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THE ECONOMIC IMPACT OF THE EVENT *VOLTA A PORTUGAL EM BICICLETA 2015*

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Abstract

This thesis is a Field Lab project requested by the organizer of the *Volta a Portugal em Bicicleta 2015, Podium Events.* Its purpose is to determine the economic impact of the event for the 21 host economies and Portugal as a whole. The *Volta* started in *Viseu* and ended in *Lisboa*, and lasted for two weeks from the 29th July until the 8th August. Results were computed by accessing data provided by the different economic agents involved in the event (spectators, attendees and organizer), through face-to-face surveys and contact via e-mail. The *Volta* generated a total economic impact of €76.261.876.

Keywords: Cycling, Economic impact, Volta a Portugal, Podium

Table of Contents

1. Introduction 6

2. Event Overview 7

3. Literature Review 10

4. Methodology 13

4.1. Spectators 14

4.1.1. Data Collection 14

4.1.1.1. Survey Design 14

4.1.1.2. Sample Selection 16

4.1.1.3. Measuring Spectator Numbers 17

4.1.2. Extrapolation of Data 18

4.1.2.1. Sample Representativeness 18

4.1.3. Discussion of Results 18

4.1.3.1. Profiling Spectators 18

4.1.3.2. Measuring Spectators Economic Impact 19

4.2. Attendees and Organizer 20

4.2.1. Data Collection 20

4.2.1.1. Measuring Attendees/Organizer Numbers 20

4.2.1.2. Attendees / Organizer expenditures 21

4.3. Measuring Overall Economic Impact 24

5. Discussion of Results 25

5.1. Spectator Analysis 25

5.1.1. Measuring spectator numbers 25

5.1.2. Spectators' Profile 28

5.1.2.1. Local Spectators 28

5.1.2.2. External Spectators 30

5.2. Organizer Analysis 32

5.2.1. Organizer Spend 32

5.2.2. Organizer Revenue 34

5.3. Direct Economic Impact 35

5.3.1. Spectators 35

5.3.2. Organization 38

5.3.3. Attendees 39

5.3.3.1. Cycling Teams 40

5.3.3.2. Media 40

5.3.3.3. Sponsors 41

5.3.4. Overall Direct Economic Impact 41

5.4. Direct Economic Impact of the *Volta* per host economy 42

5.4.1. Viseu 43

5.4.2. Pinhel 45

5.4.3. Bragança 47

5.4.4. Macedo de Cavaleiros 49

5.4.5. Serra do Larouco (Montalegre) 50

5.4.6. Boticas 52

5.4.7. Fafe 54

5.4.8. Alvarenga 55

5.4.9. Mondim de Basto (Senhora da Graça) 57

5.4.10. Braga 59

5.4.11. Viana do Castelo 60

5.4.12. Ovar 62

5.4.13. Oliveira de Azeméis 63

5.4.14. Condeixa-a-Nova 65

5.4.15.Torre (Seia) 66

5.4.16. Guarda **68**

5.4.17. Castelo Branco **69**

5.4.18. Praia do Pedrogão **71**

5.4.19. Leiria **72**

5.4.20. Vila Franca de Xira **74**

5.4.21. Lisboa **76**

5.5. Indirect Economic Impact **77**

6. Sensitivity analysis **79**

6.1. Spectators **79**

6.2. Organization **81**

7. Suggestions for further *Voltas* **85**

7.1. Spectators **85**

7.2. Restaurants/Hotels **85**

7.3. Portuguese Teams **86**

7.4. Foreign Teams **88**

7.5. Media **88**

8. Conclusions **90**

9. Bibliography **93**

10. Appendixes **96**

1. Introduction

The cycling tour *Volta a Portugal em Bicicleta* is one of the oldest stage races in the world and is considered the most important cycling competition in Portugal. The 77th edition occurred in 2015, hosting a total of 159 riders, 16 cycling teams, in 10 stages, covering a total of 1.551,7 km. This means that 21 regions of the country had the opportunity to host the event, being the starting or the ending points of this cycling tour competition.

This thesis aims to determine the economic impact generated by the *Volta*. Thus, it will focus on determining the direct and indirect economic impact generated by the tour. The main idea is to give an overall figure about the expenditure made per host economy and by all the host economies combined. Simultaneously, it will be highlighted the main sectors and their contribution for the total figures obtained.

Essentially, this research will consist in a detailed analysis made by three different economic agents, namely spectators, organizer and attendees, where the amounts of expenditure will be specified and examined in order to extract conclusions about the typical spending of the event. In addition, it will be suggested improvement points regarding the *Volta* and the resources to do further researches on this field.

This thesis is a Field Lab project prepared at the request of the company organizing the event, *Podium Events*, which is also denominated throughout the paper as the client. It is further acknowledged that all the work contained within this thesis is authentic by the authors.

2. Event Overview

The cycling tour *Volta a Portugal em Bicicleta* is one of the oldest stage races in the world and is the most important cycling competition in Portugal. The first edition was held in 1927, with 18 stages and 37 cyclists, covering a total of 1.958 km. It was organized by a partnership between two newspapers *Diário de Notícias* and *Os Sports* inspired by the *Tour de France*, which started in 1903. In the first decades of the competition, the Portuguese frontier was the main reference for the delimitation of the cycling route.

Over the years, this route suffered some changes mainly due to two reasons. First, with the popularity of the sport, new tracks started to appear. Those gathered a great amount of people and therefore were considered good places for stages' arrivals as a way of financing the *Volta*. Secondly, around the 70's there was a need to introduce mountain stages in order to keep the audience's interest and to make the *Volta* more competitive. The most popular ones, nowadays, are the mountain stages of *Torre* and *Senhora da Graça* which were first introduced in 1971 and 1978, respectively.

Moreover, in the last few years, city halls started to have a huge impact in the route design since they have the bargaining power based on the investment made. In the last decades, the Portuguese tour has lost some international recognition, when compared with the three grand tours (*Tour de France, Vuelta a España and Giro d'Italia*). Therefore, instead of three weeks of competition, as before, currently it counts with only 10 stages.

Up until now different entities were responsible for organizing the Portuguese tour. Since 2013, *Podium Events* is the one in charge for the purpose. The organizer has to pay a fee to the *Federação Portuguesa de Ciclismo*, the entity responsible for the regulations and control of all Portuguese cycling events. The latter is ruled by the *International Cycling Union*.

Throughout the long history of the *Volta*, a set of rules was established leading to different goals. Each of the riders in the team has different objectives depending on their qualities and mission. The team goal is to create a multi-layered strategy that benefits the overall team. So, instead of one, there are four different types of classifications (general individual/team time, points and mountain's classifications).

The general time classification, both for individuals and teams, aims to highlight the riders/teams that do each stage in the shortest amount of time. The score of each team is obtained by adding up times of the three best riders of the team. The general individual time classification is considered the most important as it defines the winner of the competition.

Points are given for the first 10 riders finishing each stage (25 points for the first rider and then 20, 16, 13, 10, 8, 6, 4, 2 and 1 point for the 10th) and for the top three riders in each intermediate sprints (3 points for the first, 2 for the second and 1 for the third). The points are then summed up and recorded in a point's classification, which is used to know who the best sprinters in the competition are.

In regards to the mountain's classification there are five different categories for the mountains based on their difficulty, measured as a function of their steepness, length, location within the stage and the overall race. The Special category is the most difficult, followed by four categories graded from 1 to 4, being the fourth the least difficult. The organizer of the *Volta* is the one who determines which mountains are included in each of the categories. In the Portuguese tour, 22 mountains were considered towards the classification. The obtained points are distributed according the following classification:

- Special Category: 25, 20, 17, 15, 13, 11, 9, 7, 5, 4, 3, 2 and 1 points for the 1st until the 13th rider to climb the mountain;

- First category: 15, 13, 11, 9, 7, 5, 4, 3, 2 and 1 points for the 1st until the 10th rider to climb the mountain;
- Second category: 10, 8, 6, 4, 2 and 1 points for the 1st until the 6th rider to climb the mountain;
- Third category: 5, 3, 2 and 1 point for the 1st until the 4th rider to climb the mountain;
- Fourth category: 3, 2, and 1 point for the 1st until the 3rd rider to climb the mountain.

The winner of the mountain's classification is the rider who obtains more points. The different types of classification are awarded with different coloured jerseys. The awards are given at the end of each stage and used by the winning riders in the following day. In Portugal there are four jerseys to award riders at an individual level and one jersey for the best team. Those are:

- Yellow jersey (worn by the leader of the general individual time classification);
- White jersey (worn by the best young rider aged 23 years old or less in the general individual time classification);
- Red Jersey (worn by the best climber);
- Blue jersey (worn by the leader of the points classification);
- Yellow dorsal (worn by the riders of the stage's winning team).

3. Literature Review

In the context of sport, there is a considerable number of studies analyzing the economic impact of mega events. According to Turco and Kelsey (1992) the economic impact is considered the net economic change in a host community that results from spending attributed to a sports event or facility. This change is originated by the acquisition, operation, development activities and by the use of sport facilities and services (Liber and Alton, 1983). The three components of the economic impact of expenditure are the direct, indirect and induced effects. Direct effects of economic impact occur from the visitor and organizer spending of goods and services in the host community. Indirect effects result from ripple effect or re-circulation of the amount of new money entering in the host community through the direct effects. Induced effects arise from the additional employment, household income, business turnover and government revenue in the host community due the direct and indirect effects (Dawson, Blahna, and Keith, 1993; Howard & Crompton, 1995).

Computing the economic impact of a specific event should not be seen as an easy task. There is a variety of studies for determining the economic impact of an event. The economic impact analysis of such studies resort in different methodologies which can depend on timing, time horizon (short and long terms), space dimension (local, regional, national) and on specific appraisal needs.

The economic impact analysis carried out may depend on timing since it can be made on an ex-ante or ex-post basis. According to Baumman and Matheson (2006), ex-ante economic analysis estimates the direct economic impact by multiplying the predicting number of visitors on an event and predicting average spending per visitor. Then, a multiplier is applied to the direct economic impact estimation to achieve an estimate of total economic impact. On the other hand, the ex post economic analysis takes into consideration several

features regarding the local economy, namely the personal income, employment, income per capita, taxable sales and visitor arrivals. The main goal is to compare this data before, during and after an event. In fact, numerous researchers such as Coates and Humphreys (1999; 2002), Jasmand and Maenning (2008), Feddersen and Maenning (2010), among others have found that the results obtained from the ex-ante and ex-post analysis present a huge discrepancy, showing that an ex-post analysis is crucial in order to extract more detailed and certain information about the economic benefits that can be achieved from sporting events.

Other critical issue that should be taken into consideration is the time horizon beyond the economic impact analysis that is being done, which can be interpreted differently in both short and long term. The short-term definition is related with the period immediately before, during and after the event. While the long-term definition refers to the period that begins with the starting point of the event and ends at some point in the future yet to be determined (Kang and Perdue, 1994). In addition, Preuss and Solberg (2007) argue that many cities which apply for major events seem to be taking for granted that they automatically will generate long-term benefits for the host region. Nevertheless, these authors have shown that long-term economic impacts are generated given the right circumstances. The main issue, whether the event is able to create impacts with a time horizon beyond the period that the event occurs depends on whether the event will serve as a catalyst for some of the impacts in the short-run (Ritchie and Yangzhou, 1987; Getz, 1997; Spilling, 2000; Ritchie, 1984).

Additionally, eleven sources of error emerged from Crompton's (1995) review about the economic impact analysis, namely: (i) using sales instead of household income multipliers, (ii) misrepresentation of employment multipliers, (iii) failure to define the area of interest accurately, (iv) inclusion of local spectators, (v) failure to exclude time-switchers and casuals, (vi) use of fudged multiplier coefficients, (vii) claiming total instead of marginal

economic benefits, (viii) confusion of turnover and multiplier, (ix) omission of opportunity costs, (x) measurement only of benefits and (xi) omitting costs.

4. Methodology

In order to measure the direct economic impact of the 77th edition of the *Volta a Portugal em Bicicleta*, the eventIMPACTS methodology was used as it is the template for evaluating economic impacts associated with sporting events. Using this methodology, the process involved quantifying the expenditure of people who were in the host economies with the purpose of attending the event (the spectators' spending) and the expenditure made by the event organizer entity (Podium) and attendees (cycling teams, media and sponsors) within the respective host economies. Therefore, to determine the economic impact, host economies were defined as follows:

- The cities in which stages started and finished: This report gives an overall figure about the expenditure made per location.
- Portugal overall: This report gives an overall figure of the host economies combined with separate figures of expenditure made due to the event.

As a result of these different host economies, an individual and joint analysis were made considering the expenditures of spectators, attendees and event organizer.

In order to draw some conclusions regarding the economic impact made per economic agent involved in the *Volta*, primarily was necessary to: (i) gather data which was obtained through different sources depending on the economic agent involved, (ii) extrapolate the information to the overall population and (iii) organize results for further discussion.

4.1. Spectators

4.1.1. Data Collection

In order to estimate the economic impact generated by the spectators, a survey was conducted to obtain significant data to correctly evaluate the amount of change that the host economies experienced in economic terms. The questionnaire was administered to 1.025 people during the 11 days of the event, with the main purpose of evaluating the demand side, giving important insights regarding the consumption patterns of the spectators that were in the event. It was crucial to collect the data in a face-to-face approach to better understand the importance of this event in regions and people's life. On the other hand a second and third survey was conducted to business segments considered the two main economic drivers of the event regarding the offer side, hotels and restaurants, respectively. The surveys were administered to 95 restaurants and 83 hotels. These units were contacted via telephone follow up one month later. The purpose of this contact was primarily to obtain feedback from the offer side in order to identify some relevant aspects that could be improved in further editions of the event.

4.1.1.1. Survey Design

The questionnaire designed for the study of the economic impact of spectators was conducted with the purpose of evaluating, through several questions, the habits and economic expenditures of a typical spectator in the event (appendix 1). It was designed in a way to make possible a face-to-face approach, in order to obtain crucial information for the study. In order to have a coherent survey, the questionnaire was subject to pre-evaluation and revisions, enabling the authors of the study to be better prepared regarding possible answers that could

be found at the field. There was a particular concern from the authors to have a short and complete survey, to facilitate the survey's comprehension from the spectators, which would cover people from different ages and degrees of study. Furthermore, before the collection of data, the client revised the questionnaire itself, giving the final go ahead.

The survey was mainly composed by closed format questions, allowing to get the information needed in an efficient manner, saving time to obtain a larger number of answers due to resources constrain. Leading questions were also included, in which the respondents had to choose among several suggestive answers. This way it was possible to assure that the question was correctly answered, with an equally likely probability of a solution to be chosen. Additionally, Likert scale questions were used as a way to easily get to know how strongly the respondents agreed with a certain statement related with the region and the event itself, on a scale from 1 (Strongly disagree) to 10 (Strongly agree).

Moreover, open format questions were conducted in order to evaluate the exact amount of expenditures that one typical spectator incurred during the day of the event. Also, in some of the closed format questions there was the opportunity for the respondents to express their ideas when needed, presenting a blank space for the purpose.

The correspondent surveys for the Hotels and Restaurants were designed with the purpose of being conducted via telephone, contacting the responsible entities one month later after the event had taken place. This approach was justified due to the lack of time that authors were subject during the 11 days of the event to collect all the information needed, since the primary goal on the field was to cover the biggest possible sample from spectators, and so focusing on them was the main objective. Another reason was the nature of the questions asked during these surveys, which would require information about the previous and following days of the event. Similarly to the spectators' questionnaires, it was imperative

that these two questionnaires could be easily understood from the respondent side, with short and simple questions. Also, both surveys were approved by the client. These surveys were mainly designed with closed format questions that would give information about the nature of the establishment and, also, the change of prices, processes and amounts receveived. The leading questions were the ones adopted for that purpose since they would comprise the solutions needed to answer the question, not giving space for dispersion from respondents.

