



A slippery slope – Gen Z's motivation for ski tourism

Tiril Øverås Pedersen

Dissertation written under the supervision of Professor Helena
Rodrigues

Dissertation submitted in partial fulfilment of requirements for the MSc in
Management with specialization in Strategic Marketing, at the
Universidade Católica Portuguesa, 26.05.2023.

Abstract

Winter tourism, or tourism to destinations with cold weather and snow, has been popular amongst tourists for generations. There are several destinations in the world that possess these criteria, however, past research shows that due to climate change and demographic change this number is declining. Specifically, destinations with lower altitude, and thus higher probability of being affected by warmer weather, are noticing a decline in number of visitors per year. Under the category winter tourism is ski tourism, including both cross-country skiing and downhill or alpine skiing. This dissertation focuses mainly on ski tourism and uncovering the motivations behind ski tourists, as well as exploring the possibility of lower motivations for ski tourism in generation Z. The results showed that the opposite is true, generation Z has a higher ski tourism travel motivation than generations Y and X. This discovery can give operators in the ski industry a prediction of future demand, as this challenges the previously assumed decrease due to demographic change. As for climate change, this study reveals a low consideration of climate change impact in consumers when travelling. This indicates a higher responsibility for the tourism industry to promote and ensure sustainable travel, as well as a need for better education when it comes to the environmental impact of travel.

Title: A slippery slope – Gen Z’s motivation for ski tourism

Author: Tiril Øverås Pedersen

Keywords: Winter tourism, ski industry, tourists’ motivation, climate change, Generation X, Generation Y, Generation Z

Resumo

O turismo de Inverno, ou turismo para destinos com tempo frio e neve, é um tipo de turismo popular há várias gerações. Existem vários destinos no mundo que possuem estas características, no entanto os estudos anteriores mostram que, devido às alterações climáticas e demográficas o número de turistas tem vindo a diminuir. Especificamente, em destinos com menor altitude e, por conseguinte, com maior probabilidade de serem afetados por um clima mais quente, registam um declínio anual no número de visitantes. Na categoria de turismo de Inverno encontra-se o turismo de esqui, que inclui o esqui de fundo e o esqui alpino ou de descida. A presente dissertação centra-se principalmente no turismo de esqui bem como em averiguar as motivações para a este tipo de turismo, e investigar a motivação subjacente para o turismo de esqui pela geração Z.

Os resultados indicam que, a geração Z está mais motivada para viajar para destinos de turismo de neve e esqui do que as gerações Y e X. Esta descoberta pode dar aos operadores do sector do esqui uma previsão da procura futura, uma vez que desafia a diminuição anteriormente assumida devido às alterações demográficas. Quanto às alterações climáticas, este estudo mostra que os turistas não consideram relevantes as alterações climáticas quando viajam. Isto indica uma maior responsabilidade da indústria do turismo na promoção e garantia de viagens sustentáveis, bem como a necessidade de uma melhor educação no que diz respeito ao impacto ambiental das viagens.

Título: A slippery slope – Gen Z’s motivation for ski tourism

Autora: Tiril Øverås Pedersen

Palavras-chave: Turismo de Inverno, indústria do esqui, motivação dos turistas, alterações climáticas, Geração Z, Geração Y, Geração X

Table of Contents

1. Introduction	1
2. Literature Review	3
2.1 Winter Tourism	3
2.1.1 Ski Tourism	4
2.2 Climate change	6
2.2.1 Climate change affecting ski tourism	7
2.3 Tourists' Motivation	9
2.3.1 Generational Differences in Tourism Motivation	10
3. Methodology	10
3.1 Research Method	10
3.2 Hypotheses formulation	11
3.3 Target Population	12
3.4 Survey	12
3.4.1 Questionnaire Macrostructure	13
3.4.2 Questionnaire Microstructure	14
3.5 Statistical Data Analysis Approach	14
4. Results	14
4.1 Power Analysis and Demographic Characteristics	14
4.2 Univariate Analysis	16
4.2.1 Tourism Motivation	16
4.2.2 Ski Tourism Motivation	17
4.2.3 Climate Change	19
4.3 Factor Analysis	19
4.4 Data Analysis	21
4.4.1 Hypotheses analysis	21
5. Discussion	25
6. Conclusion	27
6.1 Conclusion and Main Findings	27
6.2 Theoretical Implications	28
6.3 Practical Implications	29
6.4 Limitations and Further Research	30
References	31
Appendix A	40

Table of Tables

Table 1 - Demographic Characterization	15
Table 2 - Country of Residence Characterization	16
Table 3 - Univariate Analysis - Tourism Motivations	16
Table 4 - Univariate Analysis - Ski Tourism Motivation	17
Table 5 - Univariate Analysis - Climate Change	19
Table 6 - Results of Factor Analysis	20
Table 7 - Linear Regression H1	21
Table 8 - Linear Regression H2	22
Table 9 - Linear Regression H2, nr. 2	23
Table 10 - Linear Regression H3	23
Table 11 - t-test H4	24

1. Introduction

Winter tourism has several aspects that attract travellers, whether they are interested in the scenic attributes or the big variety of winter activities. Snow, northern lights, mountains, and ice are sceneries that are often associated with winter tourism. Activities such as skiing, ice skating, driving a dog sled, ice fishing and ice bathing attract big numbers of tourists every season, with ski tourism being the biggest one attracting 300 to 350 million annual visits worldwide (Steiger et al., 2019). Tourism in the winter season strongly depends on snow to maintain popularity amongst visitors, as snow reliability is a preeminent factor for winter tourists when choosing their travel destination (Steiger et al., 2020). Climate change is strongly affecting snow reliability, and in turn strongly affecting winter tourism as well by creating shorter ski seasons and less natural snowfall (Dannevig et al., 2020). The European Alps, that many tourists associate with winter tourism, is one of the areas in the world that are most at risk of experiencing the impact of climate changes (Bonzanigo et al., 2016).

Ski tourism constitutes a big part of winter tourism, and the biggest ski destination worldwide is the Alps with a 43% market share of visitors in total, and 27% of these being tourists residing in other countries (Vanat, 2021). This is also one of the most affected parts of the world in relation to climate change, as the Swiss Alps especially experienced at the beginning of 2023 when record warm weather caused snow shortage on the ski slopes (BBC, 2023). To continue operating ski resorts in low altitude, it could be necessary to create artificial snow in the near future, which will lead to an increase in water demand (Vorkauf et al., 2022).

Travel motivation can be described as the reason behind tourism, and what drives tourists to choose between different travel destinations. Travel is primarily motivated by the need to escape from daily life and the workplace, as well as by social demands like meeting new people and having an unusual experience (Šimková & Holzner, 2014). In early research, travel motivation was segmented into two categories: psychological and physiological (Mayo & Jarvis, 1981). However, more recent research categorises travel motivation into four segments: 'physical', 'relaxation', 'culture' and 'pleasure-seeking/fantasy' (Kozak, 2002). Ski tourism falls under the sports tourism category (WFR, 2019). Motivational factors previously mentioned in terms of alpine ski tourism are the number and variety of the slopes and après ski facilities (Konu et al., 2010). Older research points out grooming of slopes, availability of trails and hills, entertainment, and the destinations' local culture as important factors (Klenosky et al., 1993).

As there is a lot of research covering the correlation between ski tourism and climate change (Steiger et al. 2017; Dannevig et al. 2020; Pons et al. 2014; Scott et al. 2009), and other studies concerning motivations behind ski tourism (Cocolas et al. 2015; Klenosky et al. 1993; Tjørve et al. 2015; Andersen et al. 2017), few of the previous works focus on the connection between ski tourists' motivation and climate change. There is also no research on whether the motivation of ski tourists differ between generations, more specifically if the younger generation is less motivated for ski tourism as a result of climate changes. This dissertation aims to cover that, with the research question:

RQ1: Is the motivation for ski tourism amongst generation Z lower than it is for generation Y and generation X?

Based on the research question, the following objectives apply:

RO1: Understanding motivations behind tourists' destination decisions and preferences regarding ski tourism.

RO2: Comparing the motivations of ski tourism between Generation Z and Generation Y as well as Generation X, to research whether motivation is lower within Gen Z.

The research method for this dissertation is quantitative, with a survey created to gather responses in a broad demographic. Participants are split into two main segments: Gen Z and older generations, with Gen Z categorised as 18 to 26 years old in 2023 and the two older generations Gen Y and Gen X aged 27 to 42 and 43 to 58 years old in 2023 respectively. The survey aims to uncover differences in motivation for ski tourism between the groups, which will be determined through an independent *t*-test, and to discover the importance of different criteria ski tourists use when selecting a travel destination, linear regressions were designed. The quantitative method is used to collect and analyse the numerical data this survey provides.

This dissertation is structured with an overview of winter tourism, climate changes and the effect this has on ski tourism, as well as an overview of tourists' motivations. Following is a narrower focus on ski tourists and tourism motivations. The methodology chapter is next, containing the research method, data collection and data analysis. Next is the chapter on the main results of the findings, as well as discussion. The dissertation ends with the conclusion and main findings, theoretical and practical implications and limitations and further research.

2. Literature Review

This chapter will cover winter tourism, ski tourism, climate changes and the effect this has on ski tourism, as well as tourists' motivations. Winter tourism is defined and tourists' expectations as well as segmentation is explored. Ski tourism presents the market shares of the industry briefly, gives a recap of the history behind skiing, compares different factors of demand for skiing, demographic changes, and importance of repeat visitors to ski resorts. Climate change is defined, expected outcomes for the future are mentioned, as well as effects on individual people and their perception of climate change. The effect climate change has on ski tourism is explained on both an industrial level and for the demand in ski tourism. Tourism motivation is explained using the theory of travel motivation.

2.1 Winter Tourism

Winter Tourism is commonly associated with snow, travelling to countries with a large amount of snowfall for the winter season and different activities that the snow provides. It can be defined as tourism in the winter season, and includes winter sports, travelling to experience a winter landscape, travelling to be the audience of winter sport competitions, or travelling just to enjoy facilities and the culture that the winter destination provides (Bonzanigo et al., 2016).

