Should I stay or should I go? A qualitative approach to the perceived accessibility to health services, educational and career opportunities and public transport of people between the ages of 18 and 32 in the province of Groningen

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Abstract

The youth in rural areas have been leaving rural areas to study for their tertiary education in the bigger cities. Upon completing their education, most of them do not seem to return to their rural areas. At the same time, the liveability in rural areas is decreasing as the number of amenities as well as population sizes are declining. There is limited understanding of how people between the ages of 18 and 32 in the province of Groningen perceive their accessibility in rural and urban areas. The research question was: *'How do people between the ages of 18 and 32, who have migrated from a rural area to the city of Groningen, perceive their accessibility to health services, educational opportunities, career opportunities, and public transportation in rural and urban areas?'* The aim of this study is to find out the reasons why individuals prefer to stay in the city or return to rural areas. A qualitative approach was chosen, involving two rounds of in-depth interviews with individuals who had lived in rural areas before relocating to an urban area. Participants were recruited through the convenience sampling method and the data was analysed using thematic analysis with Atlas.TI. To explore their perceived accessibility, four domains were chosen as domains of interest; health services, educational opportunities, career opportunities, and public transport. The results showed that the participants did perceive an improvement in their accessibility in the urban areas, compared to the rural areas. The main reasons that contributed to this improvement were a decrease in the distance that needed to be covered to healthcare and educational facilities, the presence of multiple health and educational facilities, increased job demand, lower car dependency, and service quality of public transport. Based on the results of the study, a future research recommendation looking at how practically educated individuals perceive their accessibility is made. It is recommended that governments invest in public transportation in rural areas.

Keywords: perceived, accessibility, rural, urban

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1. Introduction

1.1 Background

Rural-to-urban migration is a phenomenon that has been happening for ages. Back in the early twentieth century, Heberle (1938) looked into the reasons for rural-urban migration, which showed that increasing sociocultural differentiations between rural and urban areas was one of the important reasons. Further reasons vary among many, such as migration as a livelihood strategy (Brown, 2006; Mago, 2018). Migration as a livelihood strategy is a strategy that is used when households in rural areas need more income due to failed crops for example, and decide to let one or multiple people within the household migrate to another, usually urban, area so that this person can create a new source of income. Another reason that people might decide to migrate to urban areas can be due to the perception that urban areas offer better accessibility to educational and career opportunities compared to rural areas. (Bulder, 2018).

As these people were raised in rural areas, the ties to people and place (Von Reichert et al., 2012) and a sense of community (Hofstede et al., 2022) are influential factors in the decision to return back to rural areas. However, not many seem to return to rural areas with reasons varying amongst many such as limited employment opportunities in rural areas (Cromartie et al., 2015). Another reason that many do not return to rural areas may be because they perceive their accessibility better in urban areas, as Pot et al. (2023a) found that rural areas have lower levels of perceived accessibility, compared to more urban areas. Prior research that looked at how people perceive their accessibility in rural and urban areas has already proven that rural areas are more dependent on individual motor car traffic to access healthcare services (Schröder e.a., 2018). Another example of a difference in accessibility in urban areas compared to rural areas is the domain of public transport. Berg and Ihlström (2019) found that rural areas suffer from poor access to public transport, in comparison to urban areas. According to the same paper, this eventually leads to less social interaction among the rural population and less favourable situations in rural areas. This may be a consequence of years of cutbacks on rural public transport funding (RTV Noord, 2023). Furthermore, urban areas seem to offer better accessibility to

educational and job opportunities in comparison to rural areas (Bulder, 2017; Findeis and Jensen, 1998; Lagakos, 2020).

The Organisation for Economic Co-operation and Development is expecting that in 2100, 85% of the world's population will be living in cities (OECD, 2015). As fewer people are living in rural areas, the liveability of these rural areas is being negatively affected as the rural population is shrinking and the number of amenities in these areas is declining (Von Reichert et al., 2012).

This eventually leads to a negative spiral of lower population sizes in rural areas, intertwined with fewer amenities in rural areas, which leads to more reasons for individuals to stay in urban areas (Liao & Wang, 2019).

