ETOUR

PART OF MID SWEDEN UNIVERSITY

Socio-Economic Impacts of Major Sports Events

An Analysis of the 2019 Alpine and Biathlon World Championships in Sweden

Martin Wallstam, Kai Kronenberg, Robert Pettersson

Socio-Economic Impacts of Major Sports Events

Acknowledgements

Table of contents

List of terms and abbreviations

For the sake of expendiency and coherence, this report will use a number is terms or abbreviations that serve to replace otherwise long or complex phrases, names or words.

- The Biathlon World Championships 2019 will sometimes simply be referred to as "the Biathlon event" or "Biathlon".

- The Alpine World Championships 2019 will sometimes simply be referred to as "the Alpine event" or "Alpine".

- "The events" will be used in the text to refer to the two World Championships together.

- Monetary values in the report are all in Swedish kronor (SEK) and are written in the text as "kr", "thousand kr" or "million kr".

List of figures

List of tables

1 Introduction

In the winter of 2019, two major sports events took place in Jämtland county, Sweden. The events in question were the Alpine World Championships in Åre, and the Biathlon World Championships in Östersund. The proximity of the events in space and time garnered considerable attention both nationally and internationally. Moreover, a number of projects were initiated in the region in order to create synergies between the events and maximize the potential benefits from them. Amongst these initiatives was the creation of the World Championships Region 2019 (WCR 2019) network. The network is a joint project by the two organizing committees and was designed to spread the positive impacts of the events, both in terms of business networking and brand exposure for all forms of businesses, but also as a part of a wider push to attract new county residents. At the time of writing the network partners have decided to extend the project beyond its initial end point in order to continue to further build on the long-term legacy of the two events.

As with most bid-based sports events, there was widespread interest in the returns that the region and its stakeholders would enjoy as a result of hosting them. Similarly, concerns were raised about the potential risks of hosting such large-scale events so close in time. There is still a lot to learn about planned events as it, along with tourism in general, is a relatively economic new sector in the world economy. However, mounting evidence has suggested that they should be treated with caution. Particularly in the case of mega-events such as Olympic Games or Football World Cups. *Major* sports events, such as the Alpine and Biathlon World Championships, have enjoyed relative anonymity in the presence of their *Mega* counterparts. In the case of these events, one could argue that the worldwide demand is more limited than that of the globally popular mega-events. However, there is an unquestionable potential for major events of this sort to incur significant impacts on regions and the local communities that constitute them.

In light of the two events taking place, and the need to scrutinize such events, this report aims to provide some insight on their impacts.

2 Framing of the study and analytical boundaries

2.1 Purpose

Mid Sweden University commissioned a study in connection to the two events. The purpose of the study is to shed light on the social and economic effect of two major sports events in a peripheral region in a limited space- and time frame. Moreover, in light of the regional ambition of the WCR 2019 co-branding exercise, this study also aims to explore the geographical spread of the effects throughout the region. A premise for sustainable regional development, especially in peripheral regions such as Jämtland, is that not just urban centres but also sparsely populated rural areas benefit from different forms of development. As such, it is important to understand actual region-wide implications of policy changes, investments, events and other regional occurrences.

To deal with these overarching questions, the report will first outline the two events from a visitor perspective. The geographic and demographic characteristics of the visitors will be presented as well as visitor attitudes and sentiments with regards to each event. Finally, visitor expenditure patterns will be detailed as this forms the basis for the calculation of economic effect. The report will then describe the shared social and economic effects of the two events on the region as a whole. Note that this is not a TBL (Triple Bottom Line) study. As such, the environmental impacts of the World Championships Region are not in focus. Rather, it is the socio-economic implications of major sports events on the regional level that are under scrutiny in this report.

3 Literature review

There is a considerable wealth of scientific literature on sports events. This literature covers topics ranging from event management, event tourism, volunteering, bidding processes and event policies to consumer behaviour and societal sports participation in induced by sports events (Getz and Page, 2016a). The aim of this literature review is to give an overview of the research on the economic and social impacts of events, including the frameworks applied in this study.

3.1 Effects, impacts and legacies

"Effect" is the general noun used to describe any outcome of an event. Effects can be subdivided into short-term impacts and long-term legacies.

An impact is an outcome that an event imposes on its surroundings in connection with and therefore as a direct consequence of the event being held. An example is the visitors that come to place to visit an event and whose presence is felt to some degree by the local community, the local environment or the local economy. For instance, the crowding created by large numbers of non-local visitors is a clear example of a negative social impact (Deery and Jago, 2010).

A legacy is an event outcome that lasts over time. An example of a legacy is any infrastructure left by an event that then can be used by the local community after the event is over, making it a positive social legacy. There are also intangible legacies such as those related to the brand of the place or the long-term social fabric of the local community (Chalip, 2006). Litterature suggest that legacies can be created through the effectice management of short-term impacts (Andersson 2019).

Whilst the line between impacts and legacies is blurry at times, it is the most concrete of short-term impacts that we are concerned with in this paper. By limiting the study to such impacts, the units of analysis are more clearly discernible and the results become more easily interpreted and communicated. In other words, this report is not concerned with any longitudinal analysis of how the World Championships Region has contributed to changes in Jämtland County over time. Rather, it states what occurred in the region in direct connection with the events.

3.2 Perspectives on the economic impact of major sports events

3.2.1 Direct economic impacts

The most common economic impact assessments found in the case of planned events are those based on tourism expenditures. This is largely due to the fact that major and mega events make up the lion's share of event impacts literature. Considering that these types of events typically draw tourists, the natural unit of measurement of economic impact therefore is the money spent by the tourists in and around an event (Andersson et al. 2009; Getz, 2013; Preuss, 2006).

Economic impact is typically subdivided into three tiers of impacts (Andersson et al., 2009; KPMG, 2018; Saayman and Saayman, 2012).

- Direct economic impact: Describes the expenditure generated within an economy as a direct result of major sports events. Oftentimes direct economic impact alludes to tourism expenditure although it technically refers to local expenditure as well.
- Indirect impact: The purchasing of goods and services by companies serving spectators, participants and event organisers of major sports events.
- Induced impact: The effect created as a result of the added income (profits, wages and salaries) related to the hosting of major sports events that is then spent in the local economy by those who gain such income.

Expenditure based direct economic impact is by and large the most common measure used to gauge the economic impact of events. This is likely because it is relatively straightforward to calculate if some key figures are available (Brown et al., 2015; Davies et al., 2013).

Gratton et al. (2006) studied the direct economic impact of 10 major sports events in the UK between 1997 and 2002. In this comparative study, they applied the same methodology to all ten events to find that the estimated impacts varied from approx. 3 to 27 million kr (converted from UKP, Figure 1). Conversely, in a review of existing academic and consultancy based impact studies of 12 events in Sweden, Pettersson and Wallstam (2017) found that the estimated direct economic impact ranged from 10 to 480 million kr (Figure 2).
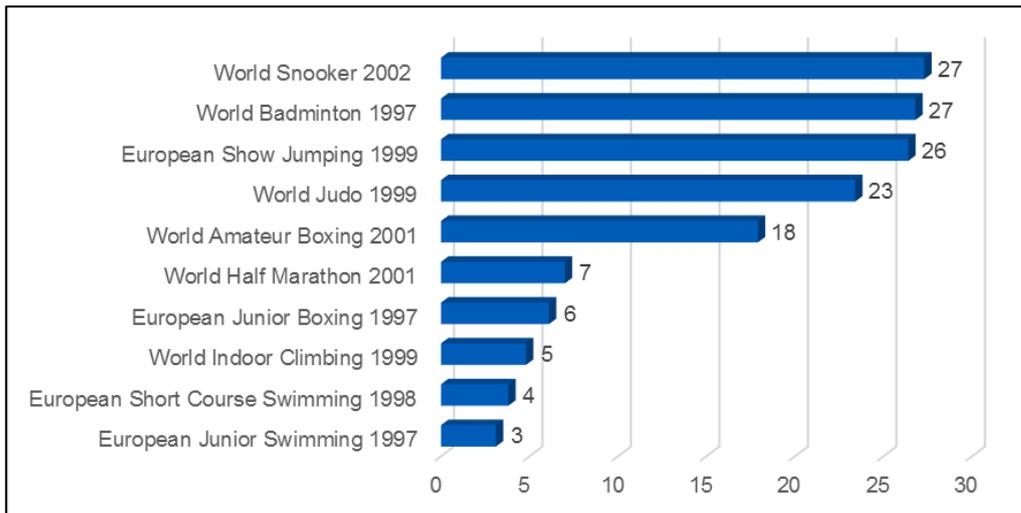
Figure 1. Direct economic impact of 10 major sports events in the UK 1997 – 2002 in million kr (adapted from Gratton et al., 2006)
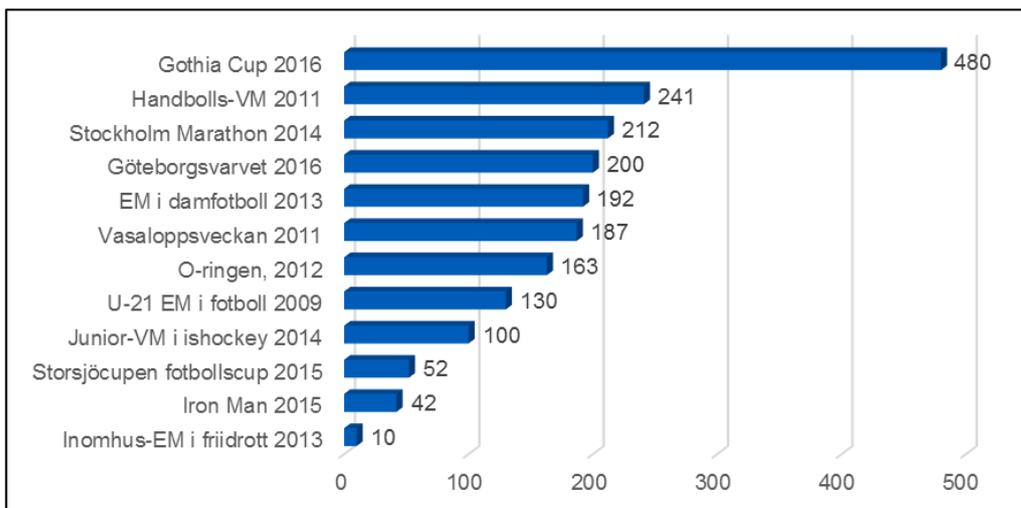
Figure 2. Direct economic impact of 12 major sports events in Sweden 2009 – 2016 in million kr (adapted from Petterson and Wallstam, 2017)

There is a stark contrast between the two graphs in the range of impacts presented. There are a couple of factors that could explain this difference.

- Inflation since the UK events likely accounts for some of the difference between the two samples.
- The UK sample only included professional sports events and no participation-based events. By default, participative events tend to generate significant tourism as compared to professional sports events where primarily only the more popular sports will attract non-local visitors. Therefore, it is reasonable to presume that Stockholm Marathon, for example, which is participation based, will draw more tourists than the spectators and athletes whom attended the World Indoor Climbing Championships 1999.
- The events in the UK sample consisted of smaller, niche sports than those in the Swedish sample.
- The events in the UK sample were all evaluated with exactly the same method by the same researchers whereas the Swedish sample is made up of impact assessments from both private consultancies commissioned by proponents of the events, as well as academic research. The cases in the Swedish sample also had a lot less transparency concerning the methods used and assumptions underlying the economic impacts that were calculated.

This comparison between the two samples and within the Swedish sample highlights one of the most pressing issues in the field of event evaluation today; namely, the lack of transparency in the market of evaluations and the inconsistent application of methodologies. This means that it is hard to make fair comparisons between events. Evaluations commissioned by the organizers themselves often exhibit results that are optimistic, not rarely based on inflated visitor numbers and spending data (Preuss, 2004).

Naturally, this issue affects the current study as the results herein will be equally difficult to compare to other events that have been evaluated using different methods and under different levels of transparency. Assumptions and calculations used in this study will be clearly presented as to ensure trustworthiness of the results. Nevertheless, the wider issue of comparability will not be fixed until region-wide, nation-wide or universal standards are introduced that dictate event evaluation methods and reporting formats.

3.2.2 Multipliers: Indirect and induced impacts

A *multiplier* is an effect that is stimulated by, and therefore only exists, because of a direct effect. Whereas direct economic impact describes the net amount of new capital in an economy, indirect economic impact answers the question of how much a certain amount of new capital is worth in a specific context. In other words, a direct economic

impact of 1 million kr will lead to different multiplier effects depending on the region and its specific economic and industrial configuration. An urban area with a diversified economy will likely exhibit different multipliers from a rural area with a more specialized economy (Davies et al., 2013).

Saayman and Saayman (2012) explain that the true economic impact of an event only can be found once we also take into account multipliers. They demand close scrutiny of the process whereby direct impacts (i.e. from spending) continue to circulate throughout an economy as indirect impacts (inter-business transactions, such as paying subcontractors) as well as induced impacts (spending by local households due to increased incomes). The total impact on the local economy is technically defined as the sum of direct, indirect and induced impacts combined.

There are several frameworks available to use when analyzing multipliers. The historically most common framework used is the Input-Output Analysis (IO). It summarizes the flow of goods and services in an economy and illustrates how an increase in demand in one sector affects demand in other sectors. Although it has received criticism for some of the assumptions it employs, to date it presents the most stable and generally applicable framework available for widespread use on events (Davies et al., 2013; Saayman and Saayman, 2012; and methodology chapter 4.2.2).

CGE (Computable General Equilibrium) modelling is a slightly more dynamic framework than IO, as it combines behavioural models, expressed by economic equations with an industry-level input-output model (Dwyer et al. 2005). However, the complexity of the framework and the data it requires means that it rarely has been used in the context of events as of yet. Moreover, critics argue that it is best suited for Mega-events such as Olympic games, and not major sports events or smaller one-off events in general (Abelson, 2011).

Finally, the SAM (Social Accounting Matrix) framework is related to national income accounting, and focuses on the flows of transactions within major economies. As with CGE, SAM modelling is more complex and more data intensive than IO (Bond, 2008). Thus, it is commonly viewed as more appropriate for the study of large regions and national economies and not smaller economies or local impacts of events (Davies et al., 2013; Saayman and Saayman, 2013).

What all the multiplier frameworks have in common are their reliance on regionally or nationally specific economic data, something that can prove challenging when trying to conduct inter-regional comparisons of events and their impacts (Davies et al., 2013).

3.2.3 Criticisms of pure economic evaluation

A mounting body of research has started to criticize the neoliberal approach to the way we evaluate events in society. Neoliberalism advocates a free market and claims that any economic activity will generate trickle down effects. Such a boosterist mentality often leads cities, municipalities or regions to try to host as many and as large events as possible regardless of the suitability of the events to the local context. This can for example lead to problems for smaller economies that do not have the infrastructure to host large numbers of tourists and that are dependent on a significant import of goods and competencies in order to host larger events (Getz and Page, 2016). It can also lead to problems in locations where the theme of an event lies in direct conflict with the everyday quality of life or values of the host community. Such is the case with major sports events and rowdy, alcohol induced behaviour of event visitors in the Gold Coast, for example (Fredline, 2000; 2002).

In other words, traditional economic evaluations assume that visitor expenditures constitute an inherent good. However, they do not take into account *how* the money is spent and the *quality* of the economic activity that in generated in an economy as a result of this expenditure (Kronenberg, 2019). For instance, are visitor expenditures primarily going into the pockets of major corporations or smaller businesses? And what types of jobs are being supported by the economic activity that is being generated? If a revenue source such as an event only contributes to low-skilled and low-paid jobs, are the economic impacts of the event really of such a nature that they should be pursued?

3.3 Perspectives on the social impact of major sports events

Social impacts are notoriously intangible, abstract and difficult to grasp. It is therefore not surprising that the research on social impacts in tourism and events is fragmented (Deery et al. 2012; Hover et al. 2016). One could argue that the social impacts of events are obvious and undeniable. However, the full breadth of these impacts, and the question of whether they are sustainable or not, has never been answered on a significant scale. In other words, they are "easy to see, but hard to prove" (Van Bottenburg, 2009:1).

The overwhelming majority of social impacts research focuses on the attitudes of community residents where events take place. The idea behind measuring attitudes is that attitudes are indicative of how local residents will behave in reaction to a stimulus (Ajzen and Fishbein, 2005), which in turn often is equated to the social impact that an event has on a community (Deery and Jago, 2010).

The underlying framework of a social impact study dictates the unit of analysis to be examined, the type of data required and the method of analysis that is best used to make

sense of the data. Most social impact studies related to tourism and events are based on one of three constructs: *social exchange theory*, *social representation* or *growth machine theory* (Deery and Jago, 2010).

Social exchange theory is the dominant framework in most social impact studies. It is based on the idea that we can understand community wide social impacts by measuring small scale social exchanges and the utility that individuals see in their surroundings (Ap, 1990; Emerson, 1976). In other words, "community residents are likely to shape their event hosting perceptions from the expected value exchange prior to an exchange occurring" (Kim et al., 2015: 22). If community members around an event perceive their own personal benefits (e.g. social opportunity) gained from living in the host location to cancel, or outweigh, the personal costs (e.g., longer travel time to work) incurred by an event, then they will be more likely to evaluate the impacts of the event as positive for them. If enough people in a place share this perception then the overall social impact of an event can be seen as positive.

Social representation is the second most common framework used in evaluation of the social impact of events. It suggests that members of a community collectively produce and communicate social knowledge to one another. Research that applies this framework to events often try to grasp the shared image that a host communities co-produces about the event and what it means to the community. Nevertheless, Woosnam et al. (2009) argue that using social representation in tourism contexts can be risky, as it never really has been operationalized but has rather used as a guiding framework to inform evaluations of social impacts.

A few studies have employed *growth machine theory* (Madrigal, 1995), but such studies are under fire from tourism and events researchers due to the perceived lack of applicability (Woosnam et al., 2009). The theory suggests that clusters of people, or "nested communities", are formed as a reaction to local governments' use of power. It works by assessing the level of homogeneity or heterogeneity in community group views towards tourism development. Then by comparing and contrasting such clusters can one establish if a certain set of policies are creating a socially sustainable tourism development. Places that host socially unsustainable events will likely have large numbers of happy clusters and a few very happy clusters. On the other hand, socially sustainable events can be identified by a lower level of polarization between the opinions of different clusters towards an event.

Case studies and reviews on the social impacts of major sports events have shown a range of potential social impacts. Moreover, these impacts are gauged through community perceptions in the vast majority of cases (McCartney et al., 2019). Yao and Schwarz (2018) distinguish between major reoccurring events and major one-off or ephemeral events that change venue every time. In their study of the World Annual Gold Championships in Hong Kong, they conclude that even major events that do not

have a widespread local fan base can enjoy significant local support. The support of an event regardless of one's own attendance can also be described as the non-use value of the event. Non-use value demonstrates that the mere presence of an event can produce perceived positive impacts, event when the population in question does not partake in, or gain any other tangible benefits from the event. It is measured by asking residents of their willingness to pay for the existence of an event through tax, a method also known as contingent valuation (Andersson et al., 2013).

Balduck et al. (2011) illustrate how a major sports event is perceived in the eyes of local community residents before the event compared to after it has passed. They examined what impacts the local community in Ghent experienced in connection with the Tour de France as it passed by in 2007. The main benefits pre- and post event in the eyes of the local community were image and cultural benefits of having the event take place in their region. The main costs, meanwhile, were the perceived expenses of hosting such events and the everyday mobility problems that local residents face during and event of this type. Both the perceived benefits and costs were significant predictors of local community willingness to host the event in the future.

McCartney et al., (2019) conducted a systematic review of the literature on major sports event, focusing on the health and socio-economic impacts of such events. In the review, they contend that costs of major sports events are increasing and that they are hard to justify. However, they also assert that one of the main reasons why it is hard to justify costs is that intangible social benefits and costs rarely are evaluated long-term (McCartney et al., 2019: 7):

> *…until decision-makers include robust, long term evaluations as part of their design and implementation of events, it is unclear how the costs can be justified in terms of host population benefits.*

Moreover, there is still is a lack of systematic and widely recognized evaluative frameworks on which long term evaluations of social impacts can be based. Such frameworks would also enable inter-event and inter-regional comparisons of event impacts. The challenges facing event evaluation with regards to social impacts are much the same as those described in the context of economic event evaluation, as described earlier. Whilst we know what to look for in economic impact (monetary value), the jury is still out on what social impact really is and what variables best represent the social impact events have on communities.

4 Methodology

4.1 Data collection

The evaluation of the World Championships Region aims to be comprehensive by taking into consideration various interest groups. Accordingly, the evaluation is based on three perspectives: the visitors to the events, the regional residents, and regional workplaces. These three perspectives were captured through two surveys. One survey to the visitors of each event as well as one survey to the regional residents. The regional resident survey included a voluntary section where the respondent could answer questions about the impact that the World Championships Region had on both the companies where they work and their own workplace situation. Accordingly, the perspectives from business owners as well as employees were taken into consideration: the impact that business owners felt that the World Championships Region had on their business, as well as the perception that regional employees had about the impact of the World Championships Region on their workplace and working environment.

4.1.1 The visitor survey

The perspective from the visitors was captured by sending out a visitor survey via email to those who had obtained tickets to the events. The research team had the support of both the Alpine- and the Biathlon organizational committees when it came to disseminating the surveys to the respective visitor groups. Additionally, "Skipass" holders were reached with the help of the communication team of the company selling skipasses. It was deemed necessary to reach Skipass holders as well as they enjoyed free access to the Alpine event. The content of the suveys was, overall, identical for the Alpine- and Biathlon visitors. Besides typical demographic and background information, the survey asked questions regarding the event's influence on their travel decision; the importance of success of an athlete or nation for their interest in such events; the degree of active and passive participation; the satisfaction on various categories; their awareness about the other championship event; and their expenditures directly connected to the events.

The statistics from the sendout of both visitor surveys are summrized in Table 1 below.

Table 1. Summary sample size visitor survey

	Alpine World Championships	**Biathlon World Championships**
Sendout date	21-22.02.2019	20.03.2019
Sendout size	5647	9093
Answered	989 (18%)	3407 (38%)
Completed	898 (16%)	3220 (35%)

The surveys were sent out soon after the end of each World Championship. The response rate is stated in two ways: Firstly, the rate of those who started answering the survey but did not finish, which was 18% for the Alpine World Championships and 38% for the Biathlon World Championships. Secondly, the final response for those who completed the survey, which was 16% for Alpine respondents, and 35% for Biathlon respondents. The resulting final sample size was N = 989 for the Alpine events, and N = 3407 for the Biathlon events. In the results section of this report, the respective N-value is stated for each analysis conducted.

4.1.2 The regional resident survey

The regional resident survey took a novel approach to data collection. The main challenge to capturing local community perceptions of events is the question of how to reach a representative sample of the population. Conventional modes of data collection such as street based face-to-face surveys or randomized telephone interviews were deemed as too ineffective in the context of a region wide impact evaluation. Instead, SMS-based surveys seemed the most suitable mode of data collection for a number of reasons:

- Disseminating the survey via SMS to telephone registers allowed for a large sample from across the entire region, with representative sub-samples from each of the eight municipalities in it.
- There are no email-registers that allow access to a wide range of demographic and geographic groups.
- E-mail based surveys show diminishing returns on larger samples if the sample has not previously been approached with a request to answer a survey. There were no effective ways of approaching the regional population with survey requests in this case.
- Telephone surveys are resource intensive and would limit the number of respondents in the study sample.
- SMS-based surveys have been demonstrated as an effective way of collecting data in other contexts, such as in health care (Dal Grande et al., 2016; Lee et al., 2013).

A stratified random sampling method was used to ensure representativene samples from each municipality in the region. Mobile-phone numbers registered in each municipality were acquired from the MIA database (MIA, 2019). Only phone numbers registered to inhabitants aged 18-75 were considered, as the mobile phone usage by Swedish inhabitants older than 75 decreases rapidly (Davidsson and Thoresson, 2017). The SMS-survey was disseminated in several rounds. A primary round was sent on 03.04.2019 to 27 851 numbers across all eight municipalities in Jämtland, with two reminders. The second round of SMS-surveys was sent to numbers in municipalities where there were not yet enough responses to achieve representativeness for the

respective populations. The criteria for the second round of sendouts was to reach a margin error of maximum 5% at the 95% confidence level for each municipality. Therefore, an additional 8 442 numbers received the SMS survey on 11.04.2019 in all municipalities except Åre, Östersund and Krokom, that had already reached critical mass with regards to responses in the first round. The second round also used two reminders. As a result, a total of 36 293 residents of Jämtland county received the SMS-survey. Table 2 summarizes the sampling of this regional resident survey.

Table 2. Summary sample size regional resident survey

	Populat. 18y-75y	Round #1	Round #1 answers	Round #2	Round #2 answers	Total answers
Berg	4 963	1 497	230 (15%)	1 638	217 (13%)	447 (14%)
Bräcke	4 620	1 398	220 (16%)	1 604	203 (13%)	423 (14%)
Härjedalen	7 295	2 197	276 (13%)	1 682	205 (12%)	481 (12%)
Krokom	10 162	3 081	526 (17%)	-	-	526 (17%)
Ragunda	3 729	1 128	191 (17%)	1 303	151 (12%)	342 (14%)
Strömsund	8 281	2 498	244 (10%)	2 215	245 (11%)	489 (10%)
Åre	8 204	2 479	486 (20%)	-	-	486 (20%)
Östersund	44 806	13 573	1 692 (13%)	-	-	1 692 (13%)
Total	92 060	27 851	3 865 (14%)	8 442	1 021 (12%)	4 886 (14%)

The final total sample size was 4 886, represented by all eight municipalities in Jämtland county.

4.1.3 WCR 2019 Network survey

Initially, the study also aimed at examining the WCR 2019 network that was created in connection with the World Championship events. Hence a survey was sent to the 205 registered members of the network. The send-out and two subsequent reminders together achieved 40 completed surveys. The survey was omitted from this study due to the limited response in the context of the network. In other words, it would have been difficult to substantively conclude anything about member satisfaction or the nature of the business networks amongst members, for example.

4.1.4 Secondary data

Secondary data was used for analysing the economic impact of the World Champions Region. More precisely, developing the regional model for measuring direct and indirect effects first required all the national supply- and use tables from 2016 to be transformed into the national Input-Output table. These supply- and use tables are freely available on the SCB website (SCB 2019). Furthermore, the regionalization of the model towards region-specific industry structures required addtional employment-

per-sector data, which was purchased from SCB's employment statistics (Registerbaserad arbedsmarknadsstatistik RAMS).

4.2 Data analysis

4.2.1 Event performance

The event performance is evaluated based on the visitors' perspectives, which, in turn, is collected in the visitor surveys. Besides basic descriptive statistics to summarize and obtain a first overview of the dataset, the analysis includes various bivariate tests to compare different groups of respondents. The grouping variables included in this analysis are: four age categories, three residence or origin groups, two categories about the event's influence on the travel decision, two categories about the importance of success of a favourite athlete or nation. The analysis of the visitor survey includes basic statistical tests, such as:

- Descriptive statistics and measures of central tendecies
- T-tests: parametric tests for variables with normal distribution
- Analysis of Variance (ANOVA) for varibales with more than two groups
- Mann Whitney U (rank-based) tests for not normally distributed variables. The strenght of the effect is measured by a correlation coefficient r, where r-values 0 – 0,3 = weak, 0,3 – 0,5 = medium, and 0,5 – 1 = strong (Cohen 1992)
- Chi^2-tests for nominal and ordinal variables
- Cluster analysis: The k-Means cluster algorithm is applied for identify groups of resondents with similar characteristics. The cluster analysis is used in evaluating the event performance, but especially in evaluating the regional social impacts, based on the resident survey.

The criteria for identifying relationships between two variables and differences among groups is based on a 95% significance level. A statistically significant result, with p-values ≤ .050 means that there is a 95% confidence that differences in groups are "real" and are not there by chance.

4.2.2 Evaluating regional economic impacts

This sub-chapter discusses the methodology used to estimate the economic impact of the World Championships. The analysis includes the pure economic impact from the events, i.e. in terms of sales, or output for the regional industry, but also additional insights on the impact on employment and income of the regional population. The structure and content of this chapter is in parts aligned to the methodology in the licentiate thesis by Kronenberg (2019), which includes a similar methodology in estimating the socio-economic impacts of tourism.

First, it is worth to point out the difference between the concepts *visitor expenditures* and the *economic impacts* of the events, as they can differ quite substantially. Visitor expenditures simply refer to the amount of money directly spent by the tourists or visitors on various expenditure categories, as discussed in the chapter above. This is equivalent to sales or turnover made by providers of the respective products and services. In turn, the economic impact of a certain activity (in this case the World Championships in Åre and Östersund) traces the flows of this spending associated with the events throughout the entire region.

As already mentioned in the literature section, the economic *impact* of the World Championships is based on *tourist spending*. Obviously, not all the economic impact of such events result from visitor spending. For example, organizing the events also involves spending by the event-organizers, which benefits local and regional businesses, such as construction and marketing companies. However, data on how such organizational costs were allocated on specific industry-sectors was hardly available, and, in fact, impossible to prepare in a reliable way. Therefore, economic impact in this study is defined based on tourist spending, which is in line with the existing event-literature as described earlier.

Total amount of unique visitors
In order to estimate the total direct and indirect impact from the World Championships region, an estimation of the total amount of visitors to both events is needed. This is not a straight forward task, as exact data was not available and approximations needed to be done. In addition, the Alpine events had Skipass holders entering and visiting the event, whom were not registered as event visitors as such. Furthermore, the difference between *number of tickets sold* and *unique visitors* should be considered. In theory, every ticket sold can be a unique visitor. However, visitors tend to access the arena multiple days. Therefore, instead of determining a concrete number of total visitors, this study considers a range with two scenarios, here called the "minimum" and the "maximum" scenarios.