4.1.1.2. Sample Selection

As previously mentioned regarding the limited time and resources, the questioning of all individuals was impossible and thus a sampling necessity arises. However, population sampling must be conducted with great care as the sample is then utilized to extrapolate total figures and should therefore be representative of the population. Nonetheless, the process of sampling introduces a sampling error meaning that the sample may not be entirely representative. To minimize the sampling error in this research, probability sampling was utilized. It was conducted by randomly selecting individuals from the entire population, providing equal chance of selection for the questionnaire.

Even though probability sampling was utilized, the introduction of biases was still possible in the selection process. One bias was introduced by the selection of the respondents on their potential willingness of participation in the survey. Another bias was introduced by the idiosyncratic nature of the respondents as this leads to some respondents being more willing to engage in the questionnaire whereas others would not. It is thus possible to state that the sampling is not perfect and includes, therefore, a sampling error as a direct result of these biases. Nonetheless, these are intrinsically difficult to overcome and are present in most

population samplings. These biases are thus acknowledged and taken into consideration however, without further mention due to the difficulty in their quantification.

4.1.1.3. Measuring Spectator Numbers

Prior to extrapolation of data, it was necessary to estimate the number of spectators who were present in the host economies, where the event took place. As a result of the intrinsic difficulty of estimating the total spectator number, due to the absence of ticket sales, it was found by estimation. The principal method used to identify the total spectator size, at each location of the event, was primarily through the data given by the organizer of the event, which in turn was obtained by the local authorities. However, there are needs to have well-reasoned estimates of the number of spectators of this event to establish their contribution to the economic impact. One can define a spectator, in this specific case, as being someone who is present in the event for the purpose of observing the athletes and the competition itself. Therefore, it was necessary to segregate the spectators from the total number obtained from the authorities. In particular, the number of admissions given could be made up by not only people who were there to watch the cycling race but also by people who were there for other motives. For this reason, one of the questions included in the survey asked for the motives that led the visitors to be in the host economies. The inclusion of this question thus allows for the segregation of the figure obtained from the local authorities into segments. More specifically, it allowed for the extraction of a percentage figure that is representative of the number of people present who were solely in the host economies to attend the event.

4.1.2. Extrapolation of Data

4.1.2.1. Sample Representativeness

In order to determine whether the sample was representative, a benchmark was utilized for comparison. This benchmark was obtained from the economic impact study released in 2013 about the Rally Portugal, which was published by the International Research Centre of Territory and *tour*ism of University of Algarve. In this case, the sample consisted of 1.532 questionnaires for a total of 530.002 spectators. The sample size was 0.28% of the population and deemed sufficient to be wholly representative. The analysis of the economic impact of the spectators of the *Volta* was based on the survey comprising 942 valid questionnaires. The total amount of spectators was 492.965 and thus the sample represents 0.19% of the population. For this reason it may be argued that the sample is under-represented. However, due to differences in the resources available in the two studies, the obtained sample of the *Volta* is considered sufficient and utilized for extrapolation purposes.

4.1.3. Discussion of Results

4.1.3.1. Profiling Spectators

The economic impact analysis of an event such as the *77th Volta a Portugal* depends also on an understanding of the typical spectator's profile that the event is able to attract. The spectator survey asked people where they lived, gender, age, educational attainment and other aspects of their personal profile. The profile questions were asked in a comparable way to other sport events' surveys such as *Tour de France* and *Rally de Portugal* so that appropriate comparisons could be made.

As these spectators are of various origins, they can be broadly categorized into two groups. The first of these are local spectators of the host economy, whereas the second group is comprised of external visitors. The distinction between the two spectator groups is made on the basis that the former is defined as the local population that attends the event. By contrast, the second group is expected to have travelled to the location of the event for the sole purpose of attending it, perhaps even including a hotel stay. The geographic analysis of the survey results was made possible by asking the respondents if they lived in the host economy or not.

4.1.3.2. Measuring Spectators Economic Impact

In order to evaluate the real economic impact of the spectators, some questions were elaborated with the purpose of obtaining important information in order to compute it. The questions were of open format nature where the respondents had the opportunity to express the exact amount of spending in that day, dividing it into subgroups such as restaurant and transportation sectors, and other expenditures. When considering the external spectators, in the case there were accommodation expenses related, the respondents would state the housing nature where they were accommodated, whether it was a hotel, residence, rural *Volta*ism or campsite, expressing the average cost per night. The collected total values took into consideration whether the value was incurred in a group or individually, in order to be possible the computation of the average consume per person in the different local economies. After gathering all the information, having it summarized into an Excel file, it was possible to proceed to the calculation of the real economic impact. Therefore, it was possible to correlate the questions about the region, spectators' purpose to be in the event and expenses, distributing it by residents, external spectators from other regions of Portugal and foreigners. After computing the average spend per spectator from the sample, an extrapolation of the data

was made for the total spectators present in the event, giving the total consume in the regions and subsequently, the total economic impact.

4.2. Attendees and Organizer

4.2.1. Data Collection

4.2.1.1. Measuring Attendees/Organizer Numbers

Attendees are defined as visitors that are not spectators. Therefore this group was composed by the cycling teams, media and sponsors. The global number of people included in both media' sub-group and organizer was given by the client. The media sub-group was divided in two categories: (i) RTP, which was the main media sponsor of the competition, and (ii) 68 social communication channels. The latter included: (i) 2 national agencies, (ii) one international agency, (iii) one specialized press, (iv) two foreign radios and press, (v) 19 local press, (vi) 6 national press, (vii) 12 online channels, (viii) 2 local television, (ix) 16 local radios, (x) 3 national radios, and (xi) 4 national TV. Overall there were 250 professionals on the field (117 from RTP and 133 from the other channels), including reporters and cameramen. Based on the contact via e-mail with the media, the authors inferred an average of two professionals per car, thus a total number of 125 cars was obtained.

Regarding cycling teams, the number of riders was given by the organizer and the number of staff members were collected through a direct contact via e-mail with the managers of each of the teams. Just two of the teams had replied, one Portuguese and two foreign (Ukraine and Netherlands), and therefore those numbers were then extrapolated for all teams. The 77th edition of the *Volta a Portugal em Bicicleta* was able to attract 16 cycling teams, 6 Portuguese and 10 foreign teams (2 from Netherlands and Germany and one from Italy,

Russia, Belgium, Spain, Ecuador and Ukraine). Each team had approximately 18 members (10 cyclists plus 8 staff members). This translates into 288 elements on the cycling teams sub-group. Each Portuguese team had six vehicles following the *Volta*: one van, one support van, two support cars for the stages, one promotion truck and a regular car. Each foreign team also had six vehicles following the competition.

Concerning the sponsors' sub-group, despite the contact made by the authors via e-mail, there was no available information, neither on the number of people comprised in each sponsor team, nor the global number. This sub-group was composed by 17 official brands. The main one was *Liberty Seguros*, giving its name to the *Volta*, which together with *Banco BIC, RTP* and *Fundação Desporto* were the sponsors of each of the jerseys. *A Bola, Antena1, CISION, RTP, JCDecaux* and *Revista Ciclismo a fundo* were the media sponsors. As said in the previous section no information was given regarding the number of people involved in each of the sponsor's teams.

4.2.1.2. Attendees / Organizer expenditures

In what concerns to data collection, different approaches were followed in order to obtain the expenditures of attendees and organizer of the *Volta*.

Data related with the organizer was the simplest to get as the exact value of expenditures was given by the organizer of the *Volta*. In this case, the authors asked for discriminated expenditures values concerning the restaurant, transportation (fuel and tolls) and accommodation sectors per host economy, in order to identify which were the sectors able to capture a larger amount of economic benefits generated by the *Volta* in a specific location. In addition, the authors requested the expenditure related to logistics made per region. The information from accommodation sector was the only one which met the requirements. In

what concerns the other sectors, despite having the discriminated values per sector (with exception of restaurants), in the case of transportation and logistics sectors, it was not possible to have the values per host economy, but only the overall expenditure. In global terms this did not affect the analysis. However, in the host economy perspective, not having discriminated values per region turns the analysis less accurate. Thus some assumptions had to be included. Concerning the restaurant sector, the expenditure on meals was €12,50 per meal; this cost was assumed since it was the value given to the authors for this purpose. These values were then multiplied by the number of meals per host economy. During the *Volta*, the total number of meals per person was 26, which corresponds to two meals per day (excluding breakfast that was offered by the hotel). On the regions where the attendees did not stay overnight, one meal was assumed, either before the departure or after the arrival of the cyclists. On the host economies where the attendees stayed overnight, it was assumed that the attendees had as many meals as the number of nights they stayed in that particular host economy. Regarding the expenditure on transportation sector by the host economy, it was calculated the distance in kilometers between all the different regions and assumed that the cars were refueled at each location just enough to arrive to the next location. The expenditure was then calculated by multiplying the total expenditure on fuel by the proportion of the distance between the start and ending point relatively to the total distance traveled. In respect to the costs associated with the logistics and operations per region, the costs were distributed based on the following ratios, 1/3 for departures and 2/3 for arrivals (given by the organizer). The cars' renting costs only had impact in *Lisboa* since they were all rent in that city before the start of the *Volta*.

The sponsors' expenditures were as well given directly by the organizer, namely: the values of the sponsorships (only the global value was considered due to contractual restrictions) and the activations' costs (total amount of money spent by each sponsor during the event). Both were global values and therefore without the discrimination either by sector

or by host economy. Consequently, for this sub-group, there was no sector analysis. However, not having the expenditures by host economy would represent a limitation in our study and therefore, a guideline was provided by the organizer based on past experience (20% for departures and 80% for arrivals).

Regarding the data collection related with cycling teams and media, the authors decided to request information to all of them, via e-mail. Nevertheless, not all of the entities were receptive to provide detailed information concerning their expenses made per sector in each host economy. In fact, the only respondents were a Portuguese and two foreign teams, two newspapers (*A Bola* and *Record*) and a television channel (*A Bola TV*). Concerning the restaurant sector, there was no information provided and therefore the same assumption of the organizer was considered (€12,50 per meal). However, for the cyclists, this cost was relatively lower due to the fact they did not have lunch, a cost of €7,50 was considered (for basic products like fruit, cheese, cereals and milk). Nonetheless, once again the remaining values were given as a total of the expenditure made during the whole *Volta* and not as discriminated values per region. The only exception was the values for the accommodation of foreign teams since this was paid by the organizer and therefore the values per host economy were available. Regarding the analysis of the economic impact per region for the fuel expenditures, it was considered the same methodology as for the organizer. Moreover, when considering tolls expenditures, this was calculated through the multiplication of the price of each toll on the highways by the number of cars of each economic agent. On the other hand, the expenditures in the accommodation sector per host economy were based on the expenditures of economic agents with similar characteristics – Portuguese teams on foreign teams and media on organizer.

In order to extrapolate the total amount of expenditures, taking into account the assumptions made above, the average values of each sub-group and respective sector were multiplied by the number of people within the sub-groups.

4.3. Measuring Overall Economic Impact

In order to compute the overall direct economic impact of the *Volta* the authors summed up the economic impact of spectators, organizer and attendees (as explained before mainly their spending in accommodation, restaurant and transportation sectors, as well as other expenditures). In the direct impact it was also considered (i) the expenditures in marketing and logistics, (ii) monetary prizes given to the cycling teams, (iii) wages paid to the personnel exclusively hired for the *Volta*, (iv) security costs paid to local authorities, (v) the income generated by secondary activities organized by the client (*Etapa da Volta* and *Passeio da Volta*), (vi) fee paid to *Federação Portuguesa de Ciclismo*, (vii) sponsorships and (viii) value paid by the city halls.

5. Discussion of Results

5.1. Spectator Analysis

5.1.1. Measuring spectator numbers

The official number given by the organization of the *Volta* regarding the people attending the event was given by region and is shown in Table 1 below.

Host economy	Number of people
Viseu	48.000
Pinhel	2.200
Bragança	18.500
Macedo de Cavaleiros	2.500
Serra do Larouco (Montalegre)	14.000
Boticas	2.200
Fafe	42.000
Srª da graça (Mondim de Basto)	78.000
Alvarenga	3.000
Braga	8.500
Viana do Castelo	43.000
Ovar	25.000
Oliveira de Azeméis	49.000
Condeixa-a-Nova	3.500
Torre (Seia)	42.000
Guarda	8.000
Castelo Branco	41.000
Praia do Pedrogão	12.000
Leiria	35.000
Vila Franca de Xira	9.000
Lisboa	50.000
Total	**536.400**

Table 1 – Table showing the number of visitors in the event per region. Figures obtained from the organization of the *Volta*.

One can consider values for 21 regions and thus 21 host economies. From the collected data a total of 536.400 people for the entire *Volta* was obtained. To determine the number of spectators, the questionnaire results were utilized as previously mentioned in

Section 4.1. A questionnaire gathering of 1025 randomly selected individuals was made, amongst which 942 were considered valid in terms of fulfilling the criteria of being a spectator as defined previously. Thus only these valid questionnaires were considered for the purpose of analysis. Figure 1 below shows the percentage value of spectators obtained through the survey by region as well as the number of spectators per region. Essentially, the number of spectators comprises 92% of the official figure (appendix 2).

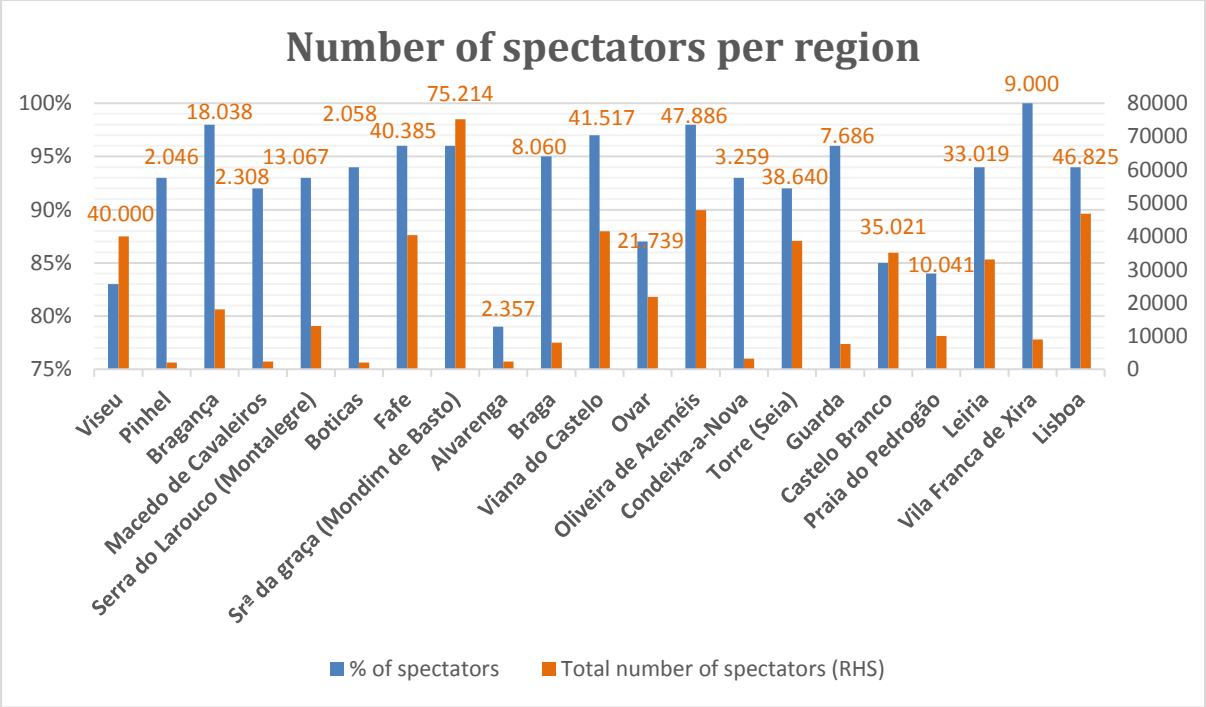

Figure 1 – Graph showing the number of spectators per region in percentage and numerical form.