The demand in winter tourism has many variables, such as snow fall, international and national income, prices, cost of transportation and accommodation, as well as timing of major holidays (Falk, 2009). A study by Thomas Bausch and William C. Gartner (2020) on German winter tourists with the European Alps as their travel destination shows that the winter tourists could be segmented into two different groups, the ones who travel to perform winter sports, 57,4% of participants, and the ones who do not expect to participate in winter sports, 42,3%. Konu et al., (2010) supports this statement about winter tourists being interested in other aspects than sports, but they differ from Bausch and Gartner in their segmentation. Konu and colleagues discovered six segments of winter tourists visiting ski resorts in Finland; cross-country skiers, want-it-all, sport seekers, relaxation seekers, passive tourists, all-but-downhill. Expectations ranked high in importance besides winter sports were enjoying the surroundings, going on walks, snowshoeing, sitting in the sun, sledding, gastronomical experiences, relaxing in Alpine huts, swimming, and visiting spas, saunas, or thermal springs (Bausch & Unseld, 2017). Common for all winter tourists is that snow is highly expected and important when choosing a destination (Dannevig et al., 2020).

2.1.1 Ski Tourism

Ski tourism is the biggest part of winter tourism, with 300 to 350 million visitors worldwide every year and is a subcategory to sports tourism (Vanat, 2021). The main motivation for these types of tourists is to travel to a specific destination in order to go skiing. Ski tourism comprises cross-country skiing, downhill skiing and in some cases also includes snowboarding (Steiger et al., 2019). It usually involves travelling to ski resorts or ski areas, and there are 68 countries that offer snow-covered areas equipped for skiing as of right now. The most popular ski destination is the European Alps with the highest number of foreign visitors per season, 79% of the major resorts, 38% of all lifts and 37% of all ski resorts. The second biggest market share is America with 21% of the total foreign visitors (Vanat, 2021).

Skiing as a hobby originated in Norway in the middle of the nineteenth century and spread due to Norwegians bringing their skis with them when they travelled. The first ski competition ever was held in the capital of Norway in 1770. The first decade's hobby skiing spread to Scandinavia, then Central Europe and North America (Milasinovic & Bjelica, 2017). As armed forces in Europe educated tens of thousands of its citizens to ski to patrol their mountainous borders and even engage in ski combat, World War I significantly contributed to both the unification of the sport's aesthetic and the growth of its fan base. After the end of the war, many former soldiers started skiing as a hobby (Denning, 2019). The first Alpine race contest, also known as downhill skiing, was held in the 1936 Winter Olympics. Following the end of the Second World War, hobbies became more popular not only for the elite part of the society, but also for the middle classes. Better economy as well as a rising interest in purchasing experiences lead to rapid expansion of mass tourism and increased popularity for skiing (Holt, 2007). Telemark skiing is a newer form of alpine skiing and became popular in the 80s. These types of skis are only secured to the shoes by the toes, and has a distinctive downhill style where one foot is placed behind the other when making turns (Nilsson & Haugen, 2007). Another newer form of skiing is Randonee skiing, which is also similar to Telemark and Alpine skiing. Randonee was accepted as an official sports branch in Norway by the Norwegian Skiing Association in 2011 (Kappelsl en, 2019).

After a steady growth of expansion in ski facilities and increased demand throughout the decades, the largest ski markets in the world are now approaching a stage of reduction or stagnation in demand according to Martin Falk and Eva Hagsten (2015). They performed a study on the demand for downhill skiing in Sweden and investigated the part that snow depth and economy have using monthly data. The results that they came to show a significant

importance in snow condition before the high season that arrives in February, where the snow conditions are insignificant on ski demand for the remainder of the season. Another study on demand in downhill skiing done by Malasevska and Haugom (2018) looks at how the different types of ski passes are affected by various factors, as well as the effect it has on different time periods throughout the ski season. Their results showed that factors that affect demand are weather conditions, holidays, day of the week, and opening hours. Day of the week and holidays are significant factors of demand. In terms of weather conditions, these results also show that snow condition and depth are significant to demand.

Climate change, as described next in the literature review, was shown to have less of an effect on skiing tourism in the first half of the twenty-first century than demographic changes. If the skiing business is successful in increasing participation, the effect of demographic change on demand will be less significant than initially thought. On the other hand, possible demand shifts could be more significant if the downward trend in younger age group involvement from the previous ten years continues and if skiing loses appeal for older age groups as a result of rising health concerns (Steiger, 2012). A study performed by Witting and Schmude (2019) also agrees that ageing skiers and a decrease in skier demand are two effects of demographic change, however their findings show that, in comparison to demographic change (+1.6% to -31.1%), climate change will only have a negative influence on skier demand in the 2030s and 2040s (-13.5% to -31.1%). The differences between the two studies may be due to different area specific focuses, with Steigers research focusing on the Austrian alps and Witting and Schmude on the German alps.

Another distinctive trait of ski tourists is their high place loyalty and number of repeat visitors. A study of the Norwegian ski resorts explains that the majority of foreign ski tourists visiting ski resorts in Norway are repeat visitors, and that these kinds of tourists contribute significantly to the income of the resorts (Tjørve et al., 2015). A study done by Matzler and colleagues (2018) distinguishes between first time visitors and heavy repeat visitors and assumes that frequent travellers form deeper emotional connections with a place, which in turn spurs feelings of identification and attachment. Compared to first-time visitors, repeat customers are less responsive to external factors like pricing. In terms of word of mouth, frequent return visitors have a stronger impact than first-time visitors.

2.2 Climate change

The comprehensive long-term patterns in temperature and precipitation, as well as other factors like atmospheric pressure and humidity, are used to define climate change. In addition, some of the most well-known domestic and international repercussions of climate change include the unpredictable weather patterns, melting ice sheets around the world, and the consequent heightened sea level rise (Abbass et al., 2022).

For the last 30 years, the United Nations Framework Convention on Climate Change (UNFCCC) has been working towards decreasing anthropogenic greenhouse gas emissions, with little progress. If it continues to rise at the same level, the world will have an increased surface temperature of between 2.1 °C and 3.9 °C by the year 2100, the highest levels measured in 2.6 million years (Kemp et al., 2022). In order to prevent this from happening, the climate change conference COP27 was held where countries delivered a set of decisions that reiterated their commitment to keeping the increase in global temperature to 1.5 degrees Celsius over pre-industrial levels. The decisions also boosted the financial, technological, and capacity-building assistance that developing nations need to reduce their emissions of greenhouse gases and adapt to their inevitable effects from climate change (UN Climate Press Release, 2022). In short, richer countries need to put in a higher effort to assist more vulnerable nations in tackling the past, present, and future effects of climate change (Zielinski et al., 2022).

As for the individual citizens, effects of climate change such as heat and dry periods awakens environmental concerns and has led to a rise in votes for Green political parties (Hoffmann et al., 2022). The best method to encourage public awareness and action is not to expose people to the effects of climate change. Education and climate communication can close the knowledge gap. According to Spence et al., (2012), effectively crafted communications can shorten the psychological gap and encourage behaviour change.

Skeiryte et al. (2022) studied differences between generations in all EU countries in terms of perception, feeling of responsibility and behaviour towards climate change. Their findings suggest that the older generation inherits the lowest level of climate change perception out of all four generations studied, while the highest level was found in participants born after 1982. In common for all generations in the EU were a low consideration of carbon footprint when travelling.

2.2.1 Climate change affecting ski tourism

Current literature on climate change in relation to ski tourism focuses on two angles of the subject: impact on the ski tourism industry and effect on demand. The ski tourism industry is being directly affected by climate change, due to the dependency this industry has on snow reliability and its sensitivity to rising temperatures (Soboll & Dingeldey, 2012). If a ski region complies with both the "Christmas rule" and the "100-day rule," it is said to be snow reliable. The "Christmas rule" refers to the two-week Christmas-New Year's holiday period, whereas the "100-days rule" calls for a snow cover of at least 30 cm for at least 100 days per season in the ski resort (Steiger et al., 2020).

Ski resorts based at lower altitudes are especially affected by climate change, and it has been proven that when these resorts experience shortage in snowfall the transport statistics in higher altitude ski resorts rise. In other words, tourists rather travel to higher altitude resorts than face issues with low snow reliability (Koenig & Abegg, 2010). These results were confirmed by Steiger (2011), who demonstrated a dramatic decrease in tourists to Austria's smaller, less accessible ski slopes during the record-breaking warm winter of 2006–2007. However, Steiger also found evidence that even the bigger resorts in higher altitudes experienced low demand this season, which contradicts the results of Koenig and Abegg. A study done by Pons and their colleagues (2014) divides ski resorts into three different categories: the highly vulnerable ones, the low vulnerability ski resorts, and the resilient ones. Their study shows that resilient ski resorts attract more tourists in climate change scenarios.

Snow reliability is not the only proof of declining temperatures in snow areas. Climate change also affects the number of Optimal Ski Days (OSDs) and has caused this number to decline. OSDs are weekends and legal holidays that are marked by favourable weather; no precipitation, low wind speed, enough sunshine, and a comfortable temperature, a snow-covered landscape, and a sufficient depth of snow on slopes (Berghammer & Schmude, 2014). A study on OSDs in the Sudelfeld ski resorts done by Witting and Schmude (2019) shows that in the 2030s and 2040s, fewer OSDs will result in 11.8% to 19.3% less skier days. In the previous winter seasons, there were 121.5 operating days per season on average. In the 2030s and 2040s, this translates to a decrease of between 2.5 and 13.5 days and between 1.5 and 17.5 days, respectively.

If suitable adaptation mechanisms are not put in place, the combination of the sector's sensitivity to climatic stimuli, namely variations in snow-cover day, and the sector's

dependence on the area economy might leave European ski resorts extremely fragile (Tranos & Davoudi, 2014). Four technological adaptation options have been tested in the Alps: glacier skiing to advance the ski season and increase certainty for snow availability; landscaping to reduce the depth of snow required for skiing; moving to higher elevations and facing north where snowpack is likely to last longer; and artificial snowmaking, which is currently the most popular adaptation option (Rixen et al., 2011). However, each of these choices has an impact on the environment and is constrained financially. Artificial snow making is an important economic factor in the ski tourism industry, but both artificial and natural snow is dependent on weather conditions, thus highly sensitive to climate changes (Olefs et al., 2010). Majority of winter tourists support the use of artificial snow in a study done by Pütz et al., (2011), due to the quality of the slopes and importance to climate and economy. 88% of the tourist participants considered snow reliability to be important, which is in line with the study by Bausch and Gartner (2020). If skier visits stay mostly unaltered, ski areas that cannot withstand the financial demands of a warming climate may shut down, increasing the market share for the ski areas that continue to operate. When snowmaking became a need for competitive ski area operations in the late 1980s and early 1990s, a lot of ski areas in the US went out of business (Dawson & Scott, 2007).