The maximum scenario refers to the highest total number of unique visitors theoretically possible for each event. The maximum scenario in both cases was based on data provided by the respective organizers on the numbers of tickets, sold or given away. As these are the absolute maximum numbers of unique visitors to the events, they also show us the absolute maximum economic impact possible, as based on visitor expenditures. For the Alpine World Championships, this means a total number of approximately 102 000 unique visitors. For the Biathlon World Championships, the absolute maximum is estimated to approximately 63 300 unique visitors.

The minimum scenario refers to the total number of unique visitors based on the amount of tickets sold divided by the average number of visits to the arena, measured

in "days at the arena" in the visitor survey. Accordingly, for the Alpine World Championships, the total number in the minimum scenario amounts to approximately 54 700 visitors. In the case of the Biathlon World Championships, this number is estimated to approximately 29 700 visitors. Hence, these are most probably more realistic numbers than the maximum scenrio. However, the true number is unknown, and probably lies somewhere in between.

Direct and indirect impacts

To estimate *impact* based on initial *visitor spending* requires an economic model that models the *supply side* of the regional economy. The model used in this study is a regionalized Input-Output model. Applying *demand based* visitor expenditure patterns to this model allows us to estimate the flow of these expenditures throughout the regional economy. This flow can be expressed in several rounds of impacts, often known as the direct, indirect and incudes effects (see chapter 3). By doing so, it is possible to identify changes in sales, employment, and income (Kronenberg et al., 2018; Stynes, 1998). In this study, only the *direct* and *indirect effects* of the World Championships are considered. Often, economic impact studies include *induced* effects in their methodology, usually leading to inflated impact estimations of the activity under study. Also, depending on the economic model used to estimate the impacts, induced effects are often cited as being substantially overestimated, and hence, are usually not recommended to be included in economic impact analysis. They should at the very least always be interpreted with great caution when using a basic Input-Output model (Miller and Blair, 2009).

As such, *direct effects* are changes in demand in sectors directly involved in the production and sale of tourism products and services such as accommodation, food and beverage, entertainment, groceries etc. (Stynes, 1998; Stabler et al., 2009). However, direct effects are should not be equated to visitor expenditures. While *visitor expenditures* refer to the exact amount that visitors pay for their products and services, the *direct effect* is the *net effect* of these expenditures. This means that the sales of the local suppliers are adjusted with regards to the local capture rate, i.e. imports are deducted from sales, and only the share of local production and the suppliers' profit is considered. For instance, a souvenir purchased by a visitor might be produced in another region or abroad. Hence, a certain share of this visitor's expenditure leaks out of the region when this souvenir is imported. These import-costs are excluded in the *direct impact* for the region. This adjustment, however, is only applied to tangible products sold to tourists without further alterations. Not included in these adjustments are services that are produced on-site, such as a restaurant service and the food that is provided in the restaurant. According to the method, these types of services are assumed to be produced 100% in the region and therefore no imports need to be considered (Stynes, 1998).

By contrast, *indirect effects* occur in industry sectors that are not directly selling products and services to tourists. For instance, restaurants buy meat and vegetables from local farmers. Demand by event visitors for restaurant services indirectly triggers demand for meat and vegetables from local farmers. This is based on the concept of inter-sectoral linkages. Inter-sectoral linkages occur when businesses either purchase or sell products and services from and to each other. Such transactions typically occur within one sector or between different sectors. When inter-sectoral linkages within a region are strong, regional capacities are considered as strong, as the economy tends to become self-sufficient (Sinclair and Sutcliffe, 1978). In these cases, the impact of event visitors on the regional economy is typically large (Stabler et al., 2009). However, a small region with a struggling economy, weak inter-sectoral linkages, a small population, or a less diverse industry structure is usually not able to provide all products and services required for tourism consumption from within its own economy (ibid. 2009). Subsequently, in order to satisfy tourists' needs, products and services must be imported from outside the region. Leakages then occur, money flows out the region, and the benefit for the regional population becomes marginal (ibid. 2009; Miller and Blair, 2009).

A regional IO model provides a database architecture which, first of all, reflects the supply-side. Demand side data, i.e. tourist expenditures that can directly be attributed to the events are then applied to the model. As a result, the impact on *output* (i.e. sales), *employment* and *income* for the entire regional economy is estimated.

The regional Input-Output (IO) model for Jämtland county
The IO model is one type of economic impact model that allows for estimations of both direct and indirect impacts of events on the regional economy. The model considers transactions between sectors involved in the production of tourism products and services that event visitors demand. As earlier mentioned, although the literature readily highlights the limitations of the IO model, the other models available are still based on the IO framework, are considerably more complex and also come with a range of inherent limitations. Considering the purpose and the context of the current study, the basic IO methodology was deemed most appropriate. This is mainly because the basic IO methodology is transparent in terms of assumptions and limitations (Kronenberg, 2019). This is especially important for event impact studies as readers need a transparent description of underlying assumptions, models, and methodologies used, in order to be able to compare results with those of similar events.

The IO framework represents monetary flows of goods and services between various sectors of an economy over a specified period of time, usually one year (Miller and Blair, 2009). In other words, the IO framework quantifies the relative importance of the interrelationships between sectors in an economy. The database for the IO model is the *IO table* defined as a so-called *transaction matrix*. The columns of this matrix display the monetary values of received input from all sectors, as well as each sector's generated

value added (e.g. wages, profits). The rows depict the corresponding units of output, comprising of the monetary value of each sector's output to other sectors, and final demand. Table 3 below exemplarily illustrates a simplified IO table (Hara, 2008; Miller and Blair, 2009).

Table 3. Simplified Input-Output table (adapted from: Eurostat, 2008)

	Agriculture	Industry	Services	Final demand	Output
Agriculture	20	34	10	30	100
Industry	20	152	40	88	400
Services	10	72	20	90	200
Wages & profits	50	143	130	0	322
Input	100	400	200	208	-

The IO model is derived via matrix algebra and can be expressed as

$$\Delta x = (I-A)^{-1} * \Delta y$$

where *x* represents the *vector of total sales* of each sector, *I* is the *identity matrix* whose diagonal elements are all one and the rest zero. *Technology matrix A* shows the degree of inter-industry transactions. These transactions are represented as IO *coefficients* for each cell in the matrix. More specifically, the coefficient simply shows the percentage share of each input of the total input. Vector *y* indicates the *final demand* (Miller and Blair, 2009; Kronenberg, 2019).

The impact of tourism can, thus, be studied by defining values for final demand (i.e. Δy), in this case tourist expenditures in each sector. This results in corresponding changes in sectoral output, employment, or income in all other sectors, due to interlinkages as well as *importation* rates. The model allows for the estimation of the amount of output, employment (and the corresponding income) required from other, backward-linked sectors to satisfy a demand (Stabler et al., 2009; Stynes, 1998). It is important to consider that temporary and locally occuring events do not necessarily *create* new employment. Rather, results from the model depicts how much employment would be needed to create the amount of products and services consumed by visitors during the event. Employment effects are usually presented as *full-time-equivalents* (FTE).

The statistical bureau in Sweden do not provide IO tables on the regional level. Therefore, regionalization techniques need to be applied in order to capture region-specific industry structures (Kronenberg et al., 2018). For this study, the FLQ method (Flegg Location Quotient) is used (Flegg and Webber, 2000). The FLQ method adjusts the size of each regional industry sector from the perspective of its specific employment structure. More precisely, every sector requires a certain amount of employment to

generate its known output level, defined as the *employment per output ratio.* If a sector's regional ratio is below the its national ratio, it is assumed that the sector is underrepresented in the region. Hence, the sector needs to import a certain amount of resources into the region to satisfy a specific demand. The FLQ further considers the *relative size* of the regional economy by incorporating a weighting indicator. Accordingly, the FLQ regionalisation technique implies a certain degree of self-sufficiency of each sector in the regional economy as well as the corresponding importation requirements (Gerking et al, 2001; Var and Quayson, 1985; Flegg and Webber, 1997; Miller and Blair, 2009; Kronenberg et al., 2018). FLQ is defined as:

$$FLQ_{ij} = \frac{RE_i/NE_i}{RE_j/NE_j} \, [log_2 \, (1+\tfrac{TRE}{TNE})]^\delta$$

Subscripts *i* and *j* indicate the supplying and purchasing sectors. *RE* is Jämtland county's regional employment; *NE* is the national employment; *TRE* reflects Jämtland county's total employment; and *TNE* is Sweden's total employment. The term log_2 *(1+ $\frac{TRE}{TNE}$)$^\delta$* is a weighted measure for the region's relative size. The parameter δ takes values between 0 and 1 (Flegg and Tohmo, 2011). The larger a region, the greater the input coefficient and the smaller the importation coefficient. The literature recommends δ = 0.3 as the most accurate value (Bonfiglio and Chelli, 2008; Flegg and Thomo, 2011; Lindberg et al., 2012), which has been adopted for Jämtland's model. For cells with a FLQ value below 1, regional coefficients are obtained by multiplying national coefficients with the corresponding FLQ value. For cells with a FLQ value above 1, no adjustments are necessary by definition, thus the regional coefficients are the same as the national coefficients.

Vector for final demand (y)
Sweden's national IO-table consists of 64 aggregated sectors, classified into SNI codes (*Svensk Näringsgrensindelning*), the Swedish standard for industry classification. The table had to be adjusted for the regionalisation process to 60 aggregated sectors for Jämtland county's economy. The vector of final demand (*y*) allocates the products and services event visitors consume to these sectors. Defining the vector of final demand requires some aggregation of the demand data, i.e. not all 10 expenditure categories are listed in such detail in the IO model. Accordingly, the visitor expenditure categories were aggregated to fit the CPA format (*Classification of Products by Activity*) in the IO model:

Table 4. Allocation of expenditure categories to Input-Output sectors

Visitor expenditure categories	IO model – CPA format	SNI code
Accommodation Restaurant, cafés, bars, street food	Accommodation and food services	I55-56
Retail and shopping Private car expenses	Wholesale and retail trade	G45-47
Sport and recreational activities	Sports services, amusement and recreation services	R93
Cultural activities	Creative, arts and entertainment services; library, archive, museum and other cultural services	R90T92
Local transport in Jämtland County	Land transport services	H49
Rental car	Rental and leasing services	N77
Travel to and from Jämtland county	*Omitted*	*H49-51*

The final demand vector (y) for the regional model consists of six aggregated tourism-related sectors. Accordingly, expenditures made by event visitors are allocated to these six sectors to define y. As mentioned before, these expenditures are converted to net expenditures, i.e. taking into account local production and profit margins. This step is necessary to ensure that only the amount staying in the region is considered in the impact analysis (Stynes, 1998). As a result, the vector of final demand equals the direct effects of tourism per sector.

Expenditures on transportation to and from Jämtland county have been omitted because these expenditures are usually made outside of the region and hence, do not count as impact for the region. For instance, for most tourists the expenditures on flight tickets to Jämtland county were made prior the trip and sales from these services do not fully benefit the Jämtland Härjedalen region. Such expenditures should therefore be excluded from the impact analysis.

Finally, only expenditures made by event visitors from outside of Jämtland county are considered in the impact analysis. This ensures that the economic impact of the events only considers "*new money*" flowing from outside the region into Jämtland county. Considering that expenditures by the local population only re-distributes already "*existing money*" within the region, it cannot be considered as an impact per se.

Assumptions of Input-Output models

The IO framework is based upon various assumptions (Miller and Blair, 2009; Kronenberg, 2019) summarized as follows: 1) the output generated from each sector is aggregated by only one product or service (industry technology assumption ITA). For instance, hotels only provide accommodation services. 2) Any increase in demand can be satisfied, and no resources are limited (e.g. lack of skilled workers or limited intermediate products) 3) The commodity input structure is assumed to be fixed, meaning that concepts such as economy of scale to increase efficiency do not apply. Thus, increasing demand requires the same ratio of inputs and no (price) elasticities or substitution effects are incorporated, always resulting in positive impacts (Dwyer et al., 2004). Finally, 4) both the employment per output ratio and the income per output ratio is considered the same for the region as for the nation.

The limited consideration of price changes and substitution effects have led to a relatively large sub-community of economists who believe that the basic IO-methodology is not the optimal method. In practice, the suitability of the IO model for a particular scenario largely depends on a combination of various factors (Crompton, 1995): 1) How and for what purpose the model is applied. This study was designed to estimate economic impact solely based on new money flowing into the region by tourists from outside the region, which in turn was adjusted for the event's role in the decision to travel to Jämtland. 2) Whether the limitations are sufficiently discussed and considered for result interpretation. The interpretation of the indirect impact in this study is made with care with regards to the underlying model assumptions. Still today, a large number of academic papers with basic IO methodology are published in top field journals, such as Blake (2008), Mitchell and Gallaway (2019), Smeral (2015) and Tohmo (2018). This clearly shows that IO-based models are still widely appreciated and accepted in the tourism literature.

4.2.3 Evaluating regional business and workplace impacts

In addition to the pure economic impact, this report further investigates the perceived effects of the World Championship Region on regional businesses and workplaces. To reiterate, the purpose of this study is is to obtain a comprehensive picture of the regional effects from the the two events. Hence, this study gave regional business owners and working individuals the opportunity to share their perspective on how the events affected their business' performance and working conditions. This data was collected as an optional section at the end of the regional resident survey.

The phrasing "business and workplace impacts" is used, since it refers to the performance of regional businesses and other forms of organization, but also the way in which employees are affected at their workplace. The analysis distinguished between two perspectives, the ones of company owners or CEOs, and the perspective of

managers and employees. The owners and CEOs received questions about their own business performance, and how they think their employees were affected with regards to their workplace situation. The employees and managers received questions about where they are employed, the perceived impact of the events in their organization or company, and how their own working environment was affected by them.

The items included in the business performance analysis are:

To what extent did the two events affected your business'/organization's or workplace's…
- …economy
- …brand
- …networking opportunities
- …competencies within the company

Meanwhile, working conditions is captured by the items:

To what extend did the two events affect your employees'… / your own…
- …sense of meaningfulness at work
- …workload
- …career opportunities

Furthemore, comparison of groups are made based on the location of the business or workplace. Here, the study distinguished between businesses located in three geographical areas, namely: Åre, Östersund, and other municipalities. The purpose here was to explore whether differences in perceived impacts exist depending on proximity to the events, or not.

4.2.4 Evaluating regional social impacts

Historically, investigations relating to planned events and their impacts have been informed by tourism studies (Deery et al. 2012; Getz and Page, 2016b). This tendency emanates from the strong theoretical links between the fields of event-and tourism studies, which is to a large extent evident through the existence of literature on the specific phenomenon of event tourism (Getz, 2013).

The early focus on the economic impacts of tourism and events has gradually broadened given the increased emphasis on Corporate Social Responsibility (CSR) in public and private decision-making throughout the 1990s and early 2000s (Getz and Page, 2016a). This trend has dictated that companies and governments must take into regard the wider implications of their activities extending beyond mere economic impacts.

An important outcome of this shift has been the widely adopted TBL (Triple-Bottom-Line) impact taxonomy. TBL distinguishes between three forms of impact consisting of economic, environmental and social aspects (Getz, 2013; Brown et al., 2015). First coined by sustainability consultant John Elkington in 1994, this framework assumes that it is desirable to achieve positive outcomes within all three areas since they directly and indirectly influence each other (Elkington, 2008). For example, a short-term environmental cost in the form of air pollution, can translate into long term social and economic costs in the form of poor health amongst community residents.

Research on the social impacts of planned events reflects the shifts in these priorities. Deery and Jago (2010: 9) go as far as to declare that social impact studies of events have "come of age". These authors summarize the foci of previous social impact research as relating to: (a) constructing scales for evaluating social benefits and costs of events; (b) the study of the linkage between perceptions and resident support for events; and (c) the provision of recommendations to local authorities on how to improve social impacts. Moscardo (2007) provides us with a clear typology of social impacts as seen through the lens of regional and community development. She puts forth the constructs of social capital, community well-being and capacity enhancement as a means towards understanding the fundamental impacts that events have on society.

Table 5. Social impacts of events (adapted from Deery and Jago, 2010:17)

Positive impacts	Negative impacts
• Increased employment opportunities	• Rowdy and delinquent behavior
• Increased standard of living	• Increased crime levels
• Increased entertainment opportunities	• Excessive drinking
• Economic benefits	• Litter
• Opportunity to meet new people	• Damage to the environment
• More interesting things to do	• Noise
• Enhanced community image	• Traffic congestion and parking problems
• Community pride	• Disruption of normal way of life
• Preservation of local culture/heritage	• Overcrowding
• Increased skill base	• Money spent on events. not on community needs
• New facilities and infrastructure	• Increased cost of living

Whilst Moscardo helps us conceptualize the social impacts of events in the broader development context, Deery and Jago (2010) offer one of the most comprehensive typologies of indicators that can be operationalized to measure social impact (Table 5). Citing Fredline (2000) and Fredline et al. (2003), the list compiled consists of 22 indicators divided into positive and negative impacts. The indicators presented by Deery and Jago (2010) give an overview of the full range of social impacts that a planned event could conceivably produce. We seek to pinpoint those indicators that are most universally applicable (in terms of event type and destination context) but also user-friendly. This means they have to be simple to comprehend and communicable for non-academics like policymakers. Fulfilling these criteria would, in our opinion, make an indicator usable in strategic decision-making regarding events on the destination level.

Meanwhile, Sherwood (2007) offers a slightly alternative angle to the evaluation of event impacts. He assumes a TBL perspective, which seeks to standardize the economic, environmental and social indicators (Table 2) that are appropriate for use in iterative comparisons of events in event portfolios. Nevertheless, Sherwood's study falls short of addressing the user-friendliness for practitioners who wish to operationalize the indicators towards either destination management or public policy ends.

To address the lack of universal evaluative indicators of the social impacts, Wallstam et al. (2018) used a Delphi approach to distil the list of potential indicators further, to arrive at a set of 6 potential indicators that are applicable for use inter- and intraregional event evaluations.

Table 6. Indicators suitable for use in the evaluation of the social impacts of events (adapted from Wallstam et. al. 2018).

Indicators
Community quality of life
Community pride
Social capital
Sense of community
Community capacity enhancement
Facilities impact

5 The visitors and the visitor perspective

This section presents the results from the visitor surveys, which were conducted for both World Championships. Accordingly, this section gives insights about the types and backgrounds of the events visitor populations, their perceptions and attitudes about the events, as well as their expenditure patterns across a number of categories. Since the questions were the same for both surveys, the results of both events are presented together.

Logic-based functions in the surveys enabled the specification of relevant questions for each respondent. This implies that not every question is answered by every respondent, and hence, the amount of responses (N) is stated for each question.

5.1 Demographics and background information of event visitors

The demographics and background data about the visitors of the events refer to gender, age, groupsize, origin, and the type of accommodation used during their stay in the county of Jämtland. Some of these variables function as grouping variables for analyses later on, in order to identify differences and/or similarities between visitors with different backgrounds.

While the share of women and men is almost equal for Biathlon World Championships (50,5% and 49,4% respectively), the share of female visitors for the Alpine World Championships (43,3%) is lower than the share of men (56,5%).
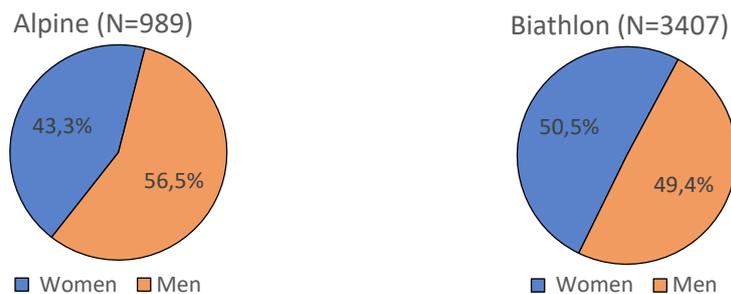
Figure 3. Gender distribution

Overall, the respondents who visited the Alpine events were slightly younger than the visitors of the Biathlon, with an average age of 49 years compared to 51 years, respectively. The median age, i.e. that age at which half of the respondents are older and half of the respondents are younger, were 49 years (Alpine) and 53 years (Biathlon),

slightly above the average age in both cases. To obtain a more detailed perspective, the age of the events' visitors has been categorized into four groups: 30 or younger, between 31-45, between 46-65, and above 65. The reasons for choosing these categories is twofold: On the one hand, these categories should reflect typical life stages. On the other hand, the age variable is used as a grouping variable in later analysis and hence, requires a certain minimum number of respondents for each category (Nardi, 2018).

The distribution of age categories is quite similar between the events with only minor differences. Around half of the visitors of both events (53% and 50% respectively) were aged between 46-65 years, whereas only 11%-13% of the visitors were under 31 years old. The higher average and median age at the Biathlon event can be explained by the higher share of visitors above the age of 65.
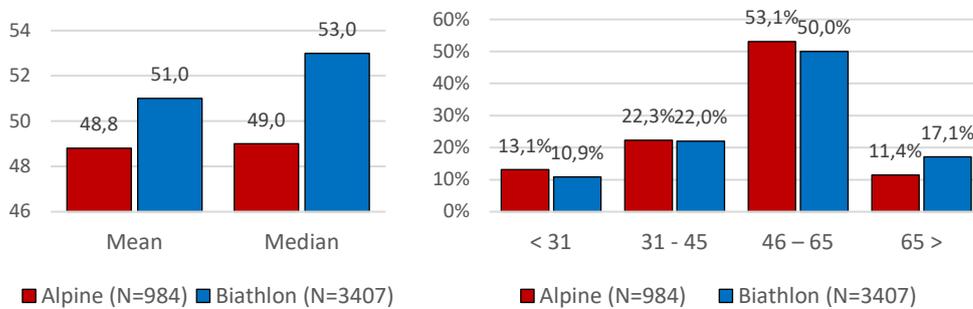
Figure 4. Age: Central tendencies and categories

The surveys included a question about the size of the respondent's immediate travel group. Figure 5 shows the central tendencies of the group size. Since the purpose was to identify the immediate group size, outliers with extremely high numbers (i.e. > 10) have been excluded in this calculation. The number of youths aged 0-14, however, were included. Accordingly, the average group size of Alpine visitors was 3,7 persons, compared to 3,3 persons for Biathlon visitors. The median lies below the average numbers, i.e. 3 for Alpine and 2 for Biathlon, respectively.
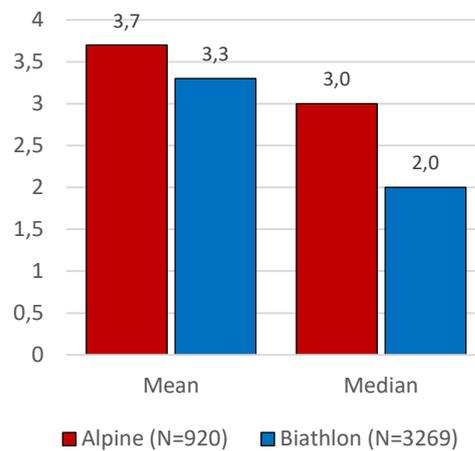
Figure 5. Group size

Socio-Economic Impacts of Major Sports Events

The following four graphs give insights about the residence (place of origin) of the event visitors. First, figure 6 distinguishes between the four main regions of origin, i.e. divided into the county of Jämtland, Sweden outside of Jämtland, Norway, and all other international visitors. The Biathlon event exhibited a high share of domestic visitors from Jämtland and other parts of Sweden, which all together account for approximately 87%, followed by 8% Norwegians and 5% from other countries

Figure 6. Residence all visitors

The Alpine event attracted a high share of Norwegian visitors (21%), almost as many as its regional visitors from within Jämtland (22%). The share of visitors from other Swedish regions (49%) and other countries (8%) are similar to those of the Biathlon event.

In terms of the international visitors, figure 7 lists the five countries with the highest number of visitors for each event. The neighbouring country of Norway accounts for by far the highest share of international visitors for the Alpine event (73%). The second highest number of international visitors come from Switzerland and Great Britain (5% each), followed by Denmark (4%) and Finland (3%).
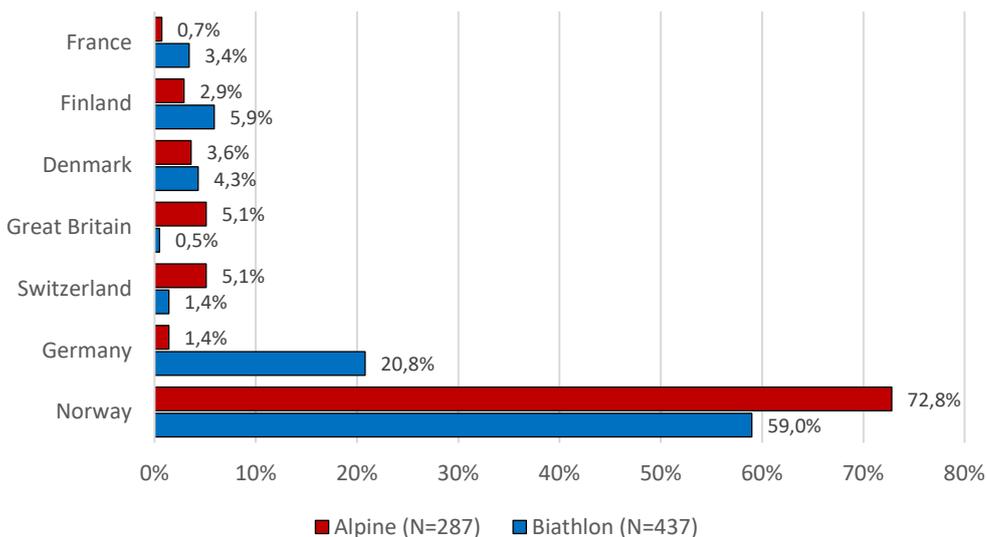
Figure 7. Place of residence for visitors from other countries

The share of Norwegians among international visitors for the Biathlon event was lower with 59% compared to the Alpine event. The great popularity of Biathlon in Germany is mirrored by the high number of German visitors, who account for 21% of all international visitors. The third highest share of international visitors for the Biathlon event come from Finland (6%), followed by Denmark (4%) and France (3%).

Figure 8 below shows the six Swedish regions with the highest share of visitor numbers for each event. Besides the host region Jämtland (33%), the Alpine event mainly attracted visitors from the highest populated regions in Sweden, namely the capital region Stockholm (21%) Västra Götaland (7,5%), Skåne (5%), and Östergötland (4%). One explanation could be that the sport holidays in Stockholm took place at the same time as the events in Åre. Jämtland's directly neighbouring regions Västernorrland (6%), Gävleborg (3%) and Västerbotten (2%) account for rather smaller shares of the visitors to the Alpine event. By contrast, the Biathlon event showed a relatively strong attractiveness for its own regional population (47%) and their directly neighbouring regions Västernorrland (9%), Västerbotten (4%) and Gävleborg (4%). The capital region Stockholm is relatively underrepresented with 8%.
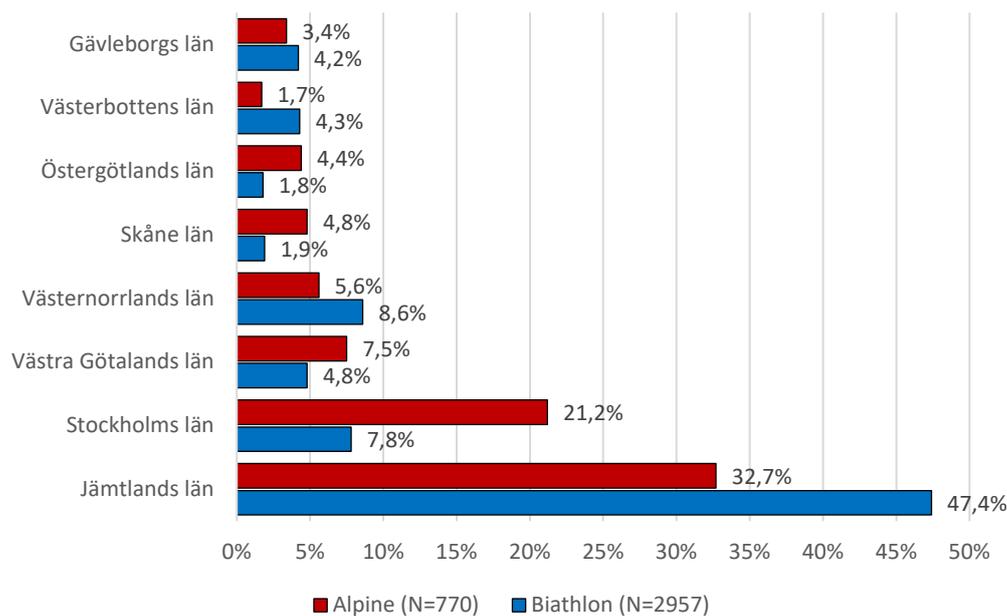
Figure 8. Place of residence for Swedish visitors
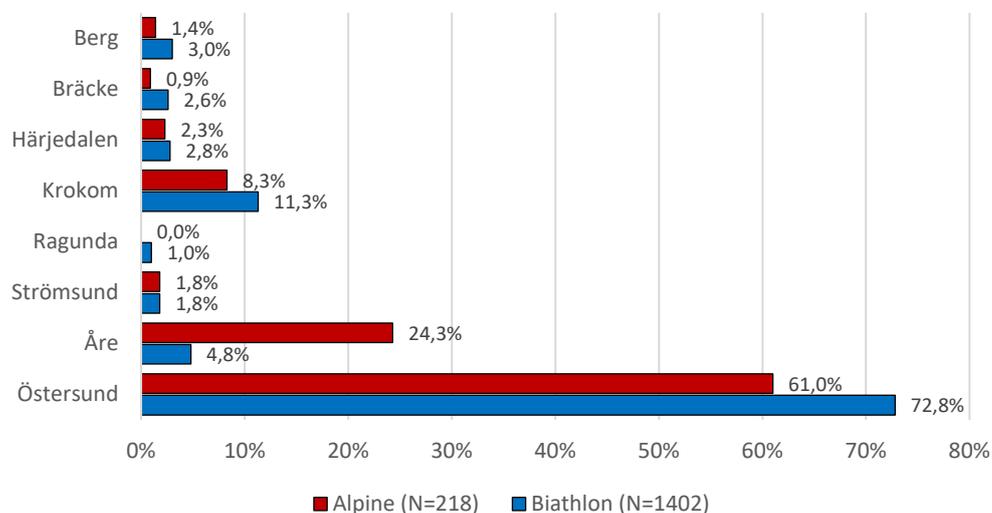
Figure 9. Place of residence for Jämtland visitors

Visitors from within the county of Jämtland have been divided according to the eight regional municipalities. Östersunds municipality accounts for the highest number of regional visitors for both events with 61% (Alpine) and 73% (Biathlon). The Alpine event attracted a high share of the local population, i.e. 24% of all regional visitors live in the municipality area of Åre itself. By contrast, only 5% of all regional visitors to the Biathlon come from Åre. The municipality of Krokom had for approximately the same shares of visitors to both the Alpine event (8%) and Biathlon (11%). Interestingly, the remaining five less-populated municipalities represent a very small share of regional visitors for both of the World Championships.