Figures 1 and 2 show the main reasons why the city and province of Groningen have been chosen as the area of interest. Figure 1 shows that in the entire province of Groningen, it is expected that population sizes will decrease drastically, whereas the municipality of Groningen is the only municipality in the province to grow in population size by even more than 13% (Statistics Netherlands, 2024a). Furthermore, figure 2 shows how the population share of 18 to 25 per municipality in the province of Groningen is between 6 and 9%, whereas the municipality of Groningen stands out with 19.9% (Statistics Netherlands, 2024b). Aside from the provinces of Friesland and Limburg, other provinces also show clusters of people between the ages of 18 to 25, but more dispersed over multiple municipalities.
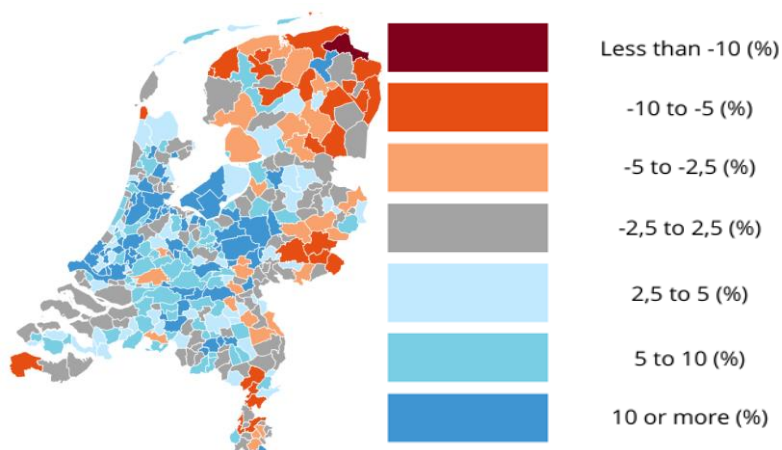
Figure 1: Forecasted population sizes per municipality for The Netherlands in 2035 (Statistics Netherlands, 2024a)
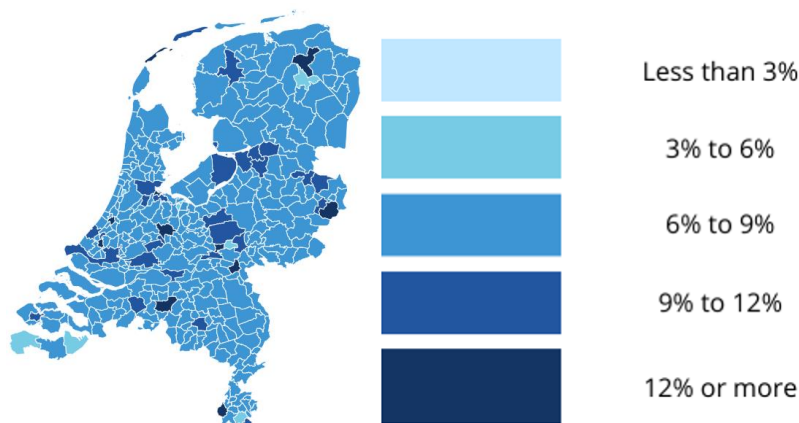

Figure 2: Percentage of people between the ages of 18 and 25 per municipality (Statistics Netherlands, 2024b)

Furthermore, the average age in Groningen is 36 (Rijksuniversiteit Groningen, 2024), compared to the average age of 42 in The Netherlands (Statistics Netherlands, 2024c). An important nuance is that some students do leave the city after graduation, but these students have their origins in other parts of the country.

There is limited understanding of how individuals in the province of Groningen perceive their accessibility to health services, educational and career opportunities, and public transportation in rural and urban areas and how this translates into reasons to stay in urban areas or return to rural areas. This research will look into the reasons why people, specifically those living in the city of Groningen, would prefer to stay or return to rural areas after finishing their studies. To look into the reasons, specific domains of interest have been chosen. The domains of interest are their accessibility to health services, educational opportunities, career opportunities, and public transport.

1.2 Research question and aim
The background translates into the following research question:
'How do people between the ages of 18 and 32, who have migrated from a rural area to the city of Groningen, perceive their accessibility to health services, educational opportunities, career opportunities, and public transportation in rural and urban areas?'

The research question is characterised by the main concept of perceived accessibility, which is supported by the four domains. If there is a difference in perceived accessibility within the four domains with regard to rural and urban areas, it may be possible to visualise the reasons why people, who were raised in a rural area and moved to an urban area for their studies, would prefer to stay in the city or move back to the rural areas after their studies.

This research aims to develop an understanding of why people would prefer to stay in the city upon completion of their studies or move back to rural areas. The results can eventually contribute to policy and further research aiming to change the differences in perceived accessibility between rural and urban areas within the province of Groningen.

1.3 Reading guide

In the next chapter, information is provided on the relevant concepts. The research methodology is the central point of the chapter that follows. In this chapter, the main approach, recruitment of participants, collection and analysis of data, and ethics will be explained. The chapter afterward will go into the results of the data analysis, providing a comprehensive view of the collected data. The purpose of the last chapter is to discuss the findings to the literature, conclude and answer the research question, ending the research with recommendations for policy and future research.

2. *Theoretical framework*

Drawing upon academic research on perceived accessibility, health services, educational, and career opportunities and public transport, this study builds its theoretical framework.

