

# Public Transport in Rural Areas



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Contents

- Summary ..... 2
- 1. Introduction..... 3
  - 1.1 Background..... 3
    - Social relevance ..... 3
    - Scientific relevance..... 3
  - 1.2 Research problem ..... 3
    - Research question ..... 3
    - Secondary questions ..... 3
  - 1.3 Structure of the thesis..... 4
- 2 Theoretical framework ..... 5
  - 2.1 Key concepts..... 5
  - 2.2 Choice behavior in modes of transport..... 5
  - 2.3 Accessibility and remoteness ..... 5
  - 2.4 Environment ..... 6
  - 2.5 External costs ..... 6
  - 2.6 Conceptual model ..... 7
- 3 Methodology ..... 8
  - 3.1 Locations..... 8
  - 3.2 Method ..... 8
  - 3.3 Data quality ..... 9
  - 3.4 Ethical considerations ..... 9
- 4 Results ..... 10
  - 4.1 Response group ..... 10
  - 4.2 Age..... 10
  - 4.3 Motives to travel with public transport ..... 11
  - 4.4 Alternative transport methods..... 12
  - 4.5 Rating and improvements ..... 12
  - 4.6 Improvement of accessibility ..... 13
- 5 Conclusions..... 14
  - 5.1 Conclusion ..... 14
  - 5.2 Recommendations..... 14
- 6 Reflection..... 15
- References..... 16
- Appendix: Survey..... 18

## Summary

This thesis explores the benefits and costs of the availability of public transport in rural areas. This research will give more insight in the perception of the public transport by people living in rural areas. The benefits for the people will be compared with potential costs. This has been done by combining literature research with a quantitative method of data collection in rural areas in the Netherlands.

The results show that the teenagers benefit a lot from public transport, because they do not own a car. Older people are expected to benefit a lot as well, but most of them have a car as alternative. Main motives for people to use public transport are travel time, weather and not owning a car. The most important motive for not using public transport was the availability of a car, which is faster, more reliable and more flexible. In general people are happy with the availability of public transport, but for many of them it does not improve the accessibility to cities.

Furthermore the occupancy rate in rural buses can be low outside of peak hours. When this rate is too low, it is less environmentally friendly to have a bus driving than people using their car. Therefore it is important to encourage people to use public transport, to save on external costs.

# 1. Introduction

## 1.1 Background

Living in the rural in the Netherlands has changed a lot over the years. Over the past century the Netherlands has become heavily urbanised, which has led to a population decline in rural areas. One of the reasons for this is the limited availability of jobs in the rural (Haartsen & Venhorst, 2009), which made people move to cities. Even though counter-urbanisation has been going on, there are many regional differences and some areas, especially in the North of the Netherlands, are facing decline (Bijker & Haartsen, 2012). This has several consequences.

Population decline, together with economic processes where small retailers are taken over by larger corporations and with an increase in mobility, has led to a decline in services in the rural, like supermarkets, schools, pubs and restaurants (Woods, 2005), but this can also have an effect on the supply of public transportation systems (CBS, 2012).

The decline in services implies that transport to areas where those services are located becomes very important. Approximately three quarters of the daily trips made in the Netherlands are done by car (Compendium voor de leefomgeving, 2015). It is likely that this percentage is higher in rural areas, as distances to work and services are higher. Eleven percent of the trips are made by public transport. It would seem logical that more people use public transport in the rural than in cities, as distances are often not doable by foot or bike. Especially for people that do not have access to a car, access to public transport is important. This includes teenagers going to school that are not allowed to drive, but also older people are often dependent on public transport (Salemink & Strijker, 2015). But a recent study of Miralles-Guasch et al. (2016) in Catalonia showed the opposite, where public transport in urban areas is used four times more often than in rural areas. This makes it interesting to see how public transport is perceived by people in rural areas and in what way it benefits the people.

### Social relevance

Public transport in rural areas is an important service, as mentioned above. This research will look more into who actually benefits from public transport and what potential costs are. This can be relevant for future planning of public transport and rural areas.

### Scientific relevance

Public transport usage in a social perspective has been researched by different researchers in different places. Almost all of those researches are focussed on urban areas or larger areas in general. There are currently no articles available that discuss the benefits of public transport in rural areas. The circumstances and ways of living in rural areas are different from urban areas and therefore already existing research about public transport in urban areas are not applicable to many rural areas. This paper should give more explanations on this subject.

## 1.2 Research problem

The aim of this research is to give more insight into public transport in rural areas in the perspective of the rural people, in terms of quality, accessibility and people's motives for using public transport. This will be combined with a look at the costs that go along with public transport.

### Research question

To achieve this goal, the following research question has been set up:

*What are the benefits and costs of the availability of public transport in rural areas?*

### Secondary questions

To answer this research question, the following four secondary questions are made:

- Is there a specific group of people that benefits the most from public transport in the rural?