Finally, the survey asked for the respondent's main type of accommodation during their visit to the World Championships in Åre and Östersund. The high share of local and regional visitors to the Biathlon event are reflected in the high share of visitors who stayed at home, i.e. approximately 47% of all visitors. The opportunity to stay with family and friends has been used by 18% of the visitors. The most popular type of commercial accommodation were rented homes and cabins (8%), followed by hotels (7%).
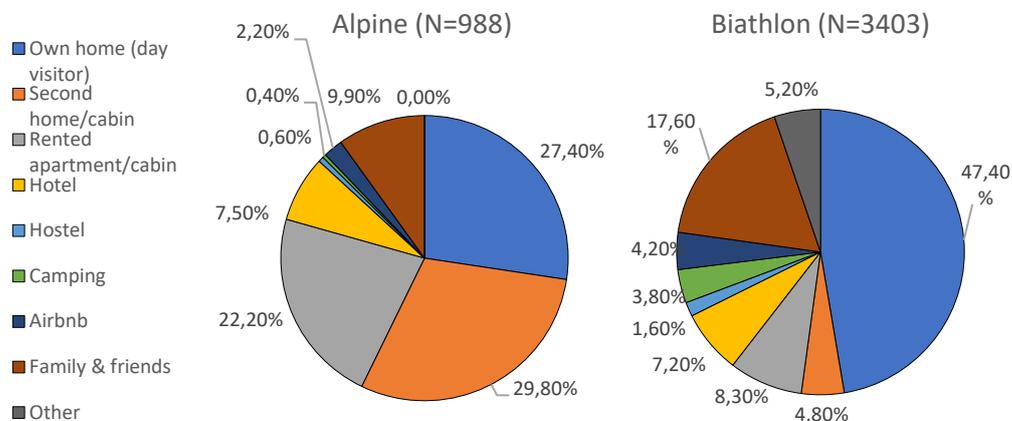
Figure 10. Type of accommodation

In comparison to the Biathlon event, only 27% of visitors stayed at home during the Alpine event. Instead, the majority of Alpine visitors stayed at their second homes and cabins in the mountain area of Åre (30%). Also, the availability of homes and cabins to rent is mirrored in these results, as renting was a popular choice to stay in the Åre region (22%). Around 10% stayed with family and friends, followed by 8% who stayed in hotels.

5.2 Event influence on decision to travel and guest nights

One crucial aspect to understanding the impact of events on a region is the influence of the event on the decision to travel to the place where tourism products and services are consumed and money is spent (Tyrel and Johnston, 2001). In this study, the degree of influence of each event is measured in percentages, i.e. respondents could specify on a range from 0-100% the degree to which the event they visited contributed to their decision to travel to Jämtland county. An important indicator is the 50% threshold, i.e. every value above or equal 50% implies that the event was the *main* reason for the respondent to travel to Jämtland. The purpose here is to analyse both the contribution of the events to the travel decision, but also to identify the visitors who travelled to Jämtland mainly because of the event, and the visitors who likely would have travelled to Jämtland even if the event would not have taken place. This is particularly interesting as the region of Jämtland has a relatively strong tourism industry compared to other regions in Sweden and hence, attracts tourists all year around even when World Championship events are not taking place (Tillväxtverket, 2019).

Applying this variable to analyse particularly the economic impact of the events provides more reliable insights: knowing the event's influence helps to identify how much of the economic effects can, in fact, be attributed to the event itself. This is the "new money" spent in the region, which would not have occurred if the event would not have taken place. In other words, how much did the event contribute to net increases in sales and incomes in the region? By addressing this, the risk of overestimating effects from the events can be reduced and more reliable and precise insights can be gained. The events' influence to the decision to travel to Jämtland was asked from visitors living outside of Jämtland county, and is measured in percentage. Moreover, the following analyses further distinguishes the Alpine event's visitors into ordinary ticket holders and "Skipass" holders (those who had lift access to the ski slopes who automatically attained free entrance to the Alpine event).
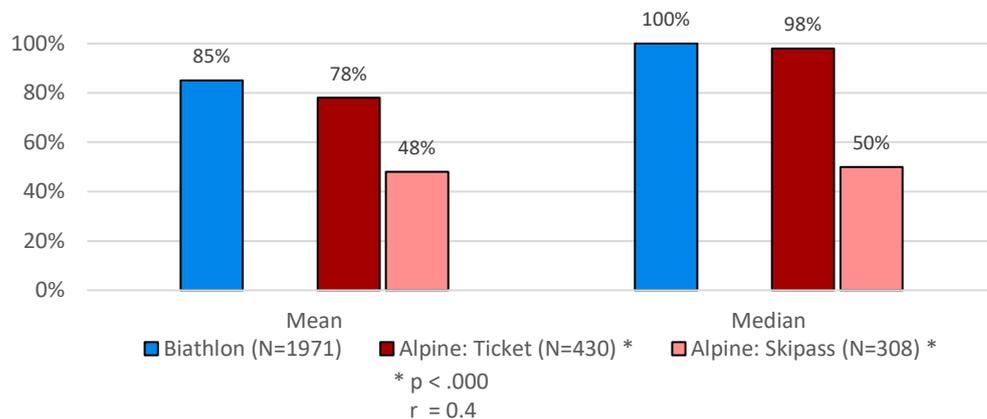
Figure 11. Event influence in travel decision: Central tendencies

First, figure 11 shows the central tendencies of the variable "event influence", measured in percentage from 0-100%. The results for (non-regional) biathlon visitors show that on average, the Biathlon event contributed by 85% to the decision to travel to Jämtland county. The median lies at 100%, i.e. the majority of respondents answered 100%. The results for the Alpine event are twofold: those visitors who purchased ordinary tickets answered that the Alpine event on average contributed by 78% to their decision to travel to Jämtland. However, the respondents who could visit the Alpine event with their Skipass answered that the event only influenced their decision to travel to the region by 48%. This means that other factors than the fact that the Alpine World Championships took place, played a role in their decision to travel. As mentioned earlier, one reason could be that many visitors with Skipasses visit the area around Åre during their winter-holidays, and once there, used the opportunity to *also* visit the Alpine event. Between ticket holders and Skipass holders, the Mann-Whitney-U test identified a statistically significant difference (p < .000) in the role of the event's influence to travel to Jämtland with a medium strong effect (r = 0.4).

Another way to illustrate the differences between the two events is by percentiles. A percentile is a number under which a certain percentage of respondents can be categorized. Looking at percentiles, the 50% event influence threshold allows to identify the percentage of respondents that considered the event as the main reason to travel to Jämtland. Figure 12 below shows every 5th percentile for all three groups. The further the line is to the left of the graph, the higher was the influence of the event for these visitors to travel to Jämtland. For example, the line furthest left in the graph shows the Biathlon percentiles. The 50% event influence lies at approximately the 12th percentile. This means that 12% of the respondents answered that the event's influence to travel to Jämtland was below 50%, i.e. not the main reason that influenced their travel decision. In turn, for 88% of the respondents the event presented the main reason to travel to Jämtland. The 100% value of the event's influence lies at the 45th percentile, which can be interpreted as: for 55% of the respondents, the event was the only reason to travel to Jämtland.
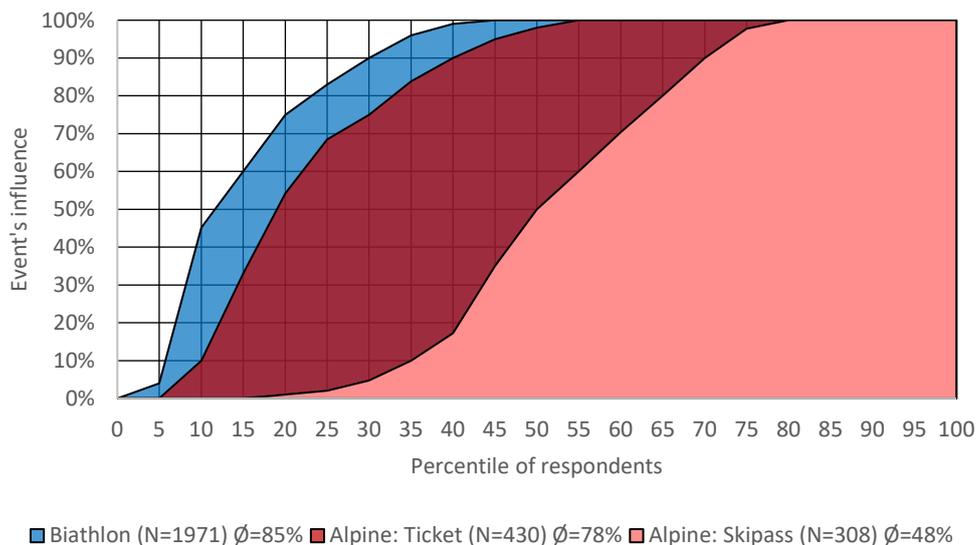
Figure 12. Event influence: percentiles

By contrast, visitors to the Alpine events indicated a lower mean value for the event's influence (figure 11, above). Accordingly, the lines for both Alpine groups lie further to the right. For example, the 50% value of visitors with ordinary tickets lies at the 18th percentile, i.e. 18% of the visitors answered that the event influence them less than 50%, and 82% of respondents' travel to Jämtland was influenced mainly by the event. Finally, the 50% threshold for Skipass holders lies at the 50th percentile, and the 100% value for event influence at the 80th percentile.

For both the Alpine and Biathlon events, the influence variable was analysed using three different residence groups, namely Sweden (outside of Jämtland), Norway, and other countries. For the Alpine events, only the visitors with ordinary tickets were included. The number of Skipass holders in each of the three groups were too few to provide reliable results. Figure 13 below shows the percentiles of the three residence groups for the Alpine event. Overall, more Swedish visitors considered the Alpine event as the main reason to travel to Jämtland. Of those, the 50% event influence threshold lies at the 15th percentile, i.e. 85% of these visitors regarded the event as the main reason to travel to Jämtland. By comparison, Norwegian visitors lie on the the 20th percentile, i.e. 80% of these visitors were mainly influenced by the event in their decision to travel to Jämtland. Finally, the graph indicates the 25th percentile at 50% event influence for all other international visitors.

□ Alpine: Ticket Sweden (N=225)   ■ Alpine: Ticket Norway (N=163)   □ Alpine: Ticket International (N=42)
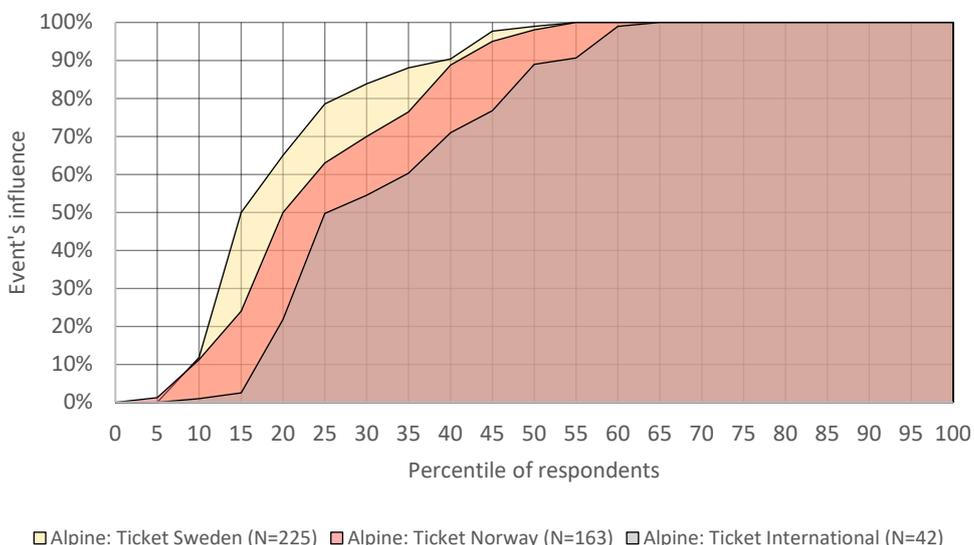
Figure 13. Alpine influence: percentiles

The influence of the Biathlon event on the three residence groups is generally stronger than for the Alpine event, but with less difference between the three visitor groups. The 50% event influence threshold for Swedish visitors lies at the 13th percentile, and for Norwegian visitors at the 11th percentile, i.e. 87% of the Biathlon visitors from Sweden and 89% from Norway considered the event as the main influence for their travel decision. Finally, 85% (i.e. 15th percentile) of the remaining international visitors regarded the event as the main travel influence.
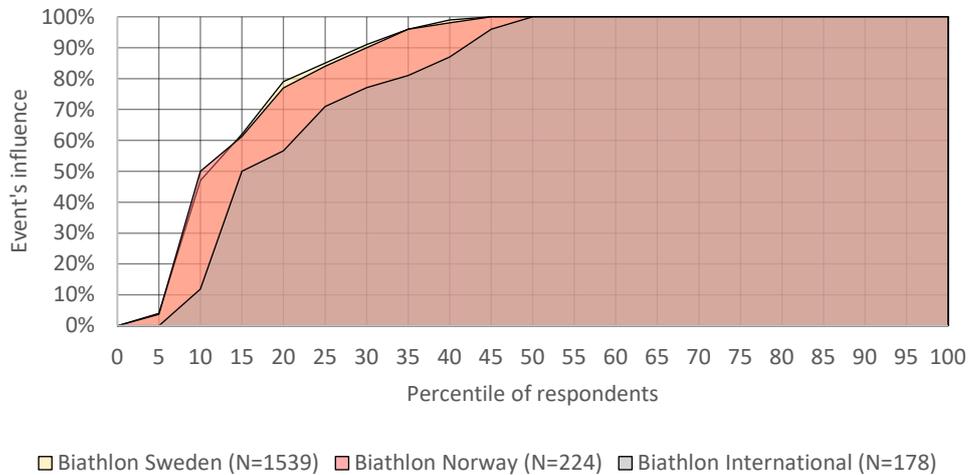
Figure 14: Biathlon influence: percentiles

The results above show that the role of the events in the decision to travel was significant for most visitors. The following variable refers to the length of stay of non-regional visitors. This is measured by the amount of nights spent in Jämtland in direct connection to an event. Visitors to the Alpine event on average stayed longer than Biathlon visitors (figure 15); however, the t-test also indicates significant differences between ordinary ticket holders and Skipass holders at the Alpine event ($p < .000$). The ordinary ticket holders on average stayed 4.2 nights compared to 6.6 nights for the Skipass holders. The median of ticket holders is at 3 nights, half of the median of Skipass holders, which lies at 6 nights. As the ticket holders were strongly influenced by the event in their travel decision, it can be assumed that this group specifically came to the Åre area to visit the event. By contrast, the Skipass holders were less influenced by the event but stayed almost a week in Jämtland. It can be deduced that this group combines the visit to the event with other types of (winter-) activities during their holiday in Jämtland. The Biathlon visitors stayed shorter than the Alpine visitors, i.e. 3.6 nights on average (median 3 nights). This can be explained by the close proximity of the Biathlon venue to the regional capital Östersund. This implies less travelling within the region than staying in Åre for the Alpine World Championships.
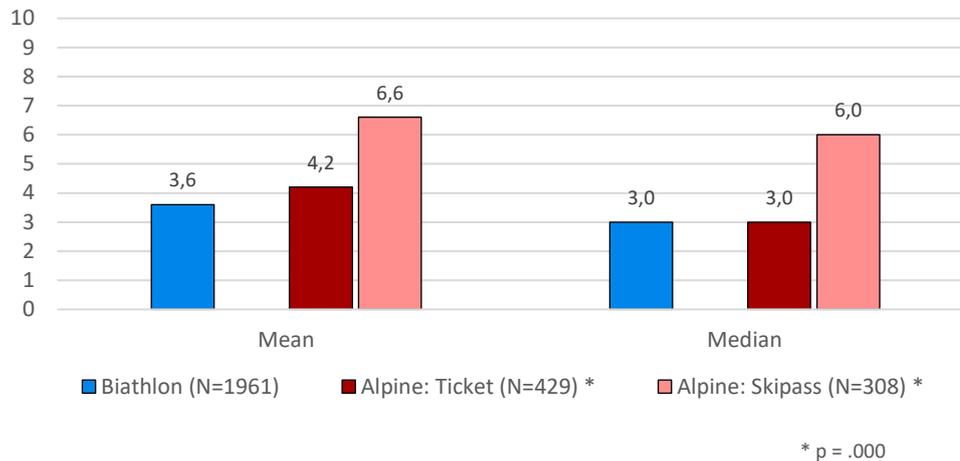
Figure 15. Average guest nights in the region

The subsequent analysis looks at the average nights spend by different sub-groups. The graphs below (figure 16) illustrates the average length of stay for the following grouping variables: Residence (three sub-groups Sweden, Norway, Other countries), and Event influence (two sub-groups ≤ 50% and > 50%).

Results for the Alpine event show that the average nights spent in Jämtland by various residence groups differs significantly. The ANOVA-test indicates a statistically significant difference specifically for Norwegian visitors (p < .000), who stayed notably fewer nights on average in Jämtland (2.8) compared to visitors from Sweden (6.0) and other countries (6.1). This is a clear sign that many Norwegian visitors only come during the day (i.e. same-day visitors) without staying many nights in the area. This seems obvious due to the close proximity of Norway to Åre. Furthermore, the t-test provides evidence of significant differences between the sub-groups of the event influence variable (p < .000): The group that was less influenced by the event in their travel decision (≤ 50%) stayed an average of 6.9 nights, significantly longer than the group that visited Jämtland mainly due to the event (> 50%), who stayed on average 4.4 nights. This result shows that those visitors who most likely came to Jämtland for their 1-week winter holiday and independently from the Alpine World Championships on average stayed longer than event-specific visitors who probably visited the competitions for a few days in most cases.
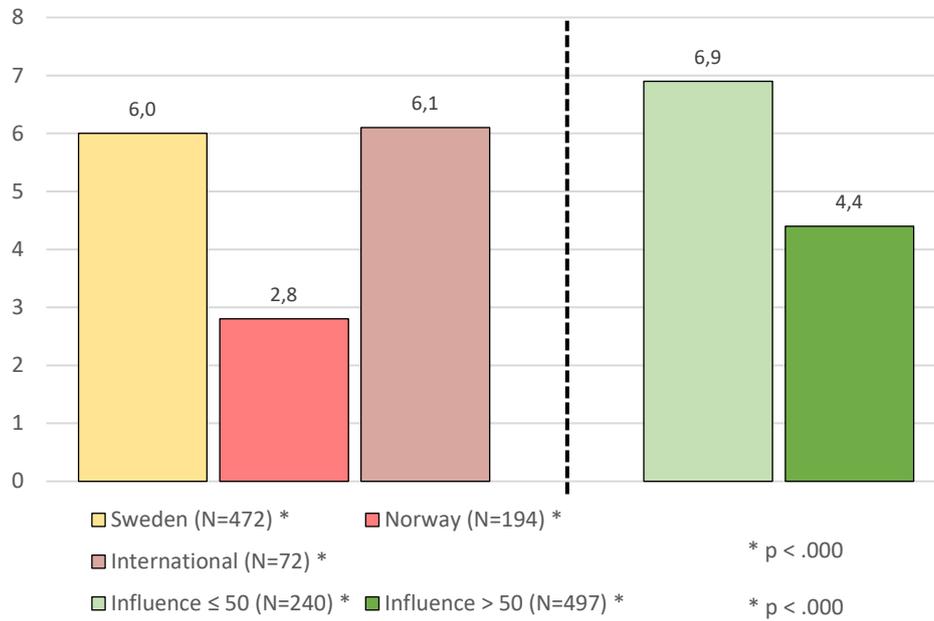
Figure 16. Alpine: Average guest nights grouped by residence and event influence
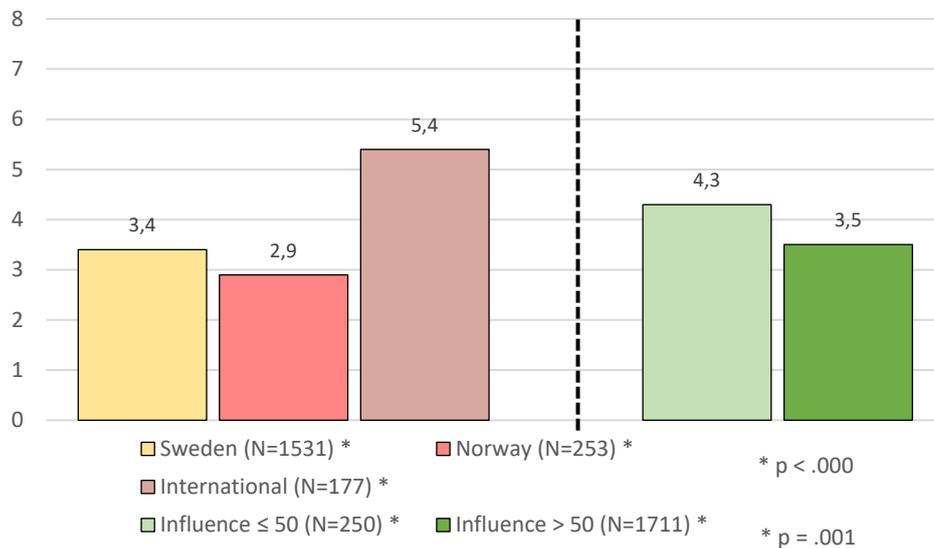
Figure 17. Biathlon: Average guest nights grouped by residence and event influence

Similarly, the ANOVA results for the Biathlon World Championships show statistically significant differences between residence groups (p < .000). Especially the international visitors (except Norway) who had long distances to travel, on average spent significantly more nights in Jämtland (5.4) than visitors living in other Swedish regions

(3.4) and in the direct neighbour country Norway (2.9). The difference in the length of stay between the event influence groups are also statistically significant, as the t-test shows a low p-value of .001. Again, those visitors whose decision to travel to Jämtland was not primarily based on the biathlon events stayed in average significantly longer in Jämtland (4.3 nights) than those visitors, who mainly came for the events (3.5 nights). Also in this case, event-specific visitors stayed a shorter period than those visitors who also had other reasons to travel to Jämtland.

5.3 The importance of success

This chapter investigates the *importance of success* of a specific athlete or nation for visitors' interest in events, such as the World Championships. Understanding the importance of success of a specific athlete or nation can provide an indication about the underlying motivation of visitors deciding to go to the events. Success does not only refer to athletes or nations actually winning medals but also to the perceived likelihood of this happening. In other words, if I am motivated by success, and I believe that my team has a good chance of winning, then my interest in an event is likely to be high. In this study, this indicator is measured in percentage from 0%-100%. Furthermore, the analysis makes a distinction between two groups, i.e. the respondents who answered 50% and less, and the ones who answered more than 50%. The latter indicates that the success of a specific athlete or nation can be considered as the *main factor* deciding the level of interest amongst respondents following or visiting the events. In turn, respondents who answered less than 50% indicate that success is not necessarily the main factor deciding their willingness to follow or visit an event. In this regard, the success of a specific athlete or nation can provide hints about visitors' motivations and hence, can provide valuable insights as to how events are marketed and designed (Boen et al., 2002).

Results in the left graph of figure 18 indicate the high importance of success of the favourite athlete or nation for visitors of both events. The average importance level of success for Biathlon visitors is at 70%, followed by ticket holders of the Alpine event, whose average is reported at 68%. The Skipass holders, i.e. the group whose *travel decision* was not primarily influenced by the World Championships, indicated a lower value at 57%. The difference between Alpine ticket holders and Skipass holders is statistically significant, indicated by the low p-value (p < .000) of the t-test. The right graph of figure 18 shows the distribution that those respondents, for who success was a minor factor for following or visiting the events (≤50%) and those respondents, for who success is the main factor (>50%). Accordingly, 81% of Biathlon visitors indicated that success is a major factor shaping their interest in such events. Among the Alpine visitors, the ticket holders answered similarly, with 78% answering that success is the main factor for their interest in Alpine events. In turn, success was a main interest-

inducing factor for only 59% of Skipass holders. The Chi^2-test shows a statistically significant difference in the results for ticket- and Skipass holders. This means that significantly fewer visitors using a Skipass indicate a high importance of an athlete's or nation's success compared to ticket holders. Accordingly, for approximately half of the Skipass holders that visited the Alpine event, other factors than the success of a specific athlete or nation shape their interest in such events.
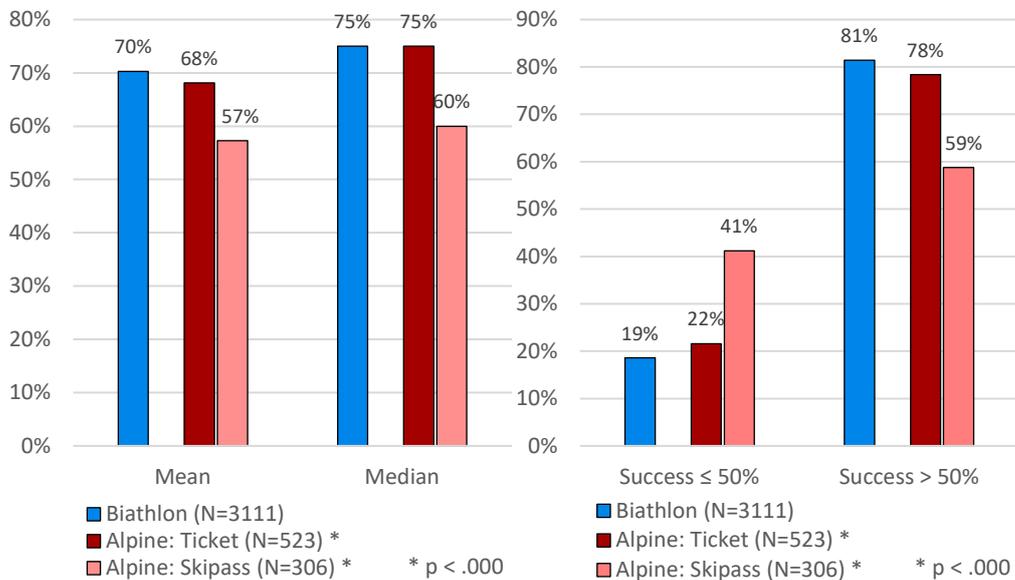
Figure 18. Importance of success: Central tendencies and categories

The graphs below identifies how differently visitors from various origin regions perceive the importance of success of a specific athlete or nation. For this analysis, the two success-categories (≤ 50% and > 50%) are grouped for the four origin regions being examined. First, figure 19 shows the results for the Alpine event. Among the Swedish respondents, success is equally important, meaning that around 70% of Jämtland and Swedish visitors considered success as the main factor for being interested in the Alpine event. Interestingly, almost 90% of Norwegian respondents answered above 50% on this question. For visitors outside of Sweden and Norway, success is a less important factor, i.e. the sport itself independently from specific athletes or nations is likely the key to their interest in the Alpine World Championships.
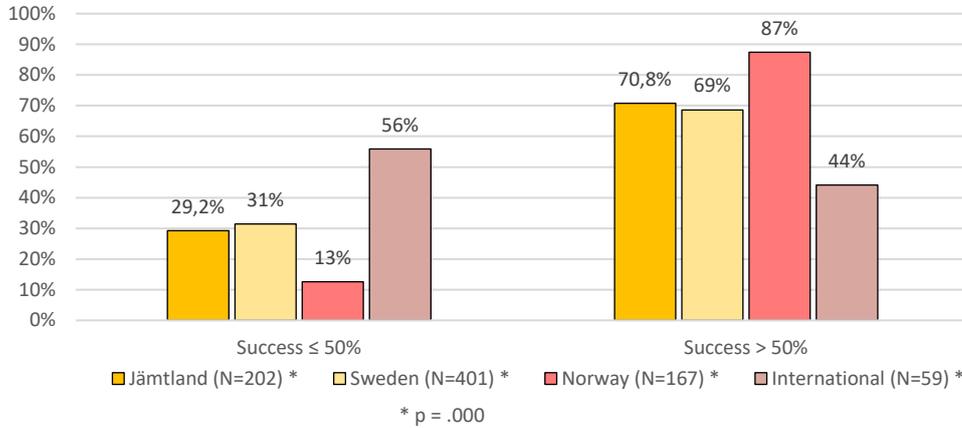
Figure 19. Alpine: Importance of success - place of residence

The results for the Biathlon event show a relatively equal distribution among the origin regions, except for visitors from outside of Sweden or Norway. Approximately 83% of the respondents indicate that success of a specific athlete or nation is the main factor shaping their interest in the events. This value is similar for visitors from Jämtland, other regions in Sweden, and Norway. By contrast, similar to the Alpine events, a large share of international visitors from other countries than Norway indicate that the success is not that important for them being interested in the events. The differences are also here statistically significant, indicated by the low p-value of the Chi^2-test.
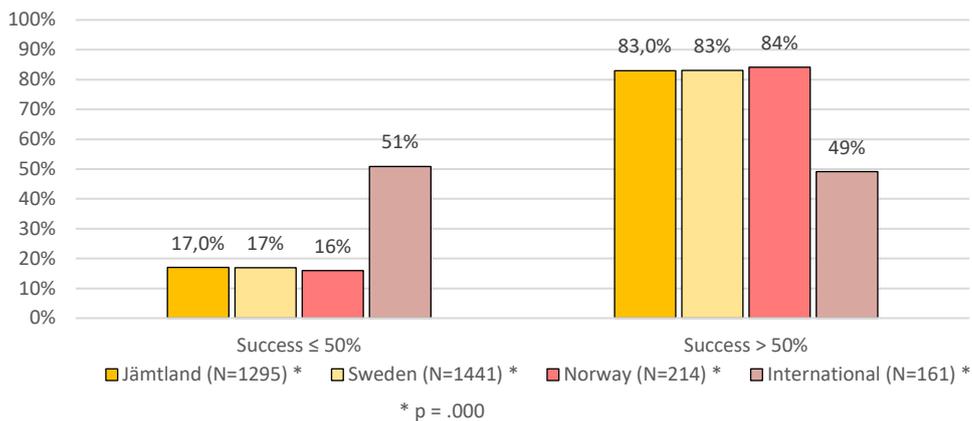
Figure 20. Biathlon: Importance of success - place of residence

It should be made clear that the role of success does not indicate likelihood to visit or follow an event, as this likely is influenced by a myriad of other factors. It merely shows

how subjectively interesting an event is to a person based on their prioritization of success.