2.1 Perceived accessibility

In this research, 'perceived accessibility' is defined as 'perceived accessibility to activities that are of importance of everyday life' (Lättman et al., 2019).

2.2 Health Services

The concept of ''health services'' in this research refers to 'the ability to reach healthcare facilities and obtain quality healthcare' (Michigan University School of Medicine, 2023).

2.3 Educational opportunities

In this research, 'educational opportunities' is defined as 'ensuring inclusive and equitable education of good quality' (United Nations Department of Economic and Social Affairs, 2022).

2.4 Career opportunities

The concept of 'career opportunities' is defined as 'people's perceptions of the job opportunities that match their career interests' (Rasheed et al., 2020).

2.5 Public transport

In this research, the concept of 'public transport' is defined as 'any form of passenger transport that is available for hire and reward' (Preston, 2009).

2.6 Literature review

Present studies on health services show that the emphasis has been mainly focused on physical accessibility (Burger & Christian, 2018; Coombs et al.,2021) and socio-economic inequalities (McMaughnan et al., 2020). Burger & Christian (2018) found that distances, inconvenient opening times, and transport costs are constraints in accessing healthcare that are particularly seen in underdeveloped rural areas. There seems to be limited known about the interplay between perceived accessibility and educational opportunities in rural and urban areas. Similar studies have mainly focused on the educational disparity/ divide between rural and urban areas (Le & Chung, 2020; D. Zhang et al., 2015; H. Zhang, 2017). There are limited studies of young rural-urban migrants and their

perceived accessibility to career opportunities (Basnet et al., 2023). Cheng and Bertolini (2013) found that job accessibility is determined by the magnitude and diversity of job opportunities. Finally, Pot et al. (2023) found that car dependency is a major contributor to perceiving satisfactory levels of accessibility in rural areas. A lot of research has been done on perceived accessibility and public transport but without many comparisons between rural and urban areas. A paper by Friman et al. (2020) found that there is a significant positive relationship between the service quality of public transport and perceived accessibility. Functionality (frequency, reliability, easy transfers, closeness to nearest public transport stop) plays the most important role in positively affecting the perceived accessibility. A paper by Olsson et al. (2021), which mainly focused on the urban context, mentioned that the geographical context does act as an accessibility barrier, which eventually influences 'the ability to live the life one wants with public transport'. Schröder e.a. (2018) found that people in rural areas are more dependent on individual motor car traffic to be able to access healthcare services.

The concepts translate into the conceptual model as seen in figure 3.
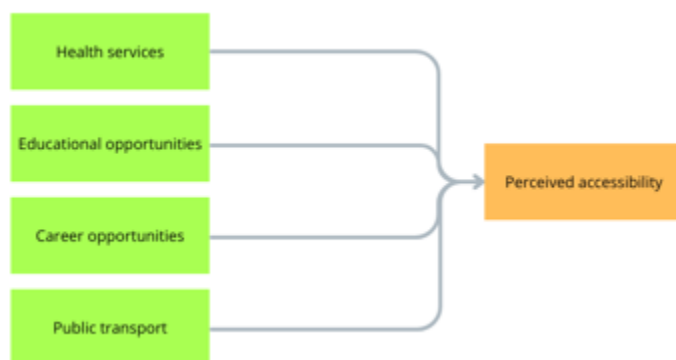
Figure 3: Conceptual model perceived accessibility (2024, own illustration)

The aforementioned concepts from the theoretical framework have been operationalized into the conceptual framework in Figure 3. The conceptual framework provides a schematic overview of the interplay between the concepts.

2.7 Expectations

In the scope of this research, it is expected people will perceive their accessibility in rural and urban areas differently. Depending on the results, it can be described how people perceive their accessibility

in rural and urban areas and how this translates into the reasons why people do or do not return to rural areas.

3. Methodology

3.1 Research approach

The main goal of the research question was to identify reasons why people would prefer to stay in the city or move back to their rural hometown. Therefore, a qualitative approach through in-depth interviews was chosen as the preferable research method because these in-depth interviews allowed to gain insight from the participants' perspectives (Rutledge & Hogg, 2020). Furthermore, in-depth interviews were a preferable way of accessing people's perceptions of reality and allowed the researcher to describe them in a certain setting (Punch, 2013). The quantitative approach was purposely not chosen as the main purpose of the research was to gain insight into experiences, which favours the qualitative approach (Streefkerk, 2023) and is a limitation of quantitative research as it overlooks the participants' experiences (Rahman, 2017).

3.2 Recruitment of participants

Recruitment of participants took place in two rounds. For both rounds of recruitment, the convenience sampling method was used (Nikolopoulou, 2023). Whereas the first round of interviews was more explorative, the purpose of the second round of interviews was to go more in-depth into the answers that were given in the first round of interviews.