The demand of ski tourists is also affected by climate and weather changes, as much as 64% losses market-wide could be expected due to bad snow reliability (Steiger et al., 2019). An industry reaction to this difficulty was the introduction of web cameras with real-time displays of snow conditions on ski slopes. A response to the dissemination of correct information on snow conditions is the creation of social media reports of "actual" snow conditions (Steiger et al., 2017). A study by Falk (2011) shows that domestic winter tourism is more responsive to variations in snow depth than foreign tourism by comparing time series data on overnight stays with snow depth data. As a result, ski resorts that receive many domestic visitors are particularly at risk of losing their share.

A typical behavioural reaction to altered recreational conditions, such as the closing of a nearby ski area, is to switch from the previously available activity to an entirely new one. Additional behavioural responses include altering the amount of time spent engaging in the activity, for example, skiing less due to unfavourable weather, or changing the location where the activity often occurs (Dawson et al., 2011). Especially in comparison to the complexity and expense required in the structural and management-based modifications now being employed or explored by ski slopes, tourists can modify their behaviour in response to climate

unpredictability and low snow conditions (Scott et al., 2007). In order to assess how skiers could react to speculative future scenarios of poor snow conditions, a study of skier responses in Switzerland were performed. The results showed that 30% of study participants would not adjust their skiing behaviour, 11% would ski at the same resort less frequently, 28% would ski at the same rate, but change to a resort with better snow reliability, 21% would ski less frequently at a resort located at a higher altitude, and 4% would stop skiing completely (Behringer et al., 2000). König (1998) performed a related study two years prior in Australia and gained similar responses except that for the Australian skiers, 38% would change to an abroad ski destination in the scenario of bad snow conditions.

2.3 Tourists' Motivation

Behind every ski tourist is their motivation to travel, which is what this part will cover. Research on tourist motivation done by Kozak (2002) shows significant differences in motivation linked to nationality of the tourist as well as the travel destination. This study identified four motivational categories: 'physical', 'relaxation', 'culture', and 'pleasure-seeking/fantasy'. Previous research on the subject segmented travel motivation into two categories, psychological and physiological, with motivational factors such as relaxation and adventure and food, health, and climate respectively (Mayo & Jarvis, 1981). Self-actualization could also be added as a motivational category, with gaining knowledge, picture-taking and exploring as some of the motivational factors (Kruger & Saayman, 2010).

Ski tourism can be classified under sports tourism, and sports participation, sports training, sporting events, tourism with sports content, and luxury sports travel are the five main drivers of current sports tourism (WFR, 2019). Alexandris et al. (2009) segmented winter sport tourists into four segments, 'Novice', 'Multiple interest', 'Naturalist', and 'Enthusiast', through seven motivational dimensions that their study disclosed. These motivational dimensions were escape, enjoying nature, achievement, skill development, excitement/risk seekers, socialisation for which the travel motivation is to connect with friends or make new acquaintances, and finally social recognition, where travellers find skiing as a prestigious hobby. Cocolas et al. (2015) describe motivational factors that can be found in ski tourism as escape, relaxation, novelty and adventure, need to partake in sport, travel bragging and family togetherness. Other factors such as the variety, quality and quantity of slopes, snow reliability, après ski, availability of trails, entertainment, culture and place attachment are mentioned in this article.

There is also research covering tourism demotivation, in other words negative motivational factors that make tourists opposed to the idea of travelling. Farmaki and colleagues (2019) describe demotivation as possible barriers preventing people from visiting certain locations, and mention factors such as racism, safety concerns, ethical and socio-political reasons behind demotivation in tourism. Tan (2020) also found safety concern as a demotivational factor, in addition to lack of interest and not enough time or funds for leisure travelling.

2.3.1 Generational Differences in Tourism Motivation

The generations that the population is divided into have been defined in different ways, as there has been some disagreement as to when one generation ends and the next one begins. However, it has been decided that the birth year 1996 is a divider for Millennials, born between 1981 to 1996, and the next generation, Gen Z, born 1997 and onwards. The generation older than Millennials, Gen X, was born between 1965 and 1980 (Dimock, 2019). In terms of visitors' preferred information sources, travel activity preferences, past and prospective destination preferences, and destination rating criteria, a study by Li et al. (2013) identified several major generational differences as well as some similarities. It also highlights that Generation X and Generation Y share more similarities than older generations, in terms of professional advice, use of social media and travel activity preferences. The findings of another study show a shift away from generic mass tourism toward more distinctive custom-tailored experiences, where the younger generation views travel as a tool that can improve their lives and shape who they are (Monaco, 2018). This is backed up by the research of Mattioli and colleagues (2022) where they found that over the course of three generations, travelling abroad has gone from being an uncommon occurrence to becoming widely available. They also found that compared to their parents and grandparents, the students in their sample took their first international vacation at a significantly younger age and travelled abroad with their parents much more frequently.

3. Methodology

This chapter will contain a description of the chosen research method, based on the designed and previously tested conceptual model of research, hypotheses formulation, data collection method procedure is described as well as the approach of data analysis.

3.1 Research Method

The objective of this study is to understand motivations behind ski tourism and investigate whether there is a difference in said motivation between Generation Z, aged 18 to 26 in 2023,

and the older, Generation Y, aged 27 to 42 years old, as well as Generation X, aged 43 to 58 years old in 2023. With these objectives in mind, the chosen research approach was a quantitative method, with primary data.

To obtain the primary data for this study, an online questionnaire was developed and distributed. This survey was designed based on the research question and objectives to collect the quantitative data required to evaluate the hypotheses (Dudovski, 2022).

3.2 Hypotheses formulation

As determined in the literature review, multiple studies explain the various factors behind travel motivation (Kozak, 2002; Mayo & Jarvis, 1981; Kruger & Saayman, 2010; Chen et al., 2016), and studies explaining factors behind ski tourism (Tjørve et al., 2015; Alexandris et al., 2019; Malasevska & Haugom, 2018; Matzler et al., 2018).

However, there are no documentation of there being a correlation between the two different motivations, and thus the first hypothesis was formed:

H1 - High motivation to travel does not equal a high ski tourism travel motivation.

Although there are several factors describing favourable motivation towards ski motivation, and studies explaining that there are multiple reasons behind winter tourism (Konu et al., 2010; Bonzanigo et al., 2016; Bausch & Unseld, 2017), none of these studies focuses on the relationship between ski tourism travel motivation and enjoyment level of skiing.

With this in mind, as well as theoretical background on ski tourism (Malasevska & Haugom, 2018; Falk & Hagsten, 2015) the second hypothesis was created:

H2 - High ski tourism travel motivation is caused by a high enjoyment level of skiing.

A low level of ski tourism travel motivation may be due to multiple reasons, as explained by other researchers (Tan, 2020; Farmaki et al., 2019). However, due to a high number of authors affirming the relationship between climate change and ski tourism (Koenig & Abegg, 2010; Soboll & Dingeldey, 2012; Steiger, 2012; Berghammer & Schmude, 2014) there is reason to assume that climate change awareness is the most important factor in regard to low ski tourism travel motivation. This leads to the next hypothesis:

H3 - High climate change awareness causes low ski tourism travel motivation.

Based on studies that expect a demographic change of skiing tourism (Steiger, 2012; Falk & Hagsten, 2015; Witting & Schmude, 2019) and studies that explain generational differences in travel motivation (Li et al., 2013; Monaco, 2018; Mattioli et al., 2022), there is reason to believe that Generation Z has a different level of ski tourism travel motivation than the older generations Y and X.

Due to this, the last hypothesis was formed in line with the research objective RO2:

H4 – Generation Z [18:26] have a lower ski tourism travel motivation than Generation Y [27:42] and Generation X [43:58].

3.3 Target Population

This research focuses on travel motivation and ski tourism travel motivation, and by that has a target population of participants that can be categorised as either Gen Z, Gen Y or Gen X. To ensure that only relevant participants were analysed, responses from participants who fell outside of these brackets were excluded before data analysis. Another important factor is travelling motivation, so enjoyment of travelling was also a criteria for respondents. To achieve primary data from the decided target population, a control question was added at the beginning of the survey (KwikSurveys, 2023). The control question ‘Do you enjoy travelling abroad to foreign countries?’ had two options, ‘Yes’ or ‘No’, and for those participants who chose the latter option the survey would immediately end, as this would put them outside of the target population for this study.

Another method used to reach the target population was the distribution of the survey to various social media travel groups. These groups were found mainly on Facebook, WhatsApp, LinkedIn, and Instagram.

Due to the scope of this survey, the target population is also age restricted from the minimum age of 18 years old. Even though Generation Z has a bigger span than 18 years old to 26 years old, respondents under the age of 18 would not be relevant to this study as they are below legal age, thus requiring guardian permission or supervision to travel abroad.

3.4 Survey

To gather quantitative data in an easy and effective way, a survey was created and distributed. The final survey, found in Appendix A, was created to gather the necessary data regarding the respondents' practical needs and driving factors for moving forward with the project. The questionnaire was created and evaluated using scales that supported the research articles cited

in the second chapter and was based on the review of the literature. The survey's design was based on closed-ended questions and use a 5-point Likert scale for all parts except the control question and demographics.

The survey was running from 23.03.23 until 21.04.23, and was distributed through the following link: <https://shorturl.at/kHOU7> .

3.4.1 Questionnaire Macrostructure

The survey was structured to understand travel motivation and possible differences in travel motivation in ski tourism. On a macrostructure level, the survey is divided into four groups. The first part is to understand general travel motivation. The second part aims to discover ski tourism motivation, either positive or negative motivational factors. The third part of the survey was created to discover potential travel adaptations due to climate change, and the final part of the survey is the demographic part. The survey is structured in the following way:

1. **Travel Motivation**
 - 1.1 Physical
 - 1.2 Relaxation
 - 1.3 Culture
 - 1.4 Pleasure seeking/fantasy
 - 1.5 Self-actualization
2. **Ski Tourism Motivation**
 - 2.1 Preference
 - 2.2 Positive Motivational Factors
 - 2.3 Negative Motivational Factors
3. **Climate Change**
 - 3.1 Adaption
4. **Demographics**

The first three categories are based on a 5-point Likert scale: 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree. A 5-point Likert scale was chosen because it is simple to create, quite likely to result in a highly reliable scale, and simple for respondents to understand and execute. It was also chosen due to the fact that for travel motivation, multiple motivational factors may play a part simultaneously (Kozak, 2002). However, there are some weaknesses related to the scale due to biases that can occur in respondents, such as central tendency, social desirability, and acquiescence bias (Bertram, 2007).