5.4 Event participation: Days visited and passively followed

This chapter shows the extent to which respondents participated in the World Championship events. Participation refers to the *amount of competition days*. For the Alpine event, the range lies between 0 and 12 competition days for the following three categories: visiting the *arena*, visiting the *slopes*, and following on *TV*. For the Biathlon event, the minimum was 0 days and the maximum 9 competition days. The *slope* category did not apply to the Biathlon events, and therefore only comprise the two categories *arena* and *TV*.

Figure 21 below shows the average amount of competition days followed by visitors of both World Championships in Åre and Östersund for each of the categories mentioned above. For the Alpine events, a distinction is made between ticket holders and Skipass holders.
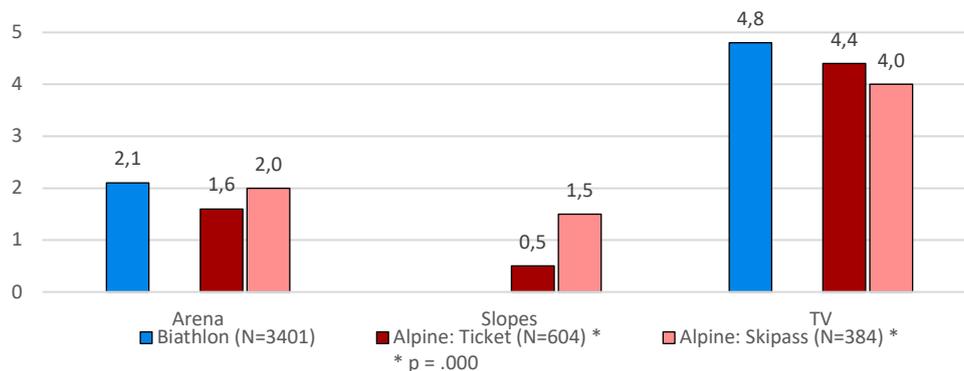
Figure 21. Days followed: Central tendencies

The left side of figure 21 shows the average amount of days the respondents visited the *arena*. Biathlon visitors followed the events approximately 2.1 days inside the arena. Similarly, visitors of the Alpine event accessing the arena with a Skipass followed the events on average 2 days, compared to 1.6 days for those visitors accessing the arena with an ordinary ticket. The t-test shows that this difference in average days at the arena between ticket holders and skipass holders is statistically significant. This means that those visitors who went also skiing by themselves used the opportunity to also visit the arena on on average longer than those visitors who made an active choice to purchase a ticket for the Alpine event. This observation is supported by the results for the average amount of days visited the events from the *slopes*, which also shows statistical significant differences between the two groups. Holders of ordinary tickets on average

followed the event 0.5 days from the slopes compared to 1.5 days for Skipass holders. The bars on the right side of figure 21 show the average amount of days the events were followed on *TV*. This counts as passive participation of the events in addition to the active visits to the arena or spectating from the slopes. The Biathlon event indicates high passive participation, i.e. visitors followed in average 4.8 days (out of 9 competition days) on TV. Meanwhile, ticket holders followed the Alpine event on TV for 4.4 days on average and Skipass holders for 4 days, respectively. In contrast to the differences among these groups for *arena* and *slopes*, the difference for *TV* is statistically not significant.

5.5 Visitor satisfaction

This chapter presents the results on satisfaction-related questions. In the surveys, the respondents were asked to indicate their level of satisfaction for six broad categories, namely:

- The access to information
- The service level of staff
- The food and beverage selection
- The atmosphere at the arena
- The side activities in and around the event
- The overall satisfaction with the Alpine / Biathlon World Championships 2019

Initially, the scaling ranged from 1-5, where 1 = *Very dissatisfied*, 2 = *Dissatisfied*, 3 = *Neutral*, 4 = *Satisfied*, 5 = *Very satisfied*, and the additional value X = *I don't know*. The mean values of each satisfaction variable have been calculated based on the initial scale 1-5 (see figures below). However, the final dataset comprised of only a few respondents that answered 1 = *very dissatisfied* in all six categories. Having too few observations (i.e. respondents) for a specific value limits the analytical power of the variable. Accordingly, for further analyses that go beyond the calculation of the mean value (such as the comparison between groups), the first two values of the satisfaction variables (i.e. 1 = *very dissatisfied* and 2 = *dissatisfied*) have been merged into on value 1 = (very) dissatisfied. Accordingly, the bar charts below present the adjusted format: 1+2 = *(Very) dissatisfied*, 3 = *Neutral*, 4 = *Satisfied*, 5 = *Very satisfied*, and X = *I don't know*.

The summary of the six satisfaction variables for visitors of the Alpine World Championships is presented below in figure 22. Overall, the visitors of the Alpine events had a very positive experience, with an average score of 4.3 (i.e. on the scale 1-5, where 3 is neutral). The category with the highest satisfaction level was *atmosphere*, followed by the *service level of the staff*. The lowest satisfaction was experienced for the selection of *food and beverages* during the events.
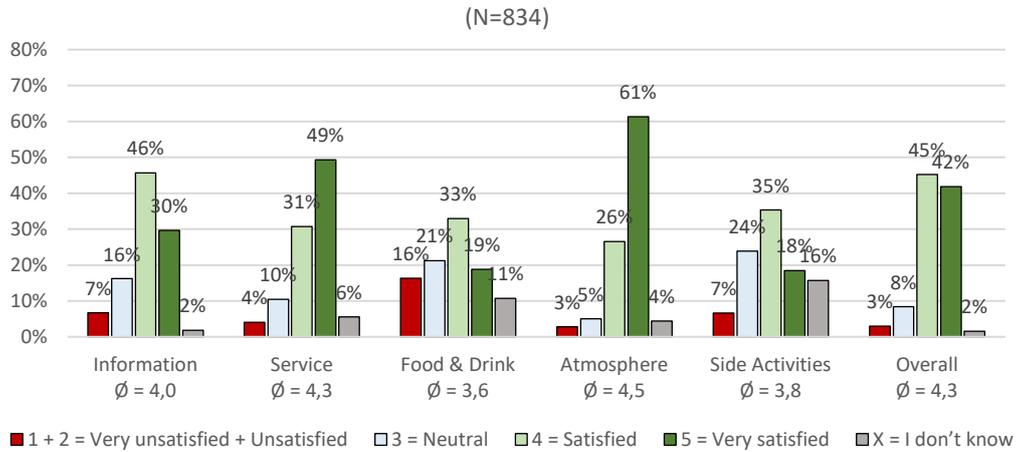
Figure 22. Alpine – Satisfaction

Figure 23 below summarizes the six satisfaction variables for the Biathlon World Championships. Similar to the Alpine World Championships, the Biathlon visitors were overall quite satisfied with events. However, also here the satisfaction of the *food and beverage* offer scored relatively low. Approximately 19% of respondents have been (very) unsatisfied with the *food and beverage* selection at the events.
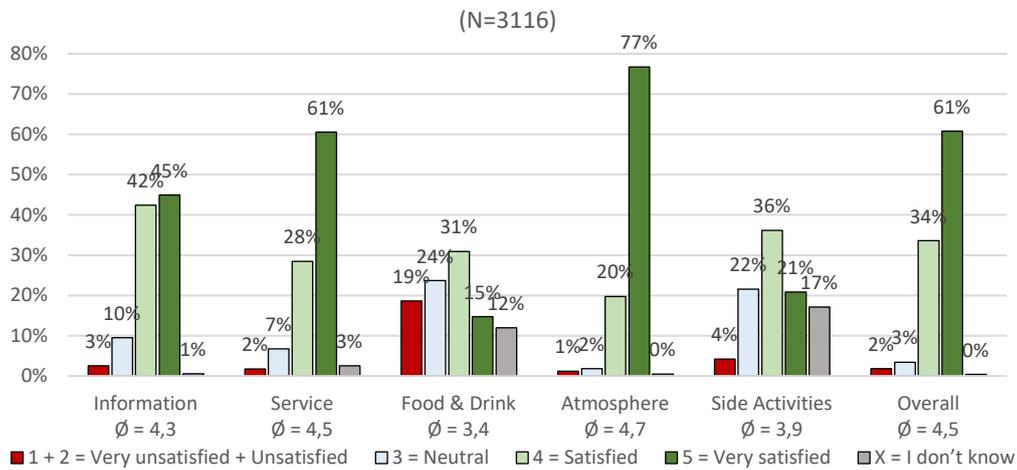
Figure 23. Biathlon – Satisfaction

A more detailed analysis of the overall satisfaction reveals further insights on differences between the four residence groups Jämtland, Sweden, Norway, and other countries. The Chi^2 analysis of the Alpine event indicates statistical significant results. This means that a relationship between different residence groups and the overall

satisfaction of the Alpine events exists. Figure 24 below indicates that Norwegian visitors enjoyed the highest satisfaction. In turn, the share of (very) unsatisfied visitors was the highest for those visitors living outside of Sweden and Norway (approx. 9%).
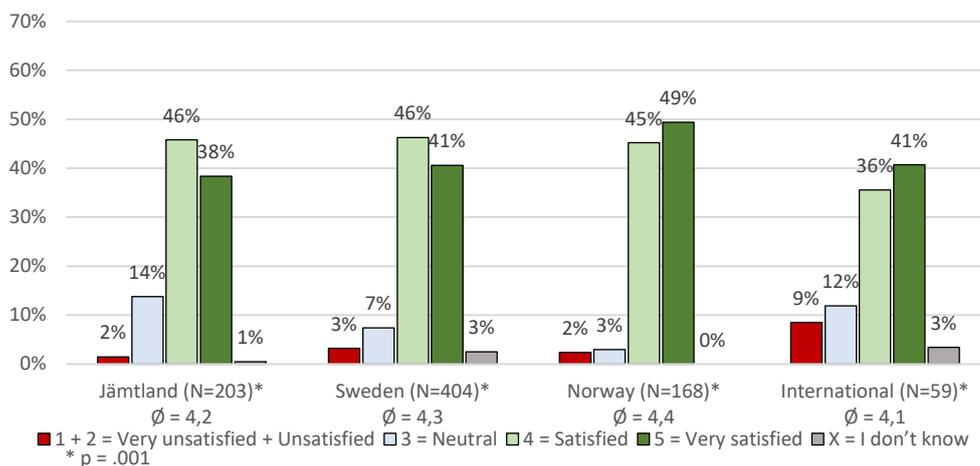
Figure 24. Alpine – Overall satisfaction and place of residence

The results for the Biathlon event also indicate statistically significant relationships between residence groups and overall satisfaction. The main differences among the residence groups can be found in differences in shares of satisfied and very satisfied visitors. For the Jämtland residents, for example, the share of very satisfied visitors is 64% and satisfied visitors is 31%. Visitors residing in other countries (excl. Norway) indicate 52% very satisfied and 40% satisfied. Nevertheless, although there are differences among the positive values, the overall satisfaction level of the visitors of the Biathlon event is very high.
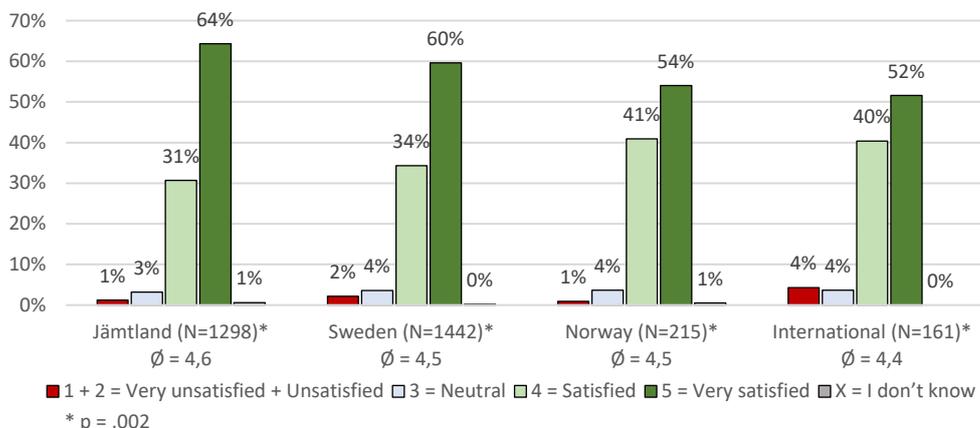
Figure 25. Biathlon – Overall satisfaction and place of residence

The following analysis investigates the *overall satisfaction* with regards to differences between the two *event influence* groups and the two *importance of success* groups. Figure 26 below presents the results for the Alpine World Championships. More precisely, the bar charts on the left show the overall satisfaction level for those visitor groups who's main reason to travel to Jämtland was the event (i.e. influence > 50%), and those where the event comprised 50% or less of the reason to travel to Jämtland. The difference between these two groups is statistically significant indicated by the low p-value = .000. The difference is visible in the high share of visitors who are very satisfied (ca. 48%) in the group where the event was the main reason to travel to Jämtland. By comparison, only 38% of the visitors where the event influence was ≤ 50% were very satisfied overall. Also the shares of *neutral* and *I don't know* answers were significantly higher for the latter group.

The right side of figure 26 indicates the overall satisfaction of the two visitor groups categorized according to the importance of success of an athlete or nation (i.e. success ≤ 50% and success > 50%). Also here, the overall satisfaction of both groups is very high, however, the Chi[2] test indicates a statistical significant difference among the two groups. It shows evidence that the share of (very) unsatisfied and neutral visitors are lower for those for whom success was important for the interest in the events. High satisfaction levels for those visitors where success is important can indicate that their expectation have been fulfilled and their favourite athlete or nation has performed well during the Alpine World Championships.
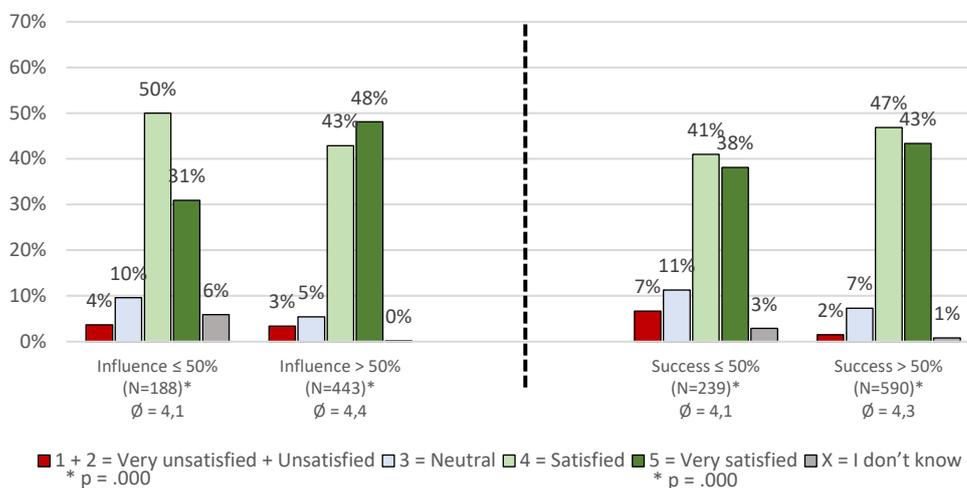
Figure 26. Alpine – Overall satisfaction, event influence & importance of success

The results for the Biathlon event are summarized figure 27 below. Also here, the level of satisfaction was very high in general. Nevertheless, the Chi[2] test indicates that a statistical significant relationsip between the variables *overall satisfaction* and *event*

influence exists. Meaning that visitors with an influence > 50% are significantly more satisfied with the events than for those visitors where the event did not constitute the main reason to travel to Jämtland.

Figure 27. Biathlon – Overall satisfaction, event influence & importance of success

Interestingly, the visitors that <u>do not</u> consider the *success of an athlete or nation* as the main factor for their interest in the events are, overall, more satisfied than those visitors where *success* indeed was the main reason to hold interest in the event.

5.5.1 Alpine World Championships satisfaction – Cluster analysis

The following cluster analysis identifies structures within the dataset by grouping the respondents with similar satisfaction-patterns. The variables building the clusters include all six *satisfaction-*variables. The respondents are grouped into three clusters with various size, labelled as follows (see figure 28):

1   Highly satisfied group (51%)
2   Moderately satisfied group (12%)
3   Mixed satisfaction group (37%)

Cluster 1: Highly satisfied group (N=324)

Cluster 2: Moderately satisfied group (N=76)

Cluster 3: Mixed satisfied group (N=238)

Figure 28. Cluster size Alpine

Highly satisfied respondents in cluster 1 are characterized by high satisfaction levels for each of the six satisfaction variables, i.e. mainly satisfied visitors (*information, food & drink,* and *side activities*), and very satisfied visitors (*service, atmosphere,* and *overall satisfaction*). Cluster 2 indicates the group of respondents that are moderately satisfied or even unsatisfied with certain aspects of the event, i.e. areas with rather unsatisfied respondents are mainly *food & drink, side activities,* and the *overall satisfaction*. Cluster three, in turn, shows a mix of neutral (*food & drinks,* and *side activities*), satisfied respondents (*information, service,* and *overall satisfaction*) and very satisfied respondents (*atmosphere*). Figure 29 illustrates the three satisfaction clusters in a bar chart.
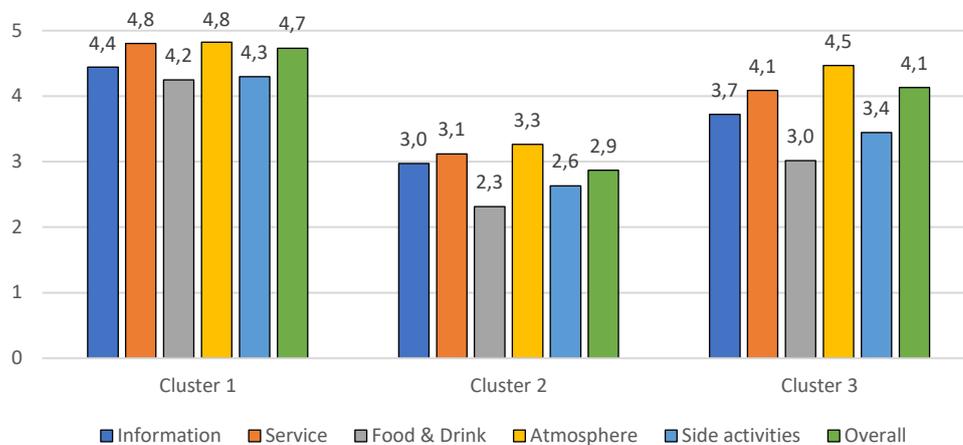
Figure 29. Alpine – satisfaction clusters

The clusters can be further analysed by their relationship to the *residence* variable, i.e. whether the distribution of residence groups among the three clusters is by chance or not. Figure 30 below indicates the share of each residence group within each cluster. Obviously, if the total amount of respondents of a certain group is high in comparison to other groups, also the share in absolute terms will be high within each cluster. However, differences in the magnitude of the percentage share of a certain group in the three clusters indicate patterns in which cluster a certain group is strongly or less strongly represented.
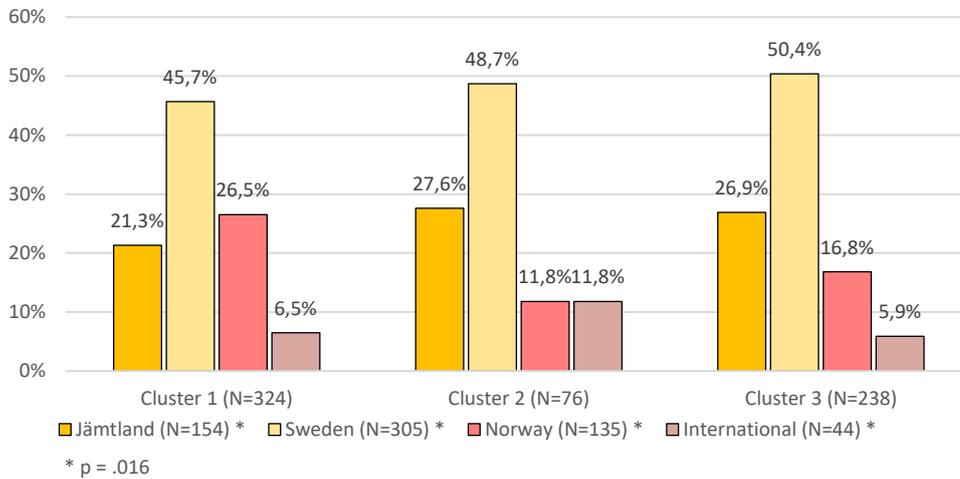
Figure 30. Alpine – satisfaction clusters according to place of residence

Accordingly, the Chi^2-test shows a statistical significant relationship between the clusters and residence groups, hence, a relationship exists. For instance, a higher concentration (ca. 27%) of *Norwegian* visitors is found in cluster 1 (i.e. *highly satisfied*) compared to the other clusters (17% cluster 3, and 12% cluster 2). In turn, the share of visitors from other countries than Sweden or Norway is the highest in cluster 2, i.e. the *moderately satisfied* group. Similarly, visitors from Jämtland indicate the highest share in cluster 2 as well. The highest share of Swedish visitors from outside of Jämtland can be found in cluster three, i.e. the *mixed satisfaction* group.

The three satisfaction clusters are further grouped in regards to various *age categories*, namely respondents below 31, between 31-45, between 46-65, and above 65. Similar to the above figure, the higher the total amount of respondents in a certain group, the higher also the overall share within each cluster. However, differences in the shares of the groups in each cluster are statistical significant, i.e. the differences are not by chance.
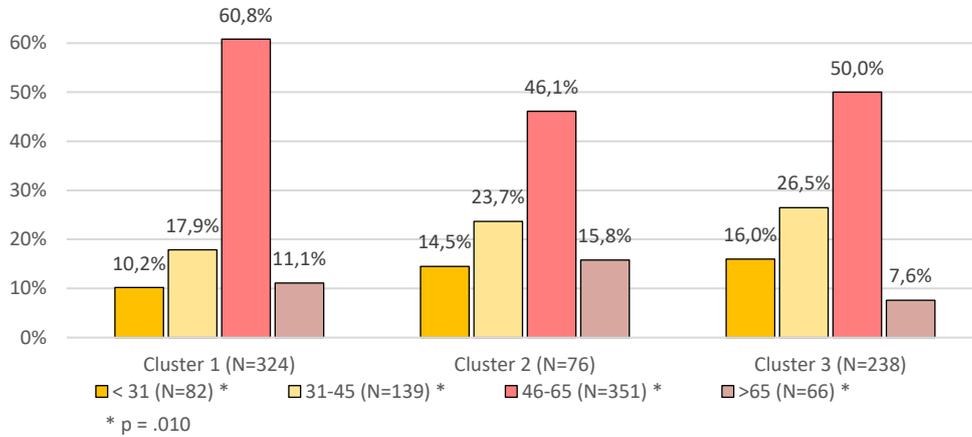
Figure 31. Alpine – satisfaction clusters according to age group

The highest share of visitors below 31 are found in cluster 3 (i.e. *mixed satisfaction*), followed by cluster 2 (*moderately satisfied*) and the smallest share in cluster 1 (*highly satisfied*). A similar pattern is visible for the age group 31-45. By contrast, the age group 46-65 is prominently represented in cluster 1, i.e. among the *highly satisfied* visitors, with 61%, compared to cluster 3 (50%) and cluster 2 (46%). The older generation aged above 65 years has the highest shares in cluster 2, i.e. the *moderately satisfied* cluster.

5.5.2 Biathlon World Championships satisfaction – Cluster analysis

The cluster analysis for the Biathlon World Championships resulted in three clusters labelled in the same way as for the Alpine World Championships. Interestingly, the *relative size* of the clusters of the Biathlon respondents is similar to the Alpine respondents (figure 32):

1   Highly satisfied group (51%)
2   Moderately satisfied group (11%)
3   Mixed satisfaction group (38%)
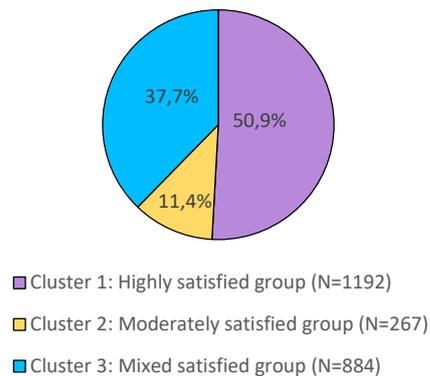
Figure 32. Cluster size Biathlon

The constellation of each cluster is also similar to the Alpine clusters, i.e. cluster 1 (*highly satisfied*) consists of visitors that are satisfied with *food & drink*, and *side activities*, and very satisfied with *information, service, atmosphere*, and the *overall* perception of the events. Cluster 2 (*moderately satisfied*) consists of visitors who are unsatisfied with *food & drink*, neutral regarding *information, service, side activities*, and *overall* perception, and satisfied with the *atmosphere* at the events. Cluster 3 (*mixed satisfaction*) is characterised with visitors that are neutral towards food & drinks, satisfied with information and *side activities*, and highly satisfied *with service, atmosphere* and the *overall* perception of the Biathlon events (see figure 33 below).
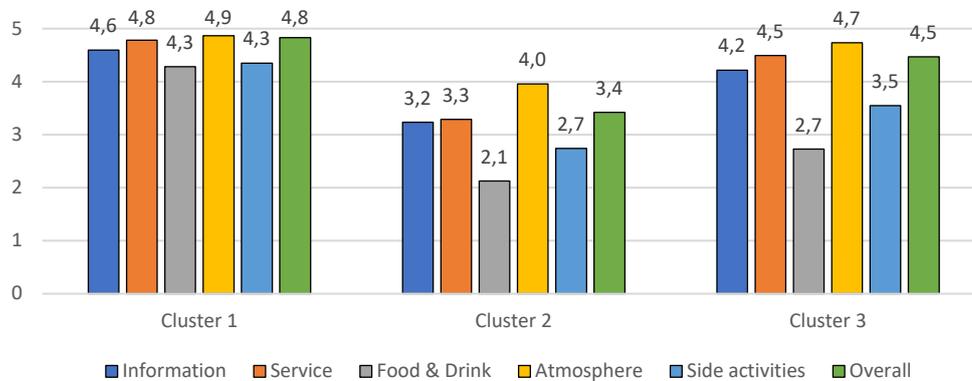
Figure 33. Biathlon – satisfaction clusters

The grouping of the clusters into four residence groups shows the following statistical significant results: The share of local visitors from Jämtland is the highest in cluster 1, i.e. among the highly satisfied visitors. In turn, the share of Swedish visitors from outside of Jämtland are mostly concentrated in cluster 2, i.e. the moderately satisfied group, and least concentrated in cluster 1. The Norwegian visitors are more or less equally distributed within each of the three clusters, while the share of international visitors (excluding Norway) is the highest in cluster 2.
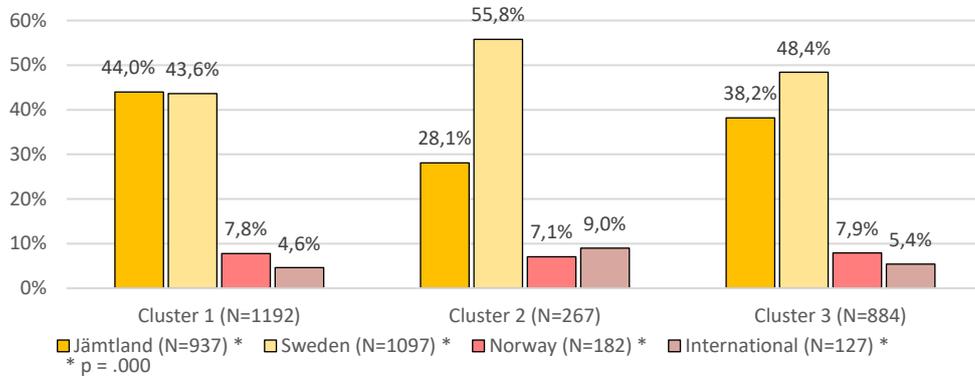
Figure 34. Biathlon – satisfaction clusters according to place of residence

The analysis of various age groups within the clusters also shows statistically significant results. The bar chart in figure 35 illustrates the differences in the distribution of age groups. The young visitors below 31 have higher shares in cluster 2 (moderately satisfied) than in the other clusters. Similarly, the percentage share of the age group 31-45 is the highest in cluster 2. The share of older visitors, aged 46-65, and above 65 are, in turn, the highest in cluster 1, i.e. the highly satisfied visitors.
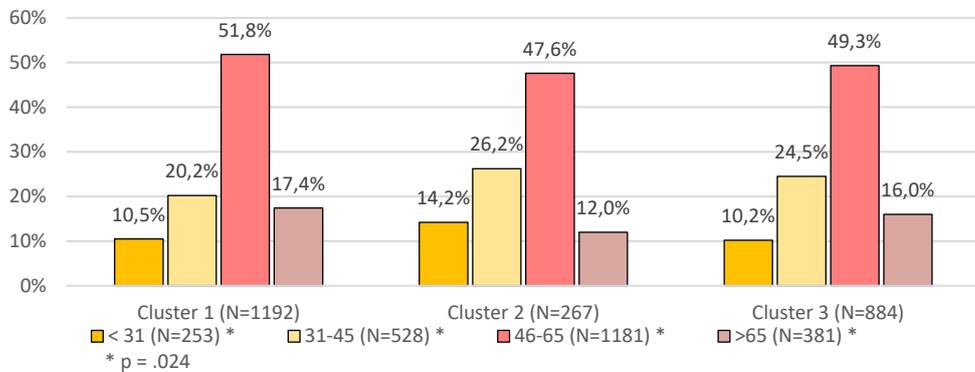
Figure 35. Biathlon – satisfaction clusters according to age group

5.6 Reciprocal awareness

The unique opportunity to host both Alpine and Biathlon World Championships in the same region only a few weeks apart triggered the establishment of the umbrella-term *VM-Regionen*. Not only to enable local companies, organisations and institutions to be able to participate in sponsorship and marketing activities, but also to highlight the broader meaning of hosting these events for the visitors and especially for the local population. However, it is evident that both World Championships carry strong brand by themselves, and visitors of one World Championship might not be aware that the "other" World Championship was going to, or had taken place just a few weeks apart in the same region. Therefore, the visitor surveys of each event asked the respondents about their *awareness*, *intention to visit*, or *actual visit* of the other event. By doing so, insights can be gained on the types of visitors that showed awareness and interest in "the other" World Championship event.