3.3 Inclusion and exclusion criteria

To determine the target group, several exclusion criteria were set. For the first round of interviews, the exclusion criteria were:

- People younger than 18 or older than 32 are excluded;

- People who are not living in the city of Groningen are excluded;

- People who did not move to Groningen for their studies are excluded.

For the second round of interviews, the exclusion criteria were:

- People younger than 18 or older than 32 are excluded;

- People who are raised in a rural area outside the province of Groningen are excluded;

- People who are not living in the city of Groningen are excluded;

- People who did not move to Groningen for their studies are excluded.

3.4 Interview guide

To be certain that relevant data was collected, separate interview guides were created for the first and second rounds of interviews to prepare the researcher with a list of questions available to ask and analyse the answers later on. Appendices 3 and 4 showed the interview guide for rounds one and two. The interview guide started with an introduction, in which the purpose of the study and topics were mentioned, followed by a topic list with questions for each topic that needed to be answered. The topics were related to the four domains and the conceptual model. Probes were included and enquiry questions were formulated during the interviews. The interview guide ended with a final sentence in which the participant was thanked for his or her time and whether he or she would have wanted to be informed of the results.

3.5 Data collection

To ensure the quality of the collected data, several precautions were taken before conducting the interviews. Firstly, a pilot interview was conducted with a volunteer to examine whether the questions were clear and interpreted as desired to ensure the questions were collecting relevant data. After the pilot interview, one question was removed and a few questions were reformulated. The interviews varied in duration, the first round lasting between ten and fifteen minutes and the second round between 28 and 33 minutes. The recordings were transcribed in a Word document. Furthermore, the interviews were conducted in an office at the Hanze. Concerning informed consent, all participants were informed about the goal of the study, confidentiality, and data management. The interviews were, with the approval of the participants, recorded digitally.

3.6 Ethical considerations

The researcher was someone who also migrated from a rural to an urban area, so it was important to remind himself to prevent asking questions or writing the research from his own experiences as this could eventually impose researcher bias into the research. Researcher bias is the phenomenon in which the researcher his beliefs or expectations influence the research design or data collection process (Scribbr, n.d.). To prevent any researcher bias in the data collection process, questions in the interview guide were formulated in a neutral manner such as 'How did you experience ...' and not necessarily whether the participant experienced it better or worse. To ensure full confidentiality with

regard to research ethics and data management risks, the collected data was stored on a private laptop, only accessible to the researcher. Furthermore, the collected data was stored on a Google Drive with two-factor authentication enabled to minimise the risk of outsiders accessing the data. Participation was completely voluntary and the participant could decide at any moment to withdraw from the study. Finally, a data management plan was added in the appendix to further reduce the risk of any danger.

3.7 Analysis

After conducting the interviews, the audio files of the interviews were transferred to a secured folder on a laptop protected by fingerprint scanning. Following the transfer of the raw data, the transcription process began where the data was transcribed in multiple Word documents. Transcribing is the process of writing out a recorded audio file, such as an interview (Smits, 2024).

After the transcribing process was finished, the data was ready to be analysed. Data analysis took place in Atlas.TI, a research tool that is specifically made for qualitative data analysis.

Figure 4 shows a visual of the deductive coding progress. Deductive coding is a way of coding in which a set of pre-determined codes were created and assigned to the data (Medelyan, 2024). The deductive analysis allowed for a systematic and efficient analysis process. Furthermore, the deductive analysis made it less prone to researcher bias, as the codes were pre-determined (Politz, 2023). These sets of pre-determined codes are related to the concepts of the theoretical framework and conceptual model. During the coding process, a few inductive codes also came forward which contributed to the results. Appendices 1 and 2 show the codebook for the deductive and inductive codes. For the first round of interviews, data saturation was achieved after seven interviews and a final interview was conducted to ensure the data saturation. Data saturation was not achieved in the second round of interviews.
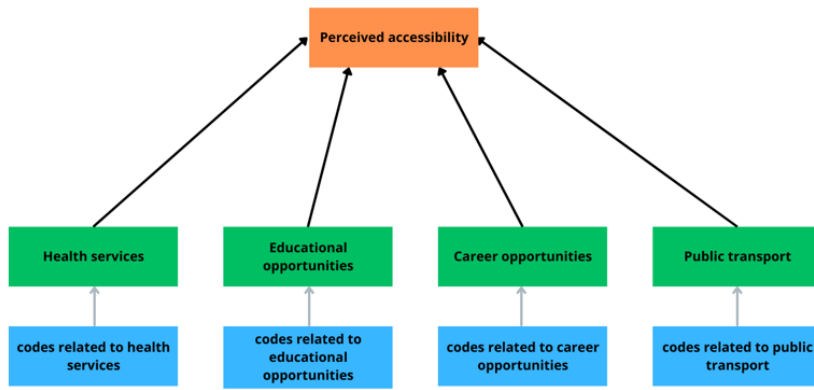
Figure 4: Tree-structured visualisation of deductive coding analysis (2024, own illustration)

4. Results

4.1 Participant characteristics

Table 1 shows the characteristics of the participants.