3.4.2 Questionnaire Microstructure

This survey consists of a total of 36 questions, 30 of these gaining responses by the 5-point Likert scale. There is one Yes or No question, which is the previously mentioned control question. In the ski tourism motivation part, common positive motivational factors in skiers are investigated as well as negative ones to depict motivational factors behind ski tourism. The demographic part is included to get an understanding of the participants' backgrounds, and to ensure enough knowledge considering that the research question intends to locate differences between a set age group. In the demographics part, age, gender, country of residence, education level and employment status are included.

3.5 Statistical Data Analysis Approach

In order to research the hypotheses, the primary data were systematised and conveyed using the statistical software program IBM SPSS Statistics 28. Absolute and relative frequency tables were created to organise the data. For every item, a univariate analysis was carried out to integrate the motivation scales using central trend measures and dispersion, i.e., mean, standard deviation, minimum, and maximum, where a 95% confidence interval was determined for the mean. The final analyses were to test the hypotheses parametrically. For H1, H2, and H3, a simple linear regression was executed to estimate cause and effect of continuous variables on the other variable. In H1, the predictor variable is 'Travel motivation' while the outcome variable is 'Ski tourism travel motivation'. Since both variables are continuous, and there is one predictor and one outcome, simple linear regression was the chosen method. The same applies to H2 and H3. In H2, the independent variable is 'Ski enjoyment' while the dependent variable is 'Ski tourism travel motivation', and for H3 the independent variable is 'Climate change awareness' while the dependent variable is 'Ski tourism motivation'. For H4, which compares the means of two groups with one outcome variable, an independent *t*-test was performed.

4. Results

This chapter contains the results of the strategic analysis and methodology used to process the information gathered by the quantitative research.

4.1 Power Analysis and Demographic Characteristics

The number of responses to the survey were 243. After going through each response, for various reasons such as incompleteness, failing the control question, respondent aged outside of the target audience and suspiciously short reply time, 203 responses were applicable to this

research which is sufficient with a factor loading of 0.40 (Hair, 1998). To determine the minimum sample size needed to execute the different analysis for this study, a power analysis was performed through the software G*Power (Kang, 2021). The power analysis for linear regression shows that a minimum total sample size of 68 is needed to achieve statistical power of at least 0.8, with a medium effect size ($d = 0.15$) and an alpha of 0.05. For an independent t-test, the minimum total sample size is sufficient at 102 with the same statistical power and alpha, and with a medium effect size ($d = 0.50$).

Table 1 - Demographic Characterization

Variable	Category	Frequency		Mode
		Absolute	Relative	
Gender	Female	136	67.00%	X
	Male	67	33.00%	
Age	Gen Z [age 18 to 26]	99	48.77%	X
	Millennials [age 27 to 42]	50	24.63%	
	Gen X [age 43 to 58]	54	26.60%	
Completed education	Grade School	7	3.45%	X
	High School	34	16.75%	
	Lower University Degree	85	41.87%	
	Higher University Degree	77	37.93%	
Occupation	Unemployed	5	2.46%	X
	Student	75	36.95%	
	Part-time Employee	21	10.34%	
	Full-time Employee	86	42.36%	
	Retired	5	2.46%	
	Other	11	5.42%	

As shown in Table 1, 67% of respondents were female. This can be explained by a skewed distribution of genders in the various platforms used to collect respondents and can be considered a minor limitation. However, since travelling and skiing are not dominated by a specific gender, this should not influence the results of the study. The age groups are more evenly distributed, with Gen Z composing 48.77% of the respondents. Since H4 compares Gen Z to both Gen Y and Gen X altogether, the distribution of 24.63% and 26.6% respectively is preferable.

Regarding level of education, no respondents have received no education at all, while the majority of respondents has completed a lower university degree, 41.87%, or a higher university degree, 37.93%. As for occupation, most respondents are full-time employed, at 42.36%, followed by students at 36.95%. The highest number of respondents resides in Norway, 36.95%, followed by 'Other European Countries', the sum of all European countries

with less than ten respondents, at 22.15%, then Portugal with 15.76%. In total, responses were collected from 27 different countries, 21 of those European (Table 2).

Table 2 - Country of Residence Characterization

Variable	Continent	Name of Country	Frequency		Mode
			Absolute	Relative	
Country of Residence	Europe	Belgium	11	5.42%	X
		Germany	13	6.40%	
		Norway	75	36.95%	
		Portugal	32	15.76%	
		UK	13	6.40%	
		Other European Countries	45	22.15%	
	Asia	China	1	0.49%	
		Israel	1	0.49%	
		Saudi Arabia	1	0.49%	
		Turkey	2	0.99%	
	North and South America	Chile	1	0.49%	
		USA	7	3.45%	
	Oceania	Australia	1	0.49%	

4.2 Univariate Analysis

The basis for this research is tourism motivation, ski tourism motivation and climate change adaptation. The variables that these factors consist of can be found in Tables 3 to 5, in which each variable is described in minimum and maximum of the Likert-scale, the median, mean and standard deviation.

4.2.1 Tourism Motivation

The ‘Tourism Motivation’ section is divided into five subdimensions, physical, relaxation, culture, pleasure seeking/fantasy and self-actualization. These sub dimensions have a total of 11 variables divided between them.

Table 3 - Univariate Analysis - Tourism Motivations

	Dimension	Items	Min	Max	Mean	Median	Std Deviation
I	Physical	Ph1 – I travel to experience a different climate	1	5	3.79	3	0.90
		Ph2 – I travel to perform a hobby	1	5	2.97	3	1.08
II	Relaxation	Re1 – I travel to relax	2	5	4.18	3	0.74

		Re2 – I travel to spend time with loved ones	1	5	4.06	3	0.99
III	Culture	C1 – I travel to go sightseeing	1	5	4.23	3	0.84
		C2 – I travel to experience a different culture	2	5	4.33	3	0.70
IV	Pleasure seeking/fantasy	PsF1 – I travel to experience new adventures	2	5	4.42	3	0.73
		PsF2 – I travel to meet new people	1	5	3.38	3	1.07
V	Self-actualization	SA1 – I travel to attend an event	1	5	3.02	3	1.00
		SA2 – I travel to go shopping	1	5	2.58	3	1.12
		SA3 – I travel to take pictures	1	5	3.33	3	1.13

As shown in Table 3, Culture is the sub dimension with the highest score in means, with C1 having a score of 4.23 and C2 having 4.33. C2 is also the variable with the lowest recorded standard deviation, of 0.70, indicating a high level of clustering around the mean. The most important variable for Tourism Motivation is the variable PsF1, with a mean of 4.42. The lowest ranked variable is SA2, with the mean score of 2.58.

4.2.2 Ski Tourism Motivation

For the section ‘Ski Tourism Motivation’, a total of 14 variables are divided into three different subcategories. These are preference, positive motivation factors and negative motivation factors.

Table 4 - Univariate Analysis - Ski Tourism Motivation

	Dimension	Items	Min	Max	Mean	Median	Std Deviation
VII	Preference	Pr1 – I enjoy skiing (downhill/cross-country/snowboard)	1	5	3.21	3	1.36
		Pr2 – I have been on a ski vacation before	1	5	3.08	3	1.55

		Pr3 – I am interested in going on a ski vacation	1	5	3.38	3	1.35
VIII	Positive Motivation Factors	P1 – I want to go on a ski vacation to escape everyday life	1	5	2.96	3	1.25
		P2 – I want to go on a ski vacation to impress others	1	5	1.87	3	0.99
		P3 – I want to go on a ski vacation to experience the adrenaline	1	5	3.03	3	1.34
		P4 – I want to go on a ski vacation to be social	1	5	2.95	3	1.28
		P5 – I want to go on a ski vacation to improve my skiing skills	1	5	3.16	3	1.32
		P6 – I want to go on a ski vacation to enjoy the nature and snow	1	5	3.87	3	1.34
IX	Negative Motivation Factors	N1 – I don't want to go on a ski vacation because it is expensive	1	5	3.30	3	1.10
		N2 – I don't want to go on a ski vacation because I'm not interested in skiing	1	5	2.56	3	1.47
		N3 – I don't want to go on a ski vacation because I prefer other travel destinations	1	5	3.50	3	1.24
		N4 – I don't want to go on a ski vacation because skiing is dangerous	1	5	2.27	3	1.17
		N5 – I don't want to go on a ski vacation due to climate change	1	5	2.06	3	1.00

Table 4 shows that the highest scored variable is P6, with a mean of 3.87. The most consistent sub dimension is preference, with all variables having means in close proximity to the others. This subdivision also has the highest recorded standard deviation, of 1.55 for the variable Pr2, which indicates more dispersed data. The lowest measured mean score is P2 with 1.87. As for negative motivational factors, the highest mean was found in N3 with 3.50.

4.2.3 Climate Change

‘Climate Change’ is the shortest part of the study, with 4 variables under the category climate change adaptation.

Table 5 - Univariate Analysis - Climate Change

	Dimension	Items	Min	Max	Mean	Median	Std Deviation
X	Climate Change Adaptation	CC1 – I consider my carbon footprint when travelling for skiing	1	5	2.80	3	1.02
		CC2 – I choose environmentally friendly means of transportation when possible	1	5	3.11	3	1.06
		CC3 – I would travel to a country that has been strongly affected by climate change	1	5	3.04	3	0.86
		CC4 – I take climate change into account when choosing a winter sports travel destination	1	5	2.62	3	1.05

As Table 5 indicates, the highest mean score is detected in CC2, closely followed by CC3 with a mean of 3.11 and 3.04 respectively. The lowest score is found in CC4, with 2.62, and second lowest is CC1 with a mean of 2.80.

4.3 Factor Analysis

Prior to performing analyses and testing the hypotheses, an exploratory factor analysis (EFA) was conducted to investigate underlying patterns of the data set. EFA can clarify how various objects and constructions connect to one another and aid in the development of new ideas. It can also be used to find survey items that do not empirically fit the desired construct and should be eliminated (Knekta et al., 2018). To define factors, highly correlated variables, the principal components analysis with VARIMAX rotation were performed. The goal was to identify motivational factors in ski tourism, which is why these 20 variables were first included in the analysis. To be considered significant, an eigenvalue of above 1.0 had to be proven for the factor, and for a correlation to be high enough to form components a minimum of 0.4 factor loading was set for this sample size of 203 respondents (Hair et al., 1998). The total variance should also be above 60% (Yong and Pierce, 2013). After conducting the analysis, 8 variables had to be deleted due to factor loadings below 0.4.

