For Fun:

An analysis and case study in travel choice when traveling towards events and leisure activities.

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Summary

This thesis tries to show how travel choice towards leisure events is formed. It sets aside travel as a derived demand, since in leisure travel other factors next to efficiency also have influence, since this type of travel is infrequent and often has varying destinations. This leads to travel decisions which are not formed through habit, but through other choices. These choices can be explained by the Theory of Planned Behavior, which states that (irregular) behavior is formed on three levels: behavioral beliefs, normative beliefs and control beliefs. Soft incentives can be used as stimuli for positive behavior.

The Nijmeegse Vierdaagse and Vierdaagsefeesten 2013 are used as a case study in this thesis, to get insight in traveling behavior of people towards the largest public event in the Netherlands. A quantitative survey was used, which was distributed digitally, which received 358 responses. The data from the survey is used to give a descriptive overview of the event itself. Further, a logistic regression analysis is used to detect correlations between the travel mode and various other variables (such as travel distance and visited parts of the event).

In the conclusion the conceptual framework and the analysis of the survey are analyzed. In addition, recommendations are given to the provider of the internship (NS Regio Noordoost) and the organization of the event (Nijmeegse Vierdaagse and Vierdaagsefeesten).

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Preface

This thesis presents an analysis and case study of a person's travel choices towards leisure activities and events. This study is undertaken as part of my Master Urban & Cultural Geography at the Radboud University Nijmegen. The thesis combines the knowledge and concepts which I learned during my Master, and works with themes such as accessibility, mobility, sustainability and networks.

As a case study the Nijmeegse Vierdaagse is used, an event which is interesting for a number of reasons. First of all it is extensive, with a tremendous amount of visitors, participants and volunteers. It has a strong connection with the university and the Nijmegen area, and through an internship at the Dutch railways NS I was connected with one of the most important transport organizations of the event. Further I could express my personal interest in visiting and planning events in this research. I wish all the readers of this work a pleasant read.

Dennis Tummers
Nijmegen, 2014

Introduction

Problem description

The Netherlands can be considered a crowded country, which is subject to daily traffic jams on the main arteries, next to incidental traffic jams caused by accidents, construction works et cetera. Public transport in the form of railroads (and to a lesser extent buses, trams, subways, trolleys) also consists of a dense network, which is one of the busiest in Europe (Ramaekers, De Wit, & Pouwels, 2009), especially around the Utrecht/Randstad region. Congestion and traffic jams are the result of commuter traffic during peak hours. A lot of these cars are single-occupant vehicles, which is unsustainable and ineffective.

However, in this thesis the focus will not lay on daily commuter traffic. Instead, a less frequent, more irregular type of travel will be considered. The focus will lay on travel towards events and leisure activities. The first reason for this is that a multitude of research already focuses on commuter traffic, while travel towards events and leisure activities is much less researched. For example, few examples can be found on this topic focusing on The Netherlands. Second, I have a personal interest in (music) events. Third, while this type of travel takes up a smaller percentage of the total travel, the numbers of people who did participate in events are numerous. According to the Evenementenmonitor 2012 (Respons, 2012), the 100 most visited events in the year 2011 drew between the 100,000 and the 2,610,000 visitors, which makes this a substantial factor in travel. The effect on the infrastructure is also apparent, as there are cases where congestions and traffic jams can occur. For example, when an event is heavily visited (for example the Nijmeegse Vierdaagse, ranking first in the Evenementenmonitor 2012), or when a certain leisure activity is performed by many people at the same time (for example going to the beach on the first warm day). Often, the affected areas are not built for the large amount of traffic generated, since it rarely happens. With these congestions other problems may arise, such as environmental damage. For planners however, it is not cost-effective to adapt these points for higher traffic. These areas could greatly benefit from a change towards public transport. For the traveler, a change of transport mode can also have positive effects, such as shorter travel time and lower costs. Unfortunately, a veil of negativity surrounds public transport in The Netherlands, stating that it is often delayed, it is unreliable, prices are high, comfort is low et cetera. In this respect, the car is often preferred because the comfort is higher, it provides more flexibility, and it is cheaper.

My personal opinion is that car use is established firmly into the Dutch culture (the so-called “asfaltdenken”), while this gives similar problems (concerning possible delays et cetera) as using public transport. However, public transport is much more stigmatized. I believe that a change in the current mind set surrounding traveling is necessary, and getting people to travel in a more sustainable way to events (in this case, by bus or by train), can show that it is possible to travel comfortable, environmental friendly and efficient.

Research aim and objectives

The aim of this thesis is to generate an insight in the motivations of people concerning travel mode choice towards leisure activities and events. A plethora of articles are published about choices concerning commuter traffic, which can be viewed as a routinized behavior (for example Aarts & Dijksterhuis, 2000a, 2000b). However, travel behavior towards events and leisure differs from this daily routine, since locations, travel days, time and frequency are different. This may leave more room for a change in behavior. I argue that this behavior should be steered towards more sustainable forms of transport, since this 1) reduces the pressure of transport on the carbon emissions and 2) it may create a sustainable mind set which is useful for future decisions.

In order to get insight in travel behavior towards events and leisure activities, a conceptual framework is used which argues that travel towards leisure activities differs from daily commuter traffic due to its irregular nature, making it less habitual and less a derived demand. How this behavior is formed will be explained by the theory of planned behavior, and this theory also provides options for changing the behavior. This theory will be tested by analyzing a case study focusing on a large event. Through an online survey, information will be obtained by how people travel towards the event, and which reasons they have for this; how they made their choice. Unfortunately it is too extensive for this thesis to try in practice if this behavior can be changed, due to time and especially cost restrictions. The analysis of the survey will be two-fold: a part will be a descriptive statistical analysis to get an insight in the visitors of the case study, and will provide information about travel modes, geographical location, rating of the event etcetera. The second part will focus on finding correlations between certain aspects of the respondents. For example, is there a correlation between the way visitors travel for their daily needs and the way they travel to leisure activities?

Research questions

For guidance throughout this thesis, a central research question will be used. This question tries to answer the main goal of this thesis, namely gain insight in leisure travel behavior, and try to change this behavior towards a more sustainable mode. Therefore, the central question of this thesis is:

"*Which mode of transport do people choose when traveling towards events and leisure activities, which motivations do they have for this choice and how can their choice be steered towards using a more sustainable form of transport?"*

Since this is a broad question, several sub questions can be asked in assistance of the central question:

1) Which different type of groups can be defined when traveling towards events?
2) How is the traveling behavior created; what are their motives for choosing their choice of travel?

It is important to define a number of keywords which are used frequently. The first are *sustainability* and *sustainable travel*. A goal of this thesis is to find ways to change behavior and stimulate the use of sustainable transport modes. It should be noted that sustainability is very vague and can be used in a broad sense depending on the interpretation, ever since sustainable development was defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment, 1987). When translating this definition to the field of transport, it becomes obvious how this definition is broadly interpretable and can mean almost anything. "Development that meets the need of the present" implies that we should be able to maintain our current (high) standard of living. Ownership of a car for example is part of this high standard. The freedom and independence it delivers is often mentioned as very important to car owners (Beirão & Sarsfield Cabral, 2007). And when using this car, it is often with only one or two passengers, leading to a very inefficient way of traveling. Not only the fuel used in the car and the exhaust of carbon gassed is unsustainable, also for example noise pollution and heavy metals from brakes being washed into the ground, make car use one of the most unsustainable modes of transport. And while there are interesting developments in car technology to improve sustainability (for example electric cars or driverless cars), I do not yet consider these as a valid alternative since at best, the transition time to these types of more sustainable cars will take several decades. Returning to the concept of sustainability for this thesis, a very broad use of the concept is used. Basically, any reduction in single-person car use I consider sustainable. So for example shared rides and carpooling, using bus, tram or train, or in the best case going by bike or on foot, or a combination of the aforementioned, are considered sustainable.

A second concept which needs a bit of elaboration is the concept of leisure, which is used here in combination with activities and travel. In this context, leisure applies to all activities which are not part of an essential trip. Essential are trips to work, voluntary work, trips to the hospital or supermarket, et cetera. Examples of leisure trips are walks/bike/car rides with no destination, visits to activities such as shopping centers, museums, music festivals or shows, or participating in a sporting event. These events are not daily, but happen at different times and locations. They differ from non-leisure activities in that they are not necessary to make, and are happening more irregular than "normal" trips. According to Gronau & Kagermeier (2007), and based on several German empirical studies, leisure travel is based on the factors "fun" and "function", where three groups can be seen: a group which bases their choice purely on function, a group that bases it on purely fun, and a group which mixes both factors into their decision making process.

Methods and Case Study

In order to apply the theory for the case study, it is needed to choose a case study which is relevant, can generate enough response for a survey and which has a large amount of data available for evaluation. Considered events were Lowlands, Pinkpop, TT Assen, Rotterdam Marathon and Symphonica In Rosso, among others. The final choice however is the Nijmeegse Vierdaagse and the Vierdaagsefeesten, a combined event lasting for a week, with an enormous amount of visitors. These visitors are both local, national and international. Further there are a number of target groups which can be defined, all with their respective preference of travel. Because of the large amount of visitors, transport providers put extra effort in streamlining travel towards the event, which makes this a very interesting and relevant topic. Finally, by choosing this topic I could rely on the experience of NS Noordoost, who has a long-lasting relationship with the event, and with this a good amount of information.

Methodology

In order to generate sufficient information about the case study, a quantitative research method was used. This was done in the form of an online survey, held in the weeks right after the Vierdaagse 2013. It should be noted that, due to the enormous amount of visitors of the event, there was a large pool of people who could fill in the questionnaire. However, the questionnaire was in Dutch since the most participants are Dutch, and a questionnaire in English would probably have posed difficulties for some of the respondents. This leads to a small bias since it was inaccessible for most foreign participants. Furthermore, the questionnaire was only available online, which may make it inaccessible for some groups, such as for example elder walkers who do not have an internet connection. But since it was a quantitative study, it was important to generate a large amount of data, which could not have been accomplished in the time frame with a questionnaire on paper or through interviews. In all, the data should provide a varied overview of the different target groups, and give insight in the way visitors traveled towards the Vierdaagse, and which considerations they made in choosing their form of travel.

The questionnaire was set up through the website http://www.thesistools.com; a website which provides good service for surveys. After an initial test version, a definitive version of the survey ran from July 20 to July 31. In order to target the right response groups, the link to the survey was published on an array of relevant websites and online message boards. First is the official Vierdaagse forum and Facebook page, on which the link to the thesis along with a short introduction about the motivations and reasons for the questionnaire were posted. Second the Vierdaagsefeesten participated actively in the request to share the link to the questionnaire, which they did through their website, their Facebook page and their Twitter account. Further, a message was posted on the Walkers4Walkers message board, a board where a lot of participants are active online. A personal Twitter account was also used, which led to retweets from several other interested persons and organizations.

Finally Facebook was used to share the link and description, were among others the pages of Radboud University, Vierdaagsefeesten Cuijk and some unofficial Vierdaagse pages. Two traintickets were offered as a reward to one of the respondents as an incentive to participate.

The gathered data is analyzed using the statistical software IBM SPSS 20. The analysis is two-fold, focusing first on the descriptive statistics, to gain insight in a number of general information. The second part shows if there is any relevant relation between the choice of transport of the participant and other factors such as traveling distance, choice of transport in daily life, type of activity they participated in etcetera. To calculate this, logistic regression analysis was used, since logistic regression is a valid test for showing the influence of various factors on the dependent factor, which is in this case the mode of transport towards the Vierdaagse and Vierdaagsefeesten.

Outline

In the next chapter of the thesis the conceptual framework will be laid out. The framework exists of different concepts which built on each other and strengthen each other, leading to a usable framework to analyst the second part of the thesis: the case study which is the "Nijmeegse Vierdaagse en Vierdaagsefeesten 2013". First the event will be described in detail, focusing on the events itself but also the logistics which make it possible to transfer a large number of people to and from the event. In the next chapter the event will be analyzed using both descriptive statistics and loglinear statistics. The first provides a demography about the event, which gives insight in the type of visitors, the travel behavior, and other choices which the visitors made. The second part links the travel type to other variables such as gender, travel distance, visited events etcetera, to see if correlations between these factors can be found. In the final part of the thesis the conceptual framework and the analysis of data will try to explain how travel behavior was formed and will answer the main questions. Further, recommendations will be made for all involved parties: the organization of the Vierdaagse, the NS, and other hosts of events.

Conceptual framework

At the core of the concepts used in this thesis lie a number of key theories. First, I will argue how travel is not, as is often assumed, a derived demand. This is important since it assumes that a number of factors are of influence in decision making, even when they take place at a less conscious level. Next, I will explain how routinisation of traveling is different in leisure travel, compared to commuter travel. Then I will explain the decision-making process which is used by elaborating on the Theory of Planned Behavior. This theory explains how, why and on what levels decisions are made, and how these are in effect on traveling choices. Finally I will argue about ways to change the behavior of travel, in such a way that a more sustainable mode of travel may be chosen.

Travel as a derived demand

When looking at travel patterns and behavior, travel is often considered a derived demand. When travel is viewed as a derived demand, it is only the destination of the trip that is important, and not the trip itself; the trip is essential to reach a certain goal. In choosing a mode of travel, it is assumed that a person's choice is made by making a cost-benefit analysis, which minimizes the dis-utility one has during the journey, in relation to the destination to be reached (Geurs & Wee, 2004). For example, when traveling to work a person will choose the route and travel mode which has the lowest costs but the most benefits. In making this choice, three budgets play a role in decision-making of the consumer: time, effort, and money. Time relates to the time spent on traveling, in a door-to-door fashion. Effort refers to the trouble it takes to travel, such as for example discomfort during travel. This can be for example lack of parking spaces, extra time for transfers between modes of transport, getting stuck in traffic jams, etcetera. Money refers to the financial costs of the trip, for example how many Euros a trip costs. When travel is viewed as a derived demand, the total costs of the trip will be minimized since the consumer acts as a rational being, thus maximizing his benefit.