- What are people's motives for their choice in mode of transport in rural areas?
- How do people in rural areas perceive the public transportation system?
- To what extent does public transport improve the accessibility of rural people to urban areas?

### 1.3 Structure of the thesis

The thesis starts with explaining the key concepts and the most important theories of the topics that will be researched. Also the possible costs of public transport will be explained in this section. Then the methods of data collection will be discussed, which includes a critical reflection on the data quality and ethical considerations. After that, the results will be analyzed and discussed. The thesis ends with a conclusion and recommendations for further research. There is also a critical reflection provided on this research.

## 2 Theoretical framework

In this part of the thesis the most important concepts and theories will be discussed to create a better understanding of the topics that will be researched.

### 2.1 Key concepts

There are two key concepts that need to be explained before discussing the theories. The first of them is the rural. The rural is used a lot in this thesis, but there are many different definitions for it. It can be defined using a descriptive definition, a socio-cultural definition or via social representation (Woods, 2005). For this research a descriptive definition will be used. It does neglect qualitative data and can be sensitive for classifications (Halfacree, 1993), but the required data is already available and it is the best method to locate the rural without an additional research. This research uses a definition of the CBS (2017), where an area is defined as rural when the address density is lower than 500 addresses per km<sup>2</sup>.

Another important concept for this research is accessibility. Accessibility measures the degree of which people are able to reach services and goods that are needed in their daily lives, with a focus on capability instead of actual behavior. When the accessibility of those services and goods is bad, the term remoteness is being used (Jones and Lucas, 2012).

### 2.2 Choice behavior in modes of transport

One of the key concepts for this research is choice behavior in modes of transport. Beirão and Cabral (2007) discussed the motivations for the choice between a car and public transport. Many factors influence people's decisions on transport mode. First of all, reliability and travel time play a key role in the decision-making. Having to change vehicles during a journey is considered an obstacle for choosing for public transport. Comfort, price and good information are also factors to choose for public transport. On the other hand, some people feel attached to their car and will not use public transport, unless there is no other option. Also the image of the bus is important. If people never travel by bus or have had bad experience with it, they are not likely to use it any time soon, even though the quality might have improved. This means habits and an uncomplete or incorrect image of public transport influence people's choice behavior as well.

Dell'Olio et al. (2011) also notes that the quality of public transport is important. This includes waiting time, cleanliness and comfort. By improving the quality of public transport, the number of people using it will increase as well.

Some other motives to take a car have been identified by Gardner and Abraham (2006), which are journey time, effort, personal space, monetary costs and journey-based affect.

There does not seem to be any literature about choice behavior in transport for rural areas specifically, although this behavior can be very different from choice behavior in urban environments.

### 2.3 Accessibility and remoteness

Rural remoteness, especially to larger cities, is linked to rural poverty (Partridge and Rickman, 2008). Rural people that experience remoteness will struggle more to reach urban services and to have access to jobs. Most of the economic growth is happening in cities, which means people will have to start commuting. If the city is poorly accessible, then this is not an option and creates poverty.

Also Kenyon et al. (2003) states that welfare is highly dependent on transport. When people do not have access to adequate transport, they can experience mobility-related exclusion from jobs, services and social networks.

This means it is very important to have good infrastructure and different options to get access to them. One way to improve the accessibility is public transport.

Accessibility to public transport can be measured in three categories: access to stops, duration of the journey and access to destinations via public transport (Mavoa et al., 2012). There is a limited distance people want to walk to reach a bus stop. If it is too far away, they are not likely to use it. This also goes the other way around, when there is no bus stop close to the destination. Furthermore, if the duration of a journey by public transport is longer than by using a different mode of transport, the accessibility to public transport is also affected. Bocarejo and Oviedo (2012) stated that purchasing power and availability of alternative modes of transport also influence the accessibility to public transport.

## 2.4 Environment

One of the possible costs for public transport in rural areas are environmental costs. A research of CE Delft (2014) shows that public transport can be cleaner than private cars, but it needs a certain amount of passengers per trip to become a cleaner alternative. An overview is given in table 1 for the carbon dioxides per kilometre per traveller for every vehicle. The bus is based on a regional bus that accesses rural areas. The train is based on trains that stop at every stop, as they also reach rural areas.