A Kaiser-Meyer-Olkin (KMO) and Bartlett Test of Sphericity were conducted to validate the appropriation of the factor analysis. The KMO had a value of 0.856, which is above the pre-

defined level of 0.8, thus proving shared factors and interrelation between variables. The Bartlett Test of Sphericity shows a significance in the correlation matrix, with a chi square of 1151.941 ($df = 66; p < 0.001$).

The results of the factor analysis, as shown below in Table 6, proposed a four-factor solution. The analysis also explains 74% of the total variance. Every eigenvalue is above 1.0 and every factor loading is above 0.4. To explore the reliability of these results, a reliability analysis was performed using Cronbach's alpha. The criterion for this reliability is minimum 0.70, which only the first factor was above with a Cronbach's alpha of 0.920. This indicates that there is not enough relation between the variables to form a reliable factor (Nunnally, 1978). In other words, only factor 1 is appropriate as a factor for further analysis.

Table 6 - Results of Factor Analysis

Technologies	Dimensions			
	Ski Vacation Attributes	Adventure	Self-Actualization	Relaxation
Interest in ski vacation	0.897			
Enjoy nature and snow	0.865			
Escape everyday life	0.834			
Enjoy skiing	0.819			
Experience adrenaline	0.810			
Improve skiing skills	0.787			
Be social	0.674			
Experience new adventures		0.845		
Meet new people		0.817		
Go shopping			0.888	
Take pictures			0.729	
Relax				0.923
<i>Eigenvalue</i>	4.945	1.705	1.244	1.017
<i>Variance Explained</i>	41.205	14.205	10.366	8.474
<i>Cronbach's Alpha</i>	0.920	0.604	0.576	
N = 203				
Note: Kaiser-Meyer-Olkin (KMO) statistic = 0.856;				
Bartlett's Test of Sphericity = 1151.941; $df = 66; p < 0.001$				

4.4 Data Analysis

To test the hypotheses H1, H2 and H3, linear regression was used. In H1, the scope was to see whether there is an immediate correlation between ‘Tourism Motivation’ and ‘Ski Tourism Travel Motivation’. For ‘Tourism Motivation’, as the independent variable, all 11 variables were included in the analysis. As for Ski Tourism Travel Motivation, the 7 variables that constitute factor 1 were used as the dependent variable, ‘Ski Vacation Attributes’.

As for H2 and H3, the variable ‘Ski Vacation Attributes’ (‘SVA’) was used as the dependent variable again, due to the results of the factor analysis. In H2, the enjoyment level of skiing was measured using the subcategory ‘preference’, with the three variables Pr1, Pr2 and Pr3 as the predictors. For H3, climate change awareness was measured by all four variables of ‘Climate change’, CC1, CC2, CC3 and CC4, as the independent variables.

H4 is different in nature, thus a different technique was used analysing the data for this hypothesis.

4.4.1 Hypotheses analysis

For the hypotheses H1, H2 and H3, which were all analysed by linear regression, no dummy variable was needed since all variables are metric and used a five-point Likert-scale.

Table 7 - Linear Regression H1

Ind. Variable	Dep. Variable	Model Summary		ANOVA	Coefficients	
		R	R Square	Sig.	Sig.	VIF
Ph1	‘SVA’ Factor 1	0.388	0.151	<0.001	0.783	1.027
Ph2					0.011	1.083
Re1					0.039	1.137
Re2					0.196	1.291
C1					0.933	1.666
C2					0.777	1.682
PsF1					0.061	1.558
PsF2					0.153	1.500
SA1					0.306	1.279
SA2					0.986	1.291
SA3					0.794	1.516

As Table 7 shows, the Pearson correlation coefficient R in H1 is 0.388 which indicates a low correlation between the variables. R squared in the model summary for H1 is valued at 0.185. The R squared indicates how much of the variation of a dependent variable in a regression model is explained by an independent variable by percentage. Considering that this number is

so low, the variations of the dependent variable ‘P’ cannot be explained by the independent variables and suggests that the model is of poor fit. The ANOVA measures the overall significance of the model, and for H1 the significance is measured at $p < 0.001$, which indicates a low number of errors in the regression model and is accepted by the condition set for a 95% accuracy.

In the Coefficients analysis, looking at the significance shows that there are only two variables with less than $p < 0.05$, ‘Ph2’ and ‘Re1’ with a significance number of 0.011 and 0.039 respectively. This indicates that these two variables are the only ones out of the eleven independent variables with an impact on the dependent variable. When looking at the VIF data, all values are less than 2.5, which rejects multicollinearity.

As a result of this analysis, H1:

H1 - High motivation to travel does not equal a high ski tourism travel motivation.

Can be accepted, as there is not enough significance in all parts of the analysis to prove a strong correlation between ‘Travel motivation’ and ‘Ski tourism travel motivation’.

Table 8 - Linear Regression H2

Ind. Variable	Dep. Variable	Model Summary		ANOVA	Coefficients	
		R	R Square	Sig.	Sig.	VIF
Pr1	‘SVA’ Factor 1	0.914	0.835	<0.001	<0.001	2.724
Pr2					0.493	1.359
Pr3					<0.001	2.400

For H2, the Pearson correlation coefficient has a number of 0.914, as seen in Table 8, which indicates a positive, strong correlation between the variables. The R squared is 0.835, thus suggesting that the model is explaining 85% of the variations in the dependent variable ‘SVA’. Moving on to the ANOVA test of the analysis, the significance number is shown as $p < 0.001$, also indicating low number of errors and acceptance through the pre-conditioned 95% significance.

Examining the coefficient table, two of the three independent variables have a significance of less than 5%, meaning that variable ‘Pr1’ and ‘Pr3’ has an impact on the dependent variable. Variable ‘Pr2’ has a significance of 0.493, and it is therefore assumed that this variable has no significant impact on the dependent variable ‘SVA’. In the coefficients statistics one can see that the VIF is >2.5 at 2.724 for ‘Pr1’, indicating multicollinearity. This shows that the correlation between two or more independent variables is high, which makes it challenging to

isolate the distinctive impact of each independent variable on the dependent one.

To eliminate the multicollinearity, a second linear regression was performed (Table 9) using the means of the variables, labelled 'Pr'.

Table 9 - Linear Regression H2, nr. 2

Ind. Variable	Dep. Variable	Model Summary		ANOVA	Coefficients	
		R	R Square	Sig.	Sig.	VIF
Pr	'SVA' Factor 1	0.827	0.683	<0.001	<0.001	1.00

This analysis has a Pearson correlation number of 0.827 and an R square of 0.683, which indicates a strong correlation between variables and a 68% explanation of variations. The significance in ANOVA is $p < 0.001$, thus accepted. As for the coefficient table of this analysis, the significance is < 0.001 , indicating significant impact on the dependent 'SVA'. The VIF is below 2.5 which rejects multicollinearity. According to the second linear regression, H2:

H2 - High ski tourism travel motivation is caused by a high enjoyment level of skiing.

Is accepted.

Table 10 - Linear Regression H3

Ind. Variable	Dep. Variable	Model Summary		ANOVA	Coefficients	
		R	R Square	Sig.	Sig.	VIF
CC1	'SVA' Factor 1	0.271	0.073	0.004	0.428	2.339
CC2					0.553	1.807
CC3					0.953	1.049
CC4					0.568	1.762

In H3 (Table 10), the Pearson correlation is considered insignificant at a level of 0.271. The R squared level is 0.073, which means a low level of explanation in observed data. The ANOVA shows a significance of 0.004, which suggests low error and acceptance for a 95% significance.

Looking at the coefficients, none of the variables fall below 5%, thus none of the variables have a significant impact on the dependent. All variables have a VIF under 2.5, which proves that there is no multicollinearity. Due to this, H3:

H3 - High climate change awareness causes low ski tourism travel motivation.

Can be rejected.

H4 was first tested through an ANOVA. The three age groups have been labelled 1 for Gen Z, 2 for Millennials and 3 for Gen X. However, the homogeneity of variance was violated, and since group 1 is as big as group 2 and 3 combined, the decision was made to create a new age factor combining Millennials and Gen X as one. This new age group also appeals better to the hypothesis. After doing this, the data is more suitable for conducting an independent *t*-test, where the difference between the age groups' responses to the variables of factor 1 was tested (Table 11).

Table 11 - *t*-test H4

Variables	Group Statistics				Levene's test	T-test
	Age	N	Mean	Std. Deviation	Sig. Equal Var. Assumed	Sig. Two-sided p
Pr1	18-26	99	3.4949	1.37302	0.288	0.004
	27-58	104	2.9423	1.30590		
Pr3	18-26	99	3.7374	1.30608	0.686	<0.001
	27-58	104	3.0385	1.31402		
P1	18-26	99	3.2020	1.20356	0.437	0.007
	27-58	104	2.7308	1.27127		
P3	18-26	99	3.4545	1.24763	0.175	<0.001
	27-58	104	2.6346	1.30762		
P4	18-26	99	3.1010	1.24945	0.434	0.093
	27-58	104	2.7981	1.30257		
P5	18-26	99	3.5354	1.22319	0.190	<0.001
	27-58	104	2.7981	1.31740		
P6	18-26	99	4.1717	1.18701	0.007	0.001*
	27-58	104	3.5769	1.42578		

**Equal Variance Not Assumed*

The independent *t*-test shows that group 1 (aged 18-26) has overall a higher mean to each variable compared to group 2 (aged 27-58) in the group statistics part. Moving on, the Levene's test shows a significant variance in all variables except 'P6', which is the only variable valued under the chosen significant test of 5% with a level of 0.007. Thus, the two-sided *p* in the *t*-test is read with equal variances not assumed for this variable. For every other variable, the *t*-test is read with equal variances assumed. Looking at the significance levels of the *t*-test, all variables are below the 0.05 significance test except for 'P4' with 0.093. This is an indicator that there is a 9.3% chance that the difference between the two groups is random, and the difference between the groups are not considered statistically significant for this variable. However, there is still reason to reject the H0 that assumes no significant difference

between the groups due to the low p -value in every other variable. Although there is a proven significance in difference between the groups, H4:

H4 – Generation Z [18:26] have a lower ski tourism travel motivation than Generation Y [27:42] and Generation X [43:58].

Is rejected, as comparing the means shows that the older generations Y and X have lower ski tourism travel motivation than Generation Z.

5. Discussion

The purpose of this research was to determine important motivational factors towards ski tourism and whether a generational difference in ski tourism motivation can be proven.