The host economies with the highest number of spectators were *Oliveira de Azeméis, Lisboa, Viana do Castelo, Fafe* and *Mondim de Basto (Senhora da Graça*). One reason for the highest attendance in these regions was arguably the result of the long established history of the event, which occurred in these economies for at least 5 editions (5 editions in *Oliveira de Azeméis* and *Viana do Castelo*, 14 editions in *Fafe* and *Mondim de Basto*, and since 1927 in *Lisboa* with some interruptions). The link between the long established history of the event in

a certain region with the highest numbers of spectators, was further corroborated by one question asked to the spectators in the questionnaire regarding whether it was their first attendance or not. In this case, 66% of the spectators responded that it was not the first time they were attending the event in which 100% of them responded that they had been present in more than one edition in that region. Therefore they can be considered mature host locations.

Contrarily, the host economies with the lowest number of spectators were *Pinhel, Boticas, Macedo de Caveleiros, Alvarenga* and *Condeixa-a-Nova*. Amongst these, *Alvarenga* was the host economy that registered the highest number of previous editions, being present in 3 editions of the event, followed by *Boticas* with 2 editions. *Pinhel and Macedo de Cavaleiros* previously accounted for only one edition in the past, in 1979 and 1997 respectively. In regards to *Condeixa-a-Nova,* it was their first edition as a host economy. The lower number of local population must also be taken into account when analyzing the low number of spectators. It was found that for the entire survey, 68% of the respondents attended the event in the region of residency, meaning that regions with low population will attract lower number of spectators. Nonetheless, all of these regions with the lowest number of spectators show a common trend of being a recent host location.

The difference between the total number of spectators and the official figure was considered as the number of casual spectators which can be further segregated in reasons for being at the event. There are three categories that can be named in the questionnaire namely *Volta*ism, Family Issues and Professional Issues. From the survey it was found that 8% of the people going to the event were not there exclusively for the *Volta*, of which 3% attended because of *Volta*ism, another 3% because of family issues and yet another 2% because of professional issues.

5.1.2. Spectators' Profile

The economic impact analysis of an event such as the *77th Volta a Portugal em Bicicleta* depends on an understanding of the typical spectator's profile that the event attracts. These visitors are from various origins and can be broadly categorized into two groups. The first of these are local spectators of the host economy, residents, whereas the second group was comprised by external visitors, non-local spectators. The distinction between the two spectator groups was made on the basis that the former was defined as the local population that attends the event. By contrast, the second group was expected to have travelled to the location of the event for the sole purpose of attending it, perhaps even including a hotel stay.

5.1.2.1. Local Spectators

The local spectators comprise 68% of the total number of spectators within the sample. The host economy with the highest attendance of its local residents was *Fafe* (67%), suggesting that approximately 2 out of 3 residents attended the event. Other economies can also be highlighted by their high percentage of local attendance, namely: *Seia* (54%), *Oliveira de Azeméis* (49%) and *Bragança* (39%). One reason for these local economies having the highest rate of attendance of its residents is arguably the result of the long established history of the event and therefore of a high popularity of the event amongst these populations. Contrarily, host economies such as *Vila Franca de Xira, Braga and Lisboa* only accounted for 3%, 4% and 6% of its total residents, respectively. For the cases of *Braga* and *Vila Franca de Xira,* the low attendance rate of the local population could be explained by the event having occurred only once previously in these locations more than five years ago. The case of *Lisboa* may be explained by the high number of residents that live in this location as it was the one with the highest number of local spectators amongst all the host economies in terms of

absolute values (547.733 inhabitants and 34.127 spectators). Large population groups will most likely have a much more diversified set of interests and thus it will be more difficult to attract a large percentile to the event.

In terms of local spectator attendance versus non-local attendance that the event was able to capture, *Guarda* (94%), *Braga* (85%), *Fafe* (84%) and *Viseu* (84%) were the regions with the highest local attendance. However, all host economies had a higher number of local spectators than non-local spectators excluding *Senhora da Graça* (19%) , *Serra do Larouco* (21%), *Torre* (35%) and *Alvarenga* (42%). This higher attendance of locals versus non-locals suggests that the *Volta* was a relatively recent local attraction.

In regards to the age of the residents of the host economy, it appears that the event attracts a mostly adult and male audience. One can infer that 84% of local spectators are aged between 18 to 65 years old, which also shows that the interest in the event was spanned by several age groups. The one with the highest attendance was the 35 to 39 years old representing 15% of the local attendance. The public under 18 years old had a residual character with only 2% of representation. Furthermore, it could be argued that this age group is economically dependent on an older age group. It was also found that the male gender was dominant in regards to the local attendance. Essentially, in this edition of the event, 65% of the resident spectators were male with the remaining 35 % being female.

Additionally, it was found that in most cases the respondents chose to move in groups of 2 to 4 people, representing 53% from the sample. This group was composed in 76% of the cases by family, 23% are accompanied by their friends or colleagues and 33% are spectators with children. As for the academic qualifications of residents, 28% completed their high school degree and 25% are higher academic degree holders.

The awareness of the event by local spectators was obtained mainly through television channels, representing 67% of the respondents. The newspaper was the second most effective means of communication with 22%. Face-to-face was the third most effective mechanism of promoting the *Volta* with 22%. The event's website also had a high percentage of responses with 21%, followed by Social Network with 13%, Radio with 9%, Posters and Outdoors with 7%, Brochures with 3% and Other Mechanisms with 5%.

5.1.2.2. External Spectators

The external spectators, representing 32% of the total number of spectators, were divided into two subgroups, with the first consisting on the people who were from other regions within the country, accounting for 29% of the sample. On the other hand the second sub-group was composed by people who were from a foreign country, comprising 3% of the total respondents. The host economies with higher percentage values of non-local spectators were *Mondim de Basto (Senhora Da Graça), Montalegre (Serra do Larouco)* and *Seia (Torre),* with 81%, 79% and 65%, respectively. The three locations have a common differentiation factor in comparison with the other regions, which consists on the finish line being located on the top of a mountain. People consider these stages as being more emotive when it takes to know who is about to win, with an abnormal effort from the athletes to complete the course. The natural characteristics of the areas led people to spend the day with the family, which is already a tradition as the event had taken place in these regions for the past years. This has attracted people from different regions across the country, essentially from *Porto, Lisboa* and *Braga,* with the first having the higher percentage of spectators (22%). Considering the foreign spectators, France and Spain are the countries which present more people in the event, accounting for 31% and 21% respectively. The fact that both

countries share a cultural passion for cycling as they host similar very well-known events within the world of sports, respectively the *Tour de France* and *La Vuelta*. Other factor that can be highlighted is the local proximity with Portugal. *Guarda* (6%), *Braga* (15%), *Fafe* (16%) and *Viseu* (16%) were the local regions with the lower percentage of external spectators.

Similarly to what happened in the case of the residents, in regards to the age of the external spectators the data shows that the event mostly attracted adults, with 86% of the non-local spectators aged between 18 to 65 years old. The age group with the highest attendance was the interval from 45 to 50 years old (14%), followed by the 50 to 55 years old group (13%), which can be translated into the groups with a better economic situation to afford the costs associated with accommodation, transports and basic needs. Moreover, in regards to the gender it was found that 3 out of 4 external spectators were male, pointing out a significant difference between men and women in this type of sports event.

The typical external spectator chose to move in groups of 2 to 4 people, as it occurred in the case of the local spectator, in 53% of the cases. The parties involved have essentially a family (72%) and friend (23%) relationships. It is important to mention the fact that 59% of the people who come from another country chose to travel with children, but when considering the spectators from other regions within the country the number decreases to 31%. A reason for the significant difference between the two values may be due to the fact that the foreigners who come on purpose to Portugal to assist to the event, also chose the time and place to enjoy some vacations with their family, bringing their children along to the event. When comparing the academic qualifications between the two subgroups, it was clear that the foreigners present a higher academic degree with 38% having more than the high school degree, in comparison with the 24% of the Portuguese people from other regions.

Considering the information channel which allowed people to be aware of the event, the television and website of the *Volta a Portugal* were the ones with higher percentage, with 55% and 28% respectively, followed by face-to-face interaction (25%) and newspapers and magazines (22%). A small proportion obtained information from brochures and outdoors, with both accounting only for 3%.

5.2. Organizer Analysis

5.2.1. Organizer Spend

Podium Events was responsible for the planning of the event and for the payments related to accommodation, meals and transport for the Portuguese and foreign teams participating in the event as well as for its own staff.

Concerning the costs of the organizer, *Podium Events* hired 240 employees exclusively for the *Volta* besides the ten fixed employees. The extra employees were paid a total value of €190.000. The organization also spent €97.842 in accommodation for its employees, €13.000 in fuel and €43.000 in renting cars.

Moreover, regarding the costs associated with the logistics and operations of both departures and arrivals, the organizer spent €740.000. These costs include putting in place a range of infrastructures such as security barriers, supporting structures for departures and arrivals, advertising structures, sound and electricity systems and others, like sponsors' tents. The organization also had to spend some money on security measures, thus paying €125.000 to local authorities (*Polícia de Segurança Pública* and *Guarda Nacional Republicana*). Finally, regarding marketing and commercial activities, such as the transmission of the *Volta*

and promotion campaigns on television, newspapers as *ABola* and stores including *JC Decaux,* the concert and the decoration of the outdoor spaces, they spent €1.665.000.

On the other hand, for the cycling teams involved in the event, the organizer paid a total of €233.000 for them to cover their expenses on accommodation, meals and transports. Regarding the six Portuguese teams - which were *Team Tavira, Efapel, LA-Antarte, Radio Popular, Louletano-Ray Just Energy* and *W52 Quinta da Lixa* - the organizer paid a total of €67.000. The teams would then use that money to pay for a hotel of their choice. On the other side, the ten foreign teams which were *Caja Rural* (Spain), *Parkhotel Valkenburg* (Netherlands), *Team Ecuador* (Ecuador), *Team Stuttgard* (Germany), *Join's The Rijke* (Netherlands), *Kuota-Lotto* (Germany), *Team Idea 2010* (Italy), *Lokosphinx* (Russia), *Verandas Willems* (Belgium) and *Team ISD* (Ukraine) – received €130.000 for accommodation (€1.000 per night per team) and €36.000 to cover other expenditures.

The winner of the *Volta* was the Portuguese team *W52 Quinta da Lixa* and as a consequence it received a monetary prize from the organization, and so did all the other teams according to their final position. The total amount spent by the organization on monetary prizes for the teams was €126.455.

Finally, the organization had to pay an annual fee of €450.000 to *Federação Portuguesa de Ciclismo*, which is the entity responsible for all cycling events and competitions in Portugal, in order to have the ownership of the *Volta*. According to the contract signed with *FPC*, the client also had to organize some non-profitable cycling events, which have an associated loss of €150.000.

The total costs of the organization were approximately €3,8 million.

5.2.2. Organizer Revenue

Due to its dimension as one of the major sport events in Portugal, the *Volta* attracted a large number of sponsors, which included brands such as *Liberty Seguros, Banco BIC, EDP, Carnes Nobre, KIA, Conselheiros da Visão* and other smaller sponsors. The sponsors payed €2,8 Million to the organization, which allowed them to present their brands and products to all the spectators that were watching the *Volta*. On each arrival and departure there were 42 sponsors' tents, and in total there were distributed 1.4 million gifts to the spectators of the *Volta*, corresponding to a value of €126.000.

In order to let the enthusiastic cycling fans also be part of the experience of the *Volta*, *Podium* organized two events named *Etapa da Volta* (73 and 100 km) and *Passeio da Volta* (34km). The first one was designed for those who enjoy the competitive nature of this sport, giving them the opportunity to compete against other people. It generated an income of €17.000. The second one was designed for those fans who enjoy cycling for leisure. This second event generated a significantly lower income, corresponding to €3.000.

Another important source of revenue came from the different city halls of the host economies of the *Volta*. These regions apply and pay for the *Volta* to pass there, hoping that the investment will bring not only an immediate positive economic impact but also in the long-term. This year, the income coming from the regions' city halls amounted to €1.225.036.

By comparing the total costs and the total revenues of the organization, which were around €4 million, one can argue that the organization had a positive final balance of around €200.000.

5.3. Direct Economic Impact

The direct economic impact generated by the *Volta* was a measure of the total amount of additional expenditure, based on the spectators and attendees spending, that can be directly attributed to the event. In other words, it measures the economic transactions between people from outside and within the host economy.

5.3.1. Spectators

Accessing the data provided by the respondents during the *Volta a Portugal* one can state that the total economic impact of the spectators was €3.817.356, which implies an average spending per day of €7,66. The value was computed by having access to expenditures related with accommodation, restaurants, transportation and other, from the internal and external spectators that were present in the event.

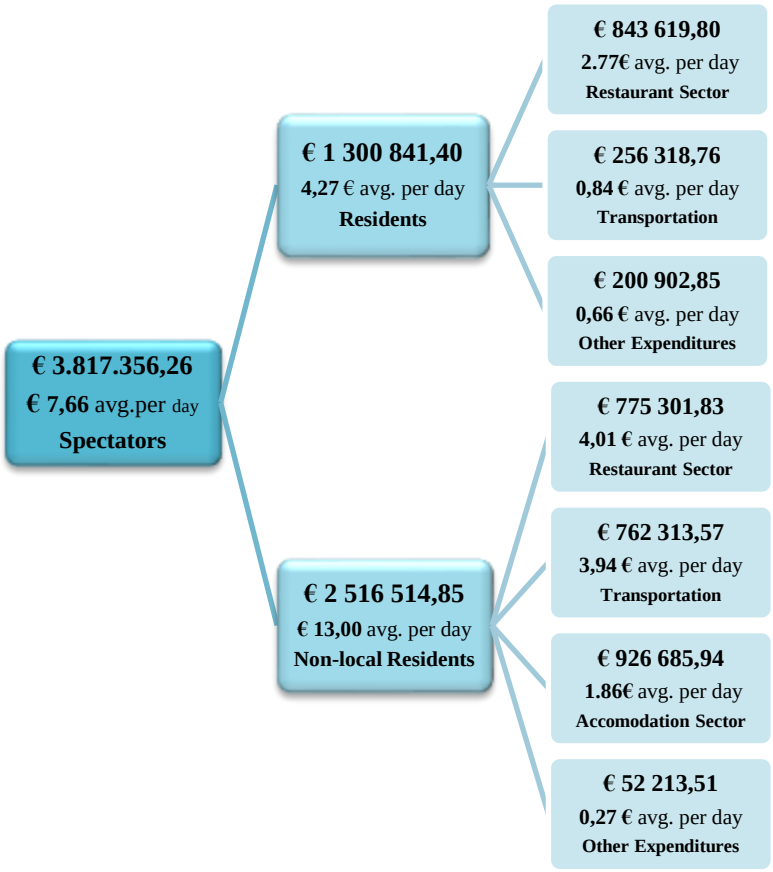

Figure 2 – Figure showing the total and average expenditures per sector made by residents and non-local spectators.

The largest contribution came out from non-local spectators, €2.516.515, representing 66% of the total economic impact generated by spectators and an average spending per day of €13,00. The accommodation sector registered the largest amount of money spent by the non-local spectators, followed by the transportation and restaurant sectors, and by other sectors, amounting for €926.686, €762.314, €775.302 and €52.214 respectively. However, it was the restaurant sector which accounted the highest amount of average spent per day, followed by transportation sector, accommodation sector and other sectors, with €4,01, €3,94, €1,86 and €0,27 respectively.