Round of interviews	Age	Gender	Province of Origin	Current city of residence	Occupational Status	Education
1	25	Female	Groningen	Groningen	Working	Theoretical
1	25	Male	Noord-Holland	Groningen	Working	Theoretical
1	23	Female	Utrecht	Groningen	Studying	Theoretical
1	22	Female	Utrecht	Groningen	Studying	Theoretical
1	20	Female	Utrecht	Groningen	Studying	Theoretical
1	21	Female	Utrecht	Groningen	Studying	Theoretical
1	22	Female	Groningen	Groningen	Studying	Theoretical
1	20	Female	Utrecht	Groningen	Studying	Theoretical
2	27	Female	Groningen	Groningen	Working	Theoretical
2	31	Male	Groningen	Groningen	Working	Theoretical
2	28	Male	Groningen	Groningen	Working	Theoretical
2	30	Female	Groningen	Groningen	Working	Theoretical
2	27	Female	Groningen	Groningen	Working	Theoretical

Table 1: Participant characteristics (2024, own illustration)

4.2 Perceived accessibility Health Services

Most participants mentioned an improvement in their perceived accessibility in urban areas concerning health services. This was due to shorter distances that needed to be covered, a wider variety of health services to choose from, and also convenient times in urban areas compared to rural areas. In the first round of interviews, most participants mentioned the decrease in distances which they perceived differently in urban areas. One participant said:

'If you think 'Oh that needs to be done somewhere this week', if you live in the village then you are kind of screwed because it will not be possible as the doctor is only available on Friday mornings you know and here it is all well-organised.'

In the second round of interviews, most participants mentioned the variety of healthcare facilities to choose from was a factor that made them perceive their accessibility differently. One participant mentioned:

'Yes, yes, that is nice. Yes, absolutely, because in principle you are of course enrolled at a general practitioner, so you do not really have the choice to go to other general practitioners. But in Groningen, you also have general practitioners who have open walk-in hours as they call it, so you do not necessarily need to be enrolled at that general practitioner.'

4.3 Perceived accessibility Educational Opportunities
With regard to the domain of educational opportunities, most participants in the first and second rounds of interviews mentioned that having more educational instances in urban areas improved their perceived accessibility. The importance of having a school that suits them or their future offspring was an important consideration. During the second round, one participant mentioned:

'If you cannot choose (between schools) and you get bullied in a village, then you are stuck to a certain school, certain schools, certain friends, and then you do not have that accessibility to go to another school because you might feel better there. So it is, yeah, only if you look at how much there is in the city, yeah, how many elementary schools and high schools are there? Also all levels so you can choose way better what suits you, which helps you feel more at home.'

Furthermore, some participants believed that the distance to specific high schools could be a reason that influenced their perceived accessibility and their educational progression. During the second round of interviews, one participant who had no high school that gave pre-university education in her rural town and decided to cover bigger distances to Groningen to get pre-university education mentioned:

'I think that a lot more children from my class could have maybe done it, but because the step (distance) was so big, many did not. I do not think everyone got their full potential out of it, and if it is only because of the distance, I do not know.'

4.4 Perceived accessibility Career Opportunities

The analysis for career opportunities showed that most participants perceived their accessibility to career opportunities in urban areas noticeably better as the demand was mostly oriented in urban areas. However, some participants did have an idea of how career opportunities could also be better accessible in rural areas. During the second round of interviews, one participant mentioned:

'But I have to say, these days with remote working, it might be a bit more flexible, so for example imagine I could bring my current work home. Could I work there at home? That could be possible.'

During both rounds of interviews, most participants also mentioned the importance of having a car to be able to access a job in rural areas. The same participant mentioned:

'Well, if you look at the job opportunities there (in the rural area), there is not any. You already have to look for something where you can drive to and you need to take the car to for example a bigger village.'

4.5 Perceived accessibility Public Transport

During both rounds of interviews, most participants mentioned an improvement in their perceived accessibility to public transport in urban areas. The frequency and closeness to the nearest public transport stop were noticeably better, which influenced their perceived accessibility. During the second round, one participant reflected on her accessibility with regard to public transport in rural areas:

'Yeah, well, if you missed it there, the bus, when I was living there, the bus used to go once an hour. Yeah then you are standing for an hour 'blauwbekken' (standing in the cold). And here you have so much variety. So you can also grab a shared scooter or walk twenty meters to another bus stop and grab the bus from there. You just have more options.'