The first three hypotheses were formulated under RO1, ‘Understanding motivations behind tourists’ destination decisions and preferences regarding ski tourism’. This research objective forms an important foundation in the study of the research question, ‘Is the motivation for ski tourism amongst Gen Z lower than it is for Gen Y and Gen X?’ and gave the opportunity to close research gaps that could have an impact on the outcome of the second research objective that is more directly related to the research question.

For hypothesis 1, the purpose was to cover the research gap in previous studies that did not focus on the correlation between a high travel motivation and a high ski travel motivation. As the data suggests for the hypothesis to be accepted, that there is no correlation between the two travel motivations, the results were in line with previous research explaining ski travel motivation as a unique category of travel (Tjørve et al., 2015; Alexandris et al., 2009; Matzler et al., 2018). The chosen method for analysing this hypothesis was linear regression, which is a good method for detecting correlations or lack thereof. The acceptance of this hypothesis can also be backed up by the responses to the ‘Negative Motivation Factors’ of ‘Ski Travel Motivation’. As seen in the univariate analysis, the highest mean score was detected as a response to N3 – ‘I don’t want to go on a ski vacation because I prefer other travel destinations’ - which explains that the biggest reason for low ski tourism travel motivation is due to other travel destinations being more desirable.

Another research gap was explored by H2 since previous studies did not deem high ski travel tourism motivation as a direct effect of high enjoyment level of skiing. Linear regression is used to determine cause and effect, which seemed to be the appropriate method of testing H2. The results showed that there is a high correlation between enjoyment level of skiing and a ski

travel motivation. Previous studies highlighted that there are multiple motivations behind winter tourism, and Bausch and Gartner (2022) found that only 57,4% of winter tourists were interested in performing winter sports. Other researchers segmented winter tourism into multiple segments (Konu et al., 2010; Bausch & Unseld, 2017). The results of hypothesis 2 align with these researchers segmenting ski travel tourism as their own segment, as high ski travel motivation is a direct effect of high enjoyment of skiing. As seen in the univariate analysis of ski travel motivation, the highest mean in ‘Positive Motivation Factors’ was found in P6 – ‘I want to go on a ski vacation to enjoy the nature and snow’ - which aligns with the study of Dannevig et al. (2020) that detected presence of snow as the most important motivational factor behind ski tourism. It also confirms that snow reliability is the most important attribute for ski tourists, as described by Steiger et al. (2020).

Hypothesis 3 covers a subject that most researchers on ski tourism mention in their studies, namely climate change (Soboll & Dingeldey, 2012; Steiger et al., 2020; Koenig & Abegg, 2010; Steiger, 2011). However, previous research explored the impact climate change has on ski tourism industry and demand, and not whether climate change affects tourists’ travel motivation. Hypothesis 3 was also tested through linear regression for detection of correlation, but no significant statistical correlation between climate change and ski travel motivation was detected. These results align with Skeiryte et al. (2022) who found a low consideration of carbon footprint when travelling across all generations in Europe. The similar results are further proved in the univariate analysis of climate change, where the mean response to CC1 – I consider my carbon footprint when travelling for skiing - was 2.80, below the median and the neutral response value 3. According to Witting and Schmude (2019), climate change will not have a negative impact on skier demand until the 2030s or 2040s, which is not something the results of this study can argue against.

The last hypothesis is an adaptation of the second research objective, which is also directly adapted from the research question. H4 – Generation Z [18:26] have a lower ski tourism travel motivation than Generation Y [27:42] and Generation X [43:58]. There was reason to believe that the youngest generation, Gen Z, has lower ski tourism travel motivation than previous generations due to heightened climate change awareness, which in turn causes less snow reliability (Dannevig et al., 2020). The hypothesis was tested first through an ANOVA, however that method was deemed unfit due to skewed distribution of responses through different generations. The independent sample *t*-test was a better fit, and the two older generations, Gen X and Gen Y, were combined to one as the purpose of the study was to

compare the youngest generation to the two older ones. The results were rather surprising, as they showed that not only was there a detectable difference between the two groups, but ski travel motivation was also higher for Gen Z. This contradicts previous research by Steiger (2012) which pointed to a downward trend in the younger age group. It also contradicts the studies performed by both Falk and Hagsten (2015) and Witting and Schmude (2019) who predict a declining demand in the ski markets on account of demographic change. The reasons for these differences could be many, and one possible reason that should be highlighted is that Generation Z only includes those born in 1997 and after, meaning that this generation may not have been included in these previous studies due to their young age. Another possible reason is that Gen Z has a different way of approaching travel, in that they gather information from other sources than previous generations, or that Gen Z seeks more unique experiences. The results of this analysis and the detected differences in generations were more in line with researchers pointing out differences in travel motivation across generations and that generation Z differs from the previous ones (Li et al., 2013; Monaco, 2018; Mattioli et al., 2022). The variable with the highest difference in means between the two groups was P3 – I want to go on a ski vacation to experience the adrenalin - for which Gen Z had the highest mean score. It is fair to assume that this younger generation is keener on adrenaline and more dauntless than Gen X and Gen Y. These results can be used from a managerial perspective to gain a better understanding of generation Z as consumers, to better target them in future marketing techniques. A marketing technique proven to be effective on Gen Z is the digital influencer marketing (Djafarova & Fouts, 2022). The results also implies that there might be an increase in demand for ski tourism instead of the previous expected decrease, which managers would then need to prepare for.

6. Conclusion

This chapter contains conclusion and main findings, theoretical and practical implications, and lastly limitations and future research.

6.1 Conclusion and Main Findings

The purpose of this research was to discover whether there are significant differences in the ski tourism motivation between generation Z and the older generations Y and X, to gain an understanding of what can be expected of the future in ski tourism. In order to discover this, a basic understanding of motivations and preferences regarding ski tourism was depicted first.

The previous study of Bausch and Gartner (2022) was correct in describing ski tourism as a unique form for tourism, as it is highly popular for those who enjoy skiing, but not necessarily for others who enjoy travelling. It is also recognized that travellers have a low consideration of their carbon footprint when travelling, consistent with the study of Skeiryte et al. (2022). The ski travel motivation of generation Z was proven to be significantly different from the previous generations Y and X. However, the results contradict previous research done by Steiger (2012), as it was discovered that generation Z actually has a higher motivation for ski tourism than the previous generations have. Possible reasons for this could be that generation Z was not accounted for in previous studies, or that this generation has a different approach to travelling than generations Y and X.

The results of this research highlight a negative trend in tourism, that is low consideration of climate change when travelling. Especially in the upcoming decades, governments along with environmental organisations should work to achieve higher awareness of climate change when travelling. The tourism industry should also keep these attitudes of their consumers in mind, and work for more sustainable tourism. As for a managerial perspective, these results imply that generation Z has a higher motivation for ski tourism than previous generations, and ski resorts should study this generation in terms of how these consumers' needs can be met as well as how to best reach them through marketing.

6.2 Theoretical Implications

The findings of this study add to and increase the body of knowledge already available about ski tourism and generational differences. The theoretical basis in this research ties the theory of generational travel differences (Li et al., 2013; Monaco, 2018; Mattioli et al., 2022) to the theory of ski tourism travel motivation (Bausch and Unseld, 2017; Tjørve et al., 2015; Alexandris et al., 2019; Malasevska & Haugom, 2018; Matzler et al., 2018). It also slightly contributes to the literature about climate change affecting tourism (Skeiryte et al., 2022; Koenig & Abegg, 2010; Steiger, 2011). Specifically, this research contributes to the literature by examining travel motivation compared to ski travel motivation, climate change regarding travel and testing whether ski travel motivation differs throughout generations.

The study confirms ski tourism as its own segment of winter tourism, as described by Bausch and Gartner (2020). Additionally, it confirms the theory of Pütz et al. (2011) reporting that snow reliability is one of the most important factors for 88% of ski tourists. The same results

were found in the research by Steiger and colleagues (2020), as well as Bausch and Gartner (2020).

Regarding climate change, this study found evidence that supports the statement of Skeirytė et al. (2022), that the majority of travellers do not consider their impact on the climate when travelling.

Lastly, this study confirms that there are generational differences regarding ski travel motivation. However, the difference was opposite of what previous studies described. Steiger (2012) explained a downward trend among younger age groups, with a decrease in involvement of skiing. Witting and Schmude (2019) also found evidence for decrease in skier demand due to demographic changes of skiers. These are both contradicted by this study, which found generation Z to have the highest ski travel motivation among the three generations included in this study, X, Y and Z.

6.3 Practical Implications

This research has practical implications for the travel industry and for ski resorts. First and foremost, the results acknowledge ski tourism as its own segment of winter tourism, suggesting that the winter travel industry takes this into account when identifying customers and marketing methods to gain a higher market share.

Secondly, the results show that the consideration of impact on climate change when travelling is low, which suggests that better education on this topic is needed among travellers. Spence et al. (2012) suggests that the best way to encourage behaviour change and extend knowledge on the topic of climate change is through education and effectively crafted communication. These results also suggest that the travel industry should take further responsibility to encourage sustainable travel, as the consumers mentally detach themselves from acknowledging climate change when travelling.

Finally, the results imply a generational difference in ski tourism motivation, with generation Z having the highest motivation of all generations. This suggests that a change is necessary in the ski travel industry to better accommodate this generation. The research of Monaco (2018) explains a shift in tourism towards more customised experiences, which is something the ski tourism industry should adapt to in order to attract this younger generation as consumers. The ski industry should also define whether a reevaluation of their marketing techniques are necessary to better reach generation Z and enhance their market share. According to

Djafarova and Fouts (2022), the most adequate way of marketing towards generation Z is with the use of digital influencer marketing and digital marketing in general.

6.4 Limitations and Further Research

There are some limitations to this research. Firstly, the mode of the respondents of the survey, 37%, listed Norway as their country of residence. This could have affected the outcome of the analyses in both negative and positive ways. On one hand, Norwegian people tend to be used to snow, and most residents know how to ski which could positively affect their view on ski tourism compared to residents of other countries who might not have experience with skiing. On the other hand, Norway has a lot of ski resorts, so there is not the same need to travel abroad to perform this hobby as it could potentially be for residents of different countries. Therefore, the results could be biased, thus not representative of the different generations across countries. To eliminate this limitation in further research, the data should be collected from a bigger variety of countries or focus on specific ones. Country of residence could also be included as a factor in future research to investigate whether ski tourism travel motivation changes due to nationality in the same way that Kozak (2002) explains that tourist motivation does.