The residents' sub-group expenditure was €1.300.841, representing 34% of the total economic impact generated by spectators which represents €4,27 on average spending per day. In this case, the restaurant sector accounted with the largest amount of money spent by residents, followed by the transportation and restaurant sectors other sectors, registering the values of €843.620, €256.319 and €200.903. On the other hand, the average spending per day of these sectors was €2,77, €0,84 and €0,66.

Considering the nature of the spending it is imperative to mention that the overall spending of spectators related with transportation segment was the one with the highest impact (€1.018.632), followed by the accommodation sector (€926.686) and restaurants (€905.135), registering 26,7%, 24,3% and 23,7% of the total economic impact respectively. The accommodation sector sees itself as one of the main drivers of the economic impact in the event if one considers that it only bears in mind the external spectators when making its computation, which implies in a low number of spectators to be considered when comparing with variables such as the transportation or restaurants' sectors. Contrarily, the segments with the lowest impact in the total value were the Souvenirs/Museums with no impact, followed by other expenditures and take-away food, representing 6,6% and 7,4% respectively.

Furthermore, considering the host economies one can state that *Mondim de Basto (Senhora da Graça)* and *Montalegre (Serra do Larouco)* presented the higher economic values when analyzing the accommodation sector. The first one represented 59,1% of the total spending in the sector, making a total of €547.788, while the second region represented 18,7% translated into €173.000. From the analysis elaborated through the collected surveys during the event, some regions found themselves with no impact when considering this sector, such as *Pinhel, Bragança, Boticas, Fafe, Braga, Ovar, Condeixa-a-Nova* and *Leiria.*

Analyzing the transportation sector, *Mondim de Basto (Senhora da Graça)*, once more, it was the region with the higher economic impact in the variable with €359.565, accounting 35% of the total spending in the sector. It was followed by *Seia (Torre)* and *Montalegre (Serra do Larouco)* with 15,1% and 9,2% respectively. Contrarily, the regions with the lowest impact in the sector were Macedo de Cavaleiros and Pinhel, with the two summing up only 0, 25% of the grand total.

Accessing the information regarding the restaurants, *Oliveira de Azeméis* and *Lisboa* were the ones which presented higher economic values of €101.626 for the first region and €90.422 for the second one, representing 11,23% and 10%. Considering the regions that had the lowest impact on the total economic value in the sector, *Pinhel* and *Boticas* are the ones that had the most contribution for the phenomenon, with a proportion of 0,86% when considering the two combined.

Essentially, one could argue that host economies in which the event was recent have a larger growth capacity in terms of local resident attendance.

5.3.2. Organization

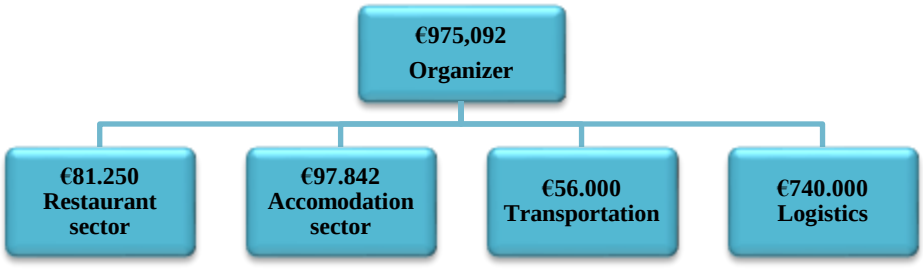

Figure 3 – Figure showing the total expenditure per sector made by the organization.

As previously discussed in section 5.2.1., the organization spent €97.842 on accommodation for its employees and €56.000 on transports, which was divided into €43.000

on cars renting and €13.000 on fuel. Regarding meals, it was estimated a value of €25 per day per person. Since there were 250 people from the organization in the event (10 fixed and 240 exclusively hired for the event), it was found a total expense of €81.250. Besides all the expenditures, the organizer also had to spend some money on all the logistics behind the different stages of the *Volta*. The costs related with the departures' logistics amounted for €246.667, while arrivals registered €493.333. Therefore, the additional expenditure generated by the organizer was €975.092.

5.3.3. Attendees

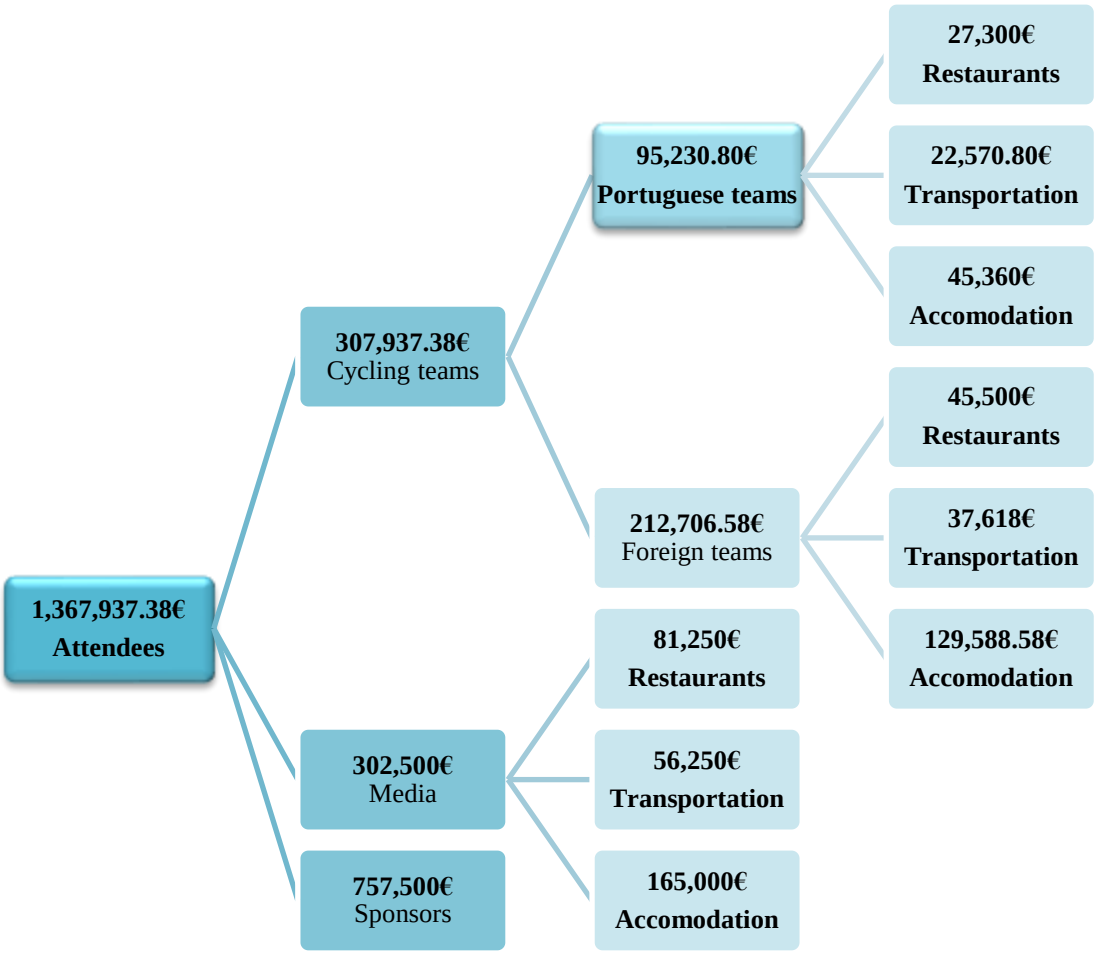

Figure 4 – Figure showing the total expenditure per sector made by the attendees.

5.3.3.1. Cycling Teams

Concerning the spending of the six Portuguese teams that participated in the event, €45.360 was allocated to the accommodation sector. It was found that on average the spending per night per person was €35,00. Regarding the expenditures on fuel, the value spent by the Portuguese teams was €19.500, based on an average value of €250 per day per team. There was another transportation cost that needed to be taken into account: the payment of the highway tolls. On this subject, the Portuguese teams spent around €3.000. In regards to meals, it was estimated an expense of €15,00 per day for the athletes and €25,00 for the staff members. The athletes did not incur any lunch expenditures, buying instead dietary supplements. These unitary values were then multiplied by the days of the *Volta* and the number of athletes and staff on each team. It was computed the value of approximately €27.300. Overall, the six Portuguese teams generated an additional expenditure of roughly €95.000.

As regards foreign teams, the expenses on accommodation were €130.000 and €45.500 on meals (same methodology as for the Portuguese teams). Relatively to transport costs, foreign teams spent €32.500 on fuel and approximately €5.000 on tolls payments. Overall, the foreign teams contributed with more than €200.000 to the local economies.

5.3.3.2. Media

As previously mentioned there was a total of 250 professionals representing the national and international media, of which 117 were from *RTP* (national television channel) and 133 from other means of communication. Based on the information provided by the press office of the *Volta,* it was found an additional expenditure generated by the media of €165.000

on accommodation, €45.588 on fuel, €10.662 on tolls and €81.250 on meals, thus generating a total contribution to local economies of over €300.000.

5.3.3.3. Sponsors

In order to analyze expenses incurred by the sponsors, it is known that a total amount of €757.500 was spent on "activations". These included expenditures related with accommodation, transports and the manufacture of the 1.400.000 gifts offered to the spectators of the *Volta* (which had a market value of €126.000).

The sponsors that spent the most were *Liberty Seguros*, €220.000, followed by *Banco BIC*, €150.000, *Carnes Nobre* and *EDP*, €100.000 each. All the other sponsors together spent €187.500, including *KIA, Conselheiros da Visão* and *Glassdrive.*

5.3.4. Overall Direct Economic Impact

By summing up all the additional expenditure generated by both the spectators and attendees, a total amount of approximately €6.160.385 was obtained. Besides that, there was also the need to include (i) expenses incurred by the organizer on marketing and commercial activities: €1,665 million; (ii) the monetary prizes paid to the teams: €126.455; (iii) the salaries paid to the employees hired exclusively for the *Volta*: €190.000; (iv) the security costs paid to the local authorities: €125.000; (v) income generated by the events that occurred during the *Volta* (*Etapa da Volta* e *Passeio da Volta*): €20.000; (vi) fee paid to *Federação Portuguesa de Ciclismo*: €450.000; (vii) Sponsorships: €2,800 million; and (viii) value paid by the city halls: €1.225.036. By adding all these expenditures, a total value of €12.761.876 was obtained.

5.4. Direct Economic Impact of the *Volta* per host economy

Regions	Spectators Spending (€)	Organizer Spending (€)	Attendees Spending (€)	Total (€)	City halls sponsorship (€)	Net value (€)
Viseu	241.024	95.683	156.777	493.484	162.500	**330.984**
Pinhel	6.167	37.805	27.533	71.505	37.500	**34.005**
Bragança	69.194	44.000	82.565	195.758	52.480	**143.278**
Macedo de Cavaleiros	18.709	38.503	31.030	88.243	20.000	**68.243**
Montalegre - Serra do Larouco	319.635	40.570	68.417	428.622	60.000	**368.622**
Boticas	8.791	39.155	44.718	92.664	37.536	**55.128**
Fafe	123.307	44.025	85.957	253.289	95.000	**158.289**
Alvarenga	18.699	37.586	23.713	79.998	0	**79.998**
Mondim de Basto (Srª da Graça)	1.343.997	37.266	65.921	1.447.184	47.840	**1.399.344**
Braga	28.844	41.032	49.289	119.165	48.750	**70.415**
Viana do Castelo	121.231	42.800	76.737	240.769	48.730	**192.039**
Ovar	85.380	39.801	25.984	151.165	15.000	**136.165**
Oliveira de Azemeis	445.629	60.025	143.546	649.200	125.000	**524.200**
Condeixa-a-Nova	17.513	38.479	27.069	83.061	30.000	**53.061**
Seia (Torre)	344.717	46.380	86.036	477.132	30.000	**447.132**
Guarda	33.552	39.965	38.966	112.483	25.000	**87.483**
Castelo Branco	155.019	42.333	80.389	277.741	70.000	**207.741**
Praia do Pedrógão (Leiria)	84.270	36.961	21.198	142.429	0	**142.429**
Leiria	95.536	50.611	120.880	267.027	97.500	**169.527**
Vila Franca de Xira	31.128	38.191	24.152	93.471	50.000	**43.471**
Lisboa	225.643	83.920	87.062	396.625	169.700	**226.925**
Total	**3.817.356**	**975.092**	**1.367.937**	**6.161.015**	**1.222.536**	**4.938.479**

Table 2 – Table showing the comparison between the economic impact generated per host economy by the different economic agents and the city-hall sponsorships (presented in Euros).

The overall expense made by the spectators was the largest relatively to the other two economic agents involved on this analysis, totaling the amount of €3.817.356. The attendees

accounted for €1.367.937, and the organizer €975.092. This totals €6.161.015. In contrast, results showed that the city halls from the host economies paid a total amount of €1.222.536 to the organizer in order to receive the cycling tour on their territories. Thus, the city halls involved were able to generate a net value of €4.938.479, an excellent outcome from the initial investment made.

The host economy which beneficiated the most with the cycling tour was *Mondim de Basto (Srª da Graça)* as it was able to collect the amount of €1.447.184, registering a net value of €1.399.344 after the city halls' sponsorship payment being deduced. On the other hand, *Pinhel* was the host economy with the lowest economic impact generated by the three economic agents, registering €71.505.

5.4.1. Viseu

In *Viseu*, the overall economic impact generated by spectators, organizer and attendees was €493.484, being the spectators the ones which contributed the most for this outcome, followed by the attendees and organizer, accounting for €241.024, €156.777 and €95.683, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €330.984, after the city hall's sponsorship payment being deduced (€162.500).

5.4.1.1. Spectators

The spectators' economic impact in *Viseu* was €241.024 which represented 6,31% of the total economic impact generated by the spectators during the event, translated into an average of €6,03 spent per day. The economic impact value appears as a sum of the spending

amounts of the residents and non-local spectators, which had an impact of €157.767 and €83.257, respectively.

In order to compute the value of the residents in Viseu it was taken into consideration the values in the restaurant sector, transportation costs and other expenditures. On average a resident spent €3,22 in the first sector, considering for that expenses related with restaurants, take-away food and coffee shops. The transportation costs related with movement of the residents from their home to the place were €1,35. Moreover, the other expenditures had an impact of €5.110.

Considering the non-local spectators, the variable of the accommodation expenditures was added to its computation. Accessing the data from the collected sample, on average an outside spectator for the local region spent €8,87 in that night on accommodation. The costs associated with the transportation doubled the value from the residents to €2,71 on average per person, which can be translated into a logic reason by considering the positive correlation between the distance and the spending consume on oil, for instance. The restaurant sector had a small impact when comparing with the residents, with which person spending €1,03 on average. The last variable is the other expenditures with an insignificant amount of €166.

5.4.1.2. Organizer

The organizer's employees made three meals at an average cost of €12,5 each, thus spending €9.375. Regarding accommodation they spent a total of €18.414. Regarding fuel, the distance between *Viseu* and *Pinhel* is 90,5 km, thus spending €621. Finally, the logistics and operation costs associated to putting in place all the necessary infrastructures are €67.273.

In this region, the organizer contributed with a total of €95.683 to the overall economic impact, which was the highest amount among all the regions.

5.4.1.3. Attendees

Concerning the six Portuguese teams with 18 members each, they spent €3.150 on meals (3 meals at a cost of €12,50 each for staff members and €7,50 for athletes), €8.701 on accommodation, €932 on fuel and €140 on tolls.

Concerning the ten foreign teams with 18 members each, based on the same assumptions as for the national teams, they spent €5.250 on meals, €24.858 on accommodation, €1.554 on fuel and €234 on tolls.

Concerning the 250 professionals representing national and international media, based on the assumption that the consumption patterns are similar to those of the organization, they spent €9.375 on meals, €31.053 on accommodation, €2.179 on fuel and €488 on tolls. Finally, concerning the sponsors, the contribution to the local economy coming from the sponsors' "activations" represents €68.864.