Most participants also mentioned that the reliability and easy transfer of public transport was something that influenced their perceived accessibility noticeably. During the second round, one participant when reflecting on her experiences with public transport mentioned:

'Bad from rural areas, you cannot always trust that the bus will drive. See now and then it can happen that a bus does not drive, but the connections/ transfers are bad, you need to transfer. You are

never somewhere in 1 bus. In Groningen you can get the bus and that one will go from North

Groningen to South Groningen.'

5. Discussion

5.1 Main research question

The main research question was: *'How do people between the ages of 18 and 32, who have migrated from a rural area to the city of Groningen, perceive their accessibility to health services, educational opportunities, career opportunities, and public transportation in rural and urban areas?'*

The results showed that the participants perceived an improvement in their accessibility to all four domains in urban areas, for reasons such as a decline in distance and the presence of wider variety of facilities concerning educational opportunities and healthcare services. Furthermore, more demand for jobs and lower car dependency for career opportunities and frequency, reliability, easy transfers, and proximity to public transport stops with regard to public transport also played a role in their improvement of perceived accessibility in urban areas.

5.2 Reflection on results

The results showed that the perceived accessibility to healthcare, educational opportunities, career opportunities, and public transport improved in urban areas. Within the domain of healthcare, a decrease in the distance that needed to be covered and more variety in options contributed to an improvement in perceived accessibility in urban areas. These findings do align with the known literature as Burger & Christian (2018) found that distances were one of the constraints that underdeveloped rural areas have in accessing healthcare.

Furthermore, the presence of multiple educational opportunities (multiple high schools and elementary schools) in urban areas was something that had a positive influence on the perceived accessibility. This result may have identified a factor that could have influenced the educational performances of rural children. These children in rural areas are limited to fewer options, which means if the school does not suit them or if a child gets bullied, they are not able to switch to another school in close proximity. This could be a new explanatory factor for the fact that the educational performances of rural children are lower than those of urban children (D. Zhang, 2015). Further research is required to understand the relationship between the two.

In the domain of career opportunities, the results showed that car dependency plays an important role in rural areas, whereas it is less important in urban areas. These findings do align with the known literature in the theoretical framework, as Pot et al. (2023b) found that car accessibility plays a major role in achieving satisfactory levels of accessibility in rural areas. The results also showed that an increase in job opportunities in urban areas contributed to the improvement of their perceived accessibility in urban areas. These findings are aligned with the known literature, as Cheng and Bertolini (2013) found that job accessibility is determined by the magnitude and diversity of job opportunities.

Within the domain of public transport, an improvement in frequency, reliability, and proximity to the nearest bus stop in urban areas played a role in the improvement of their perceived accessibility. These findings corroborate the known literature in the theoretical framework as Friman et al. (2020) found that there is a significant positive relationship between frequency, reliability, easy transfers, closeness to the nearest public transport, and perceived accessibility. These findings eventually contribute to the broader literature on the topic of return migration. The limited research into the topic of perceived accessibility to educational opportunities emphasizes the importance of further research into the relationship between the two concepts.

5.3 Reflection on methodology

Reflecting upon the methodology, some choices could have influenced the results of the thematic analysis.

First of all, the convenience sampling method to recruit participants could have introduced sampling bias which limits the possibility to generalize it for the population within the province of Groningen. Secondly, as a consequence of the convenience sampling method, the rural background of the participants for the first round of interviews was over multiple places in The Netherlands, which makes it not indicative for the population of the province of Groningen. Thirdly, as the first round of interviews was not properly indicative for population of the province of Groningen, a second round of interviews was introduced. The sample size for the second round of interviews was five, which is not very large and therefore makes it less likely to indicate it to the entire province of Groningen. As data saturation was not achieved after five rounds, it could be that possible new insights were missed out

upon. Lastly, the educational background of all participants was theoretical, which means that perceptions of practically educated people are left out in this research.

Key strengths of the study lay in the methodological approach of the research. Firstly, a key strength of the study was the choice for a qualitative approach through in-depth interviews. Conducting in-depth interviews made it possible to figure out a deep and comprehensive understanding of participants' experiences, perspectives, and thoughts. Choosing a quantitative approach might have helped with the generalization of the study, but would have been limited in accessing the thoughts, experiences, and perceptions. Secondly, choosing to collect primary data was a strength of the study. Having control over the designation of the data collection instrument made it possible to make an interview guide that paid attention to all concepts of the theoretical framework. This helped gradually to make it possible to answer the research question. Thirdly, as the study was oriented within the context of the province of Groningen, the results of this study can be of value for further research in other areas within The Netherlands or Europe. The final strength of the study is the mainly deductive approach to the coding process. The deductive approach allows for comparability between studies, as the codes are theory-driven whereas inductive coding is more exploratory and emergent, which limits the possibility of comparisons between studies. Furthermore, the deductive approach made the analysis structured and systematic, leading to a clear and precise process.