The second limitation of this research is that most previous studies on ski tourism are area specific and focus on a specific country, mountain range or ski resort. Due to a limited amount of data, this research was conducted with the presumption that the results from these studies are applicable for all ski resorts. However, this might not be the case as some of the previous results could be area specific only. Different climate, snow conditions and seasonal changes are some examples of what could differ between ski resorts due to location and countries. This research has a broader, more general scope than most studies on ski tourism. To overcome this limitation, further research should determine exactly which factors are area specific and which ones apply to all ski resorts.

In conclusion, limitations include distribution of nationalities and presumption of area specific research being applied to all ski resorts. Future research should include a bigger variety of nationalities, determination of nationality implied travel motivations and area specific factors of ski tourism.

References

- Abbass, K., Qasim, M. Z., Song, H., Murshed, M., Mahmood, H., & Younis, I. (2022). A review of the global climate change impacts, adaptation, and sustainable mitigation measures. *Environmental Science and Pollution Research*, 29(28), 42539–42559. <https://doi.org/10.1007/s11356-022-19718-6>
- Admintwfr. (2022, April 16). *How Sports Tourism is Boosting Local Economies - The World Financial Review*. The World Financial Review. https://worldfinancialreview.com/how-sports-tourism-is-boosting-local-economies/?__cf_chl_jschl_tk__=683325c1806cb133b2060cebc30a3911677fb313-
- Alexandris, K., Kouthouris, C., Funk, D. C., & Giovani, C. (2009). Segmenting Winter Sport Tourists by Motivation: The Case of Recreational Skiers. *Journal of Hospitality Marketing & Management*, 18(5), 480–499. <https://doi.org/10.1080/19368620902950048>
- Andersen, O., Øian, H., Aas, Ø., & Tangeland, T. (2018). Affective and cognitive dimensions of ski destination images. The case of Norway and the Lillehammer region. *Scandinavian Journal of Hospitality and Tourism*, 18(2), 113–131. <https://doi.org/10.1080/15022250.2017.1318715>
- Bausch, T., & Gartner, W. B. (2020). Winter tourism in the European Alps: Is a new paradigm needed? *Journal of Outdoor Recreation and Tourism*, 31, 100297. <https://doi.org/10.1016/j.jort.2020.100297>
- Bausch, T., & Unseld, C. (2018). Winter tourism in Germany is much more than skiing! Consumer motives and implications to Alpine destination marketing. *Journal of Vacation Marketing*, 24(3), 203–217. <https://doi.org/10.1177/1356766717691806>

- Behringer, J., Buerki, R., & Fuhrer, J. (2000). Participatory integrated assessment of adaptation to climate change in Alpine tourism and mountain agriculture. *Integrated Assessment, 1*(4), 331–338. <https://doi.org/10.1023/a:1018940901744>
- Berghammer, A., & Schmude, J. (2014). The Christmas—Easter Shift: Simulating Alpine Ski Resorts' Future Development under Climate Change Conditions Using the Parameter 'Optimal Ski Day.' *Tourism Economics, 20*(2), 323–336. <https://doi.org/10.5367/te.2013.0272>
- Bonzanigo, L., Giupponi, C., & Balbi, S. (2016). Sustainable tourism planning and climate change adaptation in the Alps: a case study of winter tourism in mountain communities in the Dolomites. *Journal of Sustainable Tourism, 24*(4), 637–652. <https://doi.org/10.1080/09669582.2015.1122013>
- Chen, J. S., Wang, W., & Prebensen, N. K. (2016). Travel companions and activity preferences of nature-based tourists. *Tourism Review, 71*(1), 45–56. <https://doi.org/10.1108/tr-06-2015-0024>
- Cocolas, N., Walters, G., & Ruhanen, L. (2016). Behavioural adaptation to climate change among winter alpine tourists: an analysis of tourist motivations and leisure substitutability. *Journal of Sustainable Tourism, 24*(6), 846–865. <https://doi.org/10.1080/09669582.2015.1088860>
- Dann, G. M. (1977). Anomie, ego-enhancement and tourism. *Annals of Tourism Research, 4*(4), 184–194. [https://doi.org/10.1016/0160-7383\(77\)90037-8](https://doi.org/10.1016/0160-7383(77)90037-8)
- Dannevig, H., Gildestad, I. M., Steiger, R., & Scott, D. (2021). Adaptive capacity of ski resorts in Western Norway to projected changes in snow conditions. *Current Issues in Tourism, 24*(22), 3206–3221. <https://doi.org/10.1080/13683500.2020.1865286>

- Dawson, J., & Scott, D. (2007). Climate Change Vulnerability of the Vermont Ski Tourism Industry (USA). *Annals of Leisure Research*, 10(3–4), 550–572.
<https://doi.org/10.1080/11745398.2007.9686781>
- Denning, A. (2019). Going Downhill? The Industrialisation of Skiing from the 1930s to the 1970s [Springer]. In *Leisure Cultures and the Making of Modern Ski Resorts*. (Global Culture and Sport Series.). Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-319-92025-2_2
- Djafarova, E., & Foots, S. (2022). Exploring ethical consumption of generation Z: theory of planned behaviour. *Young Consumers*, 23(3), 413–431. <https://doi.org/10.1108/yc-10-2021-1405>
- Dudovskiy, J. (2022). *An Ultimate Guide to Writing a Dissertation in Business Studies: A Step-by-step Assistance* (6th ed.). BRM.
- Falk, M. (2010). A dynamic panel data analysis of snow depth and winter tourism. *Tourism Management*, 31(6), 912–924. <https://doi.org/10.1016/j.tourman.2009.11.010>
- Falk, M. (2013). Impact of Long-Term Weather on Domestic and Foreign Winter Tourism Demand. *International Journal of Tourism Research*, 15(1), 1–17.
<https://doi.org/10.1002/jtr.865>
- Falk, M., & Hagsten, E. (2016). Importance of early snowfall for Swedish ski resorts: Evidence based on monthly data. *Tourism Management*, 53, 61–73.
<https://doi.org/10.1016/j.tourman.2015.09.002>
- Farmaki, A., Khalilzadeh, J., & Altinay, L. (2019). Travel motivation and demotivation within politically unstable nations. *Tourism Management Perspectives*, 29, 118–130.
<https://doi.org/10.1016/j.tmp.2018.11.004>
- Foulkes, B. I. (2023, January 3). Snow shortage threatens Alps with wet winter season. *BBC News*. <https://www.bbc.com/news/world-europe-64151166>

- Hair, J. F. (1998). *Multivariate Data Analysis* (5th ed.). Prentice Hall.
- Hoffmann, R., Muttarak, R., Peisker, J., & Stanig, P. (2022). Climate change experiences raise environmental concerns and promote Green voting. *Nature Climate Change*, *12*(2), 148–155. <https://doi.org/10.1038/s41558-021-01263-8>
- Holt, R. I. G. (1992). An englishman in the Alps: Arnold Lunn, amateurism and the invention of alpine ski racing. *International Journal of the History of Sport*, *9*(3), 421–432. <https://doi.org/10.1080/09523369208713804>
- Kang, H. (2021). Sample size determination and power analysis using the G*Power software. *Journal of Educational Evaluation for Health Professions*, *18*, 17. <https://doi.org/10.3352/jeehp.2021.18.17>
- Kappelslåen, C. (2019). Randonee-en økende trend blant kvinner?: *En kvalitativ studie som undersøker utøvelsen av randonee blant kvinner* (Master's thesis).
- Kemp, L., Xu, C., Depledge, J., Ebi, K. L., Gibbins, G., Kohler, T. A., Rockström, J., Scheffer, M., Schellnhuber, H. J., Steffen, W., & Lenton, T. M. (2022). Climate Endgame: Exploring catastrophic climate change scenarios. *Proceedings of the National Academy of Sciences*, *119*(34). <https://doi.org/10.1073/pnas.2108146119>
- Klenosky, D. B., Gengler, C. E., & Mulvey, M. R. (2000). Understanding the Factors Influencing Ski Destination Choice: A Means-End Analytic Approach. *Journal of Leisure Research*, *25*(4), 362–379. <https://doi.org/10.1080/00222216.1993.11969934>
- Knekta, E., Runyon, C. R., & Eddy, S. L. (2019). One Size Doesn't Fit All: Using Factor Analysis to Gather Validity Evidence When Using Surveys in Your Research. *CBE – Life Sciences Education*, *18*(1), rm1. <https://doi.org/10.1187/cbe.18-04-0064>
- Koenig, U., & Abegg, B. (1997). Impacts of Climate Change on Winter Tourism in the Swiss Alps. *Journal of Sustainable Tourism*, *5*(1), 46–58. <https://doi.org/10.1080/09669589708667275>

- König, U. (1998). *Tourism in a Warmer World: Implications of Climate Change Due to Enhanced Greenhouse Effect for the Ski Industry in the Australian Alps*. Univ. Zürich-Irchel Geographisches Institut.
- Konu, H., Laukkanen, T., & Komppula, R. (2011). Using ski destination choice criteria to segment Finnish ski resort customers. *Tourism Management*, 32(5), 1096–1105. <https://doi.org/10.1016/j.tourman.2010.09.010>
- Kozak, M. (2002). Comparative analysis of tourist motivations by nationality and destinations. *Tourism Management*, 23(3), 221–232. [https://doi.org/10.1016/s0261-5177\(01\)00090-5](https://doi.org/10.1016/s0261-5177(01)00090-5)
- Kruger, M., & Saayman, M. (2010). Travel motivation of tourists to Krugerand Tsitsikamma National Parks:a comparative study. *South African Journal of Wildlife Research*, 40(1), 93–102. <https://hdl.handle.net/10520/EJC117327>
- Li, X., Li, X., & Hudson, S. (2013). The application of generational theory to tourism consumer behavior: An American perspective. *Tourism Management*, 37, 147–164. <https://doi.org/10.1016/j.tourman.2013.01.015>
- Malasevska, I., & Haugom, E. (2019). Alpine skiing demand patterns. *Scandinavian Journal of Hospitality and Tourism*, 19(4–5), 390–403. <https://doi.org/10.1080/15022250.2018.1539924>
- Mattioli, G., Scheiner, J., & Holz-Rau, C. (2022). Generational differences, socialisation effects and ‘mobility links’ in international holiday travel. *Journal of Transport Geography*, 98, 103263. <https://doi.org/10.1016/j.jtrangeo.2021.103263>
- Matzler, K., Teichmann, K., Strobl, A., & Partel, M. (2019). The effect of price on word of mouth: First time versus heavy repeat visitors. *Tourism Management*, 70, 453–459. <https://doi.org/10.1016/j.tourman.2018.09.013>