However, travel is not always a derived demand, at the very least it is not *only* a derived demand. First, a distinction can be made between several types of travel. Commuter traffic is essential travel, and part of a routinization process where a mode of travel which minimizes costs and maximizes benefits is wishful. Leisure trips are usually less routinized, and these can be split up in two categories. The first group consists of trips towards leisure activities. In this case, the trip itself becomes part of the experience of the activity you are visiting. When visiting a museum, concert or festival, there is a special feeling attached to the trip, since you are visiting a special event, which is not part of your daily routine. Therefore, the trip is not purely a mean to get somewhere, but a part of the utility. The second group are trips which are made for leisure purposes. Examples here are walking a block through your neighborhood, make a cycling trip or drive your car around for touring

purposes (Mokhtarian & Salomon, 2001). In the first group of leisure travel a cost-benefit analysis might still be purposive, however in a less prominent way. When planning a trip, one will not choose the same location every time for the same kind of activity, but variation is desired. So instead of always minimizing costs and distance, more attention may be spent on other criteria such as variation and comfort. The second group of leisure travel is not a derived demand at all, since the trip is the actual activity. This can be summarized in an additional budget for the trip, the "fun" factor.

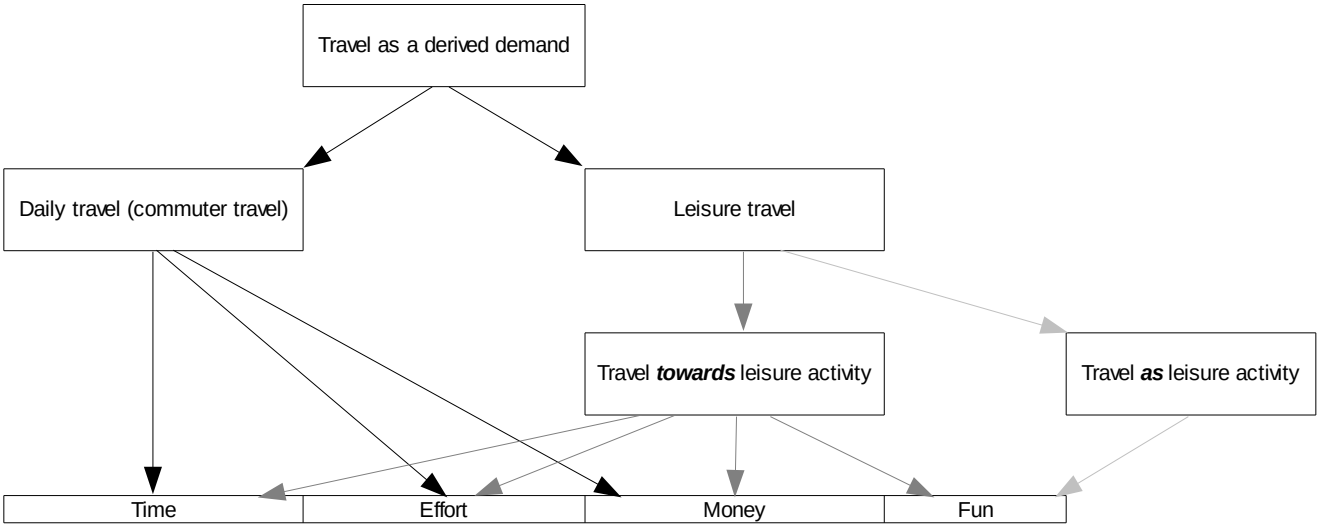

Figure 1: The effect of travel as a derived demand on the decision-making budgets

The focus of this thesis lies in the first group of leisure travel; people traveling towards leisure activities. The travel behavior of this group is not based on a derived demand alone. A person traveling towards an event or activity for leisure will of course try to do this in a way with the least discomfort, but other actions may be considered as well. For example, it may be cheaper to visit the same museum every time since it is close by, thus minimizing your trip length and costs. But with leisure a person may wish some variety, and will therefore be willing to travel further, even if this leads to higher costs. So instead of maximizing his profits, a trip can lead to excess travel; a longer trip than would be necessary (Mokhtarian, Salomon, & Redmond, 2001). This can be related to intrinsic travel, meaning that not only the efficiency (derived demand) is of importance, but also that the quality of the trip itself is important. Further, the activities which can be done during the trip also are of influence on the trip choice. For example, being able to socialize, read, or enjoy the view can be reasons to not choose the most economically efficient mode of traveling or choose the fastest traveling route. This leads to a model for total utility of travel time:

Intrinsic mobility (travel itself) + derived utility (reaching a goal) + activities done while traveling = total utility of travel time (Mokhtarian & Salomon, 2001).

Habitual use

With the prejudice that all travel can be seen as a derived demand countered, it is now useful to see how travel behavior is formed in the first place. It is often argued that, when

behavior is often repeated or is part of a routine, choices are made on account of this routine behavior. They happen in an automated, “mindless” fashion (Aarts, Verplanken, & Knippenberg, 1997). When a habit is formed, less input from external sources is used and choices are made based on previous experiences. When translating this to the field of transport, this means that, when a certain trip is made regularly, a certain method of traveling is chosen, and when part of a routine, this trip will be made habitually, without considering the alternatives, over and over again in the same way. Habits are in this case driven by an association between goals and actions; goal-directed automaticity (Aarts & Dijksterhuis, 2000b). When a trip is made out of habit, an expected behavioral response is made. For example, if one cycles towards the university every day, the goal (university) leads the automaticity (going by bike).

However, the main discussion when looking to trips outside this activity, is whether transport modes chosen for other trips outside the routine, is based on this routine or not. In the first case a person would use his fixed routine to determine his choice of travel, for example, when the daily trip is made by car, other trips will also be made by car. In the second case, external factors may be of influence, and the person would consider alternatives on the basis of information provided. Various researches have shown that past behavior can influence future behavior, but only when the habit is strong (Aarts & Dijksterhuis, 2000a; Aarts et al., 1997). Also, when the trip differs from the habitual trip (for example, a trip towards an event), habit loses its power since the trip differs from the habit, and other modes and information are taken more into account (Bamberg, Rölle, & Weber, 2003).

Leisure-oriented travel can be seen as a more irregular, less frequent form of traveling compared to commuter travels. Irregular, since traveling towards events and leisure activities is dependent on when the activity can take place, where the activity is and how accessibility towards it is regulated (this last point will be elaborated in the next paragraph). Certain leisure events may take place regularly (going swimming on Thursday evening in the same swimming pool). This type may come close to commuter traffic, since location and time are the same, every week. One step towards a more irregular activity is for example to visit a museum every Saturday. The activity is the same, but the location of the activity is different. Even more irregular are for example visiting concerts, these may take place in different locations or on different days/evenings, or both. In this case there is also less automaticity, since the goals are different, thus not leading to a goal-directed behavior.

Theory of Planned Behavior

Knowing how a person's travel mode can be categorized and how habit is a factor in this is the first step in analyzing travel behavior. It is now important to see just how these travel choices are made. A very widely accepted and proven theory for this can be found in the Theory of Planned Behavior. According to the theory of planned behavior, there are three factors which are of influence on actions people take; these are the levels of behavioral beliefs, normative beliefs and control beliefs (Ajzen, 1985, 1991). Behavioral beliefs stand for

the attitude towards the behavior. This can be a favorable attitude or an unfavorable one, where the outcome can be predicted by looking at the person's considerations. Normative beliefs are linked to external impulses and social pressure. A person will usually try to fulfill the expectations of others in order to not deviate from the social norm. Control beliefs work on the level of easiness or convenience. A person will choose a behavior that will lead to the least amount of resistance. It should be noted that behavior can also be formed to willingly deviate from the norm, such as in criminal behavior. However, in the field of transport choice this is not the case, and choices are made to create a travel mode which is convenient.

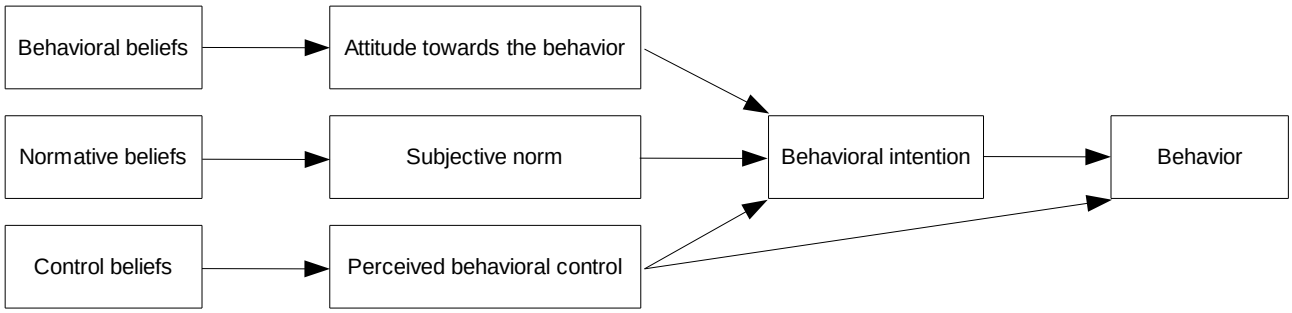

Figure 2: Schematic of the Theory of Planned Behavior (Ajzen, 1991)

Additionally, the Theory of Planned Behavior should include the material aspect; if there is no option to change behavior on the material level, behavior cannot be changed (encouraging pro-environmental behavior). However, past behavior is not always a clear indicator for future behavior (Bamberg & Schmidt, 2010).

Soft incentives

Now that is clear how behavior is formed, it can be interesting to look at possible ways of changing the behavior. Although it is too extensive and costly to test this in practice, it is worth briefly mentioning some of the theories behind influencing behavior. Previously we saw how behavior is formed through several actions; through behavioral, normative and control beliefs. Since these factors make up the decision-making and behavior of a person, changing one or more of these factors should result in a change in behavior. Further, when looking to motives for transport choice, there have to be options to be able to change the behavior. When a location is inaccessible by public transport, it is futile to change the behavior since there is no proper alternative (Gronau & Kagermeier, 2007). In the case of the Nijmeegse Vierdaagse, there are for example extended timetables, making it possible for visitors to participate in the later events and still be able to make it home.

Another option to change behavior is through the use of soft incentives. There are two viable ways of doing this, namely through a system of rewards ("carrots") or through a system of penalty ("sticks") (Meyer, 1999). However, according to Meyer (1999), penalties are often more effective than rewards. A good example of this can be found in the Zevenheuvelenloop, a running event which has created a very high ambition with regard to sustainability. For example, people traveling towards the event by car pay an extra "own transport tax" in order to stimulate public transport. Further, the tax is used to participate in sustainable projects such as a windmill park (Zevenheulenloop website, 2013). For this case study "carrots" are less important, since the number of visitors of the event are very high. For example, the NS will not give discounts since a lot of people will need to travel anyway, also by train. They do however try to increase the accessibility, ambiance and comfort of the journey, in order to create a positive association with traveling by train. Other public transport providers do provide some discounts (for example the Blarenpas, a multi-day bus ticket). "Sticks" are no big factor in this case study either, since the amount of visitors again is very high. In the municipality of Nijmegen there is limited parking place available, and by using park + rides crowdedness by cars in the city center is limited.

A final option worth mentioning, especially in regard to the case study, is creating awareness. Although NS does not provide "carrots" in a way of financial benefits, they do try to give as much information about traveling by train as possible. For example, being able to drink, be able to travel home late or arrive early are extra options provided by public transport. Creating awareness is often paired with soft measures, since when an incentive is provided, it is worthless without knowledge about the incentive (Taniguchi & Fujii, 2007).

About the case study

The Nijmeegse Vierdaagse ("Nijmegen Four-Day", a four day long marching event) and Vierdaagsefeesten ("Four-Day Festivities", a week-long festival with various activities around the Vierdaagse) are the most visited events in The Netherlands, with 2.020.000 visitors in 2012 (Respons, 2012). Both events are seen as one single event, because there is no clear line dividing them. The amount of visitors are not unique visitors, since many visit the event for multiple days and there is thus double headcount. However, this does mean that the amount of people traveling from and towards the event is enormous. In previous years visitor numbers were always higher than 1.9 million, with an exception of 2006 when, due to harsh weather conditions (very high temperatures leading to the unfortunate dead of two contestants), the marches were canceled after the first day. When taking media attention and social media connectedness into account (with a weighing factor of number of visitors 6, media attention 4 and social media 1), the Vierdaagse still ranks as the highest ranked event (Respons, 2012). It should be noted however that the event lasts for a week, with four peak days when the marches take place. Basically, the event can be split up in two components, both with their own organization behind it; the marches and the Vierdaagsefeesten.

The first are the actual marches, which consists of four day-marches with a length of 30-50 km per day. In 2013, these were held from July 16th to July 19th. The first Vierdaagse stems from 1909. Participants in the marches are mostly from Dutch origin, although the event has a large international appeal with participants from a variety of countries such as United Kingdom, Germany, Denmark, Canada and United States (Stichting Nijmeegse Vierdaagse, 2012). Both military and civilians participate in the Vierdaagse. Organization for this event is in the hands of Stichting De Vierdaagse. In 2013, 46,000 people were given a starting position for the marches, of which 39,396 finished all four days (Stichting Nijmeegse Vierdaagse, 2013).