Similarly to the organizer' case, *Viseu* was the host economy where the attendees most contributed to the overall economic impact generated by the *Volta*, with a total of €156.777. This is due to the fact that *Viseu* hosted the prologue of the *Volta* for two days.

5.4.2. Pinhel

Pinhel was the region chosen to host the official beginning of the *Volta*; it was the starting point of the first stage and of the whole *Volta*. The overall economic impact generated by spectators, organizer and attendees was €71.505, being the organizer the one which contributed the most for this outcome, followed by the attendees and spectators, accounting for €37.805, €27.533 and €6.167, respectively. This result was the poorest among all the other host economies of the event. However, there was a positive outcome generated by the passage

of the cycling tour as the region was able to collect €34.005, after the city hall's sponsorship payment being deduced (€37.500).

5.4.2.1. Spectators

The total economic impact generated by the spectators in the region was not very significant if one considers the different locations where the event took place, representing only €6.167 of the grand total. The fact can be justified due to the number of population that attended the event in that specific location, which translates into only 2046 spectators.

The residents were the ones that had the most valuable contribution for the total amount, accounting €5.823 (€3,43 on average per person). The value was obtained by solely accessing expenses related with the restaurant sector and transportation, with an impact of €4.600 and €1.223, respectively. One can state that on average a resident spent €2,71 in food, while at the transportation level €0,72.

The external spectators on the other hand had a small impact of only €344 computed by the sum of the expenses related with the restaurants and transportation. On average a non-local spectator spent €0,99 in *Pinhel*, with €0,72 corresponding to restaurant sector expenditures and €0,27 to the transportation sector.

5.4.2.2. Organizer

The organization spent €3.125 on meals (one meal) and €1.044 on fuel since the distance between *Pinhel* and the ending point of the stage is 152 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Pinhel* contributed a total of €37.805.

5.4.2.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals and €1.566 on fuel, and the foreign teams spent €1.750 on meals and €2.609 on fuel.

Concerning the media, they spent €3.125 on meals and €3.660 on fuel. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €13.773.

Overall, the attendees in *Pinhel* contributed a total of €27.533.

5.4.3. Bragança

Bragança was the ending point of the first stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €195.758, being the attendees the ones which contributed the most for this outcome, followed by the spectators and the organizer, accounting for €82.565, €69.194 and €44.000, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €143.278, after the city hall's sponsorship payment being deduced (€52.480).

5.4.3.1 Spectators

The economic impact generated by the spectators in *Bragança* was €69.194, creating an average spending per spectator of €3,84. The value was composed by the residents expenditures which account €63.050 and by the non-local spectators in an amount of €6.143. The average spending per person of the residents was higher than the external spectators with the first generating a spending of €4,54, while the second €1,48.

The residents expenditures were composed by the restaurant sector spending which states that on average an inhabitant from *Bragança* spent €3,24 in the event, producing a total amount of €44 946. Considering the transportation costs associated with the movement of the residents from their home to the local of the event one can affirm that on average a person produced a spending of €1,30, giving a significant impact of €18.105.

Considering the impact of the non-local spectators for the economic analysis one can state that it was relatively small when comparing with the residents one. They generated €6.143, contributing for that the variables of the restaurant and transportation sectors. The first one had an impact of €3.901 (€0,94 on average), while the second accounted €2.243 (€0,54 on average).

5.4.3.2 Organizer

The organization spent €3.125 on meals (one meal), €6.949 on accommodation and €290 on fuel since the distance between *Bragança* and the starting point of the next stage is 42 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Bragança* contributed a total of €44.000.

5.4.3.2 Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €1.985 on accommodation and €435 on fuel, and the foreign teams spent €1.750 on meals, €5.670 on accommodation and €724 on fuel.

Concerning the media, they spent €3.125 on meals, €11.719 on accommodation and €1.016 on fuel. Finally, concerning the sponsors, the contribution to the local economies coming from the “activations” represents €55.091.

Overall, the attendees in *Bragança* contributed a total of €82.565.

5.4.4. Macedo de Cavaleiros

Macedo de Cavaleiros was the starting point of the second stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €88.243, being the organizer the one which contributed the most for this outcome, followed by the attendees and the spectators, accounting for €38.503, €31.030 and €18.709, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €68.243, after the city hall's sponsorship payment being deduced (€20.000).

5.4.4.1. Spectators

The economic impact generated in *Macedo de Cavaleiros* by the spectators reached the amount of €18.079 which can be translated into an average of €7,83 per person. For the computation of the total amount of spending in the local region, the non-local spectators were the ones whose contribution was more significant with an impact of €13.406. On the other hand, the residents had a small contribution of €4.673. From the collected data one can conclude that in the region the impact of people from external locations was crucial for the success of the event in economic terms. On average an external resident spent €23,24 in Macedo de Cavaleiros, divided for the different variables. The "other expenditures" variable reached the amount of €8.872 in this case (on average €15,38) being the one with the more significant impact between the restaurant sector, transportation and accommodation expenditures. The first had a contribution of €2.205 (€3,82 average per person), the second accounted €406 (€0,70 average per person), while the last one reached €1.923 (€3,33 per person).

Considering the residents, their contribution in terms of average per person was in the total €2,70. These small impact was produced by the variables of the restaurant sector with €3.844 (€2,22 average per person) and transportation expenditures €829 (€0,48 average per person).

5.4.4.2. Organizer

The organization spent €3.125 on meals (1 meal), €925 on accommodation and €817 on fuel since the distance between *Macedo de Cavaleiros* and the ending point of the stage is 119 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Macedo de Cavaleiros* contributed a total of €38.503.

5.4.4.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €943 on accommodation and €1.226 on fuel, and the foreign teams spent €1.750 on meals, €2.695 and €2.043 on fuel.

Concerning the media, they spent €3.125 on meals, €1.560 on accommodation and €2.865 on fuel. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €13.773.

Overall, the attendees in *Macedo de Cavaleiros* contributed a total of €31.030.

5.4.5. Serra do Larouco (Montalegre)

Montalegre, more precisely *Serra do Larouco*, was the ending point of the second stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €428.622, being the spectators the ones which contributed the most for this

outcome, followed by the attendees and the organizer, accounting for €319.635, €68.417 and €40.570, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €368.622, after the city hall's sponsorship payment being deduced (€60.000).

5.4.5.1. Spectators

The total economic impact generated in *Serra do Larouco* was €319.635 generating an average of €24,46 per spectator. These amount includes the residents and the non-local spectators from other regions and countries. The first one had an impact of €8.000 (€2,86 on average per person), while the second one was the one that had the most contribution for the total economic impact in the region with €311.635 (average per person of €30,35), fact justified by a strong presence of external spectators. Taking into consideration the data collected the only variable that had the contribution for the residents economic impact was the restaurant sector with the total value of €8.000.

Considering the non-local spectators, the variable that had the most contribution for their economic impact was the expenditures associated with accommodation, with a value of €173.000 (€16.85 on average per person). The transportation sector was the second in this scale with a contribution of €94.084 (€9,16 on average per person), followed by the restaurant sector with a total contribution of €44.551 (generating an average of €4,34 per person).

5.4.5.2. Organizer

The organization spent €3.125 on meals (1 meal), €3.640 on accommodation and €168 on fuel since the distance between *Montalegre* and the starting point of the next stage is 24,5 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Montalegre* contributed a total of €40.570.

5.4.5.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals and €252 on fuel, and the foreign teams spent €1.750 on meals and €421 on fuel.

Concerning the media, they spent €3.125 on meals, €6.138 on accommodation and €590 on fuel. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Montalegre* contributed a total of €68.417.

5.4.6. Boticas

Boticas was the starting point of the third stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €92.664, being the attendees the ones which contributed the most for this outcome, followed by the organizer and the spectators accounting for €44.718, €39.155 and €8.791, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €55.128, after the city hall's sponsorship payment being deduced (€37.536).

5.4.6.1. Spectators

The total economic impact in *Boticas* was small considering the other regions analyzed, with €8.791 allowing to have an average contribution per spectator of €4,27. The sub-group that contributed the most for this value was the residents sector with €6.258 (€4,41 average per person), while the external spectators only contributed with €2.533 (€3,97 on average). Considering the residents, the restaurant sector and the transportation costs were the

ones that had impact, with an average of €2,82 and €1,59 respectively. The total value was €4.007 for the first, while the second reached the amount of €2.251.

As occurred in the case of the residents, taking into consideration the non-local spectators the variables that most contributed to the economic impact were the Restaurant sector and the expenditures associated with the transportation, with €1.410 (€2,21 on average) and €1.123 (€1,76 on average), respectively.

5.4.6.2. Organizer

The organization spent €3.125 on meals (1 meal), €1.760 on accommodation and €634 on fuel since the distance between *Boticas* and the ending point of the stage is 92km. Besides these costs, €33.636 were spent on logistics.

5.4.6.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €4.135 on accommodation, €951 on fuel and €220 on tolls, and the foreign teams spent €1.750 on meals, €11.812 on accommodation, €1.584 on fuel and €366 on tolls.

Concerning the media, they spent €3.125 on meals, €2.968 on accommodation, €2.223 on fuel and €763 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €13.773.

Overall, the attendees in *Boticas* contributed a total of €44.718.

5.4.7. Fafe

Fafe was the ending point of the third stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €253.289, being the spectators the ones which contributed the most for this outcome, followed by the attendees and the organizer accounting for €123.307, €85.957 and €44.025, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €158.289, after the city hall's sponsorship payment being deduced (€95.000).

5.4.7.1. Spectators

The total economic impact of the spectators in *Fafe* reached the value of €123.307 (€3,05 average per person). The value was computed by accessing information regarding the residents and non-local spectators. The first had an incredible contribution for the economic impact with €120.924, covering almost the whole value of the total economic impact in the region. On average a resident spent €3,56 in that location during the event. The expenditures in the variables of the restaurant sector (€103.058), allowing to have an average of €3,04 and transportation expenditures (€17.876), reaching the average of €0,53. On the other hand, the external spectators had a small contribution for the impact with only €2.383 (€0,37 per person). The value was computed by summing up, as occurred in the case before, the variables of the restaurant sector €1.446 (€0,22 per person) and transportation €937 (€0,15 on average).

5.4.7.2. Organizer

The organization spent €3.125 on meals (1 meal), €7.051 on accommodation and €212 on fuel since the distance between *Fafe* and the starting point of the next stage is 31km. Besides these costs, it also spent €33.636 on logistics.

5.4.7.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €2.756 on accommodation, €318 on fuel and €135 on tolls, and the foreign teams spent €1.750 on meals, €7.873 on accommodation, €530 on fuel and €225 on tolls.

Concerning the media, they spent €3.125 on meals, €11.891 on accommodation, €744 on fuel and €469 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Fafe* contributed a total of €85.957.

5.4.8. Alvarenga

Alvarenga was the starting point of the fourth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €79.998, being the organizer the one which contributed the most for this outcome, followed by the attendees and the spectators accounting for €37.586, €23.713 and €18.699, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €79.998. Notice that the city hall of this region did not paid any amount to host the event.

5.4.8.1. Spectators

The economic impact produced by the spectators in *Alvarenga* was €18.699, which considering the population present in the event in the location generates an average of €7,93 per spectator. For the total value, the non-local spectators were the ones whose contribution was more significant accounting €16.002 of impact. On average one can state that an external spectator spent €11,79 in *Alvarenga*. This consumption was divided into 3 different variables, with the first being the restaurant sector, accounting €8.578 (€6,32 per spectator), the second were the transportation expenditures with an amount of €4.905 (€3,61 per spectator) and finally the third one, accommodation expenditures, accounting €2.519 (€1,86 per spectator).

Considering the residents that were present in the event the combined impact was €2.697 (€2,70 per resident). The restaurant sector was the variable with more significance on the residents with €1.806 , followed by the transportation costs accounting €891. On average a resident spent €1,81 and €0,89 respectively in each variable.

5.4.8.2. Organizer

The organization spent €3.125 on meals (1 meal), €455 on accommodation and €369 on fuel since the distance between *Alvarenga* and the ending point of the stage is 54km. Besides these costs, it also spent €33.636 on logistics.

5.4.8.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €554 on fuel and €77 on tolls, and the foreign teams spent €1.750 on meals, €924 on fuel and 129 on tolls.

Concerning the media, they spent €3.125 on meals, €767 on accommodation, €1.295 on fuel and €269 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €13.773.

Overall, the attendees in *Alvarenga* contributed a total of €23.713.

5.4.9. Mondim de Basto (Senhora da Graça)

Mondim de Basto was the ending point of the fourth stage of the *Volta*. the overall economic impact generated by spectators, organizer and attendees was €1447.184, being the spectators the ones which contributed the most for this outcome, followed by the attendees and the organizer accounting for €1.343.997, €65.921 and €37.266, respectively. This result represents the largest amount collected from these three economic agents among all the host economies. In addition, it can be stated that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €1.399.344, after the city hall's sponsorship payment being deduced (€47.840).

5.4.9.1. Spectators

The total economic impact of the event in *Senhora da Graça* was the one with the higher amount when comparing with the other regions. It had an impact of €1.343.997 generating an average per spectator of €17,87. The value is essentially a result of the abnormal number of external spectators, that per se allowed to have an economic impact of €1.316.771 divided through the four different variables. On average an non-local spectator produced a consumption of €21,49 in the region. The accommodation sector was the first in terms of contribution for the total economic value of the external spectators, reaching the amount of €547.788. The second was the restaurant sector with the amount of €392.537,

followed by the transportation costs with €355.295. The last in terms of contribution was the variable of other expenditures with €21.151. The average spending per spectator considering this variables was €6,41 , €5,80 , €8,94 and €0,35 , respectively.

On the other hand the residents contributed with €27.227, reaching an average spending of €1,95. The restaurant sector and the transportation expenditures were the variables that had an impact in this sub-group with the first accounting €22.956 (average of €1,65) and the second €4.270 (average of €0,31).

5.4.9.2. Organizer

The organization spent €3.125 on meals (1 meal) and €505 on fuel since the distance between *Mondim de Basto* and the starting point of the next stage is 73,5km. Besides these costs, it also spent €33.636 on logistics.

5.4.9.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €757 on fuel and €182 on tolls, and the foreign teams spent €1.750 on meals, €1.262 on fuel and €303 on tolls.

Concerning the media, they spent €3.125 on meals, €1.770 on fuel and €631 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Mondim de Basto* contributed a total of €65.921.

5.4.10. Braga

Braga was the starting point of the fifth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €119.165, being the attendees the ones which contributed the most for this outcome, followed by the organizer and the spectators accounting for €49.289, €41.032 and €28.844, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €70.415 after the city hall's sponsorship payment being deduced (€48.750).

5.4.10.1. Spectators

The total economic impact generated by the spectators during the event in *Braga* was €28.844, which one can state that considering the number of spectators present on average each one produced a spending of €3,58. The ones that contributed the most for the total impact were the residents with €25.997, accounting €3.77 when making individual analyses. The restaurant sector produced a spending in the resident population of €20.342 (€2,95 per spectator), while the transportation sector created a spending of €5.654 (€0,82 per spectator). On the other hand, the external spectators created a small impact when compared with the other previous sector. They generated an amount of €2.848 (€2,43 per non-local resident). The variables that made a contribution for that impact were the restaurant sector and transportation expenditures associated with the movement of spectators. The first one had an impact of €1.728 (€1,47 per spectator), while the second generated €1.119 (€0,95 per spectator).

5.4.10.2. Organizer

The organization spent €3.125 on meals (1 meal), €3.848 on accommodation, and €422 on fuel since the distance between *Braga* and the ending point of the stage is 61,5km. Besides these costs, it also spent €33.636 on logistics.

5.4.10.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €4.921 on accommodation, €633 on fuel and €155 on tolls, and the foreign teams spent €1.750 on meals, €14.060 on accommodation, €1.056 on fuel and €258 on tolls.