Transport Method	CO <sub>2</sub> Emissions per kilometre per traveller in grams	CO <sub>2</sub> emissions per kilometre per vehicle
Private car	158	220
Bus	124	1.116
Train	65	-

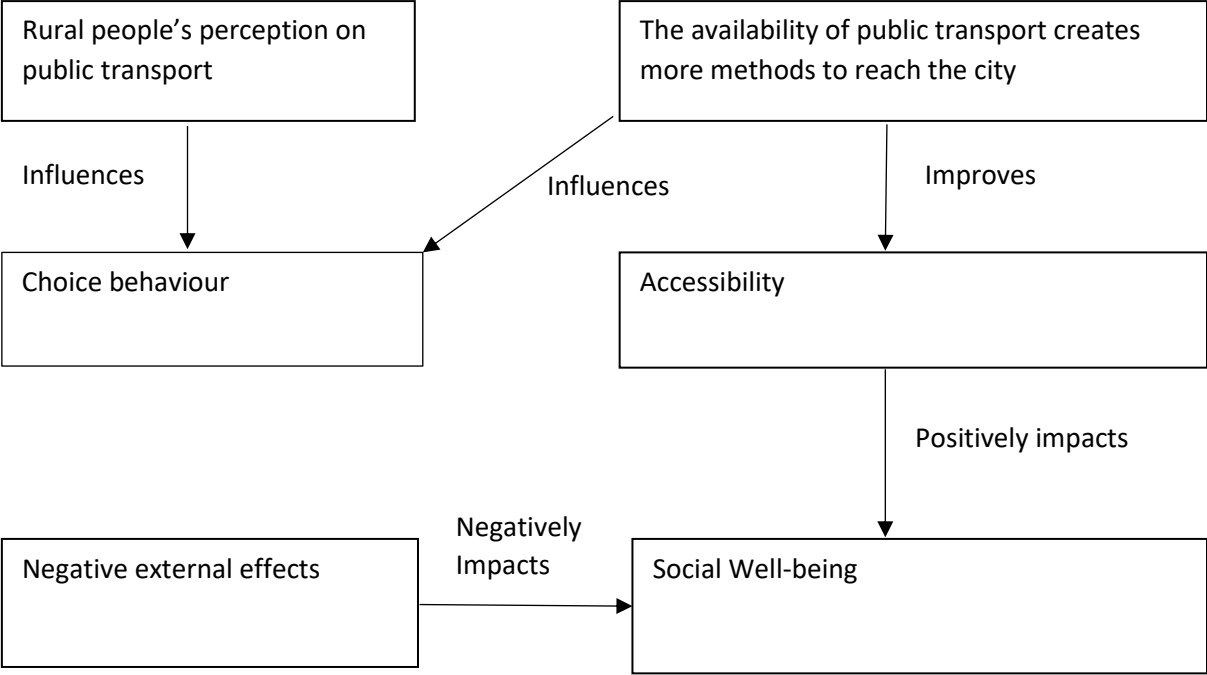
*Table 1. Based on CE Delft (2014)*

The amount of passengers in a bus or train can differ. The occupancy rate of the bus is set to 9, but this is an average for urban and regional buses. Also busses or trains in peak hours are more likely to have more passengers than during other times of the day (Camén and Lidestam, 2016). Therefore the low amount of passengers during those other times might be less profitable for the environment than when the bus would not be driving and everyone is using their private car. But when more people decide to choose for public transport, it can actually be better for the environment. There are no exact occupancy rates available for rural bus or train lines.

## 2.5 External costs

CO<sub>2</sub> emissions is one external effect of transport, but not the only one. Also damage to infrastructure, accidents, other emissions and noise pollution are negative external effects of transport (Ljungberg, 2016). Public transport as a replacement for private cars can have a positive effect on the external costs. By subsidizing public transport and raising taxes per kilometre driven by car, the public transport will be used more often and can be beneficial in the long run (Ljungberg, 2016).

2.6 Conceptual model





### 3 Methodology

The aim of the research is to collect data of people's perceptions and opinions. By using a quantitative method, information about characteristics, behaviours and attitudes of a population can be gathered (McLafferty, 2010). To reach a large group of people in a limited amount of time, the quantitative method will be chosen for this research by conducting a survey.

#### 3.1 Locations

The population that will be researched are the people living in rural areas in the North of the Netherlands, although it is likely to be applicable to other parts of the country as well. The survey will be conducted in Exloo and Aalden, which are two villages in the province of Drenthe. Figure 1 shows the locations of those villages, combined with a layer to show the rurality per municipality. 1 is a very urbanised municipality and 5 is a very rural municipality. Also the cities close to the villages are presented. To create a generalization for a bigger area, inhabitants in more than one village have to be asked about the topic to make sure the conclusions will be applicable to a larger area. The municipalities where the villages are settled in, are both classified as non-urban (CBS, 2016). Both villages have less than 2000 inhabitants and most people are commuting to cities for work, which means that people have to travel larger distances to get to work. The closest city is approximately 15 kilometres away for both villages. Inhabitants in both villages have access to public transport, which was an important reason to choose the villages. Doing research in a village without access to public transport can be interesting in other parts of the world, but this is not the case for the Netherlands. The public transport system is well organised, which means that if a village does not have access to public transport, it has been concluded that it is not needed. People living in those villages have found alternative ways of reaching the city. If someone is dependent on public transport, he or she will decide to live somewhere else.