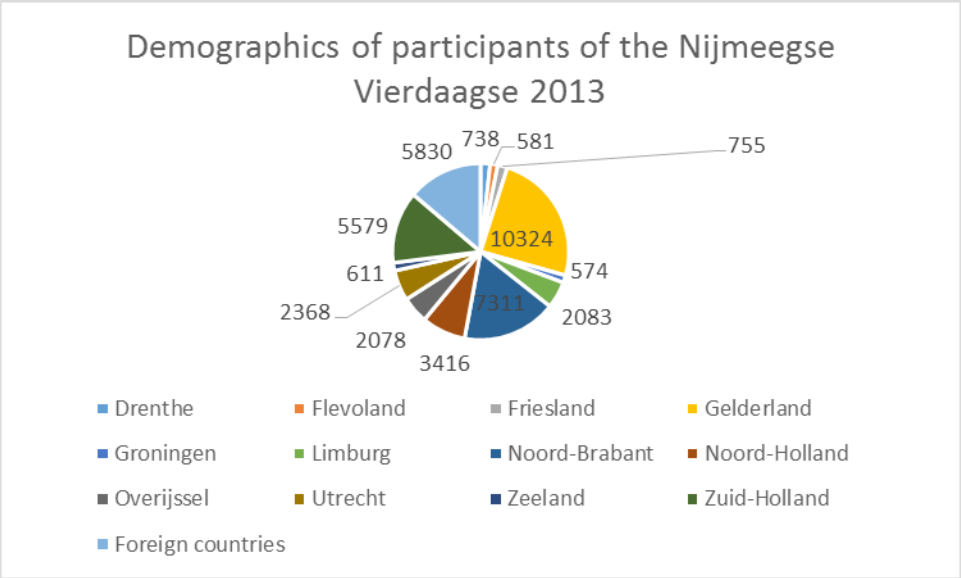

Figure 3: Demographics of the participants of the Nijmeegse Vierdaagse 2013. Data obtained from Stichting Nijmeegse Vierdaagse, 2013.

The second part are the "Vierdaagsefeesten", which consists of a free music festival held from July 13th to July 19th. These took place in 2013 for the 44th time. The programme is extensive, and is spread over about 33 locations in Nijmegen. The Vierdaagsefeesten are organized by Stichting Vierdaagsefeesten. However, the individual locations have their own freedom in planning activities. Stichting Vierdaagsefeesten acts as the umbrella organization.

Next to Nijmegen, surrounding municipalities which are located along the route of the walks also provide facilities and entertainment. However, these will not be elaborated on in this thesis, since this would make it difficult to focus on the event itself. Further, there is not enough data available for this and creating data would be too time-consuming for this thesis.

Year held	Vierdaagsefeesten	Nijmeegse Vierdaagse	Total
2012	1,42	0,60	2,02
2011	1,36	0,70	2,06
2010	1,42	0,70	2,12
2009	1,34	0,65	1,99
2008	1,31	1,00	2,31
2007	1,44	0,80	2,24
2006	1,05	Canceled	1,05
2005	1,05	0,95	2,00
2004	1,00	0,93	1,93
2003	1,12	0,83	1,95

Table 1: Number of visitors (in millions) of the Nijmeegse Vierdaagse and Vierdaagsefeesten (Respons, 2012)

Transport towards the Nijmeegse Vierdaagse and Vierdaagsefeesten

The combination of walkers, their supporters and the visitors of the (free) festivities lead to the large amount of visitors which is typical for the Vierdaagse. They do however put a great stress on the Nijmegen municipality. There are a lot of people traveling to and from Nijmegen, for a period of a week with peaks on the march days, and the largest peak on the last day. Most of the visitors visit the city either by car, bus, train or bike. In 2002 for example, 126.565 people transferred on Nijmegen Central Station, where 58.455 boarded and 68.110 got off the train on the peak day, Friday 19 July (Exel, 2002).

The accessibility towards the city has therefore thoroughly increased, in different ways. For local visitors, additional bike stalls are placed, on a various number of locations. For people traveling by car, there are some additional parking places. However, mostly it is not recommended to travel by car, and this is also communicated as such by the organization. There are some Park & Ride options, using buses or trains to commute from further away (for example, there are 24 hour bus services from Arnhem to Nijmegen).

Public transport plays a large role in transport towards the event. The main parties are Veolia (bus and train), Nederlandse Spoorwegen (train), Syntus (train) and Breng (bus). Most of them provide extra services during the event, such as additional trains and buses which coincide with the starting time of the walkers, and of visitors of the Vierdaagsefeesten which

stay late. Next to this, extra services are provided, such as decorations of the stations (done by NS), or by providing passepartouts for early buses (Breng's "blarenpas").

Figure 4: NS added a small stage to Station Nijmegen for the first time this year, creating a nice ambiance from the transition from station to festivities.

Next to these options for stimulating transport towards the city, there are also numerous efforts to reduce travel, by providing plenty of options to stay several nights in or close to Nijmegen. These options include (temporary) campsites, use of host families, sub-renting student rooms, and the already available hotels and bed and breakfasts. Since the event has a long-standing tradition, some participants developed relations with certain families which have hosted them for several times. Others have family or friends in Nijmegen, which they can count on for accommodation.

Target groups

When looking at the people who travel towards the Nijmeegse Vierdaagse, a distinction can be made between the various types of visitors.

- Visitors who stay overnight: This group travels to the Vierdaagse, stays for the duration of the festivities and then travels back.
- Visitors who commute: People who visit the Vierdaagse for one or more days, but commute every day.
- Walkers who stay overnight: People participating in the marches, who spend their nights between the walks on location in (or close to) Nijmegen.

- Walkers who commute: People who participate in the marches, but commute every day.
- Inhabitants of Nijmegen who visit or participate: This group has good accessibility to the marches and festivities, since they live close to the action.
- Volunteers/workers: A special group of visitors, which will usually live close by.

The interests and demands of these groups vary on a number of levels. For example, inhabitants of Nijmegen usually travel with short-range modes of transport, such as bicycle, on foot or by bus and car (Stichting Vierdaagsefeesten, 2013). For them, accessibility to the events are important. For participants of the marches, it is important to arrive at the start in time. These starting times range from 04:00 – 08:00, so very early in the morning. It is necessary that, even when traveling by public transport, they can reach the start in time. Most participants however will choose to stay overnight in Nijmegen during the Vierdaagse. The visitors of the Vierdaagsefeesten however use a different time slot of the day, since the festivities (especially the music) starts in the afternoon and continues to after midnight. For this group, of which a part will need to travel back in the night, there have to be possibilities to use public transport outside conventional hours.

Survey results

In this chapter the results of the online survey will be elaborated on. The first part will handle the basic statistics of the survey, which will provide an overview of the general demographics of the respondents. The second part will link the survey to the conceptual framework, which will provide insight in traveling reasons of the respondents, and will show if there is any correlation between the results.

The survey ran from July 20 to July 31, and resulted in 358 responses. However, not every survey was completed. According to the results, 340 respondents stated that they visited the Nijmeegse Vierdaagse in 2013. Nine people did not visit the Vierdaagse.

Descriptive statistics

In order to get a general overview of the participants of the survey, descriptive statistics will show the most viable information. The first two graphs show the events that were visited, and the amount of days the festivities were visited.

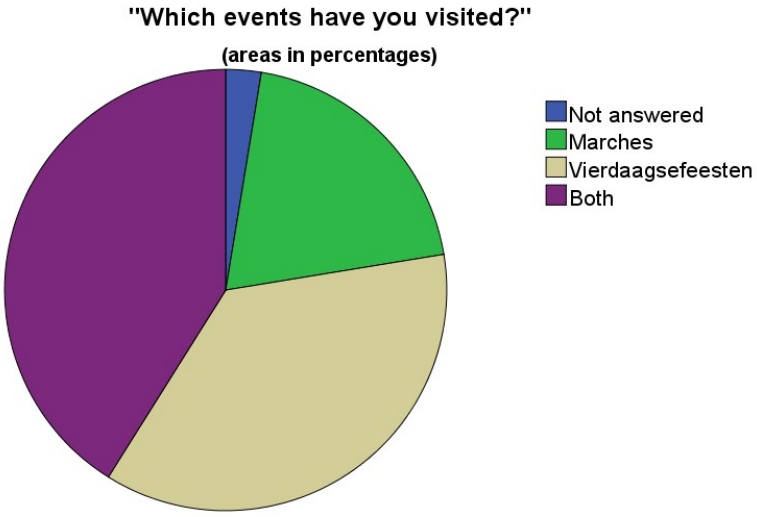

Figure 5: Visited events by percentage of visitors

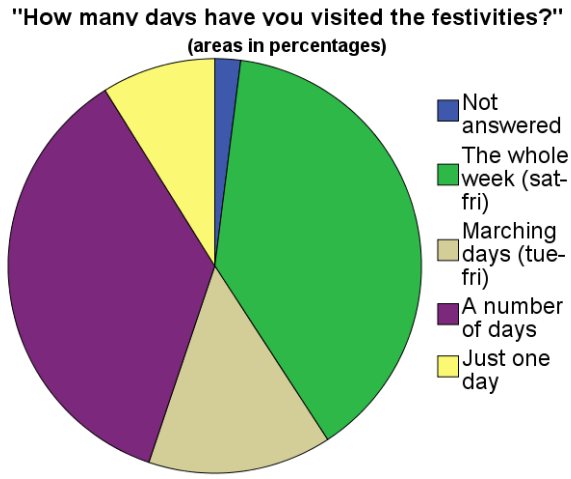

Figure 6: Number of days visited by the percentage of visitors

When asked about their mode of transport for the largest part of their trip towards the event, most visitors used a short-range mode of transport, namely either by bike or by foot. Three people used a scooter or moped. It is plausible that the use of short-range transport coincides with the demography of the visitors, since most respondents stated that they live in Nijmegen municipality, or in the surrounding areas (for example the municipalities of Wijchen, Groesbeek etcetera). In the next chapter we will determine if this is indeed a statistical correlation. A large group visited the Nijmeegse Vierdaagse by public transport. Interestingly, this is the smallest of the three main groups of transport (short-range, public transport and motorized transport).

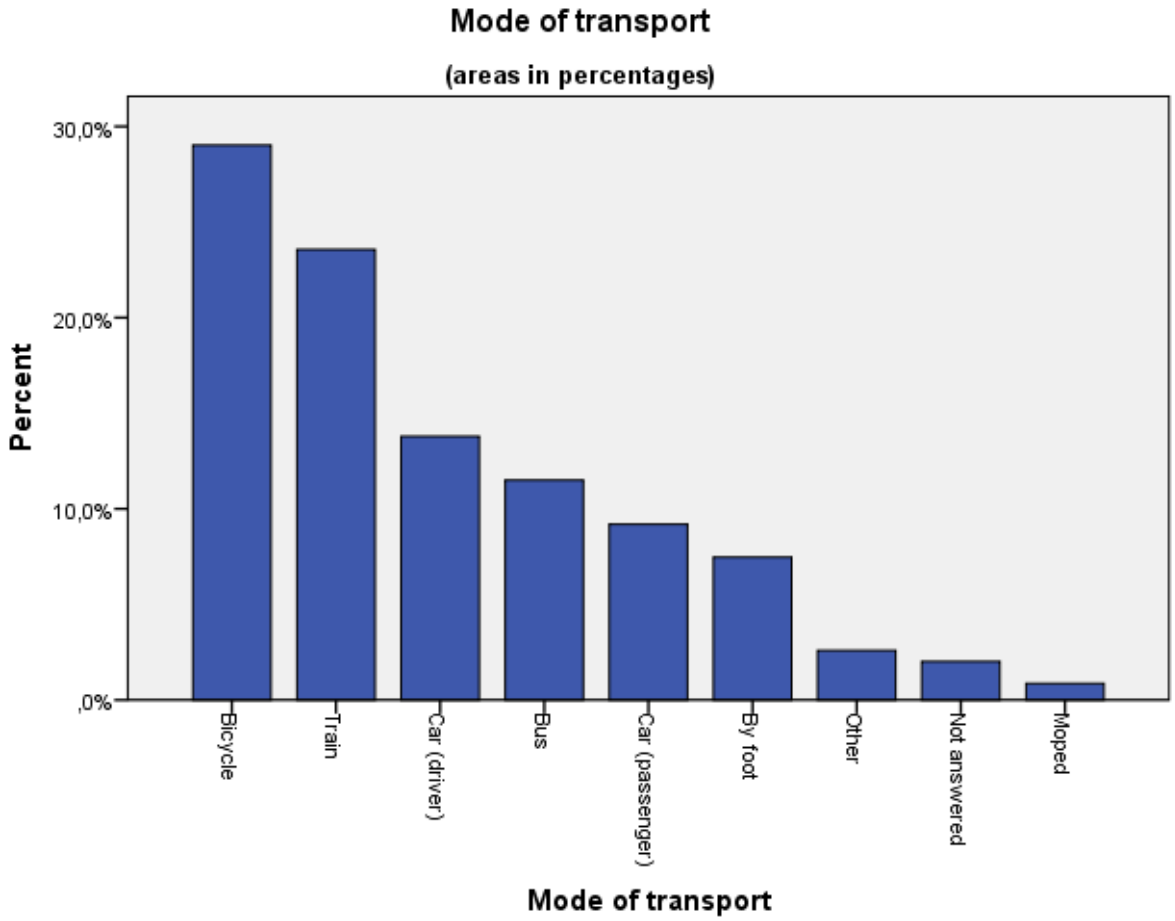

Figure 7: Mode of transport used for visiting the Nijmeegse Vierdaagse & Vierdaagsefeesten. The exact question asked was: "In which way have you traveled to Nijmegen (or one of the surrounding municipalities) for the largest part of your journey?"