Concerning the media, they spent €3.125 on meals, €6.489 on accommodation, €1.481 on fuel and €538 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €13.773.

Overall, the attendees in *Braga* contributed a total of €49.289.

5.4.11. Viana do Castelo

Viana do Castelo was the ending point of the fifth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €240.769, being the spectators the ones which contributed the most for this outcome, followed by the attendees and the organizer accounting for €121.231, €76.737 and €42.800, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €192.039, after the city hall's sponsorship payment being deduced (€48.730).

5.4.11.1. Spectators

The total economic impact of *Viana do Castelo* produced by the spectators was significantly high when comparing with the other locations were the event took place. The total amount generated in expenditures was €121.231, which can be translated into an average per spectator of €2,92. The residents sector was the one which contributed the most for the impact with €103.026 (€3,39 of spending per resident). The restaurant sector was the variable with the higher impact between the residents with €87.707 of total spending (€2,89 per spectator). The transportation expenditures related with the movement of the population to the event was €15.319 in the resident's case, generating an average of €0,50.

Considering the non-local spectators, the economic impact generated by the sub-group was €18.205 with an average per external spectator of €1,64. The transportation sector was the variable that contributed the most for the impact with €11.955 (€1,08 per spectator), followed by the restaurant sector with €5.456 (€0,49 per spectator). The accommodation sector expenditures had low significance for the computation of the total economic impact of the non-local spectators, accounting €794 and producing per se an average of spending of €0,07 per spectator.

5.4.11.2. Organizer

The organization spent €3.125 on meals (1 meal), €5.270 on accommodation and €769 on fuel since the distance between *Viana do Castelo* and the starting point of the next stage is 112km. Besides these costs, it also spent €33.636 on logistics.

5.4.11.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €1.154 on fuel and €173 on tolls, and the foreign teams spent €1.750 on meals, €1.923 on fuel and €288 on tolls.

Concerning the media, they spent €3.125 on meals, €8.887 on accommodation, €2.697 on fuel and €600 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Viana do Castelo* contributed a total of €76.737.

5.4.12. Ovar

Ovar was the starting point of the sixth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €151.165, being the spectators the ones which contributed the most for this outcome, followed by the organizer and the attendees accounting for €85.380, €39.801 and €25.984, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €136.165, after the city hall's sponsorship payment being deduced (€15.000).

5.4.12.1. Spectators

The total economic impact of the spectators in *Ovar* reached €85.380, accounting €3,93 on average per person. In order to compute the total value it was taken into consideration the residents and external spectators' expenditures. The first was the one with higher impact with €45.584 (€3,36 on average), while the second sub-group had €39.796

(€4,88 on average). The two sub-groups were computed by considering the expenditures related with the restaurant sector and transportation. The residents had a consumption of €40.065 in food consumption, generating an average of €2,95 per resident. In the transportation sector the consumption was €5.520 (€0,41 on average). Considering the non-local spectators, the restaurant sector had an impact of €32.422 (€3,98 on average), while the transportation sector reached the amount of €7.374 (€0,90 on average).

5.4.12.2. Organizer

The organization spent €3.125 on meals (1 meal), €2.841 on accommodation and €199 on fuel (as the distance between *Ovar* and the ending point of the stage was 29 km). Besides these costs, they also incurred in a spent of €33.636 on logistics.

Overall, the organizer in *Ovar* contributed with a total of €39.801.

5.4.12.3. Attendees

Considering the cycling teams, the Portuguese ones spent €1.050 on meals and €299 on fuel, while the foreign teams spent €1.750 on meals and €498 on fuel.

Concerning the media, it was incurred a spent of €3.125 on meals, €4.791 on accommodation and €698 on fuel. Moreover, regarding the sponsors, the contribution to the local economies from the "activations" represented €13.773.

Overall, the attendees in *Ovar* contributed with a total of €25.984.

5.4.13. Oliveira de Azeméis

Oliveira de Azeméis was the ending point of the sixth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €649.200, being the

spectators the ones which contributed the most for this outcome, followed by the attendees and the organizer accounting for €445.629, €143.546 and €60.025, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €524.200, after the city hall's sponsorship payment being deduced (€125.000).

5.4.13.1. Attendees

The spectators' economic impact in *Oliveira de Azeméis* was €445.629, generating an average per person of €9,31 considering the population present in the event. The residents sector was the one that have contributed the most for the impact with €301.252 (average of €9,02). For the computation of the value it was important to consider the three different variables such as the restaurant sector, accounting €83.264 (average of €2,49), the transportation expenditures, registering €22.195 (€0,66 per person) and other expenditures which generated a spending of €195.793 (€5,86 average per person).

Considering the external spectators, the total economic impact produced by the sector was €144.378 (average of €9,97). The contribution of the restaurant sector for the total value was €56.549 (€3,91 on average), the transportation expenditures generated €66.209 (€4,44 on average) and the accommodation sector generated €23.619 (€1,63 average per spectator).

5.4.13.2. Organizer

The organization spent €9.375 on meals (three meals), €16.369 on accommodation and €645 on fuel since the distance between *Oliveira de Azeméis* and the starting point of the next stage is 94 km. Besides these costs, it was also incurred a spent of €33.636 on logistics.

Overall, the organizer in *Oliveira de Azeméis* contributed with a total of €60.025.

5.4.13.3. Attendees

Considering the cycling teams, the Portuguese ones spent €3.150 on meals, €9.613 on accommodation, €967 on fuel and €189 on tolls, while the foreign teams spent €5.250 on meals, €27.462 on accommodation, €1.612 on fuel and €315 on tolls.

Concerning the media, they spent €9.375 on meals, €27.605 on accommodation, €2.261 on fuel and €656 on tolls. Moreover, regarding the sponsors, the contribution to the local economies from the "activations" represented €55.091.

Overall, the attendees in *Oliveira de Azeméis* contributed with a total of €143.546.

5.4.14. Condeixa-a-Nova

Condeixa-a-Nova was the starting point of the seventh stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €83.061, being the organizer the one which contributed the most for this outcome, followed by the attendees and the spectators accounting for €38.479, €27.069 and €17.513, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €53.061, after the city hall's sponsorship payment being deduced (€30.000).

5.4.14.1. Attendees

The economic impact generated by the spectators in *Condeixa-a-Nova* was €17.513 (€5,37 per spectator). The residents sector contributed with €14.010 in expenditures in the local region during the event, generating an average of €5,66 per spectator. In food expenditures related the impact in the sector was €10.716 and the transportation expenditures generated a spending of €3.294, which one can conclude that the average spending per

resident was €4,33 and €1,33 , respectively. On the other hand, the non-local spectators contributed with €3.504€ (€4,47 on average per external spectator). For the computation of the total value in the sector, the spending in restaurants was €2.480 (€3,15 on average), while the transportation expenditures were €1.034 (€1,32 on average).

5.4.14.2. Organizer

The organization spent €3.125 on meals (1 meal), €983 on accommodation and €735 on fuel since the distance between *Condeixa-a-Nova* and the ending point of the stage is 107 km. Besides these costs, it was also incurred a spent of €33.636 on logistics.

Overall, the organizer in *Condeixa-a-Nova* contributed with a total of €38.479.

5.4.14.3. Attendees

Considering the cycling teams, the Portuguese ones spent €1.050 on meals, €1.102 on fuel and €32 on tolls, while the foreign teams spent €1.750 on meals, €1.837 on fuel and €54 on tolls.

Concerning the media, they spent €3.125 on meals, €1.657 on accommodation, €2.577 on fuel and €113 on tolls. Moreover, regarding the sponsors, the contribution to the local economies from the "activations" represented €13.773.

Overall, the attendees in *Condeixa-a-Nova* contributed with a total of €27.069.

5.4.15.Torre (Seia)

Seia (Torre) was the ending point of the seventh stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €447.132, being the spectators the ones which contributed the most for this outcome, followed by the attendees

and the organizer accounting for €344.717, €86.036 and €46.380 respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €447.132, after the city hall's sponsorship payment being deduced (€30.000).

5.4.15.1. Spectators

The total economic impact in *Seia (Torre)* produced by the spectators accounted €344.717 (€8,92 on average). The non-residents sector was the one that contributed the most for the total amount, with €276.056 (average of €10,95 per external spectator). In order to proceed to the computation of the real value, four different variables were taken into consideration such as the restaurant sector, with €123.857, the transportation expenditures accounting €127.607, the accommodation sector generating a spending of €8.765 and other expenditures of €15.826. One can state that on average an external spectator spent €4,91, €5,06, €0,35 and €0,63 in each of the variables, respectively.

Considering the residents sector the total impact was €68.661 (average of €5,11). The restaurant sector contributed with €42.365 (with an average of €3,15 per resident), while the transportation expenditures were €26.296 (€1,96 on average).

5.4.15.2. Organizer

The organization spent €3.125 on meals (one meal), €9.160 on accommodation and €459 on fuel since the distance between *Seia* and the starting point of the next stage is 67 km. Besides these costs, it was also incurred a spent of €33.636 on logistics.

Overall, the organizer in *Seia (Torre)* contributed with a total of €46.380.

5.4.15.3. Attendees

Concerning the cycling teams, the Portuguese ones spent €1.050 on meals, €1.483 on accommodation, €688 on fuel and €67 on tolls, while the foreign teams spent €1.750 on meals, €4.237 on accommodation, €1.147 on fuel and €111 on tolls.

Considering the media, they spent €3.125 on meals, €15.447 on accommodation and €1.609 on fuel and €231 on tolls. Moreover, regarding the sponsors, the contribution to the local economies from the "activations" represented €55.091.

Overall, the attendees in *Seia (Torre)* contributed with a total of €86.036.

5.4.16. Guarda

Guarda was the starting point of the eighth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €112.483, being the organizer the one which contributed the most for this outcome, followed by the attendees and the spectators accounting for €39.965, €38.966 and €33.552 respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €87.483, after the city hall's sponsorship payment being deduced (€25.000).

5.4.16.1. Spectators

The total economic impact generated by the spectators in *Guarda* reached the €33.552, generating an average per spectator of €4,37. The residents were the ones responsible for the majority of the impact with €33.424, which can be translated into an average of €4,63 per resident. In order to compute this value, two variables were considered. The restaurant sector accounted €29.790 (€4,13 on average), while the transportation expenditures were €3.634

(€0,50 on average). On the other hand, the non-local spectators presented a very small impact, accounting only with a total €128, considering the data collected through the surveys during the event. On average an external spectator spent €0,27 in the local region.

5.4.16.2. Organizer

The organization spent €3.125 on meals (1 meal), €2.517 on accommodation and €687 on fuel since the distance between *Guarda* and the ending point of the stage is 100 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Guarda* contributed with a total of €39.965.

5.4.16.3. Attendees

Considering the cycling teams, the Portuguese ones spent €1.050 on meals, €2.126 on accommodation, €1.030 on fuel and €272 on tolls, while the foreign teams spent €1.750 on meals, €6.074 on accommodation, €1.717 on fuel and €453 on tolls.

Concerning the media, they spent €3.125 on meals, €4.245 on accommodation, €2.408 on fuel and €944 on tolls. Moreover, regarding the sponsors, the contribution to the local economies from the "activations" represented €13.773.

Overall, the attendees in *Guarda* contributed with a total of €38.966.

5.4.17. Castelo Branco

Castelo Branco was the ending point of the eighth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €277.741, being the spectators the ones which contributed the most for this outcome, followed by the attendees and the organizer accounting for €155.019, €80.389 and €42.333 respectively. The results

show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €207.741, after the city hall's sponsorship payment being deduced (€70.000).

5.4.17.1. Spectators

The economic impact generated by spectators in Castelo Branco was €155.019, representing an average spending per spectator of €4,43. Results suggest that non-local spectators had the biggest contribution for this result as they registered an expenditure of €116.654, an average per spectator of €11,38. On the contrast, residents only contributed with €38.365, meaning that on average only €1,55 per resident was spent.

For the non-local spectators, the accommodation sector was the sector which registered the largest amount of money spent by them, amounting €63.021, an average of €6,15 per non-local spectator . The transportation sector and restaurant sector accounted with €28.133 and €25.500, suggesting an average spending by non-local spectators of €2,74 and €2,49, respectively. In regards to residents' spectators, the restaurant sector represented the biggest portion of spending, registering the value of €26.485, followed by the transportation sector with €11.580. The average spending per resident spectator was €1,08 and €0,47, respectively. Other sectors, did not have any impact on the overall total economic impact in this region.

5.4.17.2. Organizer

The organization spent €3.125 on meals (one meal), €4.405 on accommodation and €1.167 on fuel since the distance between *Castelo Branco* and the starting point of the next stage is 170 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Castelo Branco* contributed a total of €42.333.

5.4.17.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €1.751 on fuel and €518 on tolls, and the foreign teams spent €1.750 on meals, €2.918 on fuel and €864 on tolls.

Concerning the media, they spent €3.125 on meals, €7.428 on accommodation, €4.094 on fuel and €1.800 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Castelo Branco* contributed a total of €80.389.

5.4.18. Praia do Pedrogão

Praia do Pedrógão was the starting point of the ninth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €142.429, being the spectators the ones which contributed the most for this outcome, followed by the organizer and the attendees accounting for €84.270, €36.961 and €21.198, respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €142.429. Notice that the city hall of this region did not paid any amount to host the event.

5.4.18.1. Spectators

In *Praia do Pedrogão*, the total economic impact from spectators was €84.270, which represented an average €8,39 per spectator. The largest contribution for this value was generated by non-local spectators, accounting with the value of €77.819 (€12,71 on average per non-local resident). In this case, the restaurant sector, the transportation sector and the accommodation sector amounted €34.798, €27.080 and €15.951 respectively, which translates

into an average spending by non-local spectators of €5,68, €4,42 and €2,61, respectively. In regards to residents, one can argue that their contribution accounted with the value of €6.451, an average of €1,65 per resident. The restaurant and transportation sectors contributed with €5.304 and €1.147, representing an average spending per resident of €1,35 and €0,29. For both residents and non-local spectators, any other sectors contributed to the total economic impact generated by them in this location.

5.4.18.2. Organizer

The organization spent €3.125 on meals (1 meal) and €200 on fuel since the distance between *Pedrógão* and the ending point of the stage is 29 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Praia do Pedrógão* contributed a total of €36.961.

5.4.18.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals and €300 on fuel, and the foreign teams spent €1.750 on meals and €500 on fuel.

Concerning the media, they spent €3.125 on meals and €701 on fuel. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €13.773.

Overall, the attendees in *Praia do Pedrógão* contributed a total of €21.198.

5.4.19. Leiria

Leiria was the ending point of the ninth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €267.027, being the attendees the

ones which contributed the most for this outcome, followed by the spectators and the organizer accounting for €120.880, €95.536 and €50.611 respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €169.527, after the city hall's sponsorship payment being deduced (€97.500).

5.4.19.1 Spectators

This region was able to generate an economic impact of €95.536 from spectators, representing an average per spectator of €2,89. The residents from *Leiria* were responsible for the largest amount of money collected, accounting with the value of €89.294, while non-local spectators only amounted €6.142. The average spending by residents and non-local spectators in this location was €3,30 and €1,03, respectively. On the other hand, one can argue that the restaurant sector had the largest impact in both cases, representing the amount of €77.932 for residents and €2.641 for non-local spectators, having an average spending per spectator of €2,88 and €0,44, respectively. In regards to non-local spectators, it can be stated that no money was spent on the accommodation sector, while in the other sectors' category the amount of €1.057 was spent, an average of €0,18 per non-local spectator. In addition, results suggest that Other Sectors did not have any impact on the residents' side.

5.4.19.2. Organizer

The organization spent €6.250 on meals (two meals), €9.915 on accommodation and €810 on fuel since the distance between *Leiria* and the starting point of the next stage is 118 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Leiria* contributed a total of €50.611.