5.4 Conclusion

This research explored the perceived accessibility among individuals between the ages of 18 and 32, who migrated from a rural area within the province of Groningen to the city of Groningen. The findings revealed insights into the participants' perceptions across four domains in rural and urban settings: health services, educational opportunities, career opportunities, and public transportation. The results showed that participants perceived an improvement in their accessibility in urban areas, in comparison to rural areas. Participants mentioned reduced distances and increased availability to educational and healthcare facilities that contributed to their perceived accessibility. Moreover, their perceived accessibility in urban areas improved due to a boost in job demand and no car dependency, in comparison to rural areas. Finally, the service quality of public transport which was characterised

by frequency, reliability, easy transfer, and proximity to stops played a crucial role in the improvement of their perceived accessibility in urban areas.

The important role of good quality public transportation, distance to healthcare and education, variety of healthcare and educational facilities, together with car dependency and job demand plays a pivotal role in understanding the reasons why individuals are more likely to stay in urban areas or move back to rural areas.

5.5 Recommendations

Future research should focus on the perceived accessibility of practically educated individuals and compare the results with those from this study. Additionally, future studies could explore the interplay between educational accessibility on educational performance.

Furthermore, one policy recommendation is proposed:

- Increase government funding for rural public transport

This recommendation aims to to reduce the travel time to vital amenities such as universities, jobs, and healthcare facilities. The presence of a direct connection by bus or train in rural areas to the vital amenities could reduce travel time, which in turn could change the difference in perceived accessibility.

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Appendices

Appendix 1: Deductive code book

Code	Definition	Example
Transport options to reach healthcare	Interviewee describes which options of transport they have to reach healthcare	'If you have an emergency in the middle of the night, then there is no bus that can bring you there, while in Groningen I think the bus drives until 1 or 2 A.M.'
Distance to healthcare	Interviewee describes the distance that needs to be covered to reach healthcare	'And that is approximately twenty minutes cycling, which is quite far.'
Opening times of healthcare	Interviewee describes their experiences with opening times of healthcare facilities	'Well, we had to call between eight and ten for appointments at our general practitioner.'
Time for treatment	Interviewee describes how long it takes to be treated in healthcare facilities	'I could easily call them, explain briefly what was going on and I could be right there.'
Influences on education	Interviewee describes how educational accessibility influences educational possibilities	'I think it has its benefits as you have relatively small classes and you really learn working independently because you have classes in turns.'
Job accessibility	Interviewee describes their perceptions of job accessibility	'But those are also temporarily projects, so on the long run it is not sustainable.'

Car mobility	Interviewee describes the importance of the presence of a car	'You already need something that is driveable and you already need to go to a bigger village by car.'
Service quality of public transport	Interviewee describes the quality of service (frequency, reliability, easy transfers, closeness to nearest public transport stop) with public transport	'You have that in Groningen, it happens that a bus does not drive. But yeah, then one will come five minutes later, ten minutes later will another one come that will drive.'
Geographical context of public transport	Interviewee describes geographical context in relation to accessibility to public transport	'Yes and also if you do not have public transport, if that does not improve, then I would not live there at this life phase.'

Appendix 2: Inductive code book

Code	Definition	Example
Education accessibility	Interviewee describes physical accessibility to education	'I would go the first few months I think the first month or two months with I think the winter as well with the train.'
Emphasis on elderly care	Interviewee describes how healthcare was emphasized on elderly	'Patient population in Oosterwijtwerd, it was more elderly care.'
Flexibility to reach healthcare	Interviewee describes how there are more options for healthcare	'I had to get a injection once in Groningen and I have to say that it was very useful because there were a lot of locations in close proximity.'
Healthcare focus in Groningen	Interviewee describes the focus of healthcare in Groningen	'And Groningen? Well, you know, it is a student population mainly and students have lots of STD's, so you get a cure for a short conversation of five minutes and you're gone. Or you get your medicines pre-described and you do not return.'
Variety in education options	Interviewee describes the educational options	'There are just so many schools with so many different levels, different backgrounds, you can

		even choose public or not, Christian or not. And yeah, that is funny right? I think it is cool that you can just choose.

Appendix 3: Interview Guide round one

Introduction

Welcome, my name is Bilgehan and right now I am writing my bachelors thesis. I would like to already greatly thank you for wanting to participate in this research. Right now I am doing research into the perceptions of mobility in rural and urban areas of young adults. The aim of this interview is to gain insight into your perceptions of mobility in rural and urban areas. Maybe it is useful to let you know that with mobility, I mean 'accessibility towards different amenities'.