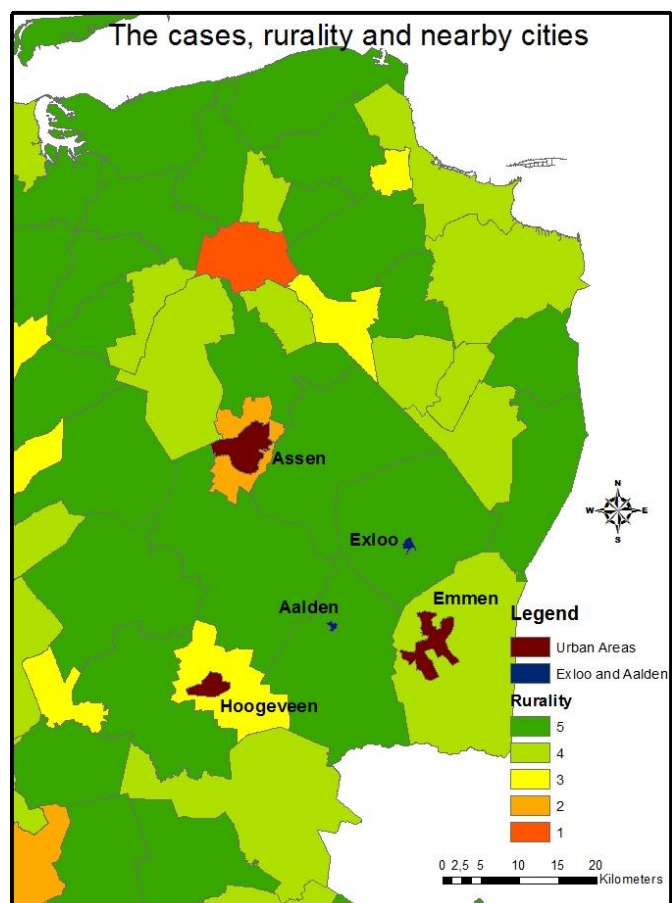


Figure 1: A map of the two villages, nearby cities and the rurality of the municipalities.

#### 3.2 Method

The questionnaires have been conducted by ringing door bells in the villages on Saturdays. The houses were chosen by choosing random streets in the village and selecting all houses in those streets. By doing this, motives of both users and non-users of public transport of all population groups can be gathered. By choosing for a Saturday, the working people are also represented. A downside to this method is that not everyone uses public transport and can therefore not answer some of the questions. This has resulted in missing data on those questions. The questionnaire consists out of 11 questions that cover all secondary questions and can be found in the appendix.

### 3.3 Data quality

A total of 71 questionnaires have been collect, of which 28 in Exloo and 43 in Aalden. This is a decent amount, but some questions were not answerable by quite a lot of respondents, as mentioned in 3.2. The quality of the data on those questions is therefore a bit low. More responses on those questions would have given better and more reliable results, but was also not doable because of time limits.

### 3.4 Ethical considerations

The questionnaires are fully anonymous and this should be told to the respondents as well. Although they do not have to tell their name, the questionnaire is conducted at their house, so in theory this could be written down. The respondents will be ensured that their answers are anonymous. The data will be treated like that as well.

## 4 Results

The results and analyses are shown in this part of the thesis. First there will be some background information about the respondents. Then interesting results will be discussed to provide answers to the research questions. These include differences between age groups, motives to travel with public transport, the availability of other transportation methods, the rating of the public transport system and improvements that can be made, and at last the rate of improvement of accessibility to cities.

### 4.1 Response group

The age distribution of the response group is shown in table 2. The respondents were asked to give their exact age, which were to be categorized afterwards to create better statistical tests. The youngest respondent is 13 years old, the oldest respondent is 83 years old. One respondent has not given an age. It was important for this research to include teenagers in the response group, as their motives and ideas about public transport can be different from the working population or retired people, as already mentioned in the introduction of this research. Seven respondents are aged 18 or younger.

### 4.2 Age

To find out whether age has an effect on travelling with public transport, a Chi-squared test has been executed. The hypothesis for this test is that there is no difference between the age groups in travelling with public transport.

This resulted in a significance (p) of 0,001, which is lower than 0,05. This proves that there is a difference between age groups in their use of public transport. To find the strength of the association, a Cramer's V test has been executed. With a result of 0,503, a strong association has been confirmed.

In table 2 is visible how many of the age groups are users of public transport with their average amount of trips per week. When someone did not travel weekly, the number 0 had to be filled in. It also has to be noted that there are only 4 people in the categories of 26 to 45 and 46 to 65. The average number of trips per week is therefore not very accurate.

	Amount of respondents	Public transport users	Number of trips
<25	10	9 (90%)	2,1
26-45	17	4 (24%)	2,25
46-65	23	4 (17%)	1
>65	20	9 (45%)	0,22

*Table 2: Age distributions*

There are a few things that stand out in this table. First of all, the youngest age group has relatively the most public transport users. The same nine respondents also do not own a car. Six of them are too young to be able to drive a car and some others are still studying or learning and do not have the money for a car. Because of that, they have to take their bike or the bus.

