlandse Sportraad.
- Nederlandse Sportraad. (2018). *Akkoord met ambitie*. Den Haag: Nederlandse Sportraad.
- NOC NSF. (2017). *Financiering*. Opgeroepen op November 15, 2017, van NOC-NSF: <https://www.nocnsf.nl/nocnsf.nl/olympische-droom/topsportinformatie/voor-topsporters/inkomen-en-vergoeding/financiering#>
- Paes, E. (s.d.). *Challenges of Hosting a Big Sporting Event*. Opgeroepen op Oktober 2017, van Huffington Post: https://www.huffingtonpost.com/eduardo-paes/rio-olympics-protests_b_3509506.html

- Pettinger, T. (2017, January 24). *Advantages of hosting a major sport event*. Opgehaald van Economics Help: <https://www.economicshelp.org/blog/4909/economics/advantages-of-hosting-a-major-event/>
- Preuss, H. (2005). The economic impact of visitors at major multi-sport events. *European Sport Management Quarterly*, 5(3), 281-301.
- Preuss, H. (2007). The conceptualization and measurement of mega sport event legacies. *Journal of Sport & Tourism*, 12(3-4), 207-227.
- Preuss, H. (2011). A method for calculating the crowding-out effect in sport mega-event impact studies: The 2010 FIFA World Cup. *Development Southern Africa*, 28(3), 367-385.
- Sanderson, A. (2017, July 12). *Are the Olympics reaching the finish line?* Opgehaald van Chicago Tribune: <http://www.chicagotribune.com/news/opinion/commentary/ct-olympics-survival-losangeles-paris-perspec-0713-jm-20170712-story.html>
- Scathing Report on 2016 Rio Olympics: venues 'White Elephants'*. (2017, May 22). Opgehaald van USA Today: <https://www.usatoday.com/story/sports/olympics/2017/05/22/scathing-report-on-rio-olympics-venues-white-elephants/102041926/>
- Schoemaker, J. (2015). *Marikenloop Nijmegen; Economische impact en profiel van de deelnemers*. Nijmegen: Werkgroep Evaluatie Sportevenementen.
- Seelen, L. (2017). *Probability Theory and Statistics 1*. University of Amsterdam.
- Seelen, L. (2018). *Probability Theory and Statistics 2*. University of Amsterdam.
- 't Sas, S., & Belinfante, M. (2016, juli 19). *Minister Schippers: Olympische Spelen naar Nederland*. Opgehaald van EenVandaag: <https://eenvandaag.avrotros.nl/item/minister-schippers-olympische-spielen-naar-nederland/>
- Taks, M., Green, B., Misener, L., & Chalip, L. (2014). Evaluating sport development outcomes: The case of a medium-sized international sport event. *European Sport Management Quarterly*, 14(3), 213-237.
- van Herpen, N. (2017). *Prognose Economische Impact: WK Shorttrack*. The Hague: The Hague University of Applied Sciences.
- van Herpen, N., Asselman, D., & van Meer, C. (2015). *Evaluatie van het WK Beachvolleybal*. The Hague: The Hague University of Applied Sciences.
- van Herpen, N., Kloek, G., Joosse, J., & Verheem, M. (2014). *Evaluatie van de Rabobank Hockey World Cup*. The Hague: The Hague University of Applied Sciences.
- van Lenthe, F. (2017). *De Kracht van Sportevenementen*.
- Verhoeven, N. (2014). *Wat is onderzoek?* Den Haag: Boom Lemma uitgevers.

- VVD-PvdA. (2012, October 29). *Bruggen slaan, Regeerakkoord VVD-PvdA*. Opgehaald van Rijksoverheid: <https://www.rijksoverheid.nl/documenten/rapporten/2012/10/29/regeerakkoord>
- Ziakas, V., & Costa, C. (2011). The Use of an Event Portfolio in Regional Community and Tourism Development: Creating Synergy between Sport and Cultural Events. *Journal of Sport Tourism*, 16(2), 149-175.