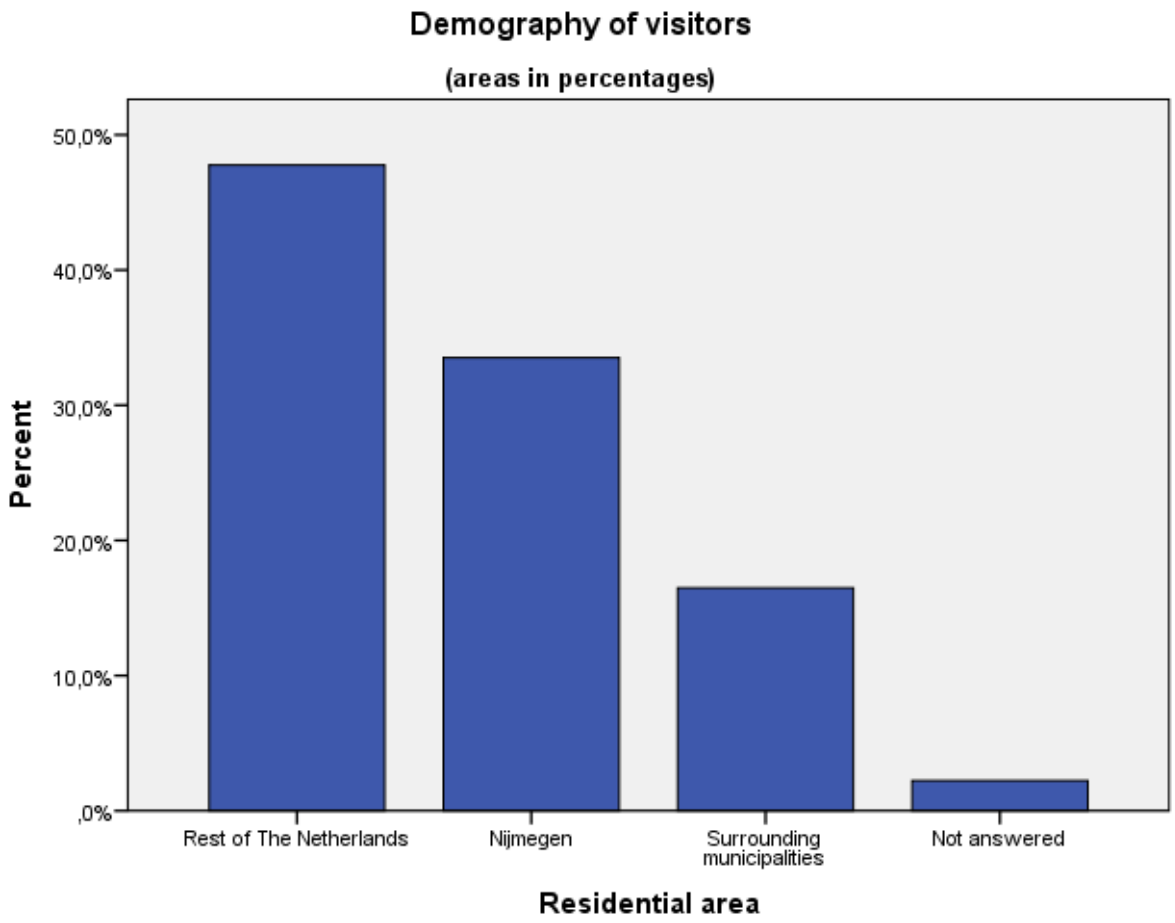

Figure 8: Area of living of the respondents. The question was: "Do you live in or near the Nijmegen municipality?"

The reasons for traveling by car are varied as can be seen in graph X, but an option added often was because of the (large) amount of luggage, or because people brought their own bicycles. When asked which reasons they would have to choose for public transport, the most given answers are to avoid traffic jams/parking and to be allowed to consume alcohol. Under other, mostly mentioned was that if the price of traveling by public transport was lower, this could be a reason to change. In general, 30 people have considered public transport as an alternative, against 47 people who did not consider this. Graph X shows the reasons why public transport was not chosen as an option. Again, under other most respondents noted that they needed to bring a large amount of luggage, or wanted to take their bicycles.

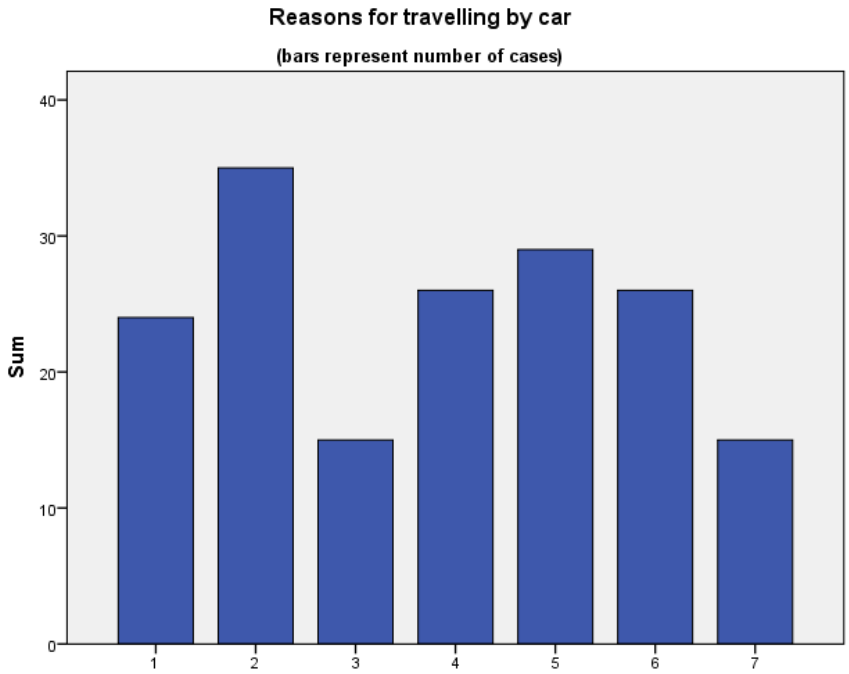

Figure 9: Reasons for traveling by car. The respondents could highlight any number of options which applied to them. The categories are:

1: I always travel by car.
2: This was the fastest option.
3: This was the cheapest option.
4: This way I could travel with friends/family.
5: I can depart any time I want.
6: The car is a comfortable option.
7: Other.

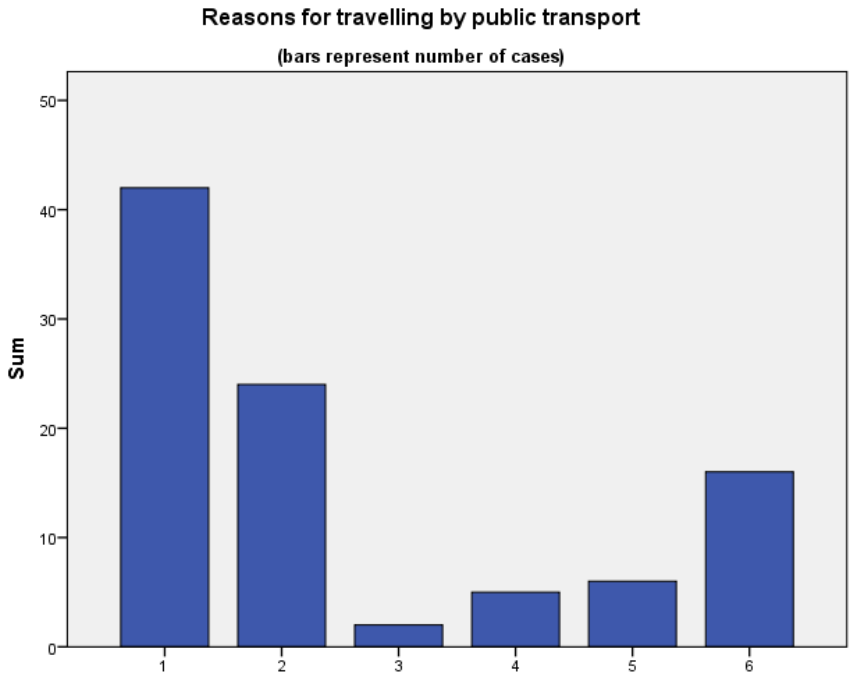

Figure 10: Reasons for car travelers to consider public transport. The respondents could highlight any number of options which applied to them. The categories are:

1: To avoid traffic jams/parking
2: To be able to consume alcohol.
3: To better experience the ambiance of the event.
4: To be able to travel together.
5: To travel in a sustainable way.
6: Other.

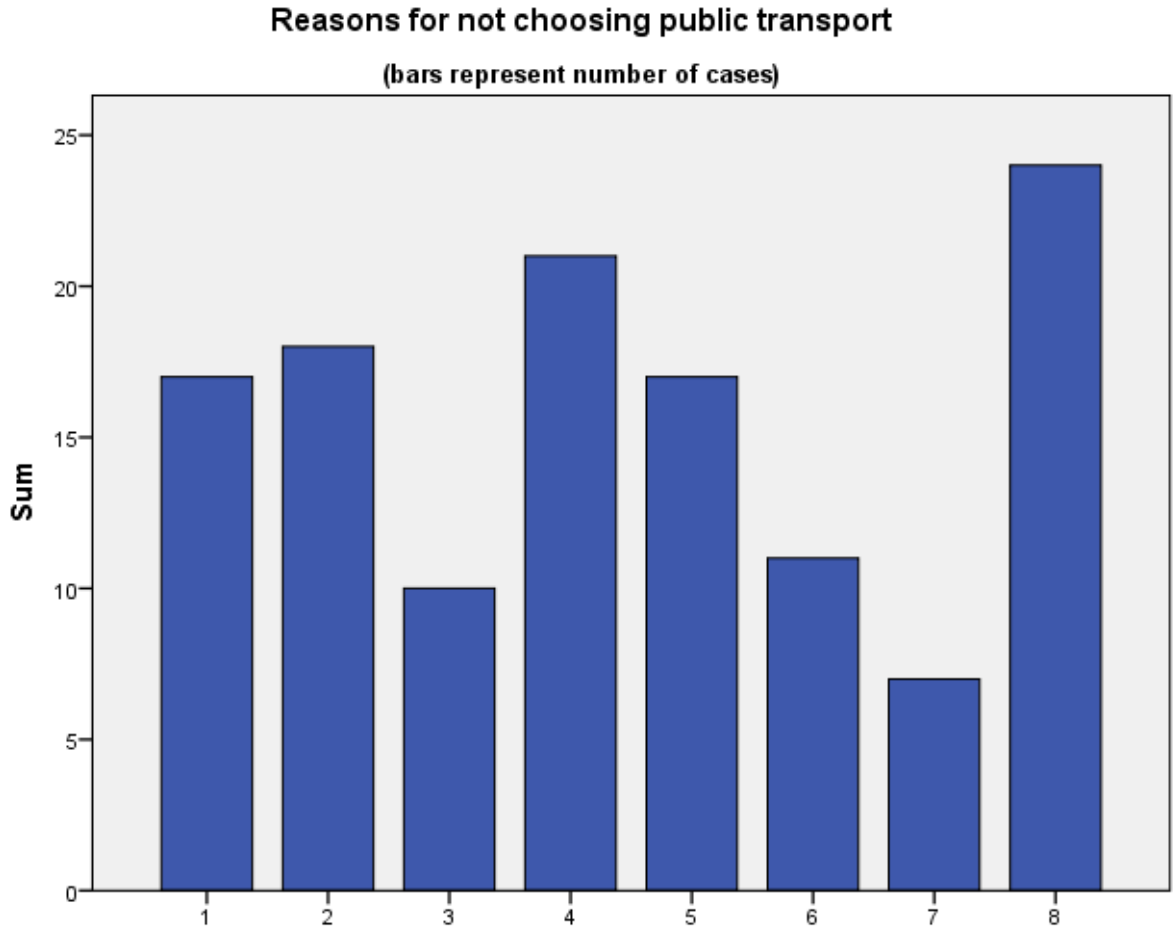

Figure 11: Reasons for car travelers to not choose public transport. The respondents could highlight any number of options which applied to them. The categories are:
1: I always travel by car. *5: Public transport is less comfortable.*
2: I do not have a good connection. *6: Departing times are unreliable.*
3: There are no stations/stops near. *7: I had bad experiences with p.t. in the past.*
4: Public transport is too expensive. *8: Other.*

When looking at the people who traveled by public transport (bus or train), we can see that again the advantage of not having to park or get stuck in traffic jams is a good reason to choose public transport. Also efficiency and the proximity to the event are mentioned. And again, alcohol consumption was frequently mentioned as a reason to use public transport. A main drawback is the dependence on the fixed arrival and departure times. The price is the second largest drawback. In the open option, crowdedness was often mentioned. In conclusion, 28 people considered the car as an alternative, against 91 people who did not consider the car.

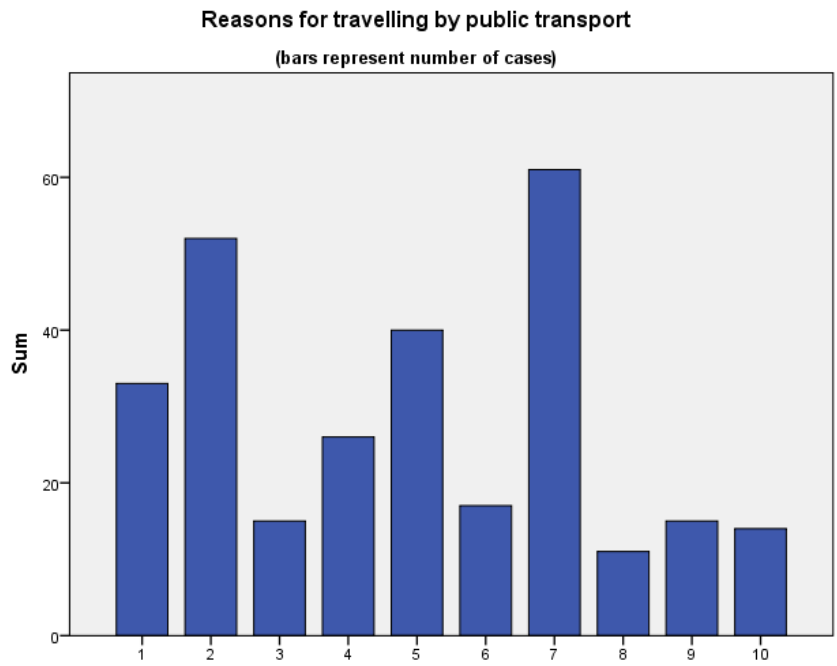

Figure 12: Reasons for choosing public transport. The respondents could highlight any number of options which applied to them. The categories are:

1: I don't own a car/driver's license.
2: This is an efficient mode of transport.
3: This is a cosy mode of transport.
4: I have good transfer options.
5: I am immediately close to the event.
6: I can travel with family/friends.
7: I can avoid parking/traffic jams.
8: This is a sustainable mode of transport.
9: I don't have an alternative option.
10: Other.