Also the age group of older than 65 differs from the other ages. Their number of trips per week is much lower than of the other groups. Reasons given by respondents for this are that they only travel so now and then with friends or to visit the hospital for example. This group does not have to get out on a daily basis, which also explains a lower amount of trips per week.

So although all age groups experience benefits from the public transport, it are especially the young and older people that benefit the most from the availability of public transport in their village.

### 4.3 Motives to travel with public transport

Section 2.2 discussed choice behaviour in transportation in general. As there currently is no literature about choice behaviour in rural areas specifically, it has also become part of this research.

Respondents were asked what their main reason is and possible other reasons are for using public transport. Only people that make use of public transport could answer these two questions. The questions were asked as if it was an open question, but a few categories have been created based on literature from section 2.2. Weather has been added as a category afterwards, as a lot of people gave this answer. According to the literature, reliability should also play a role. This was not mentioned by any respondent, so has been taken out of the table. The results are visible in table 3.

Only 26 respondents are users of public transport. The other group was not able to give motives for travelling with public transport, so therefore the results in this table are limited.

The percentages for the secondary reasons are based on the amount of respondents. There were more answers possible, so therefore the total percentage is more than 100%. This decision has been made so it is clear how many of the respondents gave a certain answer.

	Main reason		Secondary reasons	
Travel time	1	3,8%	11	42,3%
Comfort	6	23,1%	4	15,4%
Price	1	3,8%	6	23,1%
Being able to do other things	1	3,8%	4	15,4%
No car	5	19,2%	3	11,5%
Weather	6	23,1%	4	15,4%
Unclassified	6	23,1%	2	7,7%
No reason	0	0%	5	19,2%
<b>Total</b>	<b>26</b>	<b>100%</b>	<b>38</b>	<b>150%</b>

Table 3: Main reasons and other reasons for taking public transport

This table creates some interesting results. Travel time is for most people not a main reason to travel with public transport, but it does play a role. In general it is faster than going on bike, so travel time is an important factor for people without a car. Weather is also an option mainly checked by people without a car, as travelling by bike in the rain or in cold weather is not a pleasant thing to do for those people.

This question has also confirmed the literature in 2.2, where comfort, travel time, price, being able to do other things and no car were already mentioned as reasons for taking public transport.

Travel time	29	41,4%
Comfort	3	4,3%
Reliability	1	1,4%
Used to other transportation methods	51	72,9%
Unclassified	22	31,4%
<b>Total</b>	<b>133</b>	<b>151,4%</b>

Table 4: Reasons for not taking public transport

In table 4 there is one category standing out. Almost three quarters of the respondents are not using public transport because they are used to other transportation methods, which is the car in most cases. Other reasons that are mentioned by respondents include price, complicated system,

flexibility, waiting times and bus schedule. Price was mainly an argument for people that are used to biking, as that is free. The complicated system refers to the use of a card to check in and out when using the bus. This can be difficult to get used to, especially when someone has to change vehicles. Flexibility was mentioned by a few people, but it is also part of the travel time and bus schedule. The busses in the villages are leaving once per hour, so there is a chance of having to wait for a long time before the bus arrives, which demotivates people to use the public transport.

Most of those problems are solvable by using a car, which results in a higher car usage. There are quite a lot of households with a second car, so even when one person of the household is away, the other person can still use a car.

This section has shown that the availability of public transport is a good thing for a part of the population, but for most people the car is a better and more accessible alternative.

#### 4.4 Alternative transport methods

Ownership of other transportation methods can also influence the choice behaviour of people, as they have the option to choose whether to use public transport or not. People that do not own an alternative transportation method, might be reliant on public transport.

To test if there is a connection between car and bike ownership and public transport users, a chi-squared test is used. Two respondents own a motorbike and one respondent owns a scooter. These amounts are too low to use in a chi-squared test. The motorbike owners are merged with the cars, as they serve the same function. The scooter is merged with the bike, because it cannot travel large distances like a car or a motorbike. The hypothesis for this test is that there is no connection between owning a car or a bike and using public transport. This resulted in a significance of  $<0,0005$  for the car and a significance of 0,279 for the bike. This means that owning a car influences the decision of taking public transport. 10 out of 12 people that do not own a car are public transport users, which is 83%, against 16 out of 59 car owners, equal to 27% of this group.

Owning a bicycle has nothing to do with the decision making. This makes sense, as many people own a car and a bike and use them both to get to the city. The people that only own a bike, are already represented in the group that does not own a car.