5.6.1 Alpine event visitors: awareness and intention to visit the Biathlon events

First, the awareness of the Alpine World Championships visitors about the Biathlon World Championships is investigated. The respondents were asked through a yes/no question, whether they were aware of the fact that the Biathlon World Championships would take place in Östersund a few weeks after the Alpine event. Figure 36 below summarizes the results with regards to the four grouping variables *ticket/Skipass holders*, *residence*, *event influence*, and the *importance of success* of an athlete or nation. Chi[2] tests show that the differences among the groups are statistically significant.
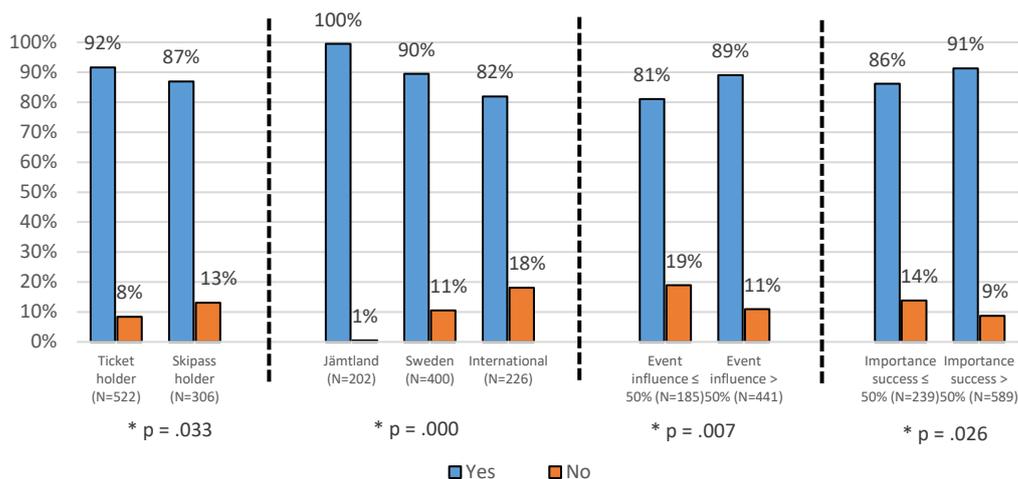
Figure 36. Awareness of Alpine visitors about the Biathlon event

Overall, the Alpine visitors are relatively aware of the fact that the Biathlon event was taking place the following month in Östersund. Among the different *ticket holders*, those respondents who actively purchased the entry to the Alpine events show slightly higher awareness (92%) about the Biathlon event, than the *Skipass holders* (87%). Among different *residence* groups, the awareness differs significantly among Jämtland visitors (100%), Swedish visitors from outside of Jämtland (90%), and all international visitors, including Norwegians (82%). The distinction between those non-regional respondents who were influenced by the event ≤ *50%* and those > *50%* shows that a higher share of the latter group (89%) was aware about the Biathlon events taking place a few weeks later. This can be explained by, for instance, the generally higher interest in such events of those respondents, whose decision to travel to Jämtland was highly influenced by the Alpine events. Similarly, those respondents who consider *success of an athlete or nation* as important for their interest in the event are more aware (91%) than those respondents, who do not consider success as important (86%).

Those visitors who answered *yes* on being aware that the Biathlon World Championship would take place were further asked, whether they *intend to visit* the Biathlon events in Östersund. Four possible answers are provided: *Yes, Maybe, No although I'm interested,* and *No I'm not interested*. The results for each grouping variable is presented in figure 37:

Figure 37. Intention of Alpine visitors to visit the Biathlon event

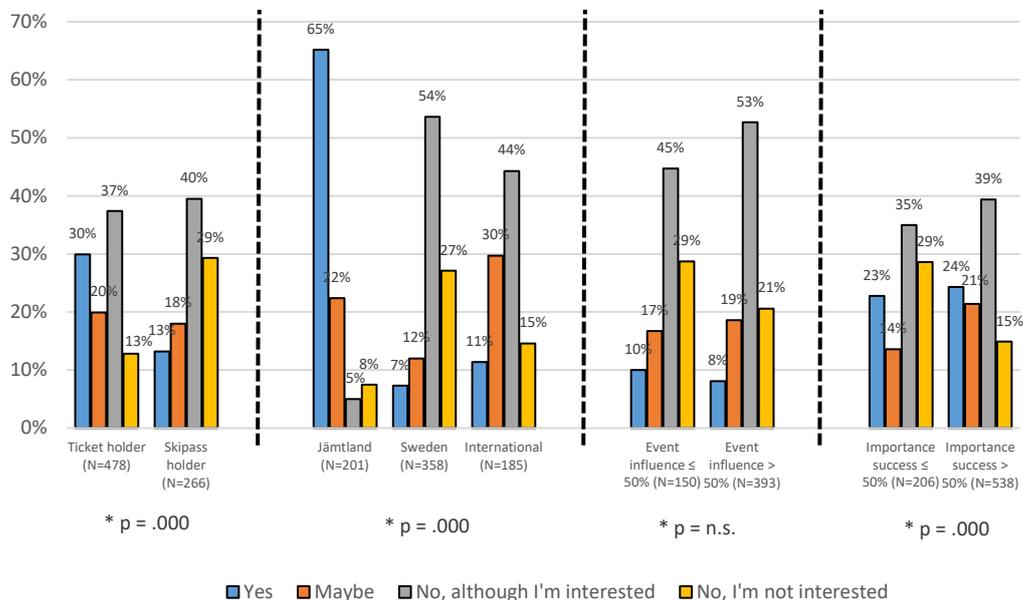Differences among *ticket* and *Skipass holders* are evident in terms of the significant ly higher share of *Skipass holders* who were *not interested* in visiting the Biathlon World Championships (29% compared to 13%), and conversely, a higher share of *ticket holders intending to* visit the Biathlon event (30% compared to 13%). Differences among *residence groups* are also significant with regards to the high share of *local residents* (65%) planning to visit the Biathlon event, compared to only 7% of *Swedish visitors*, and 11% of *international visitors*, respectively. However, 54% of *Swedish visitors* from outside of Jämtland and 44% of *international visitors* were interested in the Biathlon event, but were probably not able to realize a second journey to Jämtland. Interestingly, there is still a high share of *Swedish Alpine visitors* who are not at all interested in the Biathlon event (27%). Among the two *event influence* groups, the tests did not identify any statistical significant differences in the intention to visit the Biathlon World Championships. Dividing the Alpine visitors into the *importance of success* groups shows that those visitors who perceive success of their favourite athlete or nation at the Alpine event as *important* were more likely to want to visit the Biathlon World Championships.

5.6.2 Biathlon event visitors: awareness and visit of Alpine events

Similarly, the respondents of the Biathlon World Championships survey were asked whether they were aware that the Alpine World Championships had taken place in Åre just a few weeks earlier (figure 38).
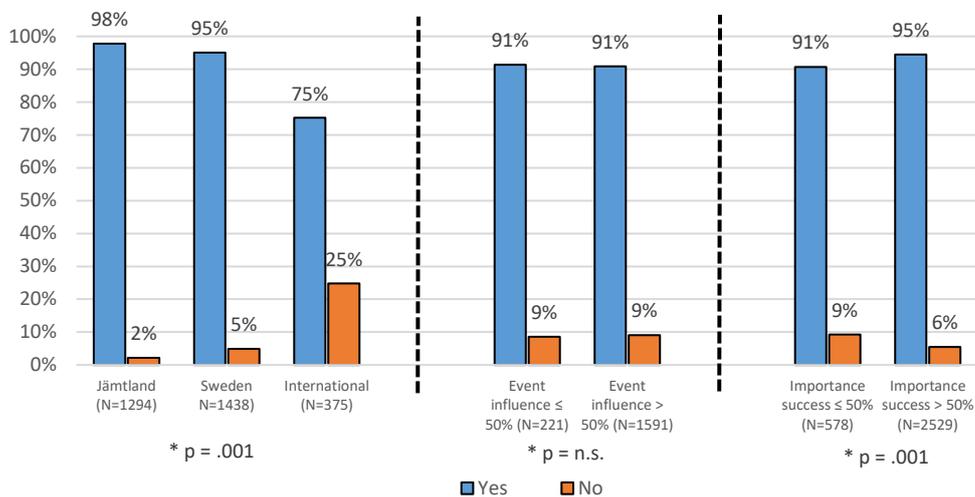
Figure 38. Awareness of Biathlon visitors about the Alpine event

A significant difference is visible between the *residence* groups, i.e. 25% of international visitors of the Biahlon events did not know about the Alpine World Championships. In turn, almost all Swedish visitors are aware of the event that took place in Åre. No

difference among the event influence groups could be indentified with regards to the high awareness of the Alpine World Championships (91%). A high awareness was also identified among the importance of success groups, i.e. both were very high at 91% and 95%, respectively.

The subsequent analysis refers to the visitation of the Alpine event of those, who answered *yes* on the awareness question before. The possible answers were *Yes, No although I was interested,* and *No I was not interested*. Statistical differences were identified among the various residence groups, i.e. 22% of local visitors from *Jämtland* had been to the Alpine World Championships earlier in the year, compared to only 4% of visitors from *other Swedish* regions. Interestingly, 12% *of international visitors* did also visit the Alpine events. This group, however, include Norwegians, which have probably visited the events in Åre due to the close proximity to the border. No significant difference was identified among the *event influence* groups in terms of visitation of the Alpine World Championships. Finally, a higher share of Biathlon visitors who consider *success as important* had also visited the Alpine event in Åre.

Figure 39. Biathlon visitors who visited the Alpine event

5.7 Visitor expenditures

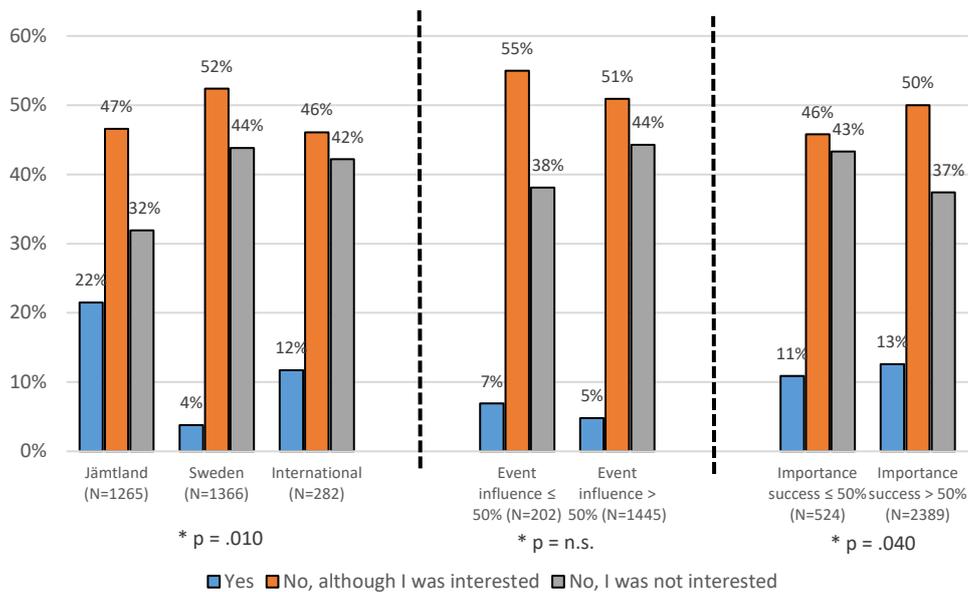This chapter presents the *expenditure* patterns of the event visitors, i.e. how much money the visitors spent on various products and services. Tourism products- and services typically comprise of the following 10 expenditure categories:

- Accommodation (*e.g. hotel, hostel, apartment, camping*)
- Restaurants, cafés, bars, street food
- Retail and shopping (*e.g. groceries, souveniers, clothes*)
- Sport- and recreational activities (*e.g. rental of ski equipment, skipass, entrance to gym or spa*)
- Cultural activities *(e.g. museum entrance, theatre and cinema visits)*
- Local transport within Jämtland county *(e.g. taxi, bus, and train)*
- Travel to and from Jämtland county (*e.g. flights, trains*)
- Private car expenses (*e.g. fuel, parking fees*)
- Rental car
- Package tour (if applicable)

The expenditures made by *visitors from outside the region* refers to the amount spent during their entire stay in Jämtland county. This amount, however, is adjusted according to the degree of the the *event's influence* on the respondents decision to travel to Jämtland county in the first place, measured in percentages. It is important to make these considerations, as not all expenditures made by tourists from outside the region should be attributed to the event, as is the case for those where the event was not the sole reason to travel to the region. By doing so, the analysis in this study aims to mitigate overestimations of economic effects, especially for the subsequent economic impact analysis, which could otherwise provide misleading conclusions.

For *local visitors from Jämtland*, the economic impact (locally circulated capital) comprises only of those expenditures that are directly related to the event, i.e. only that amount of money that local visitors spent due to the events taking place. In other words, money they would othwerwise not have spent if the events would not have taken place. This ensures that substitution effects (i.e. the money that the regional population would have spent for other activities instead) is avoided by only considering the *additional* expenditures. It also ensures that any increase in sales in the region clearly can be attributed to the events.

5.7.1 Average daily expenditures per person

The following two figures summarize the *average daily* expenditures *per person* per category, divided into four residence groups: Jämtland, other regions in Sweden,

Norway, and other countries. The breakdown into average daily expenditures for non-regional visitors is based on the average amount of nights spent in Jämtland, and for local visitors based on the average amount of days visited the arenas (see section 5.4 above). For the Alpine World Championships, the weighted average of ticket- and Skipass holders is considered. Furthermore, average values per category are estimated based on the *total* sample, and is not based on those respondents, who de facto had expenditures in the respective categories. Accordingly, certain expenditure categories, such as rental car, exhibit very low daily averages, as only a small share of the total sample had expenditures in this category.
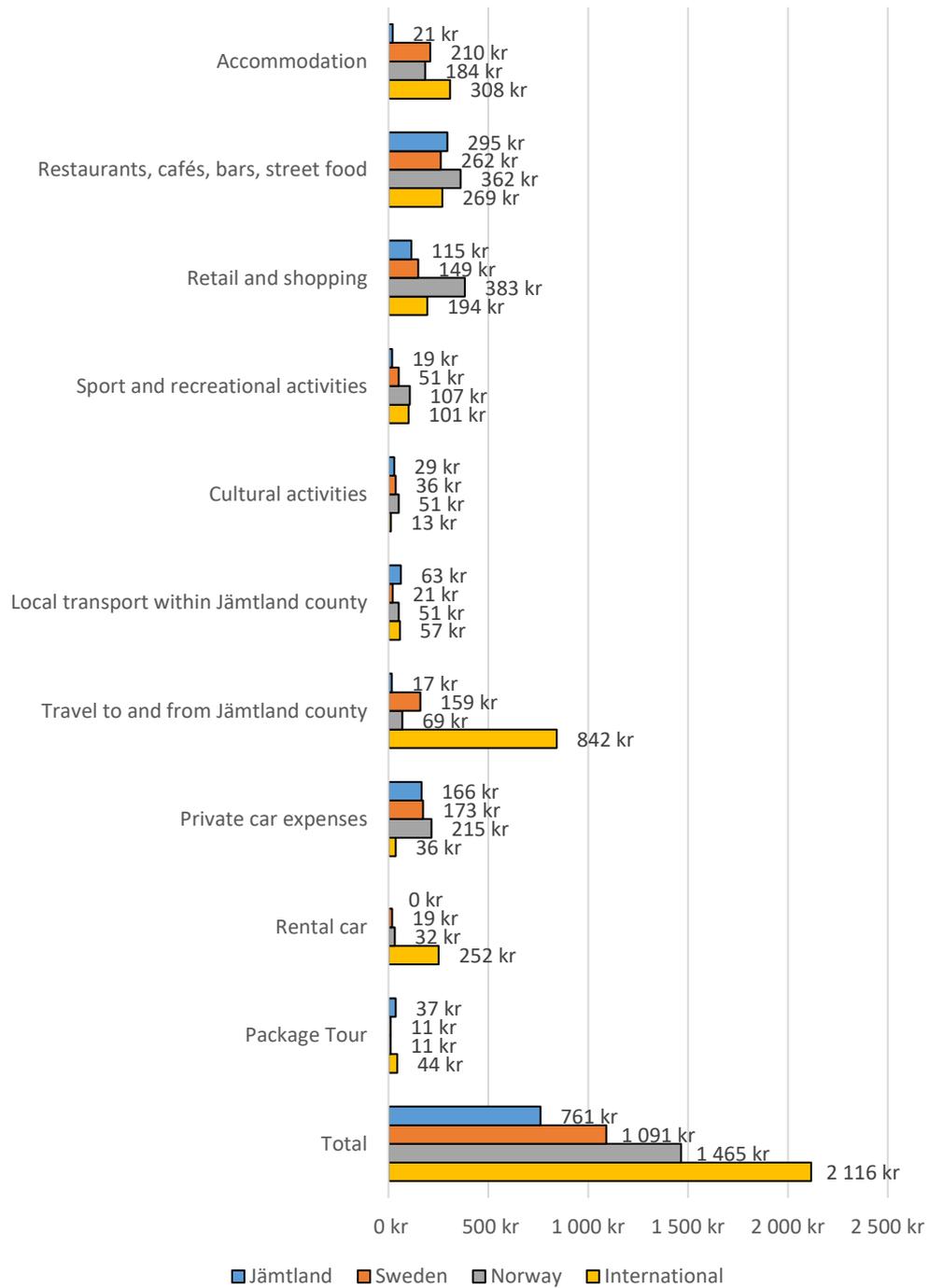
Figure 40. Average daily expenditures per person for Alpine visitors

Among the visitors of the Alpine World Championships, the following average daily expenditures per person were estimated:

The average daily expenditures, in descending order, were: Jämtland visitors 761 kr, Swedish visitors from other regions 1091 kr, Norwegian visitors 1465 kr, and international visitors other than Norway 2116 kr.

Among the local visitors from Jämtland, it is not surprising that their consumption pattern does not show high expenditures for accommodation or rental cars, but instead rather high expenditures for eating out (restaurants, cafés, bars, etc.), as well as private car expenses to cover the costs to drive to the event. The third highest position is retail and shopping, followed by minor average daily expenditures for local transportation to Åre, and cultural and sports activities. Interestingly, there exists a small share of local visitors from Jämtland, who had expenditures for packaged tours. Those refer to day trips to Åre, including transportation and entry ticket.

Swedish visitors from outside of the host region have similarly high expenditures in most categories, however, distinctively higher costs for travelling to and from Jämtland, as well as for accommodation. Furthermore, expenditures on sport and recreational activities probably refer to a few Swedish tourists combining the visit to an event with skiing activities of their own.

Norwegian visitors indicate a relatively high consumption pattern for eating out (i.e. restaurants, cafés, bars, etc.), and retail and shopping. Among all four residence groups, they also have the highest private car expenditures (due to trips to Åre in their own cars), as well as sport and recreational activities.

By far the highest total expenditures are identified for international visitors other than Norway, with the highest daily average costs for accommodation, travels to and from Jämtland county, as well as rental cars. This is not surprising, as this group needs to cover longer distances to reach Åre. Furthermore, a small share of international visitors also made use of packaged tours.
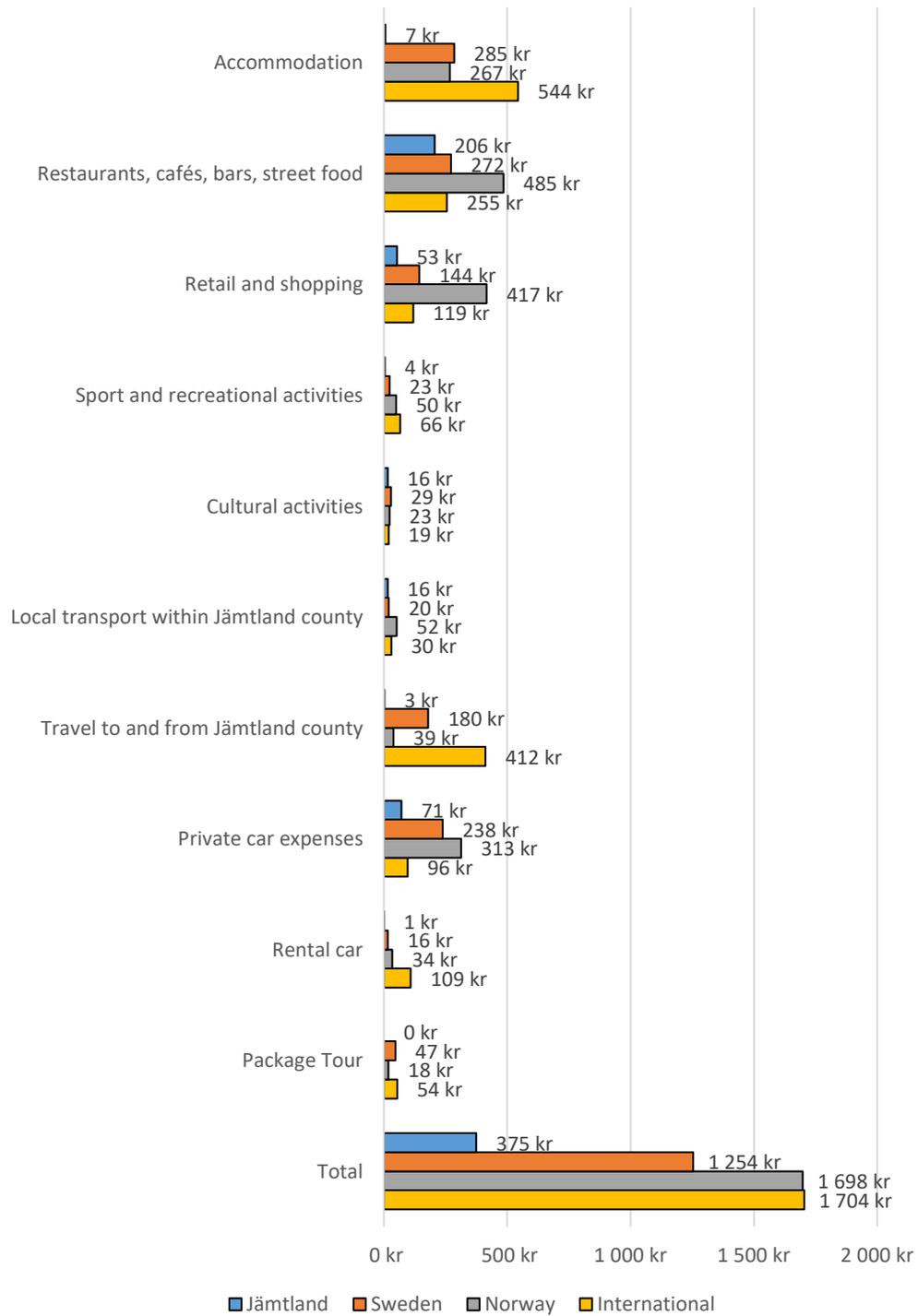
Figure 41. Average daily expenditures per person for Biathlon visitors

The average daily expenditures per person among the Biathlon visitors can be summarized as follows:

Local visitors from Jämtland spent on average 375 kr per day, which is, in comparison, less than half of the daily expenditures of visitors going to the Alpine events in Åre. This can mainly be explained by considerably less expenditures on retail and shopping directly associated to the Biathlon events. Also, a high share of local visitors live in Östersund, and as such do not have much in terms of private car expenditures. More than half of the total daily expenditures by local visitors can be allocated to restaurants, cafés and bars, as these events provide an opportunity for eating and drinking out.

The average daily expenditures of Swedish visitors from outside of Jämtland county is estimated to 1254 kr per day. This figure consists of equally high average costs for accommodation, eating and drinking out (i.e. restaurants, cafés, bars, etc.) and private car expenses for travelling to and from Jämtland county.

Norwegian visitors have similarly high average daily expenditures as other international visitors, i.e. 1698 kr and 1704 kr, respectively. Interestingly, although the total daily expenditures of both groups are similar, the consumption pattern is quite different. Expenditures by Norwegians was mainly allocated to food and beverages in restaurants, cafés etc., but also to retail and shopping, and costs for their private car.

Conversely, other international visitors exhibited high spending on accommodation services and on trip expenses to and from Jämtland county. Like the Alpine visitors, spending on sport and recreational activities, culture, local transport within the region, and rental cars are relatively low. Furthermore, average costs for package tours were in general low among all respondents.

5.7.2 Total expenditures per category

The total expenditures per category is estimated by taking various factors into consideration: First of all, it required the identification of the *share of respondents* out of the total respondents that de facto had expenditures for each specific expenditure category. For instance, out of 1450 Swedish respondents from other regions than Jämtland, 623 stated that they had expenditures for the category accommodation, which equals approximately 43%. Among this sub-sample (i.e. 623 respondents), the *average expenditure* per category has been estimated. Finally, the *total amount of visitors* for both World Championships is one factor that was not possible to estimate with absolute clarity. The main distinction to make here was whether the calculations consider the total tickets sold, or the amount of unique visitors. It is clear that not every ticket sold is a unique visitor, as visitors tend to follow the events multiple days. Hence, estimations of unique visitors should provide the basis for calculating the total amount

of visitors. However, this is also not easy to define. The Alpine event, for instance, could had also been accessed by Skipass holders for the skiing-area around Åre. Therefore, this study considers *two scenarios* for the total amount of visitors, i.e. a minimum and maximum scenario, in order to avoid defining one definite value that can lead to misleading conclusions. In reality, the true number lies between the minimum and maximum scenario, probably closer towards the minimum scenario. This is because most likely not every ticket sold is a unique visitor, i.e. one visitor could buy several day tickets, for example. Accordingly, the three indicators *share of respondents*, *average expenditures*, and the *total amount of visitors* (both scenarios) are multiplied, in order to estimate the *total visitor expenditures* for each category:

*Total visitor expenditures = share of respondents * average expenditure * total amount of visitors*

The total visitor expenditures for each of the ten categories are estimated for all four residence groups, namely Jämtland visitors, Swedish visitors from other regions than Jämtland, Norwegian visitors, and international visitors other than those from Norway. Most importantly, the expenditures of all the visitors **not** from Jämtland are adjusted according to each respondent's perceived level of *event influence*. Accordingly, the total expenditures reflect only the amount that directly can be allocated to the events. By doing so, those expenditures that would have occured even without the events taking place are excluded. The graph below (figure 42) shows total expenditures per residence group. The information included in the graphs refer to the respective minimum- and maximum total expenditure scenarios per residence group for both the Alpine- and Biathlon World Championships. The scale of the values in the graphs are presented in is in *thousand Swedish kronor*. For example, 1.000 kr (1 thousand) in the graph should be read as 1.000.000 kr (1 million).
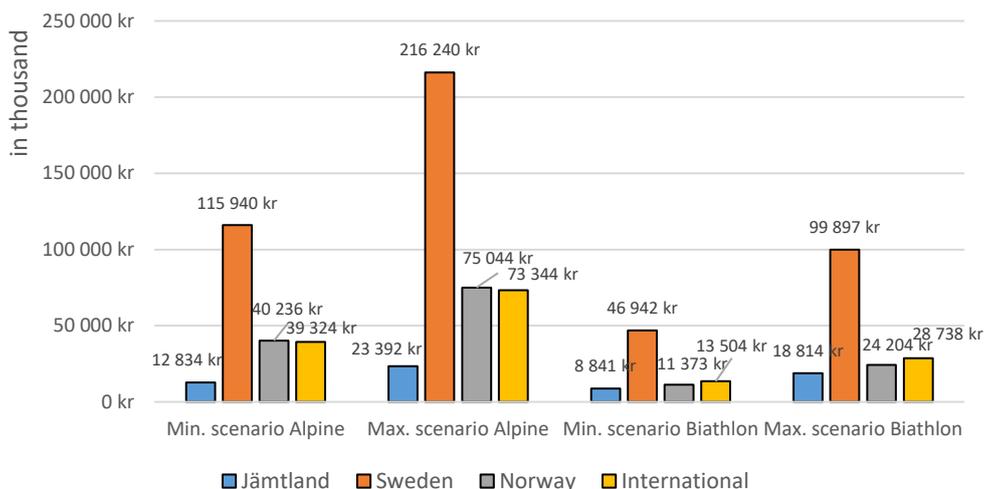

Figure 42. Total expenditures per residence group

Accumulating all expenditures together shows that Swedish tourists (excluding Jämtland county) account for the highest total expenditures among all residence groups, i.e. around 116 million kr during the Alpine World Championships, and approximately 100 million kr during the Biathlon World Championships. This can be attributed to the highest total share of Swedish visitors at both the Alpine- and Biathlon events (i.e. 49% and 46%, respectively – see figure 6). Furthermore, in comparison to local visitors from Jämtland, Swedish tourists from other regions had considerably higher average daily expenditures, especially for the Biathlon event (i.e. 1254 kr compared to 375 kr – see figure 41). This results in high differences in total expenditures between both groups (i.e. 47 million kr compared to 9 million kr – minimum scenario), even though the share of local visitors from Jämtland and Swedish visitors from other regions were more or less the same at the Biathlon event. Interestingly, also international visitors (including Norway) contributed with a significant share of total visitor expenditures, as they account for at least 80 million kr at the Alpine events, and 25 million kr at the Biathlon events (minimum scenario).