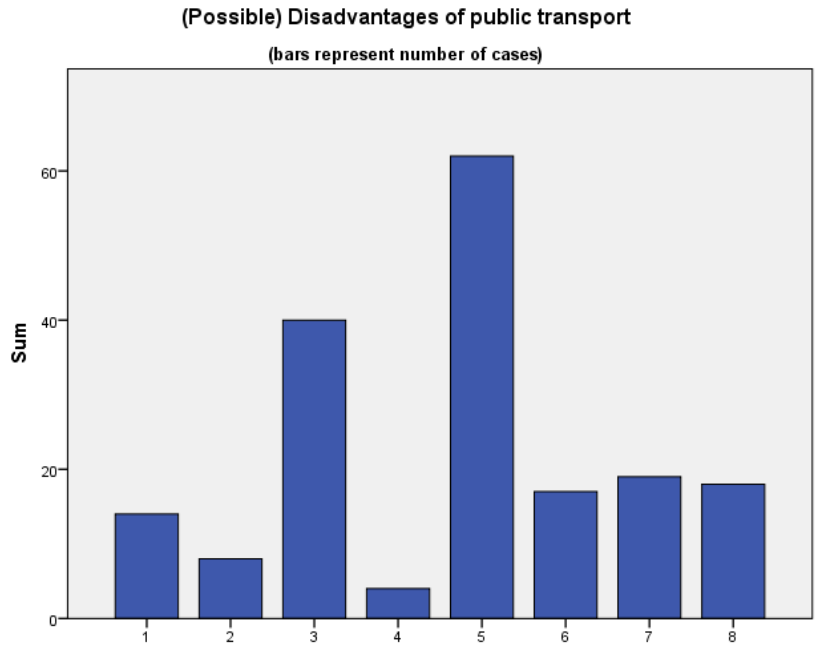

Figure 13: What were the (possible) disadvantages of traveling by public transport. The respondents could highlight any number of options which applied to them. The categories are:

1: Long(er) travel time.
2: The need to transfer.
3: Public transport is expensive.
4: Having to use the chip card
5: The dependence on departing times.
6: Delays in travel.
7: Other.
8: There are no disadvantages.

The respondents who visited the Nijmeegse Vierdaagse by foot or bike were in general positive about the event. The accessibility to the locations was considered mostly very good or fairly good. Most people also stated that they did not have any problems with the other two groups of travelers, namely the public transport and motorized transport groups. In fact, 75,9% of the respondents in this group graded the amount of nuisance they experienced with a 7 or higher, with 1 being a lot of nuisance and 10 no problems at all. The other two groups were also mostly positive about their journey, with 82.5% ranking their trip with a 7 or higher (out of 10).

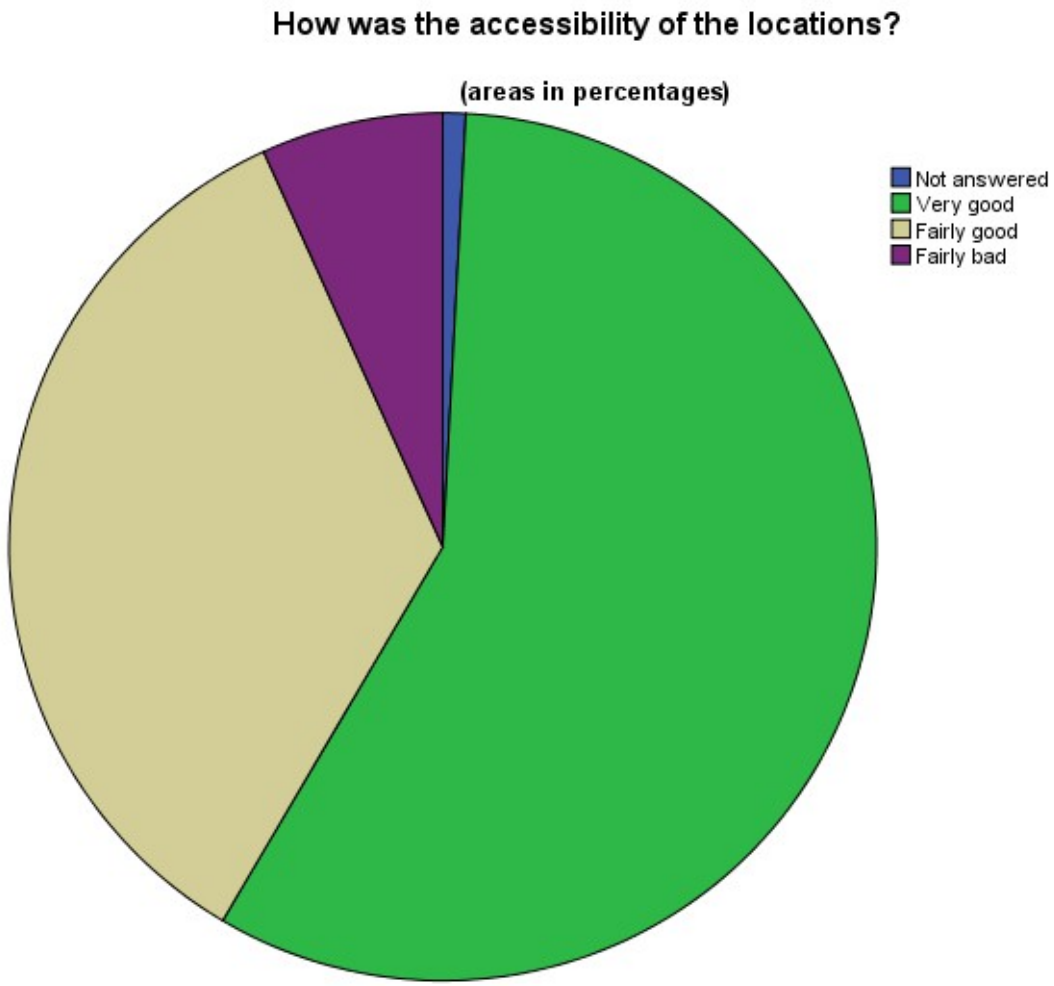

Figure 14: Accessibility of the event, as rated by the short-range travelers (foot or bike). The question asked was "Were the locations of the event you visited well accessible?". None of the respondents chose the option "Very bad".

To get insight in how information was acquired about the event and the travel options, the questions "which website did you visit" and "which other information source did you use" were asked. The most used website was the official Nijmeegse Vierdaagse website, followed by the NS site, 9292.nl and the Nijmeegse Vierdaagsefeesten website. Interestingly, 45 people did not use an internet website. Other sources which were used were Facebook and mobile apps from 9292, NS and ANWB. The Vierdaagse app was often mentioned under the

option “other”. It is fair to say that digital media are popular sources for information. Only 9 respondents used non-digital ways such as newspapers and flyers. Only one respondent stated under “other” that he used the information of staff members on the station to ask for information. Regarding information provision, most people (80.69%) were familiar with the extra efforts taken by the several public transport companies. From this it can be concluded that the amount of information provided is both plenty and of good quality.

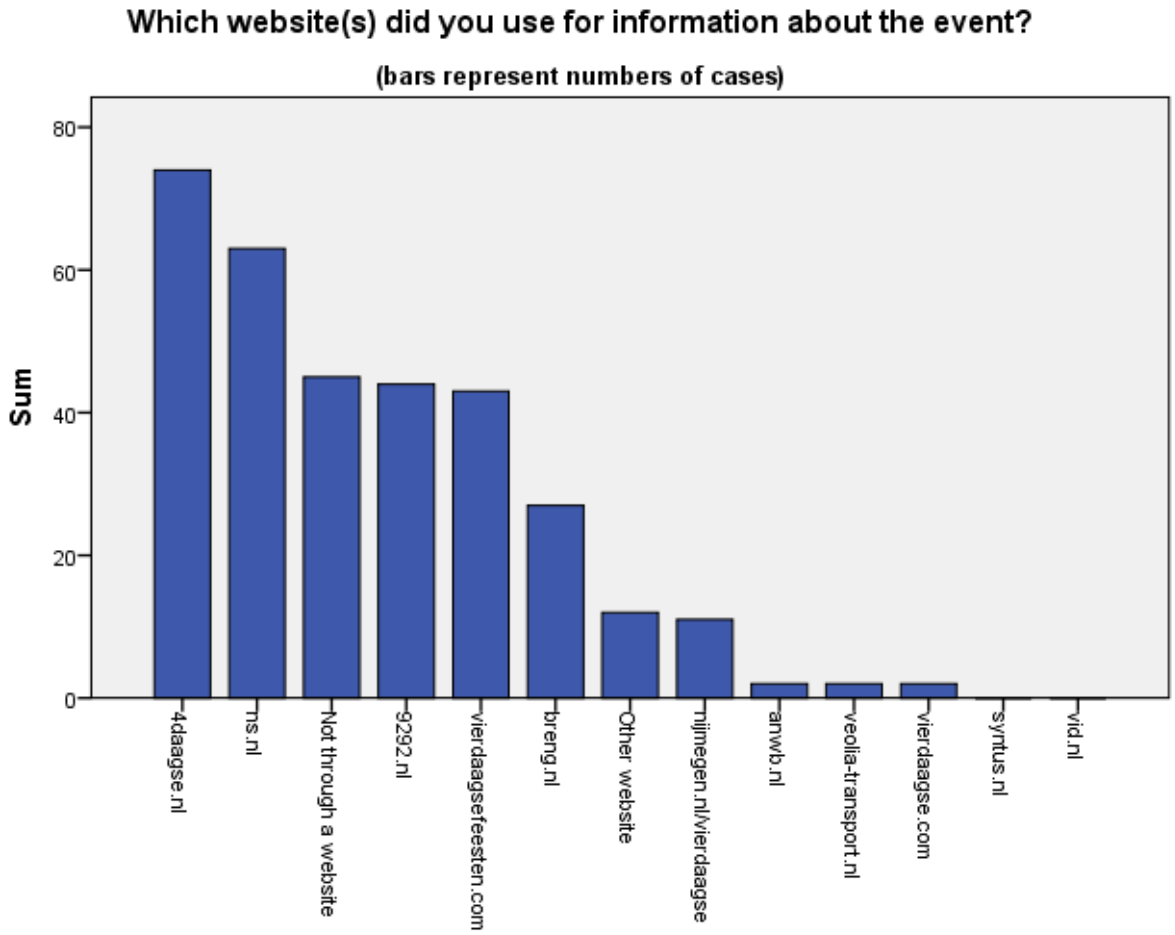

Figure 15: The respondents were asked which websites were used for information about the events and for information about traveling to the event.

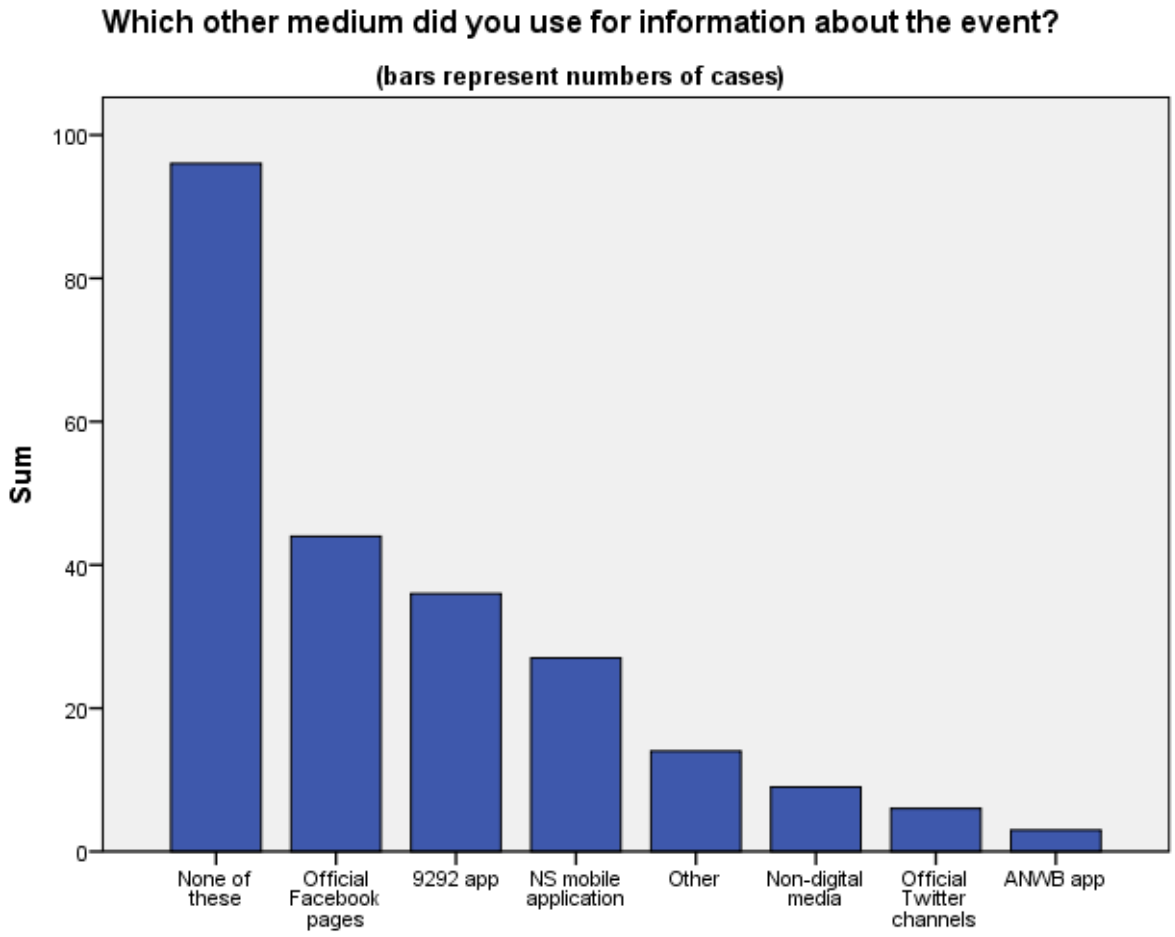

Figure 16: Additionally, the respondents were asked which other media were used for information about the events and for information about traveling to the event.