#### 4.5 Rating and improvements

The respondents have been asked to give the public transport system in their village a rating on a Likert scale of 1 to 5. Not everyone was able to answer this question, because not everyone has experience with using public transport. A total of 45 people answered this question. This is a different amount than the amount of public transport users. It is possible that people have experienced public transport a few times, but are not using it on regular basis or currently not at all. The average grade given by the respondents was a 3,9, with a median of 4. A report of OV-Bureau (2016) showed that travellers in Groningen and Drenthe gave an average grade of 7,5 on a scale of 1 to 10. When transforming this to the scale used in the questionnaire, this would be approximately a 3,75. So the people in the two villages are a bit more happy with the public transport system than people in the region in general, which includes the cities. This shows that the people are in general happy with the public transport system, but it can be improved. Therefore the respondents were able to give suggestions for improvements for the public transport system.

Most of the people did not have any suggestions for improvements in the public transport system. 13 people did, of which 7 wanted the bus to drive more frequently. When giving this answer, several of those respondents did not believe it would be possible to achieve, because of the low amount of passengers in general. It is not uncommon that a bus is empty for a while.

Other improvements suggested by the respondents are more space and shorter waiting times when having to change vehicles. Also earlier busses in the morning and later busses in the evening were

suggested. It is again unlikely to happen due to the low amount of passengers, especially early in the morning or late in the evening.

#### 4.6 Improvement of accessibility

In general people living in rural areas seem to be happy about the public transport system. But does it really improve their accessibility to cities, where services and jobs are located? This has been asked to the respondents, which they could answer on a Likert scale of 1 to 5, where 1 is no improvement at all, 3 is some improvement and 5 is a lot of improvement. The results are different here. 50 people were able to answer this question, the other 21 said that they did not have an opinion. This resulted in a mean of 3,22 and a median of 4. 20% answered with a 1. So for them the public transport does not add anything to the accessibility to the cities. It is likely that this is the case as well for the people that were not able to answer this question, as they have not experienced any improvements in accessibility because of the availability of public transport.

As sections 4.2 and 4.4 showed that age and the availability of a car matter in people's choice behaviour, the improvement of accessibility will be compared with those two variables.

Both did not meet the requirements of a chi-squared test, but there are still some results that can confirm the results of 4.2 and 4.4. Out of the 10 people in the youngest age group, 9 of them thought that public transport in their village improved the accessibility a lot. This shows again that the youngest age group really benefits from public transport.

People without a car also thought that public transport was a large improvement, while the car owners were more spread out over the numbers.

## 5 Conclusions

### 5.1 Conclusion

The aim of this research is to give more insight in the costs and benefits of public transport in rural areas. This has been done using a questionnaire for collecting quantitative data in the rural, combined with literature research on potential costs of public transport.

First of all, the younger people seem to benefit the most of public transport. They often do not own a car and are reliant on their bike or public transport to reach a city. For them, public transport is a large improvement in their accessibility to the city and they are frequent users of it. According to the CBS, older people are also frequent public transport users. In this research, this does not seem to be the case. Most of the older people do not use it or use it so now and then, but not on a frequent basis.

This paper has also explored rural people's choice behaviour in public transport. It has confirmed several motives mentioned in the literature. It has also shown that reliability is not a reason for the people in the rural to use public transport. Also personal space and having a bad image of public transport did not play a role. Car ownership was for most of the respondents the main reason not to use public transport. It is more flexible and faster.

In general the people are happy with the availability of public transport. There is a need for a more frequent bus line, but this is financially not doable for the public transport companies. Although people give high ratings for the public transport, for many it does not improve their accessibility a lot or not at all. They have other ways of reaching the city which are more accessible and faster and for them it does not add anything. But for the ones that do not have an alternative, it improves the accessibility a lot. These are mainly the young people.

Public transport does have external costs, like emissions or road damage. They are larger per vehicle, but when enough people are choosing for public transport instead of their car, the public transport system is more environment friendly and will save on external costs. However, there are regularly buses that do not reach this amount of passengers, which means that it would be more environmentally friendly to not use them.

### 5.2 Recommendations

For further research it can be interesting to look into possible methods to let people leave their car at home and choose for public transport instead. For many people simply owning a car was an important reason not to use public transport. By increasing the amount of passengers, the public transport can become more beneficial for the environment.

Also the choice behaviour was not explored to its full potential due to limited cases. A new research with more cases can create more reliable and possibly different results than the ones discussed in this paper.

## 6 Reflection

At the process of writing the thesis and collecting data, decisions had to be made. For this research also non-users of public transport were included. On one side it gives insight into reasons for not using public transport, but in the end there were only 26 surveys collected of people that do use public transport. This is a low amount of respondents and it gives little possibilities for statistical tests. The conclusions that are made out of this data are therefore not very reliable. Also, only Saturdays were suitable days for collecting data, so the working population was also included in the data. Due to the limited time for writing this thesis, only two days were used for collecting data, which could have been more when a target group of public transport users was asked.