5.4.19.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €2.100 on meals, €7.595 on accommodation, €1.215 on fuel and €301 on tolls, and the foreign teams spent €3.500 on meals, €21.697 on accommodation, €2.026 on fuel and €501 on tolls.

Concerning the media, they spent €6.250 on meals, €16.720 on accommodation, €2.841 on fuel and €1.044 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Leiria* contributed a total of €120.880.

5.4.20. Vila Franca de Xira

Vila Franca de Xira was the starting point of the tenth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €93.471, being the organizer the one which contributed the most for this outcome, followed by the spectators and the attendees accounting for €38.191, €31.128 and €24.152 respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €43.471, after the city hall's sponsorship payment being deduced (€50.000).

5.4.20.1. Spectators

The total economic impact generated by the spectators in *Vila Franca de Xira* was €31.128, representing an average spending of €3,46. In this case, non-local spectators were responsible for the largest contribution to this value, amounting a spending of €24.584, an average spending of €4,51. On the contrast, residents contributed with €6.544, representing an average spending of €1,84. In both cases, the restaurant and transportation sectors contributed

the most to this output. The restaurant sector registered the amount of €6.357 (an average of €1,84) for residents and €10.072 (an average of €4,51) for non-residents, while the transportation sector registered €187 (an average of €0,05) for residents and €8.123 (an average of €1,49) for non-residents. Other sectors only seem to interest non-local spectators spectators since it only collected €5.142 from them, an average spending per person of €0,94. In addition, the accommodation sector registered €1.247 from non-local spectators, representing €0,23 on average spending.

5.4.20.2. Organizer

The organization spent €3.125 on meals (1 meal), €1.181 on accommodation and €249 on fuel since the distance between *Vila Franca de Xira* and the ending point of the stage is 36 km. Besides these costs, it also spent €33.636 on logistics.

Overall, the organizer in *Vila Franca de Xira* contributed a total of €38.191.

5.4.20.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €373 on fuel and €97 on tolls and the foreign teams spent €1.750 on meals, €621 on fuel and €162 on tolls.

Concerning the media, they spent €3.125 on meals, €1.992 on accommodation, €872 on fuel and €338 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the “activations” represents €13.773.

Overall, the attendees in *Vila Franca de Xira* contributed a total of €24.152.

5.4.21. Lisboa

Lisboa was the ending point of the tenth stage of the *Volta*. The overall economic impact generated by spectators, organizer and attendees was €396.625, being the spectators the ones which contributed the most for this outcome, followed by the attendees and the organizer accounting for €225.643, €87.062 and €83.920 respectively. The results show that the host economy was economically beneficiated by the passage of the cycling tour, as it was able to collect the net value of €226.925, after the city hall's sponsorship payment being deduced (€169.700).

5.4.21.1. Spectators

The total economic impact generated by the spectators in *Lisboa* was €225.643 driven by an expenditure made by residents and non-local spectators of €171.715 and €53.029, respectively. The average expenditure per day in this location was €4,82. The residents accounted with an average spending of €5,03, while non-local spectators spent on average €4,25. In regards to residents, the restaurant sector was responsible for collecting a total amount of €112.330 and the transportation sector an amount of €59.385, representing an average spending of €3,29 and €1,74, respectively. In respect to non-local spectators, the accommodation sector accounted with €29.594, followed by the restaurant and transportation sectors, which accounted with €18.079 and €6.256. The average spending on this sectors were €2,33, €1,42 and €0,49, respectively. On the other hand, results suggest that Other Sectors did not contribute to the total economic impact generated by the *Volta* in this region.

5.4.21.2. Organizer

The organization spent €3.125 on meals (one meal), €2.160 on accommodation and €1.998 on fuel since the distance between *Lisboa* and *Viseu* is 291 km. Besides these costs, it also spent €33.636 on logistics and €43.000 on renting cars for their employees.

Overall, the organizer in *Lisboa* contributed a total of €83.920.

5.4.21.3. Attendees

Concerning the cycling teams, the Portuguese teams spent €1.050 on meals, €1.103 on accommodation, €2.997 on fuel and €513 on tolls, and the foreign teams spent €1.750 on meals, €3.151 on accommodation, €4.996 on fuel and €855 on tolls.

Concerning the media, they spent €3.125 on meals, €3.643 on accommodation, €7.007 on fuel and €1.781 on tolls. Finally, concerning the sponsors, the contribution to the local economies coming from the "activations" represents €55.091.

Overall, the attendees in *Lisboa* contributed a total of €87.062.

5.5. Indirect Economic Impact

The indirect economic impact, in this case, was used to measure the impact of the *Volta* on the brand values of the sponsors. According to the study done by an external company, as mentioned in the methodology, the brands associated to the event experienced an appreciation of their market values. This was mainly due to the high visibility brands had during the event.

In order to compute the indirect economic impact, an analysis of the performance of the means of communication was done. This year's edition of the *Volta* achieved a highly significant impact when compared to previous years and to similar sports events. Besides the television channel *RTP*, there were in total 68 media branches and 9 press offices represented by 133 professionals including journalists, cameramen and technicians, among others. Regarding *RTP*, that was the responsible for the transmission of the *Volta*, there were 117 professionals, thus making a total of 250 people representing the media.

In what concerns the television transmission by *RTP*, the average number of spectators during the eleven transmissions was 460.000. These transmissions achieved an average share of 22,8% and a rating of 4,7%. The highest number of spectators was reached on the 1st of August, with a total number of 590.000 spectators, representing a share of 26% and a rating of 6,1%. In total, the transmissions lasted for 128 hours and 54 minutes.

On the other hand, concerning the news and advertisements related to the *Volta* that appeared on television, press, radio stations and internet there was a total number of 3.165 news and/or transmissions, and 609 advertisements.

Finally, by taking into consideration all the information above, the indirect economic impact generated by the *Volta* amounts to €63,5 million, which represents a growth of 13% when compared to the previous year edition of the *Volta*. Out of this amount, €62,2 million come from the news published on newspapers, magazines and internet, as well as the live transmissions of the *Volta* on television and the entertainment program called *Verão Total* transmitted by *RTP*. On the other hand, the other €1,3 million come from the advertisements.

6. Sensitivity analysis

In this section, an extensive analysis was done in order to understand what would be the economic impact if some situations had occurred in a different way. Therefore a sensitivity analysis was done for two different circumstances, one in the spectators and another in the organization sphere.

6.1. Spectators

In order to make a sensitivity analysis, a potential of growth in the number of spectators can be made, by evaluating the further impact of this scenario in economic terms. It was found that in *Fafe* 67% of inhabitants attended the event and it was the region that attracted most of its residents. It can be argued that if the region was able to attract this percentage of population, hypothetically others can do so. Considering the total number of residents in the regions, making the assumption that 67% of each was present in the event, a new number of residents assisting the *Volta a Portugal em Bicicleta 2015* was found:

Host economy	Original Case	New Case	Variation
Viseu	33.412	66.514	33.102
Pinhel	1.698	6.450	4.752
Bragança	13.875	23.678	9.803
Macedo de Cavaleiros	1.731	10.570	8.839
Serra do Larouco (Montalegre)	2.800	7.060	4.260
Boticas	1.419	3.853	2.433
Fafe	33.923	33.923	0
Srª da graça (Mondim de Basto)	13.929	50.185	36.256
Alvarenga	1.000	14.981	13.981
Braga	6.888	121.601	114.713
Viana do Castelo	30.397	59.446	29.049

Ovar	13.587	37.117	23.530
Oliveira de Azeméis	33.409	45.969	12.560
Condeixa-a-Nova	2.474	11.442	8.968
Torre (Seia)	13.440	16.550	3.110
Guarda	7.216	28.502	21.287
Castelo Branco	24.771	37.593	12.822
Praia do Pedrogão	3.918	85.021	81.103
Leiria	27.075	85.021	57.946
Vila Franca de Xira	3.553	91.714	88.161
Lisboa	34.127	366.981	332.854
Total	304.641	1.204.172	899.530

Table 3 – Table showing the number of spectators with and without sensitivity analysis.

Expenditures	**Restaurant (€)**	**Take-away food (€)**	**Bar/coffee shop (€)**	**Transportation (€)**	**Other (€)**	**Total (€)**
Residents	518.999	46.208	278.413	256.319	200.903	1.300.841
Spectators	905.135	281.632	432.155	1.018.632	253.116	2.890.670
Average spending per spectator	1,82	0,57	0,87	2,04	0,51	5,80

Table 4 – Table presenting the spectators' expenditure per sector without sensitivity analysis.

Expenditures	**Restaurant (€)**	**Take-away food (€)**	**Bar/coffee shop (€)**	**Transportation (€)**	**Other (€)**	**Total (€)**
Residents	2.283.739 €	64.556 €	973.697 €	1.142.555 €	279.575 €	4.744.121 €
Spectators	2.669.875 €	299.980 €	1.127.439 €	1.904.868 €	331.788 €	6.333.950 €
Average spending per spectator	5,36 €	0,60 €	2,26 €	3,82 €	0,67 €	12,71 €

Table 5 – Table presenting the spectators' expenditure per sector with sensitivity analysis.

Proceeding to the computation of the new economic impact, it is imperative to mention that the variation only bears in mind the residents' variable, *ceteris paribus*. The initial total value of the impact was €1.300.831, considering an average of inhabitants present in the event

of 25%. By accessing the new data from the assumption, an average of 67% of inhabitants is computed, generating a total economic impact of residents of €4.744.121. The variation was then €3.443.290. The total economic impact of spectators increases in the same amount in absolute terms, from €2.890.670 to €6.333.950.

As previously mentioned, this is a hypothetical case where new measures to attract new inhabitants to assist the event should be taken into account, such as the application of more resources in the regions with higher population numbers since there will be more individuals contributing to the economic impact, comparing with the smaller ones. Moreover, it could be argued that in host economies with low population numbers, achieving the potential maximum of inhabitants attending the event would be easier due to close-knit relationships in small townships.

6.2. Organization

One of the recommendations done by both members of Portuguese teams and hotel and restaurant's managers was that the end of one stage should be in the same host economy as the beginning of the following stage. Therefore a sensitivity analysis was done in order to understand what would be the impact of such measure. Instead of 21, only 11 host economies would be part of the *Volta*. This would have influence not only on the total economic impact but also on organizer's profit.

First of all, the impact on the organizer was measured. On one hand, less host economies would represent a decrease of 6,58% in revenues since each host economy pay something to be part of the *Volta*. On the other hand their spendings would decrease by 7.71% due to two reasons. At first the expenditure in logistics would decrease from €740.000 to

€446.636 as the number of host economies decreased the number of times which was needed to build the structure of departures and arrivals was reduced. Secondly, expenditures in fuel would also decreased by 16,33% since it corresponds to the reduction of the route (from 1.893 km to 1.584 km). Although there was a reduction in both spendings and revenues, the one in spendings had a greater impact and therefore, this initiative would have a positive impact on organizer's profit (would go from €211.739 to €249.694).

Then, the effect on the total economic impact was measured. It was assumed that the number of spectators would be the same in each of the host economies and therefore, as a whole, the number of spectators would decrease and consequently their spendings would fall from €3.818 to €3.485 (8,72%). Concerning the spendings in accommodation and meals by attendees and organization it was assumed that, in global terms, it is the same as before since they are basic needs and consequently they have to be done independently of the place. As already mentioned, expenditures in fuel decreased 16,33% for each of the sub-groups. Regarding the tolls, their expenditure have been reduced by 11,31%. As it was only available the overall expenditure for sponsors, first it was measured the average change in expenditure on all of the sub-groups (fell by 3% comparing to the original case) and then applied the same percentage to sponsors. In the following table it is possible to see what would be the impact in each of the host economies and what would be the percentage change to the original situation (different host economies in departures and arrivals).

Regions	Spectators Spending	Organizer Spending	Attendees Spending	Total	City halls	% change
Viseu	€241,024	€98,451	€158,473	€497,948	€162,500	0.90%
Bragança	€69,194	€47,957	€104,864	€222,015	€52,480	13.41%
Montalegre	€319,635	€45,441	€106,482	€471,558	€60,000	10.02%
Fafe	€123,307	€47,442	€102,716	€273,465	€95,000	7.97%
Mondim de Basto	€1,343,997	€43,907	€107,483	€1,495,387	€47,840	3.33%
Viana do Castelo	€121,231	€48,160	€94,361	€263,752	€48,730	9.55%
Oliveira de Azemeis	€445,629	€63,702	€159,527	€668,859	€125,000	3.03%
Seia (Torre)	€344,717	€51,665	€113,876	€510,257	€30,000	6.94%
Castelo Branco	€155,019	€44,512	€90,918	€290,449	€70,000	4.58%
Leiria	€95,536	€54,303	€136,034	€285,872	€97,500	7.06%
Lisboa	€225,643	€82,311	€86,697	€394,651	€169,700	-0.50%
Total	**€3,484,932**	**€627,851**	**€1,261,430**	**€5,374,213**	**€958,750**	
% change to original case	-8.72%	-35.61%	-7.79%	-12.77%	-21.58%	

Table 5 – Table showing the economic impact when departures and arrivals are in the same host economy.

Analyzing the table it is possible to understand that this initiative would benefit each host economy since, on average, there was a positive impact of 6,03%. However, in general terms, it was possible to see that such measure would decrease the overall economic impact by 12,77% (in this case corresponds to €786.802 on nominal terms). Therefore, the only way this initiative could go forward, was if this value could be somehow achieved. This is perfectly possible since there are some advantages that are not being taken into consideration. The truth is that this way it would be possible to have night shows every evening, since all the people involved in the *Volta* are more concentrated in the same place and would generate some extra income for the host economy. Besides this, although it was considered that the

number of spectators would be the same, it is likely that it increases since such measure allows for each host economy to be involved in the *Volta* for a greater amount of time.

Despite not being certain the outcome of this initiative, it is for sure something that is worth thinking about.

7. Suggestions for further *Voltas*

In order to develop this study the authors were in contact with all the economic agents involved in the event. Therefore it was decided to collect their opinions and suggestions to try to understand what could be improved in the following *Volta*s. Some of the opinions can be contradictory since they arise from different players in the *Volta*.

7.1. Spectators

Some spectators informed the authors that they would prefer an earlier release of the planning of the cycling route, including the places of departure and arrival of each stage as well as the full discrimination of the streets where it passed by. They claimed that if they had the plan beforehand probably it would be easier to follow the *Volta* along the different places.

Another important point mentioned by some spectators was that most of the times, major roads were obstructed due to the *Volta*, generating congested traffic. They understood, however, that it is not easy to manage this situation but at the same time they felt that it would be important to try to find some alternative routes, mainly for emergency situations.

7.2. Restaurants/Hotels

One month after the event the restaurants and hotels of each host economy were contacted to understand their point of view about the event.

In *Mondim de Basto*, considered by many as one of the most important stages of the *Volta*, the majority of the agents recognize the event as essential for the city since it gathers many people from different places in the country.

In *Viana do Castelo* some of the agents told us that it would be better for them if the ending point of one stage matched with the beginning of the following stage. Like it is nowadays, the attendees and the spectators following the event are spread across different cities and therefore the impact was less felt in each of the cities.

In *Fafe*, the accommodation sector did not feel such a huge impact arising from the *Volta* since during summer all the hotels are usually full, even without the *Volta*.

7.3. Portuguese Teams

One of the teams, *Radio Popular* from *Boavista* claimed that it was important to include other activities during the *Volta* in order to attract more people. However, they think that this is not easy to implement if the *Volta* is design as it is nowadays and therefore they proposed some solutions. First of all, they thought it would be advantageous if the arrival of one stage is in the same place as the beginning in the following day. Of course, this way the *Volta* would go through less places (less revenues for the organizer) but people would get more involved in the event since it allows more activities at night (it is a way of workers to feel that they can also be part of it).