As a final point information was acquired about spending one or more nights in the Nijmegen area during the event. Almost half of the respondents (43.07%) of the people traveling by public transport or car stayed one or more nights in Nijmegen. Most of them stayed at family or friends, while others used a hotel, hostel, bed and breakfast or stayed at a campsite.

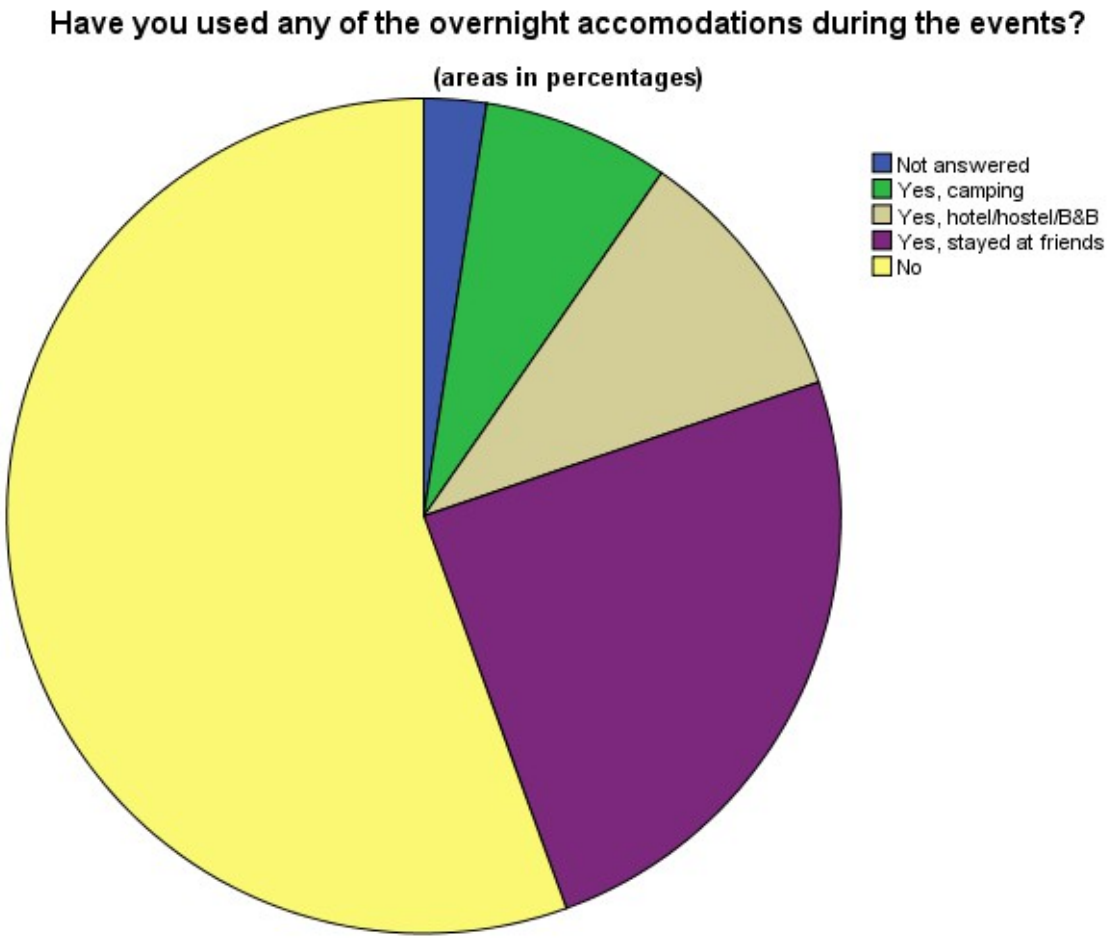

Figure 17: While most people do not spend one or more nights during the events, still a substantial number does. Most of this group stays at family or friends.

Survey results: logistic regression analysis

The most important goal of the survey is to see if there is a correlation between the type of transport chosen to travel towards the Nijmeegse Vierdaagse, with regards to other factors such as for example gender, visited parts and travel distance. In this case, transport choice will be the dependent variable. With the current set-up of the survey, the question "Which mode of transport have you used for the largest part of your trip?" can have 10 possible outcomes. For a good interpretation of the results however, this variable will be transformed in a dichotomous variable. This makes the variable suitable for a logistic analysis, in order to be able to explain travel mode decisions for traveling towards the Nijmeegse Vierdaagse.

The first dichotomous variable makes a distinction between two options: Did the respondent travel by train (1) or by any other mode of transportation (0). As suggested in the theoretical framework, certain habits can influence choice on this level of transport as part of routinized behavior. As the first independent variable we will therefore use the variable the use of daily travel, which can be public transport (1), non-motorized vehicles (2) and motorized vehicles (3). By means of this first logistical regression, we can investigate in how far these more habitual traffic mode decisions also influence the traffic mode decision for traveling towards the Nijmeegse Vierdaagse.

	Chi-square	Degrees of freedom	Sig.	Nagelkerke R Square
Step 1	3,664	2	0,160	0,018

Table 2: Omnibus tests of model coefficients and model summary for the variable daily travel

This model, however, shows not to fit the observed data sufficiently, as the Chi-Square for overall fit for this model is 3.664 with 2 degrees of freedom (p=0.000). Also the Nagelkerke Pseudo R^2 of 0,018 shows to be far below an acceptable level. It should be noted however that the influence of these kinds of habits on current traffic mode decisions for going to the 4-day-march event in Nijmegen, might be different for the habitually used traffic mode. For example, it could very well be, that habitual car-users are more bound to their habit than public transport users. So we need to look at this model in more detail as well. In table 3 the significance of the different coefficients of this model are shown. The effect of the habitual use of public transport (B=0.783) clearly seems to be larger than the effect of the habitual use of non-motorized vehicles (B=0.152), but in all cases according to the Wald statistic these effects are not significant at the level of α=0.05, although the influence of habitual use of public transport is almost significant. The probability to use the train for the trip to the event compared to the probability not to use the train at that occasion is more than two times (2.187) higher if the respondent has the habit of using public transport, than if the respondent has the habit of using motorized vehicles. In the same way, the probability to use the train for the trip to the Nijmeegse Vierdaagse compared to the probability not to use

the train at that occasion is only slightly higher (1.164) if the respondent has the habit of using a non-motorized vehicle, compared to those who have the habit of using motorized vehicles.

	B	S.E.	Wald	df	Sig.	Exp(B)
Daily traffic mode choice			3,825	2	0,148	
Public transport	0,783	0,407	3,694	1	0,055	2,187
Non-motorized vehicle	0,152	0,299	0,258	1	0,611	1,164
Motorized vehicle						
Constant	-1,322	0,230	33,102	1	0,000	0,267

Table 3: Variables in the equation (daily travel)

While there seems to be no relation according to the first analysis between travel towards the event, and traveling towards the daily activities such commuter traffic to work or school, there may be a relationship between the event and travel towards other events or leisure activities such as going to museums or concerts, since these type of trips are more similar and can be considered as non-routinized behavior. Although travel towards events is considered less frequent and not habitual, it would not be surprising if people who traveled by train now, tend to travel by train in other cases when going to another event. The dependent variable remains the same, while the independent variable this time is the type of transport for events, with the same possible values as before (public transport, non-motorized and motorized).

	Chi-square	Degrees of freedom	Sig.	Nagelkerke R Square
Step 1	32,606	2	0,000	0,152

Table 4: Omnibus tests of model coefficients and model summary for the variable event travel

In contrast to the first analysis, this model seems to represent the data well. With two degrees of freedom and a Chi-square of 32,606, the 0-hypothesis can be rejected; there is no causal relationship between the dependent and independent variables.

	B	S.E.	Wald	df	Sig.	Exp(B)
Event traffic mode choice			28,195	2	0,000	
Public transport	1,116	0,333	11,232	1	0,001	3,053
Non-motorized vehicle	-0,799	0,447	3,187	1	0,074	0,450
Motorized vehicle						
Constant	-1,447	0,278	27,117	1	0,000	0,235

Table 5: Variables in the equation (event travel)

From table 5 we can read that the Odds Ratio (Exp(B)) for taking public transport and using non-motorized vehicles for travel to an event are respectively 3,053 and 0,450 with the last (the highest, in this case motorized vehicles) category being the reference value. In other words, compared to people who travel regularly by motorized vehicles towards events, the groups who travel by public transport have a higher chance of taking the train, while those who usually travel by non-motorized transport have a lower probability to take the train. The latter effect, however, is statistically not significant (p=0.074), while the first is statistically highly significant (p=0.001). So, in this case, sticking to the habit of using public transport seems to be a strong tendency and an important explanatory category.

Next we want to investigate in how far the distance traveled plays an important role in the traffic mode choice for the trip to the 4-day-march event. It is to be expected that people who have to travel a longer distance would prefer the use of the train over other modes of transport. Again the dependent variable is the dichotomous variable “train” versus “no train”. The independent variable is the area of living, which can be Nijmegen (1), one of the surrounding municipalities (2) and the rest of the Netherlands (3). The first category implies that the respondent had to cover the shortest distance, while the third category leads to the furthest traveling distance.

	Chi-square	Degrees of freedom	Sig.	Nagelkerke R Square
Step 1	68,740	2	0,000	0,274

Table 6: Omnibus tests of model coefficients and model summary for the variable travel distance

Again, it should be tested first if the picked variables show a correlation. This time a relation can be found with a Chi-square of 68,74 at 2 degrees of freedom, meaning that the 0-

hypothesis is rejected and that the factor travel distance has statistically significant influence on the travel mode towards the Nijmeegse Vierdaagse.

	B	S.E.	Wald	df	Sig.	Exp(B)
Living area			40,687	2	0,000	
Nijmegen	-3,058	0,533	32,958	1	0,000	0,047
Surrounding municipalities	-1,365	0,396	11,858	1	0,001	0,255
Rest of the Netherlands						
Constant	-0,309	0,159	3,804	1	0,051	0,734

Table 7: Variables in the equation (travel distance)

From table 7 we can read that the Odds Ratio (Exp(B)) for Nijmegen and the surrounding municipalities are respectively 0,047 and 0,255 in comparison with the reference group; people living in the rest of the Netherlands. In other words, compared to the groups who live further away, the first two groups have a statistically significant (p=0.000 resp. p=0.001) lower probability of taking the train.

A final interesting variable to take into account is age. In general, three age groups can be defined: Young people who probably do not have a car (1), working class (2) and people of higher age and retired people (3). This will be the independent value, which will be set off against the dependent value.

	Chi-square	Degrees of freedom	Sig.	Nagelkerke R Square
Step 1	2,386	2	0,303	0,011

Table 8: Omnibus tests of model coefficients and model summary for the variable age group

Already it can be seen that the 0-hypothesis cannot be rejected; there is no statistically significant causal relation between age and taking the train towards the Nijmeegse Vierdaagse (Chi-Square= 2.386, d.f.=2, p=0.303). In table 9 it is shown that also the specific categories do not have any statistically significant effects.

	B	S.E.	Wald	df	Sig.	Exp(B)
Age			2,404	2	0,301	
0-25 years	0,321	0,381	0,709	1	0,400	1,378
26-50 years	-0,124	0,375	0,109	1	0,741	0,884
Older than 50 years						
Constant	-1,173	0,317	13,653	1	0,000	0,310

Table 9: Variables in the equation (age groups)

Survey conclusions

At the end of this chapter, there are a number of noteworthy observations to be made. First, the variety of the groups of people traveling towards the case study is large, with a good variety in for example age, demography and choice of travel. Another noteworthy point is the high ratings which are given to certain parts of the event and to the organization in general. With regards to the deeper part of the analysis, namely the logistic regression, two conclusions can be made. The first one is that logistic regression is a very useful tool in detecting causal relations between variables. Furthermore, it was once more made clear that the statistical method used should be taken into account when setting up the questionnaire, to be able to make use of the full power of these methods. In our case, using logistic regression, the independent variables should be or nominal or continuous. The format of the questionnaire used by the Dutch Railway Company featured quite a few of the questions which did not comply with these requirements. Instead of using clear and exclusive multiple choice options, with many questions where more than just one option could be selected, as shown in figure 14. By using these kinds of questions it becomes very difficult to interpret the answers, as e.g. the weight of a single chosen option, is of course different from the weight of the same chosen option if at the same time a number of further options for the same question is chosen. Therefore these questions can also not be split up into 6 or more different variables (for each option one). In our case, because of circumstances, the method of analysis could not be taken into account beforehand, and we had to trust on the quality of the questionnaire usually used by the Dutch Railway Company. This proved to be wrong, and surprisingly enough for such a professional organization, this questionnaire was not methodologically 'statistically proof', which forced us to work with what was available for us. But certainly this also leads us to the strong recommendation to the Dutch Railway company to redesign their questionnaire according to the state of the art so that also advanced statistical methods can be used.

Figure 14: Excerpt from the questionnaire, showing a question not fitted for logistic regression analysis.

Conclusion

First of all, it should be noted that the Nijmeegse Vierdaagse and Vierdaagsefeesten 2013 were another great success, following on a lot of experience from the past. I have no doubt that it will once again be the best visited event of the year, and the responses which I received from the surveys were largely positive. It is interesting to view such a large event from a field of social studies, and to see if a scientific basis can be found for the reasons how people act, in this case with respect to traveling towards events. In this respect this thesis is both a success but also a shortcoming.