Furthermore this research has only made use of a quantitative method of data collection. To discuss the costs of public transport, an interview with somebody from a public transport company or a local government with knowledge about the state of public transport in rural areas could have been a good addition to this research. Unfortunately this idea came too late, so there was no time to do an interview anymore.



## References

Beirão, G. and Cabral, J.A.S. (2007). Understanding attitudes towards public transport and private car: A qualitative study. *Transport Policy*, 14(6), pp. 478-489

Bijker, R.A. and Haarsten, T. (2012). More than Counter-urbanisation: Migration to Popular and Less-popular Rural Areas in the Netherlands. *Population Space and Place*, 18(5), pp. 643-657.

Bocarejo, S.J.P. and Oviedo, H.D.R. (2012). Transport accessibility and social inequities: a tool for identification of mobility needs and evaluation of transport investments. *Journal of Transport Geography*, 24, pp. 142-154

Camén, C. and Lidestam, H. (2016). Dominating factors contributing to the high(er) costs for public bus transports in Sweden. *Research in Transportation Economics*, 59, pp. 292-296.

CBS (2004). Steeds meer mensen in stedelijke omgeving. Accessed on 27-03-2017 via <https://www.cbs.nl/nl-nl/nieuws/2004/05/steeds-meer-mensen-in-stedelijke-omgeving>.

CBS (2009). *Helft van alle buurten is platteland*. Accessed on 3-3-2017 via <https://www.cbs.nl/nl-nl/achtergrond/2009/27/helft-van-alle-buurten-is-platteland>

CBS (2012). *Personenauto bezit van huishoudens en personen*. Accessed on 10-3-2017 via <https://www.cbs.nl/NR/rdonlyres/69B7DBF3-BA02-4B1F-90D0-40F362C6C4E1/0/2012k1v4p34art.pdf>

CBS, 2016: <http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=83287NED&D1=48,50-52&D2=30,49,64,88,104,115&HDR=T&STB=G1&VW=T>

CBS (2017). Accessed on 27-03-2017 via <https://www.cbs.nl/nl-nl/onze-diensten/methoden/begrippen?tab=o#id=omgevingsadressendichtheid-van-een-adres>

CE Delft (2014). STREAM personenvervoer 2014. Accessed on 29-05-2017 via [http://www.ce.nl/publicatie/stream\\_personenvervoer\\_2014/1478](http://www.ce.nl/publicatie/stream_personenvervoer_2014/1478)

Compendium voor de leefomgeving (2015). *Reizigerskilometers in Nederland door de Nederlands bevolking, 2011-2014*. Accessed on 3-3-2017 via <http://www.clo.nl/indicatoren/nl0024-reizigerskilometers-personenvervoer>

Dell'Olio, L., Ibeas, A. and Cecin, P. (2011). The quality of service desired by public transport users. *Transport Policy*, 18(1), pp. 217-227

Haartsen, T. and Venhorst, V. (2009). Planning for decline: anticipating on population decline in the Netherlands. *Tijdschrift voor Economische en Sociale Geografie*. 101(2), pp. 218-227.

Halfacree, K.H. (1993). Locality and Social Representation – Space, Discourse and Alternative Definitions of the Rural. *Journal of Rural Studies*, 9(1), pp. 23-37

Jones, P. and Lucas, K. (2012). The social consequences of transport decision-making: clarifying concepts, synthesising knowledge and assessing implications. *Journal of Transport Geography*, 21, pp. 4-16

Kenyon, S., Rafferty, J. and Lyons, G. (2003). Social exclusion and transport in the UK: A role for virtual accessibility in the alleviation of mobility-related social exclusion? *Journal of Social Policy*, 32, pp. 317-338

Ljungberg, A. (2016). Marginal cost-pricing in the Swedish transport sector – An efficient and sustainable way of funding local and regional public transport in the future. *Research in Transportation Economics*, 59, 159-166.

Mavoa, S., Witten, K., McCreanor, T. & O'Sullivan, D. (2012). GIS based destination accessibility via public transit and walking in Auckland, New Zealand. *Journal of Transport Geography*, 20(1), pp. 15-22.

McLafferty, S.L. (2010). Conducting Questionnaire Surveys. In N. Clifford, S. French & G. Valentine (Red.), *Key Methods in Geography* (pp. 77-88). London: Sage.

Miralles-Guasch, C., Melo, M. and Marquet, O. (2016). A gender analysis of everyday mobility in urban and rural territories: from challenges to sustainability. *Gender Place and Culture*, 23(3), pp. 398-417.

OV-Bureau (2016). Het jaarverslag en de jaarrekening van 2015. Accessed on 21-5-2017 via [http://ovbureau.nl/publish/library/321/jaarverslag\\_en\\_jaarrekening\\_2015\\_def\\_incl\\_acc\\_verklaring\\_nw.pdf](http://ovbureau.nl/publish/library/321/jaarverslag_en_jaarrekening_2015_def_incl_acc_verklaring_nw.pdf)

Partridge, M.D. & Rickman, D.S. (2008). Distance From Urban Agglomeration Economies and Rural Poverty. *Journal of Regional Science*, 48(2), pp. 285-310

Salemink, K. and Strijker, D. (2015). Regional Development and Connectivity: a Digital Perspective: ITRACT-Report. *iTRACT*

Woods, M. (2005). *Rural Geography*. London: Sage.