The regular announcements: your identity will remain anonymous, everything that you say will not be retraceable to you in the research and the collected data, in this case the recording and transcript will be deleted at the end of the research.

The interview has been set up in a way where we go into an open dialogue, where you will be mostly talking about how you perceived your mobility in the rural and urban areas. I will steer the conversation by asking a few questions with regard to a few themes such as health services, educational and career opportunities and public transport.

Lets start by asking a few questions first to create the context.

Introduction questions:

1. How long have you been living in Groningen?
2. Where did you live prior to relocation?
3. What was the reason for you to move to Groningen?
4. Can you see yourself living in Groningen in the near future, or somewhere else?
   - Ask why he/ she might live somewhere else.

Alright, these were the questions to create the context. Now we will go a bit more in depth.

Topic list:

- When looking at your accessibility to health services, how would you describe it in Groningen, compared to where you lived prior?
  1. Did you also feel more dependent on own transport in rural areas to reach these services, compared to the urban areas?
- How do you experience your accessibility to educational instances in Groningen, compared to where you lived prior?
- How do you experience your job/ career opportunities here in Groningen, compared to where you lived prior?
- When looking at public transport, how do you experience it here in Groningen, compared to where you lived prior?
  1. If negative, ask whether poor public transport infrastructure had a negative impact on his/ her social life.

Finishing questions:

- Are there any other points of interest of which you think that could be of value for this interview, but could not be mentioned during the interview?

End

Appendix 4: Interview Guide round two

Interview Guide

Introduction

Welcome, my name is Bilgehan and I am writing my bachelors thesis. Right now I am doing research into the perceived accessibility between rural and urban areas. The aim of this interview is to gain insight into your perceived accessibility in rural and urban areas.

The regular announcements: your identity will remain anonymous, everything that you say will not be retraceable to you in the research and the collected data, in this case the recording and transcript will be deleted at the end of the research.

The interview has been set up in a way where we go into an open dialogue, where you will be mostly talking about how you perceived your accessibility in the rural and urban areas. I will steer the conversation by asking a few questions with regard to a few themes such as health services, educational and career opportunities and public transport.

Lets start by asking a few questions first to create the context.

Introduction questions:

1. How long have you been living in Groningen?
2. Where did you live prior to relocation?
3. What was the reason for you to move to Groningen?
4. Can you see yourself living in Groningen in the near future, or somewhere else?

Alright, these were the questions to create the context. Now we will go a bit more in depth.

Topic list:

Topic no. 1: Health Services

1. Can you tell me something about your experiences with the accessibility to healthcare services between rural and urban areas?
2. Do you feel like there is satisfactory availability of healthcare services in your rural area and in Groningen? Can you give any examples? Openingstijden, wachttijden, locatie t.o.v. openbaar vervoer, fusies van bijv. ziekenhuizen, samenvoegen van praktijken

Topic no. 2: Educational opportunities

1. How do you perceive the accessibility of educational opportunities between rural and urban areas for yourself?
2. Do you feel that the range of educational programs available meets your needs in rural and urban areas? Could you give an example?

Topic no. 3: Career opportunities

1. How do you perceive your availability to career opportunities in rural and urban areas?
2. Do you think that the accessibility of jobs that are offered in urban and rural areas differ? If yes, how?

Topic no. 4: Public Transport

1. How do you perceive your experiences with public transport in rural and urban areas?
2. Have you ever faced challenges in accessing public transport in rural or urban areas? Could you describe how it was?
3. Do you think public transport in rural areas covers enough destinations compared to urban areas?

End

These were all the questions, I would like to greatly thank you for your time. Would you like to be informed of the final result?

Appendix 5: Data management plan

Checking a box was not possible, hence why the chosen options have been highlighted

1. General	
1.1 Name & title of thesis	*Should I stay or should I go? A qualitative approach to the perceived accessibility to health services, educational and career opportunities and public transport of people between the ages of 18 and 32 in the province of Groningen*
1.2 *(if applicable)* Organisation. Provide details on the organisation where the research takes place if this applies (in case of an internship).	

2 Data collection – the creation of data	
2.1. Which data formats or which sources are used in the project? For example: - theoretical research, using literature and publicly available resources -Survey Data -Field Data -Interviews	Provide a short description of the sources/data that you are going to use. **Theoretical research, using literature and publicly available resources** **Interviews**

2.2 Methods of data collection What method(s) do you use for the collection of data. (Tick all boxes that apply)	☐ Structured individual interviews
	 ☐ **Semi-structured individual interviews**
	 ☐ Structured group interviews
	 ☐ Semi-structured group interviews
	 ☐ Observations
	 ☐ Survey(s)
	     Experiment(s) in real life (interventions)
	     Secondary analyses on existing data sets (if so: please also fill in 2.3)
	 ☐ **Public sources (e.g. University**
	 