Secondly, less places in the *Volta* would also allow for some more diversification in the route year by year. From the Radio Popular team point of view diversification is extremely important. Not doing it, as it happens nowadays, makes the *Volta* dependent on the places and if something happens, it is difficult to gather new ones. Moreover, if there was always a similar route the *Volta* would lost competitiveness and entertainment. The *Volta* needs some innovation, new mountains, new routes and new barriers.

The team also proposed a more logical choice of the overall route. Their idea was that the first two days were relatively easy and it becomes harder and harder day by day. This way, when the tiredness starts to appear, the stages start to be more difficult, a good way of selecting the best riders (the ones that even in difficulty can overcome the stages). Since the involvement of the migrants is a tradition, the team considers that the *Volta* should always end at mid-August. Another important point is that the *Volta* final arrival should switch between *Lisboa* and *Porto*, the two big cities in Portugal.

Besides the changes in the competition itself the team also proposed some ideas for the spectators and national/international recognition of the event. As already said before, the organization of a daily night show would allow some more involvement of the spectators in the event. Besides that, they find important to bring new initiatives to the *Volta*. One example given was the organization of a good advertising caravan, as they do in the main tours. In order to encourage its formation, in the first two years it could have a free entrance and a prize for the most allegorical car.

At last, some effort could have been done in order to enhance the *Volta a Portugal* as an event with national cultural heritage. Along with this some other events and activities with a yearly basis that represent a tradition and have national/international recognition in the country should be included. This initiative would need some political commitment and a distinct legislature. Probably it could bring some perks such as the exemption of the police patrolling, subsidies, licenses and other support from the tourism, culture and sports departments.

7.4. Foreign Teams

According to a Ukrainian team that participated in the *Volta* and that is used to race intensively all around the world, the *Volta* presents lots of positive aspects. First of all, there was a "perfect professional organization with a good spirit, the event was properly balanced between sports and entertainment, impressive locations, TV coverage including Eurosport, good hotels with fairly good food (could be more traditional however), refreshments available, local food presentations before stages, final stage similar in location and catering to Tour *de France*, unique audience and fans".

7.5. Media

According to a journalist representing a national sports newspaper, the quality of the teams participating in the *Volta* is not as good as in similar cycling events, which makes the *Volta* not very interesting for the cycling fans around the world. However this can be explained by the actual economic situation which makes it difficult to attract teams with a higher reputation, and also by the fact that at the same time as the *Volta a Portugal* other important cycling tours are taking place in Europe.

The journalist also refers that some organizational aspects could be improved such as not allowing the media into specific areas which makes their job harder or not having permission to park their cars next to the press conference room. Another negative aspect pointed out by the journalist is the fact the *Volta* does not pass by the south of Portugal, thus missing two of the most visited regions in the country, *Algarve* and *Alentejo*.

However, there also some positive aspects associated to the *Volta*. First of all, the *Volta* keeps is still considered by many as the biggest sports event in Portugal during summer.

Moreover, it is a huge promotional instrument for many host economies not very known by the majority of the population.

8. Conclusions

Throughout this research the economic impact generated by the 77th edition of the *Volta a Portugal em Bicicleta* was determined. The total direct economic impact of spectators, organizer and attendees was €3.817.356 (€7,66 per day by person), €975.092 and €1.367.937.

As for spectators, 66% of their total economic impact was generated by non-local spectators accounting for €2.516.515, an average of €13,00 per day. On the other hand, the transportation sector was the one which has beneficiated the most from the spectators spending, followed by accommodation and restaurants, representing 26,7%, 24,3% and 23,7% respectively. Contrarily, the sectors with the lowest impact in the total value were other expenditures and take-away food, representing 6,6% and 7,4% of the total economic impact generated by this economic agent.

In regards to the organizer, the accommodation sector was the one where the larger amount of money was spent, followed by the restaurant and transportation sectors, accounting for €97.842, €81.250 and €56.000, respectively. On the other hand, this economic agent also incurred on expenses related with logistics, which amounted for €740.000. The latter value was composed by costs related with the cycling arrivals (66,6%) and departures (33,3%).

In respect to attendees, the largest contribution arose from the sponsors, totaling the value of €757.500, followed by the Media and Cycling Teams, which accounted for approximately €300.000 and €295.000. In the case of the sponsors, the ones who spent the most were *Liberty Seguros* and *Banco BIC* with €220.000 and €150.000. Nonetheless, it was not possible to discriminate the origin of the spending as they were not authorized to provide that type of information due to contractual constraints. Regarding the media, it was found that €165.000 was spent on accommodation, €81.250 on meals and €56.250 on transportation

(€45.588 on fuel and €10.662 on tolls). Considering the cycling teams, the largest contribution came from the foreign cycling teams, representing 68% of the total economic impact generated by all the cycling teams. On the other hand, the accommodation sector was the one which contributed the most for the total output related to this sub-group of attendees, followed by the transportation and restaurant sectors, accounting for €175.360 (57%), €72.300 (23%) and €60.000 (20%), respectively.

The host economy which beneficiated the most with the cycling tour was *Mondim de Basto* as it was able to collect the amount of €1.447.184, registering a net value of €1.399.344 after the city halls' sponsorship payment being deduced. Results have shown that this region was the one registering the biggest return from the city hall investment. On the other hand, *Pinhel* was the host economy with the lowest economic impact generated by the three economic agents, registering €71.505.

Additionally, to determine the overall direct economic impact it was taken into account expenses incurred by the organizer on marketing and commercial activities (€1,665 million), monetary prizes paid to the teams (€126.455), salaries paid to the employees hired exclusively for the *Volta* (€190.000), security costs paid to the local authorities (€125.000), the fee paid to *Federação Portuguesa de Ciclismo* (€450.000). On the other hand, it was necessary to include the income generated by the alternative events organized by *Podium* during the *Volta*, namely *Etapa da Volta* and *Passeio da Volta* (€20.000), and the income deriving from the sponsorships (€2,800 million) and city halls (€1.225.036). Thus, this study showed that the direct economic impact generated by the Portuguese cycling tour was €12.761.876.

Besides such impact, the *Volta* also generated an indirect economic impact of €63,5 million, of which €62,2 million come from the news published by the means of

communication and from the television transmissions, and the other €1,3 million come from the advertisements. Therefore, by summing up the direct and indirect economic impacts, the event *Volta a Portugal em Bicicleta 2015* generated an overall economic impact of over €76 million.

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10. Appendixes

Appendix 1 – Spectators' Survey

QUESTIONÁRIO

Impacto económico da Volta a Portugal em Bicicleta

Sou aluno(a) do Mestrado de Finanças/Economia/Gestão da Universidade Nova de Lisboa e estou a realizar um estudo sobre o "Impacto Económico da Volta a Portugal em Bicicleta", cujos dados serão utilizados no âmbito académico e a título confidencial. A sua colaboração será um contributo importante. Pedimos que nos dispense *dez* minutos do seu tempo, por favor.

1. Localidade:

1= Viseu□	8=Srª da graça (Mondim de Basto)□	15=Torre (Seia)□
2= Pinhel□	9=Alvarenga□	16=Guarda□
3=Bragança□	10=Braga□	17=Castelo Branco□
4=Macedo de Cavaleiros□	11=Viana do Castelo□	18=Praia do Pedrogão□
5= Serra do Larouco (Montalegre)□	12=Ovar□	19=Leiria□
6=Boticas□	13=Oliveira de Azeméis□	20=Vila Franca de Xira□
7=Fafe□	14=Condeixa-a-Nova□	21= Lisboa□

2. É a primeira vez que vem assistir à Volta a Portugal em Bicicleta? Sim☐ Não☐
Se "SIM", passe para P4.

3. A quantas edições anteriores assistiu?

1 = 1 □
2 = [2;5] □
3 = [6;10] □
4 = [11;15] □
5 = [15;20] □
6 = >20 □

4. Quais os motivos de deslocação até esta localidade?

☐ Volta a Portugal em Bicicleta

☐ Turismo O questionário terminou. Obrigado pela sua participação.

☐ Motivo familiar O questionário terminou. Obrigado pela sua participação.

☐ Motivo profissional O questionário terminou. Obrigado pela sua participação.

☐ Outro **4.1** _____ O questionário terminou. Obrigado pela sua participação.

5. Quais as razões que o(a) levaram a estar neste evento?

☐ Assistir à volta Passe para P7.

☐ Participação

☐ Concerto Passe para P7

☐ Brindes Passe para P7

6. Em que corrida vai participar?

☐ Etapa da Volta

☐ Passeio da Volta

☐ Mini etapa da Volta

6.1. Já participou anteriormente em alguma corrida? Sim ☐ Não ☐

6.2. Quanto pagou pela participação?

1 = [0€;10€[□
2 = [10€;20€[□
3 = [20€;30€[□
4 = [30€;40€[□
5 =[40€;50€[□
6 = [50€;60€[□
7 = [60€;70€[□
8 = [70€;80€[□
9 = [80€;90€[□

6.3. Quanto estaria disposto a pagar numa próxima edição? _____

7. Onde fica a sua residência actual?

☐ Na região Passe para P9.

☐ Noutra região do país _____

☐ Num país estrangeiro _____

8. Qual vai ser a duração da sua estadia?

☐ Só de passagem

☐ Mais de um dia

8.1. Quantos dias? _____

8.2. Está a pagar pelo alojamento? Sim ☐ Não ☐

8.3 Em que tipo de alojamento se encontra hospedado?

1 = Hotel □
2 = Residencial □
3 = Turismo rural □
4 = Parque de Campismo □
5 = Outro □

8.4. Quanto está a pagar, em media, por noite? _____

8.5. O montante especificado refere-se apenas a si ou a um grupo?

Individual ☐ Passe para P9

Grupo ☐

8.5.1. Quantas pessoas estão incluídas no grupo? _____

9. Veio acompanhado para o evento? Sim ☐ Não ☐ Se não, passe para P10.

9.1. Por quantas pessoas?

1 = 1 □
2 = 2 □
3 =3 □
4= 4 □
5=5 □
6=6 □
7=7 □
8=8 □
9=9 □
10=10 □
11=>10 □

9.2. Os seus acompanhantes são:

1 = Família □
2 = Amigos □
3 = Colegas de trabalho □
4 = Companheiro (namorada / namorado) □

9.3. Veio acompanhado por crianças? Sim ☐ Não ☐

10. Está a pensar deslocar-se a outras localidades para acompanhar a volta? Sim ☐ Não ☐
Se não, passe para P12

10.1. Quais?

1= Viseu
2= Pinhel
3=Bragança
4=Macedo de Cavaleiros
5= Serra do Larouco (Montalegre)
6=Boticas
7=Fafe
8=Srª da graça (Mondim de Basto)
9=Alvarenga
10=Braga
11=Viana do Castelo
12=Ovar
13=Oliveira de Azeméis
14=Condeixa-a-Nova
15=Torre (Seia)
16=Guarda
17=Castelo Branco
18=Praia do Pedrogão
19=Leiria
20=Vila Franca de Xira
21 = Lisboa
22 = Todas

10.2. Quais são as razões que o levam a fazer essa deslocação?

1 = Ciclismo
2 = Entretenimento (Concerto / Programa RTP)
3 = Curiosidade

4 =Outro

10.2.1. Outro. Qual? _____

11. Qual foi o tipo de transporte que utilizou para chegar ao evento?

1 = Autocarro
2 = Comboio
3=Carro
4=Bicicleta
5 = A pé
6=Mota
7 = Outro

11.1. Outro. Qual? _____

12. Qual o tipo (e montante) de despesa incorrida ou por incorrer hoje por causa do evento?

1 = Restaurante
2 = Take away
3= Bar /Café
4= Transporte (gasolina, portagens, aluguer carro, avião)
5 = Museus e/ou Lembranças
6= Outro

12.1. Estes montantes referem-se apenas a si ou a um grupo? Individual ☐ Grupo ☐

Se individual passe para P13

12.1.1. Quantas pessoas estão incluídas no grupo? _____

13. Abaixo encontram-se listadas diferentes opiniões. Indique quanto fortemente concorda ou discorda com cada uma, utilizando a seguinte escala: 1= Discorda fortemente; 2 = Discorda; 3 = Nem concorda, nem discorda; 4 = Concorda; 5 = Concorda fortemente

1. Vou recomendar esta região para férias
2. Este evento devia ocorrer mais vezes nesta zona
3. Este evento ajudou a melhorar a imagem que eu tinha em relação à região
4. Irei certamente visitar esta localidade novamente (apenas para não-residentes)
5. O evento causou uma boa impressão

14. Já conhecia algum dos patrocinadores oficiais? Sim ☐ Não ☐ Se não passe para P15

14.1. Se Sim, quais?

1= Liberty Seguros
2 = Banco BIC
3 = RTP
4 =Fundação do Desporto
5 = EDP
6 = KIA
7 = Delta
8 = Nobre
9 =Vitalis
10 = Festina
11 = Conselheiros da Visão
12 = Rapozeira
13 = ABola
14 = Antena 1
15 = CISION
16 = JCDecaux
17 = Revista *Ciclismo a fundo*

15. É cliente de algum dos patrocinadores oficiais? Sim ☐ Não ☐ Se não, passe para P16

15.1. Se sim, quais?

1= Liberty Seguros
10 = Festina

2 = Banco BIC	11 = Conselheiros da Visão
3 = RTP	12 = Rapozeira
4 =Fundação do Desporto	13 = ABola
5 = EDP	14 = Antena 1
6 = KIA	15 = CISION
7 = Delta	16 = JCDecaux
8 = Nobre	17 = Revista *Ciclismo a fundo*
9 =Vitalis	

16. Está a pensar assistir ao evento em edições futuras? Sim ☐ Não ☐ Não sei ☐

17. Como ouviu falar do evento?

1= Jornais e revistas	6 = Brochuras
2 = Televisão	7 = Cartazes
3 = Rádio	8 = Face-to-Face
4 =Site da Volta a Portugal em Bicicleta	9 =Outro
5 = Redes sociais	

17.1. Outro. Qual? _____

18. Quais as suas habilitações literárias?

1 = Menos de 4 anos de escolaridade	5 = 10º ao 12º ano	9 = Pós-graduação
2 = 1º ciclo do ensino básico (4º ano)	6 = Curso Tecnológico/Profissional (Nível III)	10 = Mestrado
3 = 2º ciclo do ensino básico (6º ano)	7 = Bacharelato	11 = Doutoramento
4 = 3º ciclo do ensino básico (9º ano)	8 = Licenciatura	12 = Não quero responder

19. Qual a sua idade?

1 = 13 ou menos	6 = 25 a 29	11 = 50 a 54
2 = 14 a 16	7 = 30 a 34	12 = 55 a 59
3 = 17 a 18	8 = 35 a 39	13 = 60 a 64
4 = 19 a 21	9 = 40 a 44	1 4 = 65 a 69
5 = 22 a 24	10 = 45 a 49	15 = 70 ou mais

20. Género

☐ Feminino ☐ Masculino

Obrigado pela sua disponibilidade!

Appendix 2 – Statistical information about spectators

Host economy	% of spectators out of total population	Total number of spectators
Viseu	83%	40.000
Pinhel	93%	2.046
Bragança	98%	18.038
Macedo de Cavaleiros	92%	2.308
Serra do Larouco (Montalegre)	93%	13.067
Boticas	94%	2.058
Fafe	96%	40.385
Srª da graça (Mondim de Basto)	96%	75.214
Alvarenga	79%	2.357
Braga	95%	8.060
Viana do Castelo	97%	41.517
Ovar	87%	21.739
Oliveira de Azeméis	98%	47.886
Condeixa-a-Nova	93%	3.259
Torre (Seia)	92%	38.640
Guarda	96%	7.686
Castelo Branco	85%	35.021
Praia do Pedrogão	84%	10.041
Leiria	94%	33.019
Vila Franca de Xira	100%	9.000
Lisboa	94%	46.825
Total	**92%**	**498.165**