- Mayo, E. J., & Jarvis, L. P. (1981). *The Psychology of Leisure Travel: Effective Marketing and Selling of Travel Services*. <http://ci.nii.ac.jp/ncid/BA27083498>
- Monaco, S. (2018). Tourism and the new generations: emerging trends and social implications in Italy. *Journal of Tourism Futures*, 4(1), 7–15.
<https://doi.org/10.1108/jtf-12-2017-0053>
- Nilsson, J., & Haugen, P. K. (2004). Knee angular displacement and extensor muscle activity in telemark skiing and in ski-specific strength exercises. *Journal of Sports Sciences*, 22(4), 357–364. <https://doi.org/10.1080/02640410310001641557>
- Nunnally, J. C. (1978). *Psychometric Theory* (2nd ed.). McGraw-Hill Companies.
- Olefs, M., Fischer, A., & Lang, J. M. (2010). Boundary Conditions for Artificial Snow Production in the Austrian Alps*. *Journal of Applied Meteorology and Climatology*, 49(6), 1096–1113. <https://doi.org/10.1175/2010jamc2251.1>
- Pew Research Center. (2023, May 22). *Where Millennials end and Generation Z begins* | Pew Research Center. <https://www.pewresearch.org/short-reads/2019/01/17/where-millennials-end-and-generation-z-begins/>
- Pons, M., Johnson, P., Rosas, M., & Jover, E. (2014). A georeferenced agent-based model to analyze the climate change impacts on ski tourism at a regional scale. *International Journal of Geographical Information Science*, 28(12), 2474–2494.
<https://doi.org/10.1080/13658816.2014.933481>
- Pütz, M., Gallati, D., Kytzia, S., Elsasser, H., Lardelli, C., Teich, M., Waltert, F., & Rixen, C. (2011). Winter Tourism, Climate Change, and Snowmaking in the Swiss Alps: Tourists' Attitudes and Regional Economic Impacts. *Mountain Research and Development*, 31(4), 357–362. <https://doi.org/10.1659/mrd-journal-d-11-00039.1>
- Rixen, C., Teich, M., Lardelli, C., Gallati, D., Pohl, M., Pütz, M., & Bebi, P. (2011). Winter Tourism and Climate Change in the Alps: An Assessment of Resource Consumption,

- Snow Reliability, and Future Snowmaking Potential. *Mountain Research and Development*, 31(3), 229–236. <https://doi.org/10.1659/mrd-journal-d-10-00112.1>
- Scott, D., & McBoyle, G. (2007). Climate change adaptation in the ski industry. *Mitigation and Adaptation Strategies for Global Change*, 12(8), 1411–1431. <https://doi.org/10.1007/s11027-006-9071-4>
- Scott, D., McBoyle, G., Minogue, A., & Mills, B. M. (2006). Climate Change and the Sustainability of Ski-based Tourism in Eastern North America: A Reassessment. *Journal of Sustainable Tourism*, 14(4), 376–398. <https://doi.org/10.2167/jost550.0>
- Šimková, E., & Holzner, J. (2014). Motivation of Tourism Participants. *Procedia - Social and Behavioral Sciences*, 159, 660–664. <https://doi.org/10.1016/j.sbspro.2014.12.455>
- Skeirytė, A., Krikštolaitis, R., & Liobikienė, G. (2022). The differences of climate change perception, responsibility and climate-friendly behavior among generations and the main determinants of youth's climate-friendly actions in the EU. *Journal of Environmental Management*, 323, 116277. <https://doi.org/10.1016/j.jenvman.2022.116277>
- Soboll, A., & Dingeldey, A. (2012). The future impact of climate change on Alpine winter tourism: a high-resolution simulation system in the German and Austrian Alps. *Journal of Sustainable Tourism*, 20(1), 101–120. <https://doi.org/10.1080/09669582.2011.610895>
- Spence, A., Poortinga, W., & Pidgeon, N. F. (2012). The Psychological Distance of Climate Change. *Risk Analysis*, 32(6), 957–972. <https://doi.org/10.1111/j.1539-6924.2011.01695.x>
- Steiger, R. (2012). Scenarios for skiing tourism in Austria: integrating demographics with an analysis of climate change. *Journal of Sustainable Tourism*, 20(6), 867–882. <https://doi.org/10.1080/09669582.2012.680464>

- Steiger, R., Posch, E., Tappeiner, G., & Walde, J. (2020). The impact of climate change on demand of ski tourism - a simulation study based on stated preferences. *Ecological Economics*, *170*, 106589. <https://doi.org/10.1016/j.ecolecon.2019.106589>
- Steiger, R., Scott, D., Abegg, B., Pons, M., & Aall, C. (2019). A critical review of climate change risk for ski tourism. *Current Issues in Tourism*, *22*(11), 1343–1379. <https://doi.org/10.1080/13683500.2017.1410110>
- Tan, W. (2020). Destination selection: Influence of tourists' personality on perceived travel constraints. *Journal of Vacation Marketing*, *26*(4), 442–456. <https://doi.org/10.1177/1356766720942556>
- Tjørve, E., Lien, G., & Flognfeldt, T. (2018). Properties of first-time vs. repeat visitors: lessons for marketing Norwegian ski resorts. *Current Issues in Tourism*, *21*(1), 78–102. <https://doi.org/10.1080/13683500.2015.1062472>
- Tranos, E., & Davoudi, S. (2014). The Regional Impact of Climate Change on Winter Tourism in Europe. *Tourism Planning & Development*, *11*(2), 163–178. <https://doi.org/10.1080/21568316.2013.864992>
- UN Climate Press Release. (2022, November 20). *COP27 Reaches Breakthrough Agreement on New “Loss and Damage” Fund for Vulnerable Countries*. UNFCCC. <https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries>
- Van Selm, M., & Jankowski, N. R. (2006). Conducting Online Surveys. *Quality & Quantity*, *40*(3), 435–456. <https://doi.org/10.1007/s11135-005-8081-8>
- Vanat, L. (2021). 2021 International Report on Snow & Mountain Tourism. *Overview of the Key Industry Figures for Ski Resorts*, *13*. <https://www.vanat.ch/RM-world-report-2021.pdf>

- Vorkauf, M., Steiger, R., Abegg, B., & Hiltbrunner, E. (2022). Snowmaking in a warmer climate: an in-depth analysis of future water demands for the ski resort Andermatt-Sedrun-Disentis (Switzerland) in the twenty-first century. *International Journal of Biometeorology*. <https://doi.org/10.1007/s00484-022-02394-z>
- Witting, M., & Schmude, J. (2019). Impacts of climate and demographic change on future skier demand and its economic consequences – Evidence from a ski resort in the German Alps. *Journal of Outdoor Recreation and Tourism*, 26, 50–60.
<https://doi.org/10.1016/j.jort.2019.03.002>
- Yong, A., & Pearce, S. (2013). A Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis. *Tutorials in Quantitative Methods for Psychology*, 9(2), 79–94. <https://doi.org/10.20982/tqmp.09.2.p079>
- Zielinski, C., Atwoli, L., Erhabor, G. E., Gbakima, A. A., Haileamlak, A., Ntumba, J. K., Kigera, J., Laybourn-Langton, L., Mash, B., Muhia, J., Mulaudzi, F. M., Ofori-Adjei, D., Okonofua, F., Rashidian, A., El-Adawy, M., Sidibé, S., Snouber, A., Tumwine, J., Yassien, M. S., . . . Zakhama, L. (2022). COP27 climate change conference: Urgent action needed for Africa and the world. *Acta Paediatrica*, 111(12), 2259–2261.
<https://doi.org/10.1111/apa.16552>

Appendix A

Questionnaire

I Motivations

	Dimension	Items	Adapted From	
I	Physical	Ph1 – I travel to experience a different climate	(Kozak, 2002) (Mayo & Jarvis, 1981)	
		Ph2 – I travel to perform a hobby		
II	Relaxation	Re1 – I travel to relax		
		Re2 – I travel to spend time with loved ones		
III	Culture	C1 – I travel to go sightseeing		
		C2 – I travel to experience a different culture		
IV	Pleasure seeking/fantasy	PsF1 – I travel to experience new adventures		
		PsF2 – I travel to meet new people		
V	Self-actualization	SA1 – I travel to attend an event		(Kruger & Saayman, 2010)
		SA2 – I travel to go shopping		
		SA3 – I travel to take pictures		

II Ski Tourism Motivations

	Dimension	Items	Adapted From
VI I	Preference	Pr1 – I enjoy skiing(downhill/cross-country/snowboard)	(Tjørve et al., 2015)
		Pr2 – I have been on a ski vacation before	
		Pr3 – I am interested in going on a ski vacation	
		Pr4 – I am not interested in going on a ski vacation	
VI II	Positive Motivation Factors	P1 – I want to go on a ski vacation to escape everyday life	(Alexandris et al., 2019)
		P2 – I want to go on a ski vacation to impress others	
		P3 – I want to go on a ski vacation to experience the adrenaline	
		P4 – I want to go on a ski vacation to be social	
		P5 – I want to go on a ski vacation to improve my skiing skills	
		P6 – I want to go on a ski vacation to enjoy the nature and snow	
IX	Negative Motivation Factors	N1 – I don't want to go on a ski vacation because it is expensive	(Tan, 2020) (Farmaki et al., 2019)
		N2 – I don't want to go on a ski vacation because I'm not interested in skiing	
		N3 – I don't want to go on a ski vacation because I prefer other travel destinations	
		N4 – I don't want to go on a ski vacation because skiing is dangerous	
		N5 – I don't want to go on a ski vacation due to climate change	

III Climate Change and travelling

	Dimension	Items	Adapted From
--	-----------	-------	--------------

X	Climate Change Adaption	CC1 – I consider my carbon footprint when travelling for skiing	(Skeiryte et al., 2022) (Spence et al., 2012)
		CC2 – I choose environmentally friendly means of transportation when possible	
		CC3 – I would travel to a country that has been strongly affected by climate change	
		CC4 – I take climate change into account when choosing a winter sports travel destination	

III Demographics

	Dimension	Items	Adapted From
X I	Demographics	Age – [18-25] [26-35] [36-45] [46-50] [Over 50]	(Beerli & Martin, 2004) (Bausch & Gartner, 2020)
		Gender – [Male] [Female] [Other]	
		Education Level – [None] [Grade School] [High School] [Lower University degree] [Higher University degree]	
		Employment Status – [Unemployed] [Student] [Full-Time Employee] [Part-Time Employee] [Retired] [Other]	
		Country of Residence:	
		Do you enjoy travelling abroad to foreign countries? [YES/NO]	