The theoretical framework showed that in contrast to the daily commuter traffic, there is also a large flow of traffic towards events and leisure activities. This type of travel does not always follow the rules of commuter traffic which is frequent and based on habits, and usually considers travel a derived demand. Instead, other factors such as fun also play a role. Further, a new decision about the trip has to be made every time due to the infrequency of the travel. This changes the type of decision making on the levels set by the theory of planned behavior. And with the decision making process being less fixed, there is more room for soft incentives to change the type of travel. However, with the data taken from the surveys it showed that there is no statistically significant relation between the mode of travel on a daily basis and travel towards an event. Multiple reasons can be the cause of this. First of all there may not be enough incentive to take the train towards the event. Second, this event, although an event for leisure purposes, has a clear goal (participating in the marches) and therefore may be less influenced by the “fun” factor of the trip, since there is a clear goal. This may be different for the visitors of the event or the visitors of the musical parts. When looking at the mode of travel to this event and to other events, it showed that people who have traveled to the event by train, more often had a tendency to take a train to other events, compared to car and non-motorized vehicle users. This seems to relate to the theory of habitual use, and may show that people who use one mode of transport towards an event, may use it to other events as well. Without further research it is difficult to pinpoint why for example car users tend to keep using the car, even towards non-regular trips such as events. I could think of numerous reasons, such as for example the convenience of car ownership, and the car-minded society we have in the Netherlands in general (which Ajzen would qualify as control beliefs). Further, there may still be a stigma of crowdedness and tardiness surrounding public transport. This can also negatively influence behavior as we can still learn from the theory of planned behavior, which showed that behavioral beliefs and normative beliefs next to control beliefs can influence choice. In this I believe lies a great challenge for the public transport organizations such as the Dutch Railways Organization and others. I personally think that for example good incentives could influence the normative beliefs, which could change behavior and which has also been proven in the past (by for example Meyer and Taniguchi & Fujii). Furthermore there are many other factors which may

or may not influence behavior. A few were taken into account in this report such as age group and travel distance, but there are many more to be named (for example level of education, political color, living area (the rural versus the city for example), to name but a few.

The questionnaire and survey generated a good number of response, more than I was expecting in the first place. This provided a good basis for a quantitative analysis, both on a level of descriptive statistics for referencing purposes as well as for a more in-depth look using logistic regression. Unfortunately the survey had some shortcomings which makes the large amount of output less useful, I consider this a major pitfall in this thesis and is something which really needs to be approached differently in the future. All in all, I enjoyed working on the topic since I go to events myself often, and it is good to provide some extra attention to the choices people make when traveling to these events. And in the end I hope this leads to a bigger form of understanding for the need for sustainability in the world we live in now.

Recommendations

In respect to the subjects of this thesis, a number of recommendations can be made. The first applies to the location of my internship, the NS. The second subject is the Nijmeegse Vierdaagse, which already does a great job towards transport provision and service. The last group is more general, namely other events which do not (yet) have the level of quality as the Nijmeegse Vierdaagse.

During my internship at the NS Noordoost, I learned a number of valuable information about the functioning of the Dutch railway system with regard to event transport, the various factors that play a role in setting up transport to an event, and the carefulness which goes into it, trying to keep all involved actors satisfied while also trying to make involvement in events cost-efficient. This is something which is not always appreciated by the public, with often only the negative aspects being highlighted. I therefore want to thank Marc Holtel, Flip Nijhof of NS Noordoost and Lex Kruijver of Respons for their help with this thesis. In my research towards the Nijmeegse Vierdaagse, I could access the extensive information provided by both parties. This however brings me to my first recommendation. For the questionnaire, I used large parts of a format which is also used by the NS to gather consumer information. The lay-out of the questionnaire included many multiple-choice questions, with the option of selecting more than one option. During the analysis of my data, it was shown to me that there are some serious limitations to this approach. Although this type of questions provides a great deal of information about the consumer, since often a person's choice is not one option but many, it is limited in its mode of analysis. For example, for the logistic analysis which was used, multi-answer questions are unfit in this model. Single-answer questions can be taken into account, and luckily also a number of these questions were featured in the questionnaire. However, the outcome of the multi-answer questions are used only for the descriptive part. Still, this is very useful for unraveling the thought patterns of the respondents, but it is impossible to see if there are any statistical relations between them. A different way of setting up a questionnaire therefore is something which I would recommend. When asked for example "Which reasons do you have for traveling by train?", a single-answer follow-up question such as "And which reason weighs heaviest for you?" would be useful, since this can be used for logistic analysis, or other statistical analysis tools.

With regard to the outcome of the questionnaire, there are also some specific recommendations for the NS regarding the transport towards the Nijmeegse Vierdaagse. From the surveys I mainly noticed that from the perspective of the participants of the marches, the luggage space can be an issue, since the marchers carry a lot of luggage for several days and often bring a bike for extra mobility. Further, during peak hours (by day but also by night after the music festival has ended) the amount of buses and trains is not sufficient, leading to crowdedness and dirtiness of the vehicles.

The Nijmeegse Vierdaagse and the Vierdaagsefeesten have, due to its longstanding tradition, developed a very well-functioning network with regard to transport. This is not in the last place because they work together closely with the involved transport companies, such as Veolia, NS, Syntus and Breng. Additionally, they spread their festivities in order to reduce peak hours, they provide options for spending the night and set up additional options such as extra bike stalls, P+R parking spaces, etcetera. But still it is an almost impossible task since the amount of visitors is enormous. It is therefore difficult to make any recommendations, since the development of transport planning evolved from years of evolution and experience. And still the organization keeps on developing, with for example a larger focus on sustainability. This could be one of the recommendations; with the numerous amount of visitors (who are willing to travel to Nijmegen because they want to participate in the events) it would be possible to install a “stick” option for people traveling towards Nijmegen in an unsustainable way (for example, extra costs for parking spaces, feeing one-person cars, etcetera). This would be more fruitful than using “carrots”, as various past studies have pointed out. It has proven successful in for example the Zevenheuvelenloop, and the nature of the Nijmeegse Vierdaagse could make this work. However, it could also lead to negative response by the visitors, since they may have to pay more for their trip. But due to the willingness to go to the Vierdaagse, some extra expenses will not influence the amount of people visiting both events.

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Appendices

1. Survey *Nijmeegse Vierdaagse en Vierdaagsefeesten*
2. SPSS output for the variable “daily transport”
3. SPSS output for the variable “event transport”
4. SPSS output for the variable “age groups”
5. SPSS output for the variable “travel distance”

Note: Full insight in the statistical data of the survey is available through the Radboud University or by contacting the author.

Vervoer van en naar de Nijmeegse Vierdaagse en Vierdaagsefeesten

Geachte respondent,

Hartelijk dank dat u deelneemt aan deze enquête voor mijn master thesis!

In deze enquête wordt gevraagd naar uw bezoek aan de Nijmeegse Vierdaagse en/of de Vierdaagsefeesten. Vooral de manier van reizen van en naar de Vierdaagse(feesten) staat hierin centraal. De enquête is volledig anoniem, en de resultaten zal ik gebruiken in mijn master thesis voor mijn opleiding aan de Radboud Universiteit in Nijmegen. Deelname aan de enquête duurt ongeveer 6 minuten.

Wanneer u de enquete volledig invult maakt u ook nog kans op twee NS dagkaarten.

Alvast bedankt en veel plezier met deze enquête!

Dennis
Master Urban & Cultural Geography
Radboud Universiteit Nijmegen

Start

Vervoer van en naar de Nijmeegse Vierdaagse en Vierdaagsefeesten

1.

Heeft u de Nijmeegse Vierdaagse en/of de Vierdaagsefeesten bezocht in 2013?*

◯Ja
◯Nee

2.

Heeft u de Nijmeegse Vierdaagse en/of Vierdaagsefeesten al eens eerder bezocht (dit jaar niet meegerekend)?*

◯Ja, ... keer
◯Nee

3.

Woont u zelf in of nabij de gemeente Nijmegen?*

◯Ik woon in de gemeente Nijmegen
◯Ik woon in een van de omringende gemeenten (bijvoorbeeld Wijchen, Groesbeek, Beuningen, Overbetuwe)
◯Ik woon buiten bovenstaande gebieden

Verder

4.

Welke onderdelen heeft u bezocht deze Vierdaagse?*

◯Wandeltochten
◯Vierdaagsefeesten
◯Beide

5.

Waarom heeft u de Nijmeegse Vierdaagse en/of Vierdaagsefeesten bezocht?

☐Ik deed mee aan de Wandeltochten
☐Ik heb de Vierdaagse bezocht als toeschouwer of supporter
☐Ik ben naar de Vierdaagsefeesten geweest
☐Ik heb gewerkt (betaald) tijdens de Vierdaagse
☐Ik was vrijwilliger
☐Anders, namelijk

6.

Hoe vaak heeft u Nijmegen (of omringende gemeentes) bezocht tijdens de Vierdaagse?*

◯De hele week (za-vr)
◯Alleen op de Wandeldagen (di-vr)
◯Een aantal dagen
◯Maar één dag

Verder

De volgende vragen gaan over uw reis van en naar de Vierdaagse en/of Vierdaagefeesten van 2013.

7.

Op welke manier bent u naar Nijmegen (of een van de omringende gemeentes) gereisd voor het grootste deel van uw reis?*

- ◯ Auto (chauffeur)
- ◯ Auto (passagier)
- ◯ Bus
- ◯ Trein
- ◯ Fiets
- ◯ Te voet
- ◯ Brommer/scooter
- ◯ Motor
- ◯ Anders, namelijk

Verder

8.

Wat waren voor u de redenen om met de auto te reizen?
(meerdere antwoorden mogelijk)

- ☐ Ik reis altijd met de auto
- ☐ Dit was voor mij de snelste manier
- ☐ Dit was voor mij de goedkoopste manier
- ☐ Ik kon zo samen met vrienden/familie reizen

- [ ] Ik kan zo vertrekken wanneer ik wil
- [ ] De auto is een comfortabele optie
- [ ] Anders, namelijk [ ]

9.

Heeft u het OV (bus of trein) overwogen als alternatief om naar de Vierdaagse(feesten) te reizen?*

- ◯ Ja
- ◯ Nee

10.

Wat zouden voor u redenen kunnen zijn om voor het OV te kiezen in plaats van voor de auto?

- [ ] Om files/parkeren te vermijden
- [ ] Om alcohol te kunnen nuttigen
- [ ] Om meer van de sfeer mee te krijgen
- [ ] Om gezellig samen te kunnen reizen
- [ ] Om zo op een duurzame manier te reizen
- [ ] Anders, namelijk [ ]

11.

Welke redenen zijn er waarom u niet met het OV heeft gereisd?

- [ ] Ik reis altijd met de auto
- [ ] Ik heb geen goede aansluiting
- [ ] Er is geen station of halte in de buurt
- [ ] Ik vind het OV te duur
- [ ] Ik vind het OV minder comfortabel
- [ ] De aankomst- en vertrektijden zijn onbetrouwbaar
- [ ] Ik heb in het verleden slechte ervaringen gehad bij het reizen met het OV

☐Anders, namelijk ☐

Verder

12.

Wat waren voor u de redenen om met de trein of bus te reizen?
(meerdere antwoorden mogelijk)

☐Ik ben niet in het bezit van een auto/rijbewijs
☐Dit is een efficiënte manier van reizen
☐Dit is een gezellige manier van reizen
☐Ik heb hiermee goede aansluitingen
☐Ik zit meteen dicht bij de festiviteiten
☐Ik kan zo samen met vrienden/familie reizen
☐Ik heb zo geen last van files/parkeren
☐Dit is een duurzame manier van reizen
☐Ik heb geen ander alternatief
☐Anders, namelijk ☐

13.

Welke eventuele nadelen heeft u ondervonden tijdens het reizen met het OV?

☐De reistijd is lang
☐Ik moet overstappen
☐Het OV is duur
☐Het moeten gebruiken van een OV chipkaart
☐Ik ben afhankelijk van de vertrek- en aankomsttijden
☐Ik heb vertragingen
☐Anders, namelijk ☐
☐Er zijn geen nadelen aan reizen met het OV

14.

Heeft u nog overwogen om met de auto te komen (als bestuurder dan wel als passagier)?*

◯Ja
◯Nee

Verder

15.

Waren de locaties die u bezocht heeft goed te bereiken?*

◯Ja, heel goed
◯Ja, redelijk
◯Nee, niet heel goed
◯Nee, helemaal niet

16.

Hoe vond u de voorzieningen geregeld voor reizigers die met het Openbaar Vervoer (bus, trein) naar de Vierdaagse(feesten) kwamen?*

◯Prima, ik heb geen last gehad van deze groep reizigers
◯Redelijk
◯Niet goed
◯Helemaal niet goed, deze groep zorgde voor veel hinder
◯Anders, namelijk

17.

Hoe heeft u de voorzieningen ervaren voor reizigers die de Vierdaagse(feesten) hebben bezocht met de auto?*

- ◯ Prima, ik heb geen last gehad van deze groep reizigers
- ◯ Redelijk
- ◯ Niet goed
- ◯ Helemaal niet goed, deze groep zorgde voor veel hinder
- ◯ Anders, namelijk [ ]

18.

Op een schaal van 1 tot 10, hoeveel hinder heeft u gehad van reizigers die de Vierdaagse bezochten met het OV of met de auto (waarbij 1 zeer veel last en 10 helemaal geen last is)? Hierbij gaat het niet om de personen zelf, maar om het vervoer van deze personen.

-- maak uw keuze --

Verder

19.

Met welk cijfer zou u de reis beoordelen (waarbij 1 extreem slecht en 10 perfect is)?

-- maak uw keuze --

20.

Kunt u dit cijfer kort toelichten?*

21.