## Enquête Openbaar Vervoer op het platteland

Hallo,

Mijn naam is Jasper Mijnheer en ik ben momenteel bezig met mijn bachelorproject. Deze gaat over de aanwezigheid van openbaar vervoer op het platteland. Hiervoor heb ik een enquête gemaakt, waarbij ik erachter probeer te komen hoe naar het openbaar vervoer wordt gekeken door bewoners. Deze enquête zal ongeveer 2 minuten duren.

1. Reist u wel eens met het openbaar vervoer?  
 Ja  Nee (ga door naar vraag 5)
  
2. Hoe vaak per week reist u gemiddeld met het openbaar vervoer? Een retour telt als één rit. Indien u minder dan 1 keer per week met het OV reist, vul dan 0 in.  
  
.....
  
3. Wat is voor u de belangrijkste reden om voor het openbaar vervoer te kiezen?  
 Reistijd  
 Comfort  
 Prijs  
 Betrouwbaarheid  
 Bezig kunnen zijn met andere dingen  
 Geen auto  
 Anders, namelijk .....
  
4. Zijn er andere redenen die meespelen?  
 Reistijd  
 Comfort  
 Prijs  
 Betrouwbaarheid  
 Bezig kunnen zijn met andere dingen  
 Geen auto  
 Anders, namelijk .....  
  
 Anders, namelijk .....
  
5. Wat zijn redenen voor u om niet met het openbaar vervoer te reizen?  
 Reistijd  
 Comfort  
 Betrouwbaarheid  
 Geen persoonlijke omgeving  
 Ik doe het nooit / gewoonte om een ander transportmiddel te kiezen  
 Slecht beeld van het OV  
 Anders, namelijk .....

6. Heeft u naast openbaar vervoer andere manieren om een stad te bereiken? Zo ja, welke?

Auto

Fiets

Brommer/scooter

Motor

Anders, namelijk: .....

7. In welke mate vindt u dat de aanwezigheid van het openbaar vervoer de bereikbaarheid naar de stad verbetert? 1 = geen verbetering, 3 = wel wat verbetering en 5 = heel veel verbetering.

1	2	3	4	5	Geen mening
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Hoe zou u het openbaar vervoer in het dorp beoordelen? 1 = zeer slecht, 3 = neutraal en 5 = zeer goed.

1	2	3	4	5	Geen mening
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Vindt u dat het openbaar vervoer verbeterd moet worden? Zo ja, hoe?

Nee

Ja, want .....

.....

10. Wat is uw leeftijd?

.....

11. Heeft u een baan? Zo ja, in welke plaats werkt u?

Nee

Stadskanaal

Emmen

Hoogeveen

Coevorden

Anders, namelijk .....

Hartelijk bedankt voor uw medewerking.

## Survey public transport in rural areas

Hello,

My name is Jasper Mijnheer and I am currently working on my bachelor thesis about the availability of public transport in the rural. I have created a short survey to find out how people living in those rural areas perceive the public transport. The survey will approximately last 2 minutes.

1. Do you ever travel with public transport?  
 Yes                       No (continue to question 5)
  
2. How often do you travel with public transport per week on average? A return counts as one trip. Write 0 if you do not travel weekly
  
3. What is your main reason for choosing public transport?  
 Travel Time  
 Comfort  
 Price  
 Reliability  
 Being able to do other things  
 No car  
 Other: .....
  
4. Do any other reasons play a role?  
 Travel Time  
 Comfort  
 Price  
 Reliability  
 Being able to do other things  
 No car  
 Other: .....
  
5. What are reasons for you not to travel with public transport  
 Travel time  
 Comfort  
 Reliability  
 No personal space  
 Habit of choosing another method of transport  
 Bad image of the public transport  
 Other: .....
  
6. Do you own any transport method to reach the city?  
 Car  
 Bike  
 Scooter  
 Motorbike  
 None  
 Other: .....

7. To what extent do you think that public transport improves your accessibility to the city? 1 = no improvement at all, 3 = some improvement and 5 = a lot of improvement.

1	2	3	4	5	No opinion
0	0	0	0	0	0

8. How would you rate the public transport in your village?

1	2	3	4	5	No opinion
0	0	0	0	0	0

9. Do you think that the public transport system needs improvements? How?

0 No

0 Yes: .....

10. What is your age?

.....

11. Do you work? If so, where?

0 No

0 Stadskanaal

0 Emmen

0 Hoogeveen

0 Coevorden

0 Other: .....