In addition to the total expenditures per residence group, the following ten graphs (figures 43 – 52) illustrate the total expenditures broken down into each expenditure category.
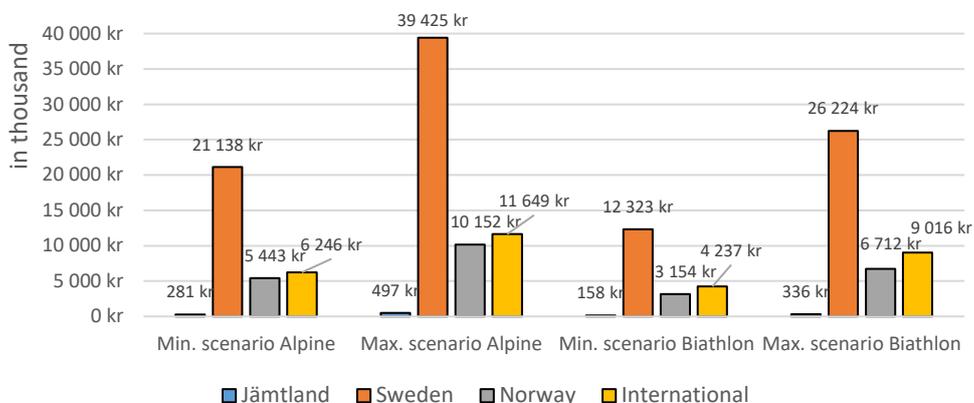
Figure 43. Accommodation – total expenditures
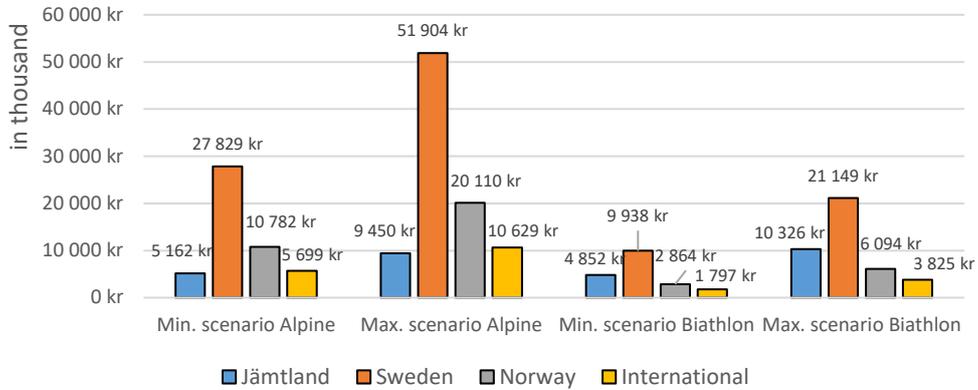
Figure 44. Restaurants, etc. – total expenditures
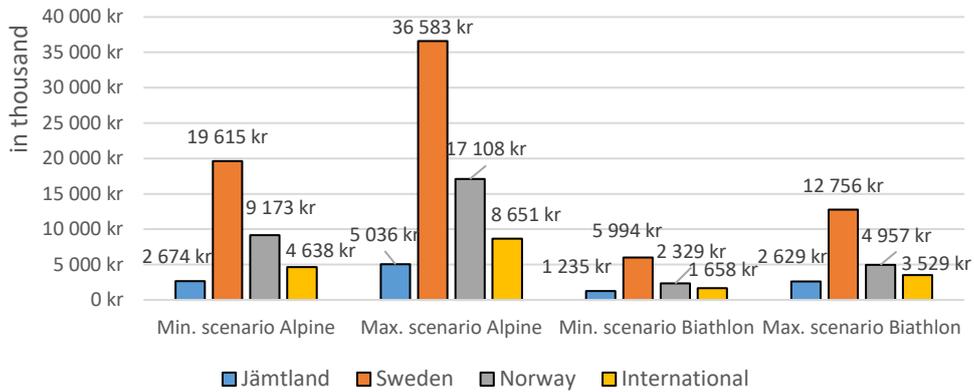
Figure 45. Retail and shopping – total expenditures
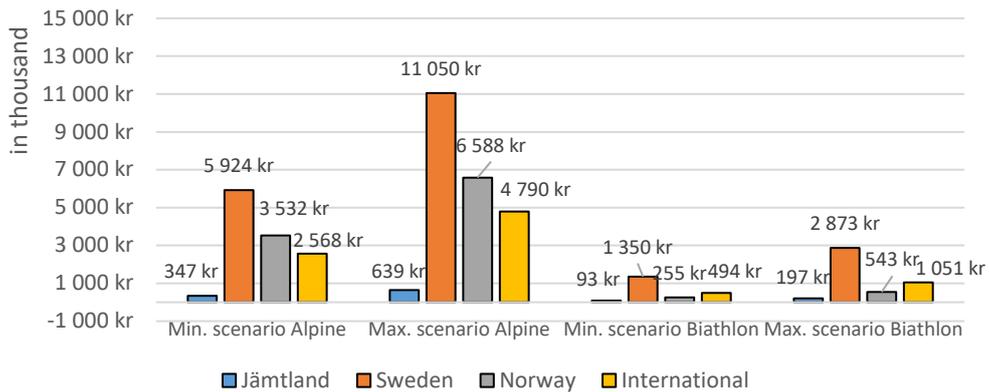
Figure 46. Sports and recreational activities – total expenditures
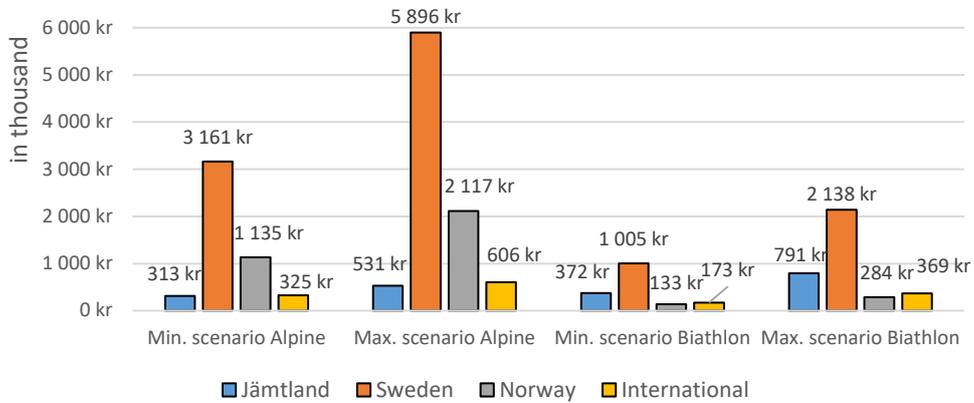
Figure 47. Cultural activities – total expenditures
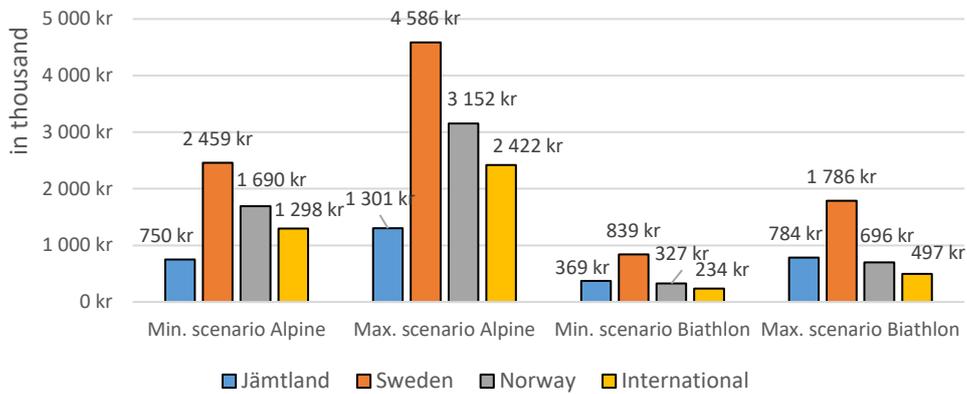
Figure 48. Local transport – total expenditures
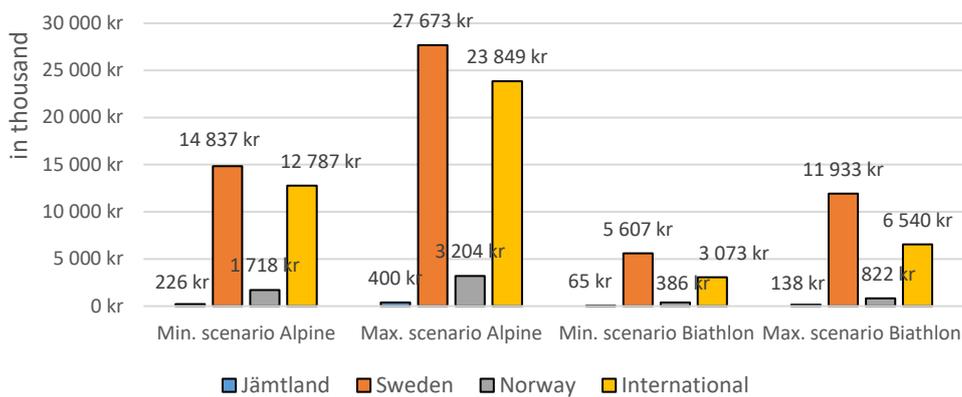
Figure 49. Travel to and from Jämtland county – total expenditures

Socio-Economic Impacts of Major Sports Events
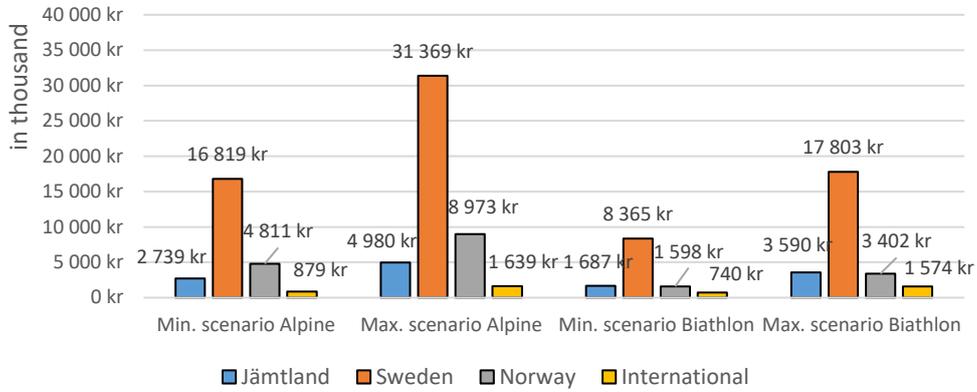
Figure 50. Private car expenses – total expenditures
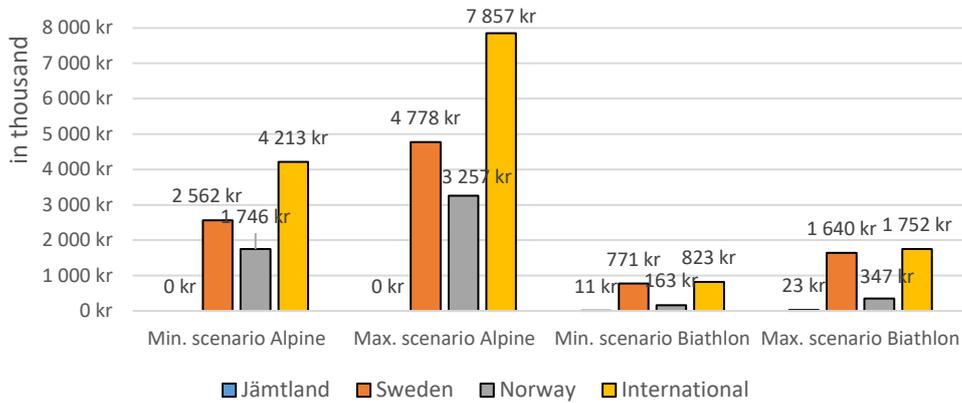
Figure 51. Rental car – total expenditures
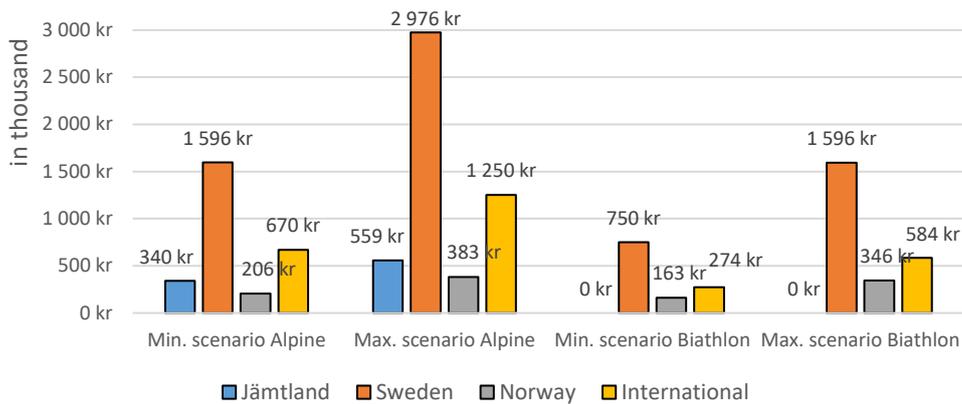
Figure 52. Package tour – total expenditures

6 The economic impact of the World Championships

This chapter presents the economic impact of the Alpine- and Biathlon World Championships on the county of Jämtland. To reiterate from the methodology section, the following main considerations are important to better understand and interpret the results presented in this section:

- This analysis of the economic impact remains on a higher aggregation level, as the impact from the two World Championship events are not measured separately, but in terms of *combined* effects.

- The impact from both World Championships combined is measured on the *regional level*, i.e. the effects comprise also the areas outside of Åre and Östersund

- The impact is based on *new money* flowing into the region from *tourist expenditures*. This means that those expenditures made by local visitors from within Jämtland are not included in measuring the *impact* of the events on the region.

- The impact stretches across sectors in the entire regional economy, i.e. also sectors beside those that are typically are involved in the supply of products and services consumed by event visitors. This is captured by the *indirect* effects.

- The *indirect* impact describes how much output and full-time equivalent employment from other sectors in the regional economy that is required, in order to satisfy the demand from event visitors. However, no price-changes or substitution effects are considered in the estimations of indirect effects.

- The latest available version of the underlying Input-Output table was at the time of the study from 2016. This means that the level of inter-sectoral linkages are based on the regional industry structure of that particular year.

6.1 Direct economic impact

The starting point of the economic impact of the World Championships Region on Jämtland county are the expenditures made by tourists from outside the region. The expenditure pattern has been captured by the visitor survey for 10 expenditure categories, and was presented in the previous chapter. The category *Travel to and from Jämtand county* has been excluded, since it cannot be guaranteed that these expenditures have been made- or remained within the region. Accordingly, the *net direct* economic impact has been estimated for the following six sectors:

- I55-56: Accommodation and food services
- G45-47: Wholesale and retail trade
- R93: Sports-, amusement and recreation services
- R90T92: Creative, art and entertainment services, museum and other cultural services
- H49: Land transport services
- N77: Rental and leasing services

The estimated direct impact is presented in figure 53 (values are scaled in thousands kr):
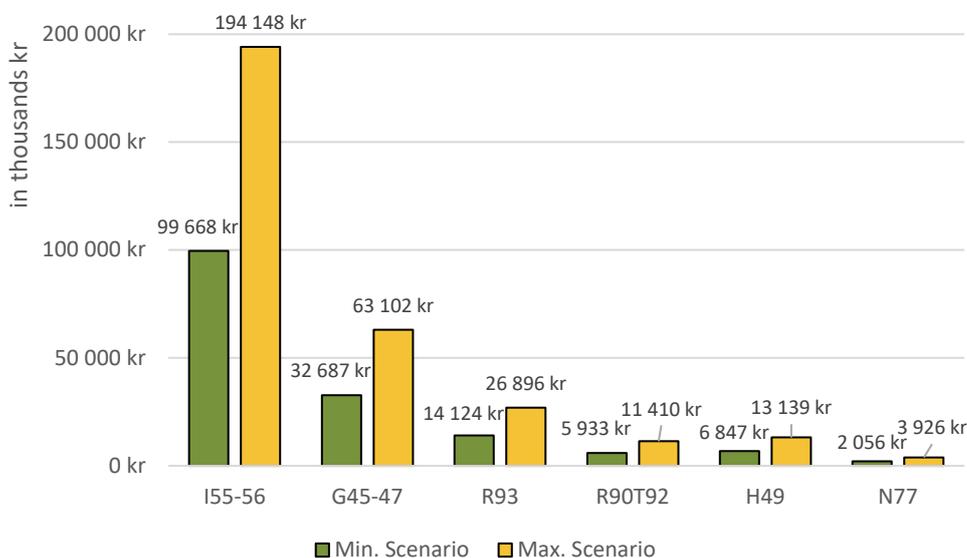

Figure 53. Direct impact per category

The impact from visitors of both World Championships on the regional economy is the largest for the accommodation and food sector, which is estimated to be between 100 million kr and 194 million kr- in direct impact that was generated in the region to satisfy

the demand for event visitors from outside of Jämtland county. The corresponding impact on the regional *wholesale and retail trade* sector amounts to between 33 million kr and 63 million kr. The *sports, amusement and recreation* sector benefited gained between 14 million kr and 27 million kr by providing their services to tourists of the World Championships. The impact on the local transportation sector within the region is estimated to approximately 7 million kr to 13 million kr. The *creative, art and entertainment services, museum and other cultural services* experienced an impact between 6 million kr and 13 million kr. Finally, the impact on *rental and leasing services* ranges between 2 million to 4 million kr. The accumulated *total direct* impact amounts to 161 315 000kr (min. scenario) to 312 621 000kr (max. scenario).

6.2 Indirect economic impact

The *indirect* impact comprises all sectors from the entire regional economy, i.e. outside of the tourism-related sectors, which are already considered by in the *direct* impacts. Table 7 shows that the indirect impact is estimated to between 15 million kr and 29 million kr, meaning that this amount of output from all other sectors in the regional economy are required to satisfy the demand of event visitors from outside the region. From these 15-29 million kr, the table specifies the indirect impact on the 4 most prominent sectors (with corresponding SNI codes), out of the total 60 sectors in the region. The remaining 56 sectors together receive an indirect impact of between 8 and 18 million kr.

The highest indirect beneficiary from tourism demand is the *real estate* sector, with an impact ranging from between 3.6 million kr and 7 million kr. This is followed by sectors producing and selling *food and beverage* products, where the impact is estimated between 1 million kr and 2 million kr. Also the sector for *security services, building and landscape services, office administration and business support* benefit from the events, due to its strong linkages with the tourism-related sectors. The impact here is similarly high-between 1 million kr and 2 million kr. The fourth highest indirect impact is registered for the sector for *legal-, accounting, and consulting* services, ranging between 800 thousand kr and 1.5 million kr.

Accordingly, the total impact (i.e. direct + indirect) of the World Championship events is estimated to between 176 million kr and 341 million kr.

Table 7. Total direct and indirect impact of the World Championships 2019

Indicator	SNI code	Min. scenario	Max. scenario
Total direct impact		**161 315 000 kr**	**312 621 000 kr**
Total indirect impact		**14 787 000 kr**	**28 671 000 kr**
Of which…			
Real estate services	L68	3 580 000 kr	6 946 000 kr
Food and beverage products	C10T12	1 122 000 kr	2 184 000 kr
Security services, building and landscape services, office administration and business support	N80T82	1 002 000 kr	1 940 000 kr
Legal, accounting, consulting services	M69-70	808 000 kr	1 565 000 kr
All other sectors		8 275 000 kr	18 220 000
Total impact (direct + indirect)		**176 102 000 kr**	**341 292 000 kr**

The model to estimate event impacts further allows for the estimation of the effects on regional employment and income. The impact in terms of employment should always be interpreted with care. In the case of events, it does not necessarily mean that *new or additional employment is created*. The results rather depict the amount of full-time equivalent employment that is *required to satsify the demand* of event tourists, from the perspective of one year (Daniels 2005). In the case of the World Championship Region, the minimum scenario shows that a total 166 full-time equivalent jobs were needed to stem the demand triggered by event tourists. Out of the 166 FTE jobs, approximately 155 were needed in the six tourism-related sectors, where the direct demand took place, and approximately 11 additional jobs were requried in all other sectors in the economy.

Table 8. Impact on employment and income

Indicator	Min. scenario	Max. scenario
Employment	**166 (FTE)**	**321 (FTE)**
Tourism-related sectors	155 (FTE)	300 (FTE)
Other sectors	11 (FTE)	21 (FTE)
Income	**47 568 000 kr**	**92 203 000 kr**
Tourism-related sectors	44 449 000 kr	86 155 000 kr
Other sectors	3 119 000 kr	6 048 000 kr

In a similar vein, the income effects depict the income generated by employees working in the region. Again, this is not necessarily *additional income* generated by the event. It rather depicts that amount of income that the events *contributed* to generate, from a one-

year perspective. In the minimum scenario, the total income effects amounts to approximately 48 million kr, compared to 92 million kr in the maximum scenario. The lion's share is allocated to tourism-related sectors, generating 45 million in the minimum scenario, and 86 million in the maximum scenario. In all other sectors, the events contributed to income ranging from between 3 million and 6 million kr, respectively.

7 The impact on regional businesses and workplaces

The results from the impact of the World Championships Region on regional residents' professional lives is divided into two parts, company owner and CEO perspectives (N = 224), and the perspective of the employees and middle management (N = 1463). These questions were presented as an optional part of the regional resident survey, where those that own or manage an organization or business answered one set of customized questions and regional residents whom had regular employment would answer another set of questions customized for them. Owners and CEOs answered questions about their organization and their perception of employees' working conditions. Similarly, employees answered questions about their perceptions of the impact of the events on their employer and then questions about the impact of the events on their own working environment.

The purpose of these questions is to show how the impacts of the two World Championships events were subjectively experienced from the by businesses, intitutions and other organizations throughout the region. For the sake of expendiency, all the types entities will be described as "businesses and workplaces" in this section, although it encapsulates all types of impact on the professional lives of regional residents.

For both the owner/CEO (hereon called "owners") and middle manager/employee (hereon called "employees") groups, a comparison was made between results in the two host municipalities of Åre and Östersund, and the other six municipalities in the region grouped together.

It is important to point out that these questions were qualitative in the sense that they asked for the respondent's subjective experience of how the events impacted their business or workplace. In other words, this section does not look at actual figures of sales impact, for example. Rather, it asks the respondent to share their perception of each type of "professional" impact. This qualitative methodology allows the study to gather a much broader range of impacts than those that are purely numeric. In effect we could also incorporate intangibles such as brand, perceptions on working environment and career related aspects of regional impact on businesses and workplaces.

7.1 The impact of the events on businesses

The first item in both sets of questions refers to economic performance, i.e. in what way the World Championships Region had affected the economic saliency (aspects such as budgeting, sales, turnover and profit) of the business or workplace in the eyes of the respondent. The results from owners and CEOs are illustrated in figure 54, followed by the results from the employee perspective in figure 55.
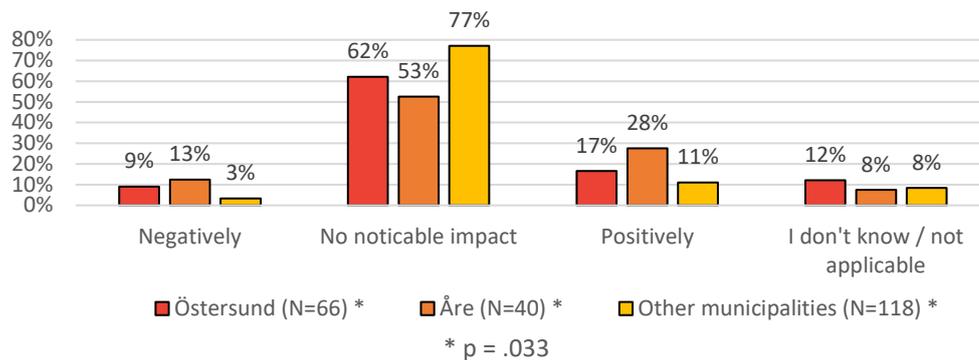
Figure 54. Owners′ perspective on the events' impact on the organization's economy

The owners' and employees' perspectives show statistically significant differences among the municipalities. In general, companies located in Åre indicate the highest share of positively affected companies, followed by Östersund. This is not surprising, as host municipalities always are the ones most likely to benefit economically from events. Interestingly, also the highest share of negative effects from the events are found in Åre and Östersund. The total share of those businesses and workplaces is, however, small. Most respondents thought that the events had no noticeable impact on their company's economic performance, especially in areas not outside of the host municipalities.
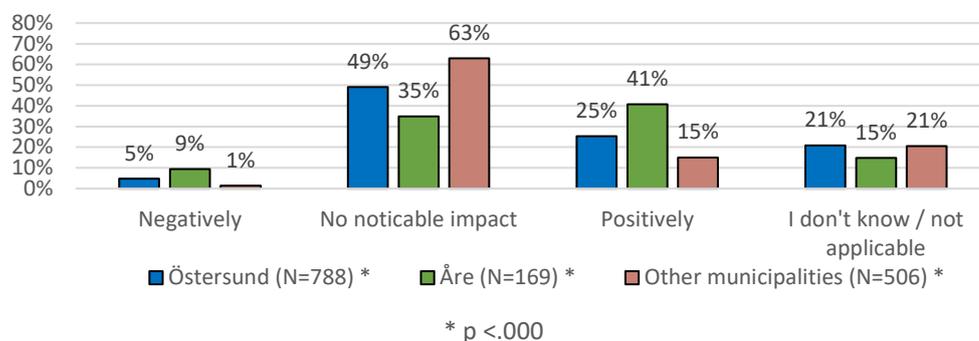
Figure 55. Employee's perspective on the events' impact on the employer's economy

Differences between the owner and employee perspectives have not been statistically tested, however, the graphs indicate that employees in general do not experience neither negative nor positive impacts to any significant degree. The exception can be found in Åre, where a large share of employees perceived that the events affected their employer positively (figure 55). By contrast, only a small share of employees working in other municipalities consider the events as positive for their employer's economic performance.

The World Championships Region's impact on companies' brand image has not been noticeable in the eyes of owners. At least, almost no negative effect has been perceived. Åre sticks out with the highest shares of positive impacts, however, the differences among municipalities is statistically not significant.

p = n.s.
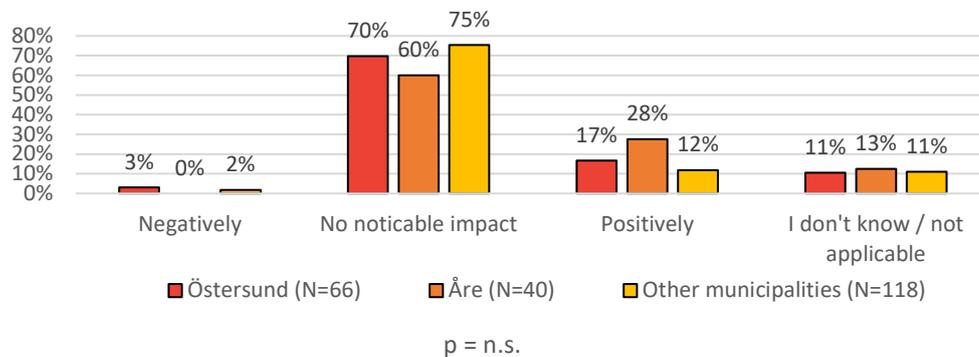
Figure 56. Owner's perspective on the events' impact on the organization's brand image

Interestingly, a high share of employees located in Åre perceived hosting the World Championships as positive for their company's brand image. It was a similar case for employees working in Östersund. However, also here the impact on the company's brand image is perceived by most employees as not noticeable. The differences among the municipalities is statistically significant, indicated by the low p-value.
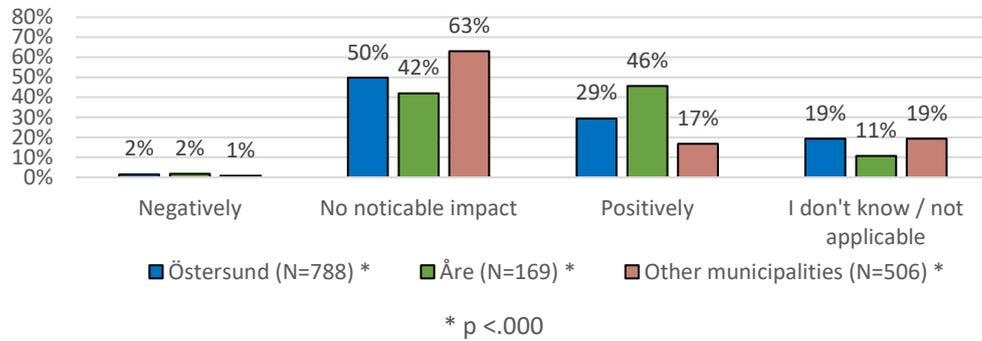
Figure 57. Employee's perspective on the events' impact on the employer's brand image

The networking opportunities from the perspective of owners show statistically significant results between the municipalities. Not surprisingly, a relatively large share of company owners located in the host municipalities perceived high positive impacts, compared to the owners from other municipalities. Almost no one perceived these events as negative from a networking standpoint. However, the most common answer again was the perception that the events had no noticeable impact.
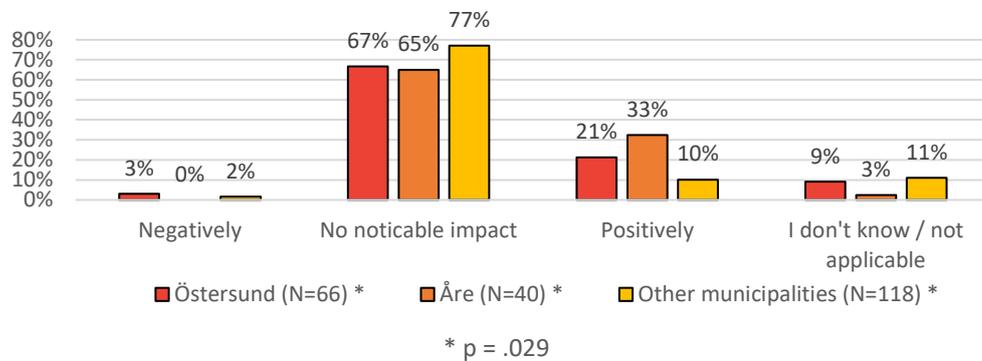
Figure 58. Owner's perspective on the events' impact on organizational networking opportunities

Similarly, networking opportunites were perceived as positive among employee's working in Åre and Östersund. Large shares of employees in other regions did not note any impact from the World Championships Region. A considerable share in all municipalities, however, were unaware about changes in networking opportunities for their employer. The differences are also here statistically significant.
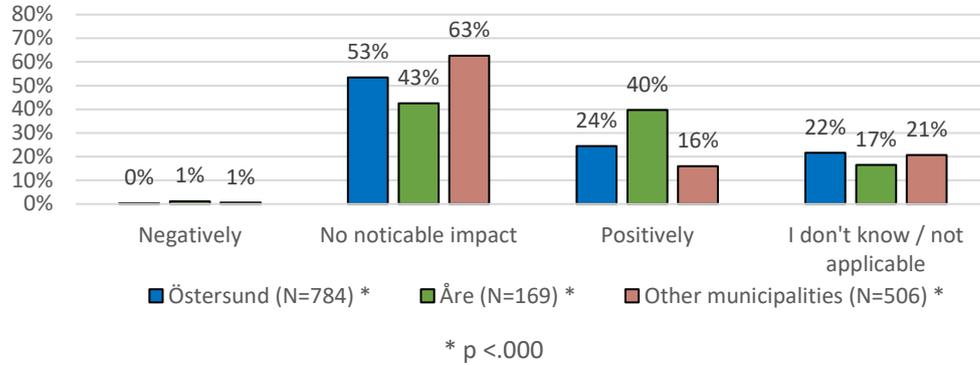
Figure 59. Employee's perspective on the events' impact on the employer's networking opportunities

A clear result was the perspective of owners on the effect of the events on competencies in their company. A considerably high share indicated that there has not been any noticeable impact. These results are similar among all municipalities, as the tests do not show any significant difference.
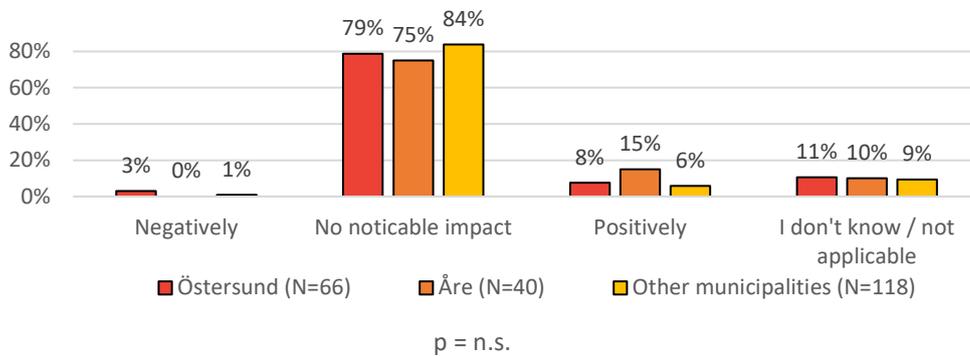
Figure 60. Owner's perspective on the events' impact on the competencies in the company

By contrast, a larger share of employees in Åre and Östersund view the development of competencies in their workplace due to the events as positive. However, the majority perceived no noticeable effect.
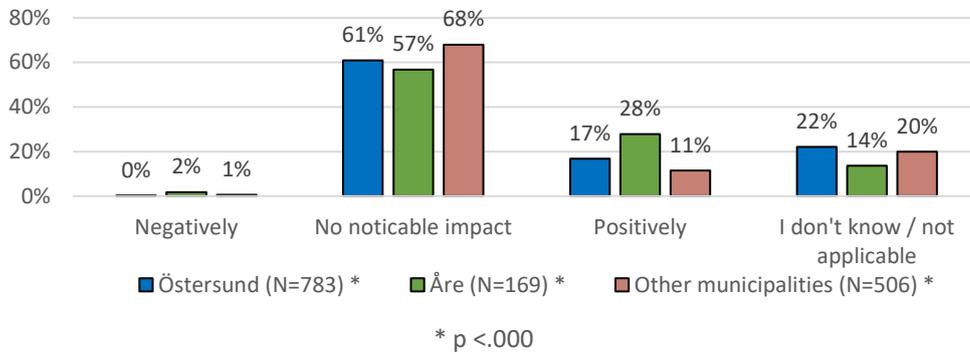
Figure 61. Employee's perspective on the events' impact on the competencies in the workplace

7.2 The impact of the events on employees' working environment

This sub-chapter presents the results of the World Championships Region's impact on the individual's workplace and working conditions from both perspectives, the owner and the employee themselves. First, the effect on the employee's perceived meaningfulness in their work tasks is either not known or has not changed, based on the perspectives of the owners. A few responses, mainly in Åre, considered the impact as positive. Differences among municipalities are, however, not significant.
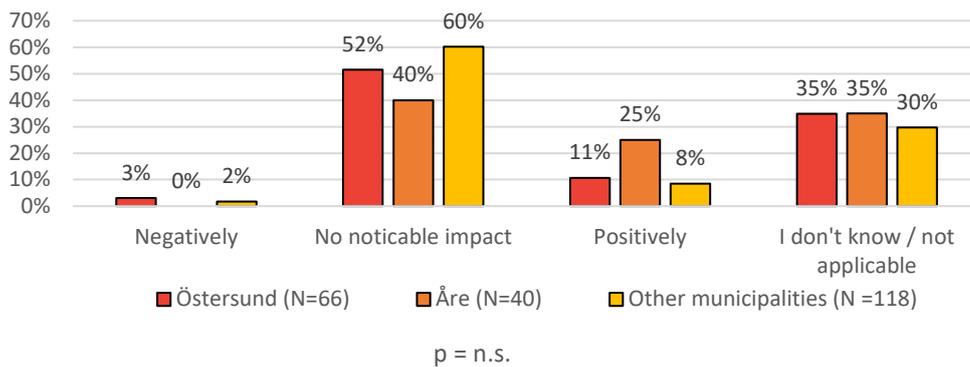
Figure 62. Owner's perspective on the events' impact on the employee's sense of meaningfulness at work

The perspective of the employees shows that the events indeed has had a positive impact on the meaningfulness of their work tasks. Statistically significant results are evident for employees located in the host municipalities indicating a high share of positive impact. Even individuals from other municipality perceived a certain degree of positive impact on the meaningfulness of their working tasks, due to the events happening in the county.

* p <.000
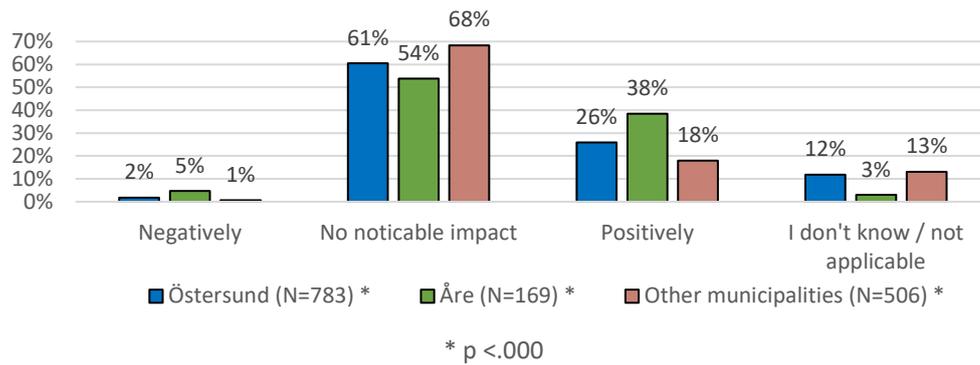
Figure 63. Employee's perspective on the events' impact on the meaningfulness of their work

The degree to which the World Championships Region affected the career opportunities of individuals seems to be low. The majority of owners do not notice any impact of note, or career opportunities for employees are not applicable in their company. Reasons for this can be that many companies are run by one person, i.e. the owner is also the employee. No differences among municipalities are identified.

p = n.s.
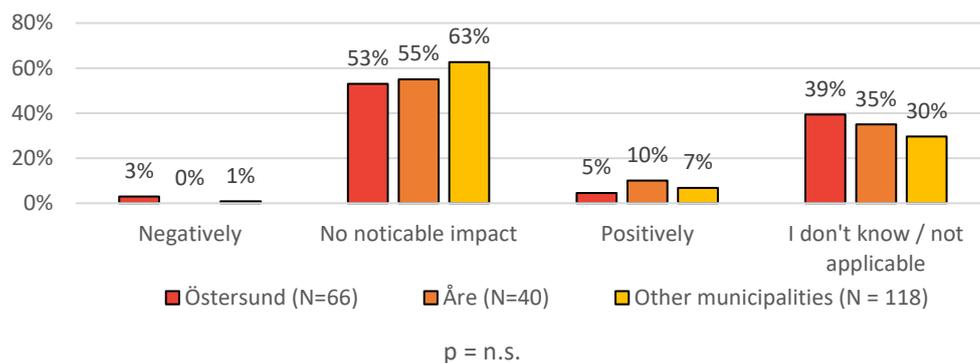
Figure 64. Owner's perspective on the events' impact on the employee's career opportunities

The vast majority of employees themselves also do not notice any considerable impact on their own career opportunities. A minor share of employees in Åre, however experienced a benefit from the World Championships taking place in the region. Differences among municipalities are also here statistically significant. Interestingly,

almost no employees perceived negative effects on their career in any of the municipalities.

* p <.000
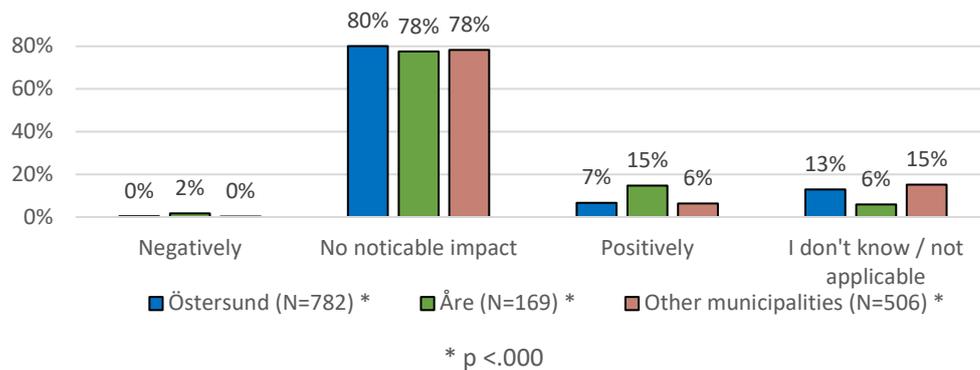
Figure 65. Employee's perspective on the events' impact on their career opportunities

Interesting results show how the World Championships Region has affected the workload of employees in the region. One could assume that the increased effort and participation of regional businesses to contribute to or adapt to the events' dynamics can result in higher workload and hence, negative consequences for employees. The perspective of the owners show that the majority perceived no noticeable impact for their employees, and only a small share indicated that the events had a negative effect on workload. Some even suggested that the workload had developed positively for their employees. Differences among municipalities, however, are statistically not significant.

p = n.s.
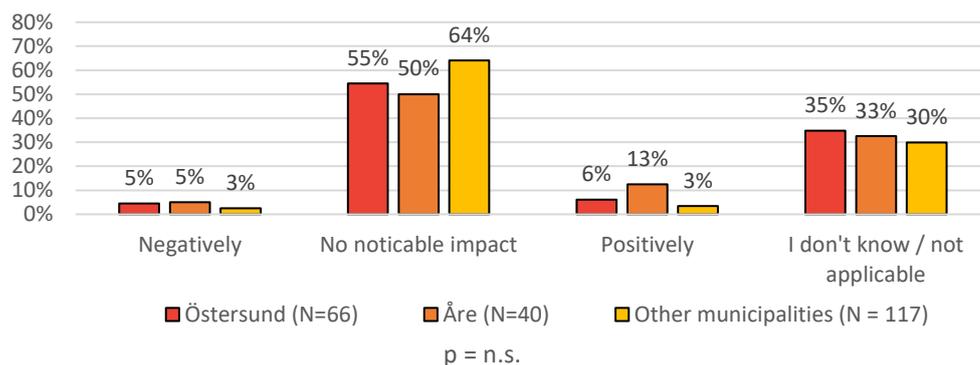
Figure 66. Owner's perspective on the events' impact on the employee's workload

The case was a different one from the perspective of the employees. There exists a considerable share, especially in Åre, who noted that the events has impacted their workload negatively. However, almost the same share thought that the workload had

been positively affected. This might have to do with less "ordinary tourists" visiting Åre during these weeks since a considerable share of tourism capacities were dedicated to officials, team members and athletes. Differences among municipalities are statistically significant.
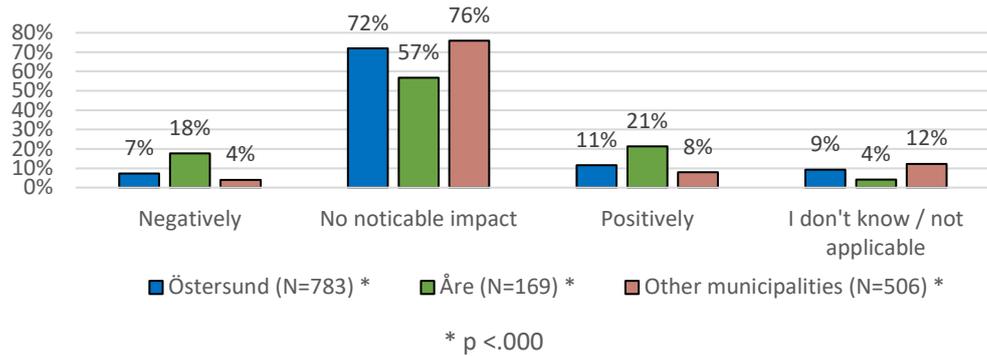
Figure 67. Employee's perspective on the events' impact on their workload

8 The social impact on the residents

8.1 Regional community sentiments

In the 4886 completed regional resident surveys, there were several open text fields per survey in which the respondent could clarify answers, express a specific opinion, or add information that was not captured in the questions. All open text fields were voluntary, and as such any responses written in them presented suitable data for a content analysis of regional sentiments about the events (Vaismoradi et al., 2013). 2621 responses were registered throughout the open text fields in the regional survey.

The comments were aggregated and an assessment was made for each response as to what core message the respondent was trying to convey. Responses that contained several meanings were allocated into several categories. 507 of these responses were either too too broadly formulated or too specific (less than 10 mentions) to be allocated into a specific sentiment other than "generally positive or "generally negative", these sentiments were therefore omitted from the analysis.

The final result is two graphs that quantitatively illustrate the types of positive (Figure 68) and negative (Figure 69) sentiments that were present in the regional population. The responses were not analysed on the municipal level as there would be too few open responses per municipality to extract any meaningful intra-municipal comparisons. Rather the purpose of the content analysis is to illustrate how the general sentiments toward the events were distributed amongst all residents. All in all, 23 categories of sentiments were identified, or 21 if one excludes the two broad negative and positive categories.

The most common type of sentiment found was that which expressed contentment with the way in which one or both of the events had improved the daily life of the respondent (N349). Examples in this category include answers such as "Seeing all the happy faces at the awards ceremony made me happy as well." Or "I very much appreciate when things happen here!" See figure 68.

The next specific sentiment came from those that found that one or both of the events created everyday inconveniences or other negative social impacts for the respondents (N216). Sentiments found in this category include answers such as "I have difficulties getting to work with my car because of the World Championships." or "Far too much drunkenness, unpleasant people and littering!" See figure 69.

At the other end of the list of positive sentiments were sentiments expressing interest in the athletic successes of Sweden (N18) "I, like many others, am very excited if Sweden win a medal, otherwise my interest is pretty vague." and sentiments about how one or

both of the events have changed the respondent's opinion about the sports or major sports events in general with comments like "It has been very exciting to follow the Biathlon both on location and from my sofa. I didn't use to think that Biathlon was particularly fun to watch but now I have changed my mind!". See figure 68.

Less common negative sentiments included the perception that the events incurred a negative economic impact on the respondent or on the region (N26) with comments such as "Absolutely not the sales figures I had hoped for! This probably applies to most stores in town." as well as visitors who had a negative experience at one of the events (N38) with comments such as "The reception at the ticket office was unprofessional and there were no places at the event where I could eat food I brought myself." See figure 69.
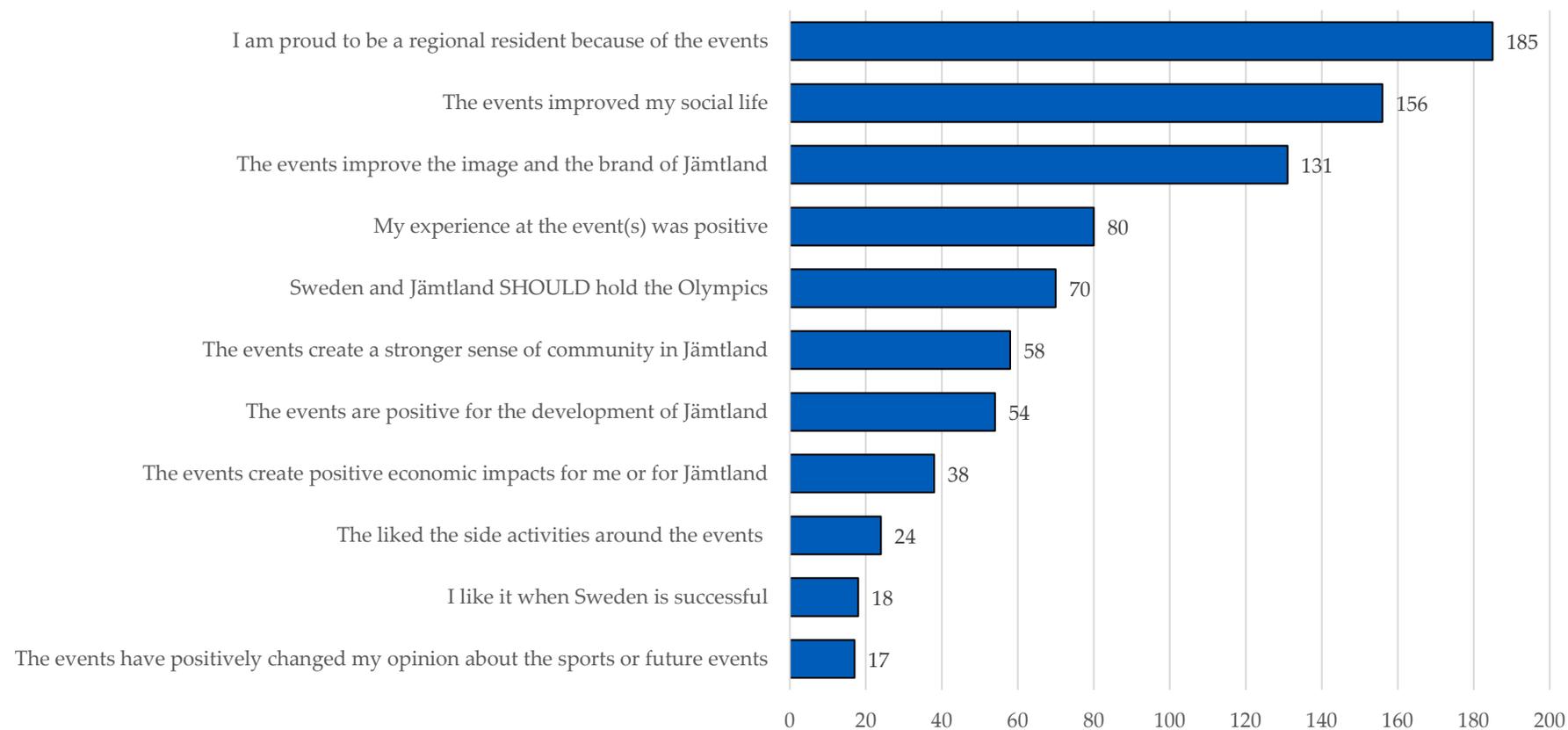
Figure 68. Content analysis of positive regional community sentiments about the World Championships Region
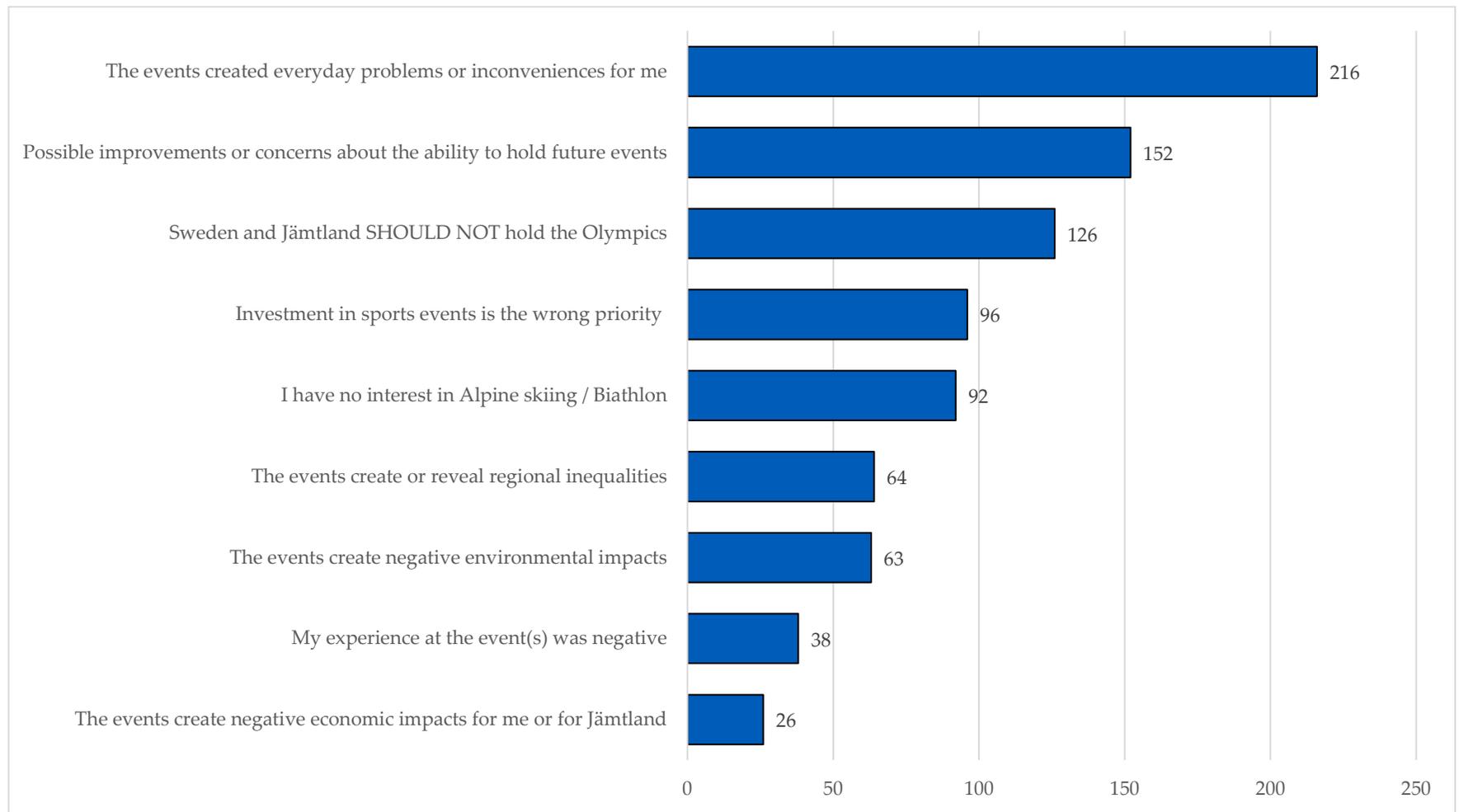
Figure 69. Content analysis of negative regional community sentiments about the World Championships Region

8.2 The geographic distribution of social impacts

Four indicators of social impact were employed in this study. As earlier outlined, these indicators are based on the Delphi study from Wallstam et al. (2018). In short, the paper sought to identify social impact indicators that are most widely applicable and useful for policymakers. The indicators were identified by majority agreement from events researchers and support from the existing literature on social impacts. This report employs the four most well-supported indicators from the paper: *Quality of life, Sense of Pride, Social capital* (*Social opportunity*), *Sense of community*.

Quality of life was described to respondents as the general impact on the conditions under which they live. In this sense, quality of life alludes to the tangible and short-term ways in which events impact communities. This indicator encompasses the respondents' perceptions of everyday life variables such as entertainment opportunities, transport and mobility, crowding, noise levels, safety & crime, food & beverage offers, community services in general or the improvement or deterioration of community infrastructure.

Social capital describes the impact an event has on community residents' social networks and networking opportunities (e.g., does the event offer opportunities to meet and interact with event visitors or other community residents?). Social capital may refer to connections created within a community but also to connections created between members of one community with those of other communities. For the sake of clarity, this report we refer to this indicator as *Social opportunity*.

Sense of pride refers to the impact an event has on community residents' sense of pride from living in a locality in which it is being organized. Pride describes the willingness of community residents to identify with a place in the context of other places. For example, a high sense of pride means in a member of a certain community is likely to express their connection to this community in everyday life and especially when outside of the community in question. Pride in this sense is projected outwards and only exists because of other competing objects of pride, i.e. other communities, or in this case other regions in Sweden and abroad.

Sense of community is intended to capture the impact an event has on community residents' perceived sense of common identity following an event. This indicator focuses on the experiential aspects of the community as opposed to physical and geographical definitions. In other words, for Jämtland county residents, how did the World Championships Region impact residents' sense of belonging to the wider community in the county, and their sense of kinship to other county residents? Whereas Sense of Pride is reflected externally, sense of Community is manifested internally, amongst members in a community.

8.2.1 Social impact clusters

A cluster analysis was conducted to identify regional groups according to social impact patterns. Cluster analysis as a method, as earlier outlined, is used to identify groups of respondents that exhibit similar characteristics with regards to attitudes or behaviours. Social impact clusters, then, are groups of county residents who share response patterns when asked about the impact of the World Championships Region on their daily lives.

Three groups (or clusters) were identified:

- Those regional residents who experienced a high degree of positive impact across all four indicators. There were named *the Enthusiasts*. On the left of figure 70.
- Those regional residents who experienced a high degree of negative impact across all indicators. These were named *the Critics*. In the middle of figure 70.
- Those regional residents who experienced a high degree of positive impact on their sense of pride but did not experience a high degree of impact across the three other indicators. These were named *the Proud*.On the right of figure 70.

The values in Figure 70 are standardized, meaning that the Likert scale of 1-5 has been converted to a scale of -1 to +1. Standardizing the scale makes it easier to discern positive impacts from negative impacts. The figure also uses two decimals as to make the indicator scores more clearly discernable from each other.
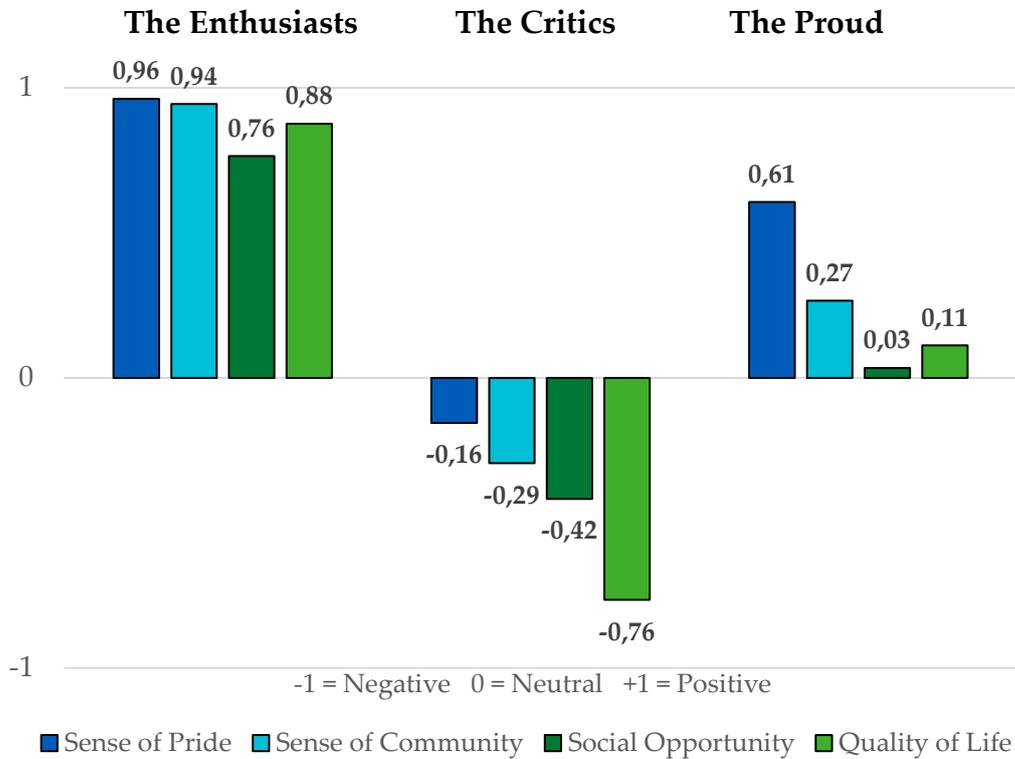
Figure 70. The regional social impact clusters

For the Critics, Sense of Pride was the least negatively affected variable with an average score of -0,16 whilst Quality of Life was the most negatively affected variable with an average of -0,76 for these residents. Sense of Community and Social Opportunity scored -0,29 and -0,42 on average in this group.

In the case of the Enthusiasts, Sense of Pride, Sense of Community and Quality of Life scored + 0,96, +0,,94 and 0,88 respectively, whilst Social Opportunities was the weakest aspect of social impact with +0,76.

The Proud, meanwhile, showed a significantly higher score on the variable Sense of Pride (+0,61) than Sense of Community (+0,27), Social Opportunity (0,03) or Quality of Life (+0,11).

Table 9 below illustrates the distribution of the three main clusters for each municipality. In other words, the Enthusiasts, Critics and Proud clusters amount to 100% in each municipality.

Table 9. Regional distribution of Social Impact Clusters

	The Enthusiasts	*The Critics*	*The Proud*
Berg	48,8%	2,7%	48,5%
Bräcke	44,3%	5,3%	50,4%
Härjedalen	38,0%	2,6%	59,4%
Krokom	52,2%	4,6%	43,2%
Ragunda	43,7%	3,2%	53,0%
Strömsund	39,6%	1,5%	59,0%
Åre	44,2%	10,0%	45,8%
Östersund	54,3%	4,7%	40,9%

The Enthusiasts were the largest group in Berg (48,8%), Krokom (52,2%), and Östersund (54,3%), with the latter exhibiting the highest share of enthusiasts out of all eight municipalities. Härjedalen was the municipality with the smallest share of enthusiasts at 38%.

The Critics were the smallest group in all municipalities. The smallest share of Critics are found in Strömsund (1,5%) whilst the largest share of Critics are found in Åre municipality where they constituted 10% of the municipal population. Interestingly, this proportion of Critics in Åre was almost double that of the next biggest municipal proportion of Critics, found in Bräcke (5,3%). The third largest share of critics were found Östersund, at 4,7%.

Härjedalen had the largest share of municipal residents in the Proud cluster at 59,4%, which was also the largest group in any municipality, proportionately speaking. However, this cluster also had the largest shares in Bräcke (50,4%), Ragunda (53%), Strömsund (59%) and Åre (45,8%).

The Enthusiasts   The Critics   The Proud
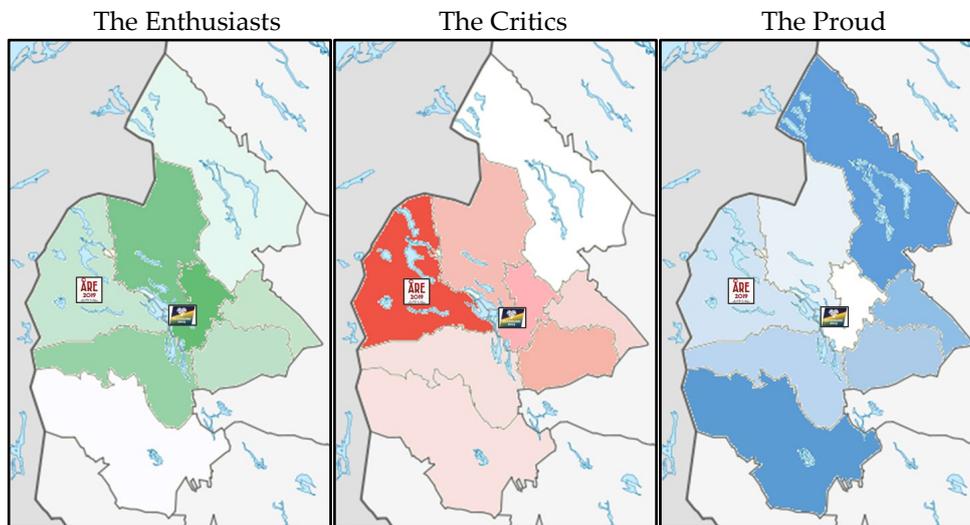
Figure 71. Regional distribution of Social Impact Clusters

The clusters and their geographical distribution illustrate the types of social impacts that can be expected depending on the proximity from major sports events. Perhaps expectedly, it is evident that the most tangible forms of positive and negative social impact (Social opportunity and Quality of life) are the most clearly felt in, or near, the host municipalities. Regional residents who almost exclusively experienced a sense of Pride, some sense of Community, but little else- were concentrated on the peripheries of the county.

It is important to highlight that the cluster distributions presented in table 9 and figure 71 only show the relative size of each cluster in every municipality. In other words, they do not show the size of the clusters in absolute numbers. For example, even in the municipality with the highest share of Critics, the absolute number of Critics only constitute 10% of that municipality's population, and not of the county population.

Looking at the absolute numbers of each clusters on the county level, the share of each cluster approximately converts to the following numbers out of the total county population of 92 060 inhabitants between 18 and 75:

- The Enthusiasts: 45 414 (49,3%)
- The Critics: 4 224 (4,6%)
- The Proud: 42 421 (46,1%)

It should be reiterated that the sample of regional inhabitants in the survey were from the group 18 to 75 year-olds. As such, the actual shares (and therefore absolute numbers) of each cluster might have been slightly differently distributed, had younger and older residents been surveyed as well.

9 Conclusions

The World Championships Region put a spotlight on the County of Jämtland for a couple of months in the spring of 2019.

The study took a comprehensive approach to event evaluation by focusing on the aggregated region-wide impacts of both events. To do so, the study also employed novel approaches to data collection. Perhaps most notably, the use of SMS-based survey distribution allowed for a large randomised sample from the regional population. This mode of data collection has rarely been used and never in the context of the impact of two major sports events on a region.

Below are some of the main points from the study as well as considerations can be drawn from the case of the World Championships Region:

The Economic impacts

Large numbers of people came to the region for each event which generated significant direct economic impacts of between 161,3 million kr at a minimum, up to 312,6 million kr in the maximum scenario. Moreover, the indirect effects in the same scenarios generated an additional 14,8 million kr to 28,7 million kr in the other sectors of the regional economy. This means that at the very least, the two events contributed with 176,1 million kr in direct and indirect economic impacts, and at the very most the two events contributed with 341,3 million kr in direct and indirect economic impacts.

Similarly, it was shown that the two events contributed with 166 and 321 jobs in full time equivelants. This is the amount of full-time jobs required to meet the demand from tourists visiting the region due to the event.

What do the economic impacts mean and how should they be interpreted?

It is difficult for anybody to look at economic impact figures and try to figure out whether they are good or bad, above or below expectations. It is also difficult to decide on a reasonable frame of reference (what impacts to expect), due to the lack of consistency between the methods used to evaluate different events. In other words, one cannot simply take economic impact figures from similar events and hold that as the standard by which to judge the Alpine and Biathlon events by. The following graph exemplarily illustrates how differently the economic impact of events can be measured, depending on which criteria are used in the evaluation:
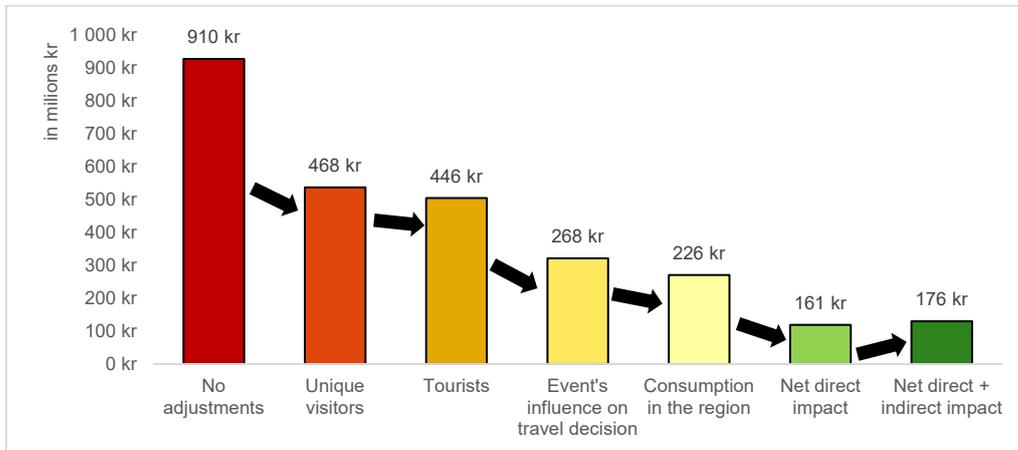
Figure 72. Levels of economic impact calculation

It is clear that the magnitude of the impacts vary according to the adjustments of the numbers undertaken. If the number of unique visitors are not considered, the impact would have been dramatically overestimated. However, the impact typically refers to only *new money* flowing into the region. This means that expenditures by the local population is excluded and only the so-called tourists' expenditures should be considered. A further adjustment is done towards the level of event influence, i.e. to what degree the events had contributed to the tourists' travel decision to Jämtland county. By doing so, it is possible to identify the impacts directly related to the events. Further, all expenditures made outside the region never affected the region, and hence, should also be excluded from the calculation. Similarly, importation rates that typically occur for physical products sold to tourist. Accordingly, the net direct impact can differes considerably from those estimations with less adjustments undertaken. Finally, based on the net impact, the indirect impact estimates additional increases in output and sales for the regional economy.

It is not said that there is only one right way to estimate the economic impacts of events. Instead, it is crucial to be consistent and transparent in the measurement techniques, and which level of adjustments were done in order to reliably be able to compare the figures with the similar events taking place.

Furthermore, it is important to take into consideration that the costs of the events were not accounted for economic impacts. Any private or public investments made in relation to the events, such as an organizer building temporary arena infrastructure, or a municipality upgrading public infrastructure for an event, were not accounted for in the study. The reason for this was the lack of reliable information on costs as well as the challenge with attributing specific public investments to events. Similarly, the study did not account for any investments into the region from outside in connection to the events. Examples of outside investment include FIS and IBU funding, non-local sponsorship

deals or other capital that flowed into the region because of the events. Taking external investment to consideration requires knowledge of how these investments were allocated in the region and therefore such figures would be too difficult to reliably estimate. In effect, what is delivered in this report are the pure direct and indirect economic impacts, based on tourist expenditures.

The socio-economic impact for regional businesses and workplaces
It is often argued that event evaluations only consider the perspecitves of the event visitors, organizers and other actors that are directly related to the events. The region-wide SMS-survey gave the local population the chance to provide their feedback on how the World Championship Region had impacted their professional life as well, even for those who had not visited or taken part in the events. Although hosting such big events can bring up critical voices in the regional population, the majority of respondents - both company owners and individual employees - perceived no negative impacts or any noticeable impact at all. Rather the opposite was evident, especially in the municipalities hosting the events, with a small share of positive impacts with regards to business performance and working conditions. However, the results also show that the workload has, in fact, been impacted negatively for some employees.

The spatial characteristics of social impacts
The study also provides an insight into how the social impacts from major sports events disperse geographically. It could be observed that strong positive and negative attitudes towards the events were concentrated around the host municipalities (Åre and Östersund, Krokom, Bräcke and Berg). Moreover, the more tangible forms of social impact, such as the impact on the everyday life of local residents, was shown to be stronger in the host municipalities. By contrast, residents in the peripheral municipalities of the region (Härjedalen, Ragunda, Strömsund) experienced less strong positive and negative emotions towards the events compared to the host municipalities. The peripheral municipalities also showed a higher concentration of residents that experienced a high sense of pride and sense of community, but a lower impact on the tangible aspects of every day life.

On the aggregated county level, the most common characterization of social impact were the overall positive residents, who make up just under half of all county residents (49,3%) between 18 and 75 years old. The second most common characterization was that the events has contributed to a a positive sense of pride, but not much else. These county residents make up roughly the same share of county population (46,1%) as those who were overall positive. The smallest group were the critics, whom experienced a deterioration in tangible social variables such as quality of life and social opportunities, and felt relatively neutral with regards to pride and sense of community. This group make up just 4,6% of county residents between 18 and 75 years old.

Prioritizations in experience design

Visitor satisfaction at the two major events followed similar patterns. Perhaps the most interesting group of visitors to analyse are the visitors that gave a variation of scores across satisfaction items. Whereas the generally positive and the generally negative visitors provide important information, the mixed review visitors tend to consider each satisfaction item closely and rate them independently of each other. Therefore they can provide useful clues to identifying problem areas or successful aspects of the event.

"Food and drinks" scored the lowest on average whilst the atmosphere at the events presented the strongest source of satisfaction. This shows that food and drinks perhaps is the most difficult aspect of the event experience to successfully organize in the context of major sport events.

Food and drinks are a performance factor in the context of sports events so most visitors do not expect a high quality offer. However, if the organizer is able to create a unique high quality experience, it is likely that satisfaction improves significantly. This can be compared to hygiene factors such as access to basic facilities, or a festive atmosphere, that if present do not create much added value, but if absent can have a greatly damaging effect on the perceptions of an event.

Conversely, "Atmosphere" is an aspect of event design that perhaps needs least attention but rather follows as a natural consequence of good spatial planning, on-location commentary, exciting competitions and a diversity of visitors from different places and different demographic groups.

Satisfaction clusters

When looking at the general satisfaction across different groups, a few tendencies were evident:

- The larger the influence of the event was on the decision to travel, the more likely visitors in both events were to show satisfaction with the event.
- The influence of athlete or national success on satisfaction differed between the two events. Whilst the success-oriented Alpine visitors were less satisfied than their less success-oriented counterparts. The opposite was true in the case of the Biathlon event, where those who did not emphasise success were less satisfied, albeit by a small margin.
- Biathlon visitors were more likely to be very satisfied the closer to the events they lived with satisfaction decreasing from Jämtland, Sweden (other), Norway to Intenationals who exhibited the lowest proportions of very visitors. The Alpine event showed no such tendency but instead had Norweigans as the group with the highest proportion of very satisfied visitors with an otherwise relatively even spread of very satisfied visitors across different places of origin.

Maximizing guest nights in light of the event influence
It was apparent in the data that non-local visitors for whom the event made up 50% or less of the reason to travel to Jämtland, tended to stay longer in the region than those visitors for whom the event they visited was the primary reason to visit Jämtland.

In terms of destination management, this likely means that if one can attract visitors who travel for a broad range of reasons, then that is likely to generate more guest nights. Similarly, if destinations offer an attractive selection of auxiliary activities to visitors who otherwise would come to Jämtland primarily for an event, then these visitors would likely stay longer on average. A key measure to ensure more guest nights from such visitors is to present them with a wide variety of tourism offers alongside the event tickets, as to make them aware of the possibility to make a longer vacation out of their visit.

The role of sports success
A rarely explored aspect of major sports events is the role of sports success in generating interest in the sport and the event. This study indicated that visitors from outside of Scandinavia were least dependent on sports success in order to be interested in the event. This is likely due to two factors: 1. The fact that travelling further requires a significant investment of time and money means that it is mainly the truly passionate fans of the sport in question that travel from afar to visit Jämtland. 2. Visitors that come from afar are more likely to make a holiday out of the visit to Jämtland and therefore are not as dependent on sports success to be satisfied by the event.

Prospects for future research
It is evident that the two World Championship events contributed with a range of benefits but also challenges for the county of Jämtland. This study tries to provide an initial understanding of the extent of the social and economic impacts that such events have on the communities and the regions in which they take place.

The field of event evaluation still suffers from a lack of consistent application of methodologies as well as a lack of transparency in the case of consultancy generated evaluations. This challenge calls for interdisciplinary and intersectoral cooperation in academia as well as in the public- and the private sectors, in order to be able to move forward with a common understanding of impacts, how they should be measured, interpreted and used in policymaking.

Moreover, not covered in the scope of this report were the various environmental implications of major sports events on society and on the well-being of the planet. Further rigorous scrutiny is required to better understand the long-term environmental - and thereby also the indirect social and economic- costs of hosting and consuming such events.

10 References

Ajzen, I., and Fishbein, M. (2005). *The influence of attitudes on behaviour*. In: Albarracín, D., Johnson, B. & Zanna, M. (Eds.), The handbook of attitudes. Psychology Press.

Abelson, P. (2011), Evaluating major events and avoiding the mercantilist fallacy, *Economic Papers*, 30(1), pp. 48-58.

Andersson, T. (2019), *Legacy och evenemang - En modell för att arbeta långsiktigt med effekter av evenemang*. Stockholm: BFUF.

Andersson, T., Larson, Mia, and Mossberg, Lena. (2009*). Evenemang: Från organisering till utvärdering*. Lund: Studentlitteratur.

Andersson, T., Armbrecht, J., & Lundberg, E. (2012). Estimating Use and Non-use Values of a Music Festival. *Scandinavian Journal of Hospitality and Tourism*, 12(3), 215-231.

Ap, J. (1990). Residents' perceptions research on the social impacts of tourism. *Annals of Tourism Research*, 17(4), 610-616.

Balduck, A., Maes, and Buelens. (2011). The Social Impact of the Tour de France: Comparisons of Residents' Pre- and Post-event Perceptions. *European Sport Management Quarterly*, 11(2), 91-113.

Blake, A. (2008). Tourism and income distribution in East Africa. *International Journal of Tourism Research*, 10(6), 511-524.

Boen, F., Vanbeselaere, N., & Feys, J. (2002). Behavioral consequences of fluctuating group success: An internet study of soccer-team fans. *The Journal of Social Psychology, 142*(6), 769-781.

Bond, H. (2008) *Estimating the economic benefits of event tourism: a review of research methodologies*, IMPACTS 08, University of Liverpool, Liverpool.

Bonfiglio, A. and Chelli, F. (2008). Assessing the behaviour of non-survey methods for constructing regional input–output tables through Monte-Carlo simulation. *Economic Systems Research*, Vol. 20, pp. 243–258.

Briedenhann, J., & Butts, S. (2005). Utilization-Focused Evaluation. *Review of Policy Research*, 22(2), 221-243.

Brown, S., Getz, D., Pettersson, R., and Wallstam, M. (2015). Event evaluation: definitions, concepts and a state-of-the-art review. *International Journal of Event And Festival Management*, 6(2), 135-157.

Brown, A., and Massey, J. (2001) *Literature Review: The Impact of Major Sporting Events. Manchester*, UK: Manchester Metropolitan University.

Chalip, L. (2006). Towards Social Leverage of Sport Events. *Journal Of Sport & Tourism*, 11(2), 109-127.

Cohen, J. (1992). A power primer. *Psychological bulletin*, 112(1), 155.

Crompton, J. L. (1995). Economic impact analysis of sports facilities and events: Eleven sources of misapplication. *Journal of sport management*, 9(1), 14-35.

Dal Grande, E.; Chittleborough, C.R.; Campostrini, S.; Dollard, M. and Taylor, A.W. (2016). Pre-Survey Text Messages (SMS) Improve Participation Rate in an Australian Mobile Telephone Survey: An Experimental Study. *PLoS ONE 11.2* (2016): E0150231. Web.

Davidsson, P. & Thoresson, A. (2017). *Svenskarna och Internet 2017. Undersökning om svenskarnas internetvanor*. Internetstiftelsen i Sverige. Stockholm, Sweden.

Davies, L., Coleman, R., and Ramchandani, G. (2013), Evaluating event economic impact: rigour versus reality?, *International Journal of Event and Festival Management*, 4:1, 31-42

Deery, M., and Jago, L. (2010). Social impacts of events and the role of anti-social behaviour. *International Journal Of Event And Festival Management*, 1(1), 8-28.

Deery, M., Jago, L. and Fredline, L. (2012). Rethinking social impacts of tourism research: A new research agenda, *Tourism Management*, 33(1), 64-73.

Dwyer, L., Forsyth, P. and Spurr, R. (2004). Evaluating tourism's economic effects: new and old approaches, *Tourism Management*, 25, 307-317.

Dwyer, L., Forsyth, P. and Spurr, R. (2005). Estimating the impacts of special events on the economy, *Journal of Travel Research*, Vol. 43 No. 4, pp. 351-9.

Elkington, J. (2008). The Triple Bottom Line. In M. Russo, *Environmental Management: Readings and Cases* (p. Ch 4). CA: Sage Publications.

Emerson, R. (1976). Social Exchange Theory. *Annual Review Of Sociology*, 2(1), 335-362.

Eurostat (2008). *Eurostat Manual of Supply, Use and Input-Output Tables*. Methodologies and working papers. European Communities. Luxembourg.

Flegg, T.A. and Tohmo, T. (2011). Regional Input-Output Tables and the FLQ Formula: A case study of Finland. *Regional Studies*, Vol. 47 No. 5, pp. 703-721.

Flegg, T.A. and Webber, C.D. (1997). On the appropriate use of location quotients in generating regional input-output tables. *Regional Studies*, Vol. 31, pp. 795 - 805.

Flegg, A. T. and Webber, C. D. (2000). Regional size, regional specialization and the FLQ formula. *Regional Studies*, Vol. 34 No. 6, pp. 563-569.

Fredline, E. (2000). *Host community reactions to major sporting events: the Gold Coast Indy and the Australian Formula one Grand Prix in Melbourne* (Doctoral Thesis). Griffith University, Gold Coast.

Fredline, L. (2002). *Host community perceptions of the impacts of tourism on the Gold Coast*. Gold Coast: CRC for Sustainable Tourism.

Fredline, E., and Faulkner, B. (2000). Host community reactions: a cluster analysis. *Annals of Tourism Research*, 27:3, 763-784.

Fredline, L., Jago, L., & Deery, M. (2003). The Development of a Generic Scale to Measure the Social Impacts of Events. *Event Management*, 8:1, 23-37.

Gerking, S., Isserman, A., Hamilton, W., Pickton, T., Smirnov, O. and Sorenson, D. (2001). Anti-suppressants and the creation and use of non-survey regional input-output models. *Contributions to Economic Analysis*, Vol. 249, pp. 379-406.

Getz, D. (2013). *Event tourism: concepts, international case studies, and research*. New York: Cognizant Communication Corp.

Getz, D., and Page, S. (2016a). Progress and prospects for event tourism research. *Tourism Management*, 52:C, 593-631.

Getz, D., and Page, S. (2016b). *Event studies: theory, research, and policy for planned events* (3rd ed.). New York: Routledge.

Gratton, C., Dobson, N. and Shibli, S. (2000). The economic importance of major sports events: a case-study of six events, *Managing Leisure*, 5:1, pp. 17-28.

Gratton, C., Shibli, S. and Coleman, R.J. (2006). The economic impact of major sports events: a review of ten events in the UK, *The Sociological Review*, 54:2, pp. 41-58.

Hara, T. (2008). *Quantitative tourism industry analysis*. Butterworth-Heinemann, Oxford, UK.

Hover, P., Dijk, B., Breedveld, K., Van Eekeren, F., and Slender, H. (2016). *Creating social impact with side-events*. Mulier Instituut.

Juvan, E., & Dolnicar, S. (2014). The attitude–behaviour gap in sustainable tourism. *Annals of Tourism Research*, 48, 76-95.

Kim, W., Jun, H., Walker, M., and Drane, D. (2015). Evaluating the perceived social impacts of hosting large-scale sport tourism events: Scale development and validation. *Tourism Management*, 48, 21-32.

KPMG (2018) *The economic impact of major sports events: Analysis of Hong Kong's 2017 major sports event calendar and outlook for the future* (report). Hong Kong: KPMG International Cooperative.

Kronenberg, K., Fuchs, M., and Lexhagen, M. (2018). A multi-period perspective on tourism's economic contribution–a regional input-output analysis for Sweden. *Tourism Review*, 73(1), 94-110.

Kronenberg, K. (2019). *A quantity-quality framework for measuring the regional socio-economic impact of tourism – the case of Jämtland Härjedalen*. Licentiate dissertation 163. Mid-Sweden University, Östersund, Sweden.

Lindberg, G., Midmore, P. and Surry, Y. (2012). Agriculture's Inter-industry Linkages, Aggregation Bias and Rural Policy Reforms. *Journal of Agricultural Economics*, Vol. 63 No. 3, pp. 552-575.

Lee, S., Xin, X., Lee, W., Sim, E., Tan, J., Bien., B., Geroche, M. & Thumboo, J. (2013). The feasibility of using SMS as a health survey tool: An exploratory study in patients with rheumatoid arthritis. *International Journal of Medical Informatics*, 82(5), 427-434.

Madrigal, R. (1995). Residents' perceptions and the role of government. *Annals Of Tourism Research*, 22(1), 86-102.

McCartney, G., Thomas, S., Thomson, H., Scott, J., Hamilton, V., Hanlon, P., and Bond, L. (2019). The health and socioeconomic impacts of major multi-sport events: *Systematic review* (1978-2008). BMJ, 340, BMJ, 20, 20 May 2010, Vol.340.

MIA (2019). *Marknadsinformation.* A bisnode company. Stockholm, Sweden.

Miller, R. E. and Blair, P. D. (2009), *Input-output analysis: foundations and extensions*, Cambridge University Press.

Mitchell, D., & Gallaway, T. (2019). Dark sky tourism: economic impacts on the Colorado Plateau Economy, USA. *Tourism Review*. Online first.

Moscardo, G. (2007). Analyzing the Role of Festivals and Events in Regional Development. *Event Management*, *11*(1), 23-32.

Nardi, P. M. (2018). *Doing survey research: A guide to quantitative methods*. Routledge.

Pettersson, R., and Wallstam, M. (2017). *Idrottsevenemangs samhällsnytta*. In: Faskunger, J., & Sjöblom, P. (2017) Idrottens samhällsnytta: En vetenskaplig översikt av idrottsrörelsens mervärden för individ och samhälle. FoU rapport. Stockholm: Riksidrottsförbundet.

Preuss, H. (2006). Impact and Evaluation of Major Sporting Events. *European Sport Management Quarterly*, 6:4, 313-316.

Preuss, H. (2004). Calculating the regional economic impact of the Olympic games. *European Sport Management Quarterly*, 4:4, 234-253.

Saayman, M., and Saayman, A. (2012). The economic impact of the Comrades marathon. *International Journal of Event and Festival Management*, 3:3, 220-35.

SCB (2019). *Bastabeller – SUT 2008-2016*. Accessed 15.03. 2019. https://www.scb.se/contentassets/3ec4ba4f12e045ba858304efeb576f15/nrio_sut_181108.xlsx

Sherwood, P. (2007). *A Triple Bottom Line Evaluation of the Impact of Special Events: The Development of Indicators* (Doctoral Thesis). Centre for Hospitality and Tourism Research, Victoria University.

Sinclair, M. T., and Sutcliffe, C. (1978). The first round of the Keynesian regional income multiplier. *Scottish Journal of Political Economy*, 25(2), 177-186.

Smeral, E. (2015). Tourism Satellite Accounts as a policy tool–Some critical reflections. In *Tourism and leisure,* 65-71, Springer Fachmedien Wiesbaden.

Stabler, M. J., Papatheodorou, A., and Sinclair, M. T. (2009). *The economics of tourism*. Routledge.

Stynes, D. J. (1998). *Economic impacts of Tourism: A handbook for tourism professionals*. Urbana, IL: University of Illinois, Tourism Research Laboratory.

Tillväxtverket (2019). *Fakta om Turism 2018*. Stockholm.

Tohmo, T. (2018). The economic impact of tourism in Central Finland: a regional input–output study. *Tourism Review*, 73(4), 521-547.

Tyrell, T.J., and Johnston, R.J. (2001). A framework for assessing direct economic impacts of tourist events: Distinguishing origins, destintations, and causes of expenditures. *Journal of Travel Research*, Vol. 40, pg. 94-100.

Yao, Q., and Schwarz, E. (2018). Impacts and implications of an annual major sport event: A host community perspective. *Journal of Destination Marketing & Management*, 8, 161-169.

Vaismoradi, M., Turunen, H., & Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*, 15(3), 398-405.

Van Bottenburg, M. (2009). *Easy to see, hard to prove*. De maatschappelijke betekenis van sport. Den Haag: Hogeschool Den Haag

Var, T. and Quayson, J. (1985). The multiplier impact of tourism in the Okanagan. *Annals of Tourism Research*, Vol. 12 No. 4, pp. 497-514.

Wallstam, M, Ioannides, D, & Pettersson, R. (2018). Evaluating the social impacts of events: In search of unified indicators for effective policymaking. *Journal Of Policy Research In Tourism, Leisure And Events*, 1-20.

Woosnam, K., Norman, W., and Ying, T. (2009). Exploring the Theoretical Framework of Emotional Solidarity between Residents and Tourists. *Journal Of Travel Research*, 48(2), 245-258.