Via welke website heeft u informatie gezocht over de Vierdaagse en het vervoer ernaartoe?
(meerdere antwoorden mogelijk)

- ☐ www.4daagse.nl (officiële Vierdaagse website)
- ☐ www.vierdaagsefeesten.com (officiële Vierdaagsefeesten website)
- ☐ www.vierdaagse.com (onofficiële Vierdaagse website)
- ☐ www.ns.nl
- ☐ www.breng.nl
- ☐ www.veolia-transport.nl
- ☐ www.syntus.nl
- ☐ www.9292.nl
- ☐ www.anwb.nl
- ☐ www.vid.nl
- ☐ www.nijmegen.nl/vierdaagse
- ☐ Een andere website, namelijk
- ☐ Niet via een internetpagina

22.

En via welke andere weg heeft u informatie gezocht over de Vierdaagse en het vervoer ernaartoe?
(meerdere antwoorden mogelijk)

- ☐ Officiële Vierdaagse Facebook pagina
- ☐ Officiële Vierdaagse Facebook Twitter kanaal
- ☐ NS Reisplanner Xtra
- ☐ 9292 app
- ☐ ANWB verkeers-app

☐Via niet-digitale wegen (bijvoorbeeld krant, spoorboekje, flyers)
☐Anders, namelijk ☐
☐Via geen van bovenstaande

23.

Was u op de hoogte van de extra service die de Openbaar Vervoersbedrijven hebben ingezet (zoals extra materieel en latere/eerdere diensten), en heeft u dit meegenomen in uw keuze van reizen?*

◯Ja, ik was hiervan op de hoogte en dit speelde een belangrijke rol in mijn vervoerskeuze.
◯Ja, ik was hiervan op de hoogte, maar dit was voor mij niet van belang.
◯Nee, ik was hiervan niet op de hoogte, maar dit zou mijn keuze beinvloed hebben.
◯Nee, ik was hiervan niet op de hoogte, maar dit was voor mij sowieso niet van belang.

24.

Heeft u gebruik gemaakt van overnachtingsmogelijkheden tijdens de Vierdaagse(feesten)?*

◯Ja, ik heb gebruik gemaakt van een camping
◯Ja, ik heb gebruik gemaakt van een hotel, hostel of bed&breakfast
◯Ja, ik heb gelogeerd bij vrienden/familie
◯Nee

Verder

Tot slot volgen nu nog wat algemene vragen over uw achtergrond.

25.

Wat is uw geslacht?*

◯Man
◯Vrouw

26.

In welke leeftijdscategorie valt u?*

◯0 - 15
◯16 - 25
◯26 - 35
◯36 - 50
◯51 - 65
◯66 of ouder

27.

Wat doet u in het dagelijks leven?*

◯Ik werk als zelfstandige/in een vrij beroep/heb eigen onderneming
◯Ik werk in loondienst
◯Ik zit op school/ik studeer
◯Ik ben werkzoekende
◯Ik doe vrijwilligerswerk
◯Ik ben huisman/huisvrouw
◯Ik ben gepensioneerd/met de VUT

◯Ik ben arbeidsongeschikt

◯Anders, namelijk

28.

Welke van de volgende vervoersmogelijkheden bezit u?
(meerdere antwoorden mogelijk)

☐OV Chipkaart (bus, trein, tram)
☐Auto
☐Fiets
☐Motor
☐Brommer/scooter
☐Anders, namelijk

29.

Welk vervoersmiddel gebruikt u voornamelijk in het dagelijks leven?*

◯Auto
◯Trein
◯Bus
◯Fiets
◯Te voet
◯Motor/brommer/scooter
◯Anders, namelijk

30.

En welk vervoersmiddel heeft uw voorkeur naar evenementen en vrijetijdsbestedingen?*

◯Auto
◯Trein
◯Bus
◯Fiets
◯Te voet
◯Motor/brommer/scooter
◯Anders, namelijk

31.

Kunt u kort aangeven waarom deze manier van reizen naar evenementen/vrijetijdsbestedingen uw voorkeur heeft?

32.

Hartelijk dank voor het invullen van deze enquête. Als u kans wilt maken op de 2 NS dagkaarten, dan kunt u hier uw email-adres invullen. Deze wordt voor geen verdere doeleinden gebruikt en hier wordt volledig discreet mee omgegaan. Wenst u geen kans te maken dan kunt u dit vak gewoon leeg laten.

Verder

Bedankt voor uw deelname!

Hartelijk dank voor het invullen van mijn enquête! Uw deelname en de resultaten zijn zeer nuttig voor de afronding van mijn master thesis. En hopelijk tot ziens bij de Nijmeegse Vierdaagse 2014!

Mocht u de gelukkige winnaar zijn van de NS dagkaarten, dan krijgt u binnen twee weken bericht.

www.thesistools.com

```
LOGISTIC REGRESSION VARIABLES Trainvsnotrain
  /METHOD=ENTER dailytransportchoice
  /CONTRAST (dailytransportchoice)=Indicator
  /PRINT=GOODFIT
  /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
```

Logistic Regression

Notes

Output Created		05-DEC-2014 13:33:45
Comments		
Input	Data	C:\Users\Dennis\Dropbox\RU\Thesis\Enquête resultaten\.spss\Enquête resultaten\enqueteresultatenverwerkbaar.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	358
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing
Syntax		LOGISTIC REGRESSION VARIABLES Trainvsnotrain /METHOD=ENTER dailytransportchoice /CONTRAST (dailytransportchoice) =Indicator /PRINT=GOODFIT /CRITERIA=PIN(0.05) POUT(0.10) ITERATE(20) CUT(0.5).
Resources	Processor Time	00:00:00,03
	Elapsed Time	00:00:00,07

[DataSet1] C:\Users\Dennis\Dropbox\RU\Thesis\Enquête resultaten\.spss\Enquête resultaten\enqueteresultatenverwerkbaar.sav

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	304	84,9
	Missing Cases	54	15,1
	Total	358	100,0
Unselected Cases		0	,0
Total		358	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
,00	0
1,00	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	Parameter coding (2)
1=public transport 2=non-motorized 3=motorized	1,00	38	1,000	,000
	2,00	152	,000	1,000
	3,00	114	,000	,000

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted		
			1=train 0=notrain		Percentage Correct
			,00	1,00	
Step 0	1=train 0=notrain	,00	230	0	100,0
		1,00	74	0	,0
	Overall Percentage				75,7

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1,134	,134	71,998	1	,000	,322

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	dailytransportchoice	3,929	2	,140
		dailytransportchoice(1)	3,685	1	,055
		dailytransportchoice(2)	,071	1	,789
	Overall Statistics		3,929	2	,140

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	3,664	2	,160
	Block	3,664	2	,160
	Model	3,664	2	,160

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	333,771[a]	,012	,018

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	,000	1	1,000

Contingency Table for Hosmer and Lemeshow Test

		1=train 0=notrain = ,00		1=train 0=notrain = 1,00		
		Observed	Expected	Observed	Expected	Total
Step 1	1	90	90,000	24	24,000	114
	2	116	116,000	36	36,000	152
	3	24	24,000	14	14,000	38

Classification Table[a]

			Predicted		
			1=train 0=notrain		Percentage Correct
	Observed		,00	1,00	
Step 1	1=train 0=notrain	,00	230	0	100,0
		1,00	74	0	,0
	Overall Percentage				75,7

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.
Step 1[a]	dailytransportchoice			3,825	2	,148
	dailytransportchoice(1)	,783	,407	3,694	1	,055
	dailytransportchoice(2)	,152	,299	,258	1	,611
	Constant	-1,322	,230	33,102	1	,000

Variables in the Equation

		Exp(B)
Step 1[a]	dailytransportchoice	
	dailytransportchoice(1)	2,187
	dailytransportchoice(2)	1,164
	Constant	,267

a. Variable(s) entered on step 1: dailytransportchoice.

Logistic Regression

[DataSet1] C:\Users\Dennis\Dropbox\RU\Thesis\Enquête resultaten\.spss\Enquête resultaten\enqueteresultatenverwerkbaar.sav

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	300	83,8
	Missing Cases	58	16,2
	Total	358	100,0
Unselected Cases		0	,0
Total		358	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
,00	0
1,00	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	Parameter coding (2)
1=public transport 2=non-motorized 3=motorized	1,00	122	1,000	,000
	2,00	94	,000	1,000
	3,00	84	,000	,000

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted		
			1=train 0=notrain		Percentage Correct
			,00	1,00	
Step 0	1=train 0=notrain	,00	224	0	100,0
		1,00	76	0	,0
	Overall Percentage				74,7

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1,081	,133	66,301	1	,000	,339

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	travelevents	31,591	2	,000
		travelevents(1)	29,487	1	,000
		travelevents(2)	17,973	1	,000
	Overall Statistics		31,591	2	,000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	32,606	2	,000
	Block	32,606	2	,000
	Model	32,606	2	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	306,974[a]	,103	,152

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	,000	1	1,000

Contingency Table for Hosmer and Lemeshow Test

		1=train 0=notrain = ,00		1=train 0=notrain = 1,00		
		Observed	Expected	Observed	Expected	Total
Step 1	1	85	85,000	9	9,000	94
	2	68	68,000	16	16,000	84
	3	71	71,000	51	51,000	122

Classification Table[a]

			Predicted		
			1=train 0=notrain		Percentage Correct
	Observed		,00	1,00	
Step 1	1=train 0=notrain	,00	224	0	100,0
		1,00	76	0	,0
	Overall Percentage				74,7

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	travelevents			28,195	2	,000	
	travelevents(1)	1,116	,333	11,232	1	,001	3,053
	travelevents(2)	-,799	,447	3,187	1	,074	,450
	Constant	-1,447	,278	27,117	1	,000	,235

a. Variable(s) entered on step 1: travelevents.

Logistic Regression

[DataSet1] C:\Users\Dennis\Dropbox\RU\Thesis\Enquête resultaten\.spss\Enquête resultaten\enqueteresultatenverwerkbaar.sav

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	311	86,9
	Missing Cases	47	13,1
	Total	358	100,0
Unselected Cases		0	,0
Total		358	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
,00	0
1,00	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	Parameter coding (2)
1=0-25 2=26-50 3=>50	1,00	107	1,000	,000
	2,00	149	,000	1,000
	3,00	55	,000	,000

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted 1=train 0=notrain ,00	Predicted 1=train 0=notrain 1,00	Percentage Correct
Step 0	1=train 0=notrain	,00	234	0	100,0
		1,00	77	0	,0
	Overall Percentage				75,2

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1,112	,131	71,578	1	,000	,329

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	age	2,421	2	,298
		age(1)	2,320	1	,128
		age(2)	1,654	1	,198
	Overall Statistics		2,421	2	,298

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	2,386	2	,303
	Block	2,386	2	,303
	Model	2,386	2	,303

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	345,729[a]	,008	,011

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than ,001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	,000	1	1,000

Contingency Table for Hosmer and Lemeshow Test

		1=train 0=notrain = ,00		1=train 0=notrain = 1,00		
		Observed	Expected	Observed	Expected	Total
Step 1	1	117	117,000	32	32,000	149
	2	42	42,000	13	13,000	55
	3	75	75,000	32	32,000	107

Classification Table[a]

			Predicted		
			1=train 0=notrain		Percentage Correct
	Observed		,00	1,00	
Step 1	1=train 0=notrain	,00	234	0	100,0
		1,00	77	0	,0
	Overall Percentage				75,2

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	age			2,404	2	,301	
	age(1)	,321	,381	,709	1	,400	1,378
	age(2)	-,124	,375	,109	1	,741	,884
	Constant	-1,173	,317	13,653	1	,000	,310

a. Variable(s) entered on step 1: age.

Logistic Regression

[DataSet1] C:\Users\Dennis\Dropbox\RU\Thesis\Enquête resultaten\.spss\Enquête resultaten\enqueteresultatenverwerkbaar.sav

Case Processing Summary

Unweighted Cases[a]		N	Percent
Selected Cases	Included in Analysis	340	95,0
	Missing Cases	18	5,0
	Total	358	100,0
Unselected Cases		0	,0
Total		358	100,0

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

Original Value	Internal Value
,00	0
1,00	1

Categorical Variables Codings

		Frequency	Parameter coding (1)	Parameter coding (2)
1=Nijmegen 2=surroundingmunicipalities 3=rest	1,00	120	1,000	,000
	2,00	57	,000	1,000
	3,00	163	,000	,000

Block 0: Beginning Block

Classification Table[a,b]

Observed			Predicted: 1=train 0=notrain ,00	Predicted: 1=train 0=notrain 1,00	Percentage Correct
Step 0	1=train 0=notrain	,00	258	0	100,0
		1,00	82	0	,0
	Overall Percentage				75,9

a. Constant is included in the model.

b. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1,146	,127	81,753	1	,000	,318

Variables not in the Equation

			Score	df	Sig.
Step 0	Variables	Living_area	60,032	2	,000
		Living_area(1)	43,776	1	,000
		Living_area(2)	2,595	1	,107
	Overall Statistics		60,032	2	,000

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	68,740	2	,000
	Block	68,740	2	,000
	Model	68,740	2	,000

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	306,914[a]	,183	,274

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	,000	1	1,000

Contingency Table for Hosmer and Lemeshow Test

		1=train 0=notrain = ,00		1=train 0=notrain = 1,00		
		Observed	Expected	Observed	Expected	Total
Step 1	1	116	116,000	4	4,000	120
	2	48	48,000	9	9,000	57
	3	94	94,000	69	69,000	163

Classification Table[a]

			Predicted		
			1=train 0=notrain		Percentage Correct
	Observed		,00	1,00	
Step 1	1=train 0=notrain	,00	258	0	100,0
		1,00	82	0	,0
	Overall Percentage				75,9

a. The cut value is ,500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Living_area			40,687	2	,000	
	Living_area(1)	-3,058	,533	32,958	1	,000	,047
	Living_area(2)	-1,365	,396	11,858	1	,001	,255
	Constant	-,309	,159	3,804	1	,051	,734

a. Variable(s) entered on step 1: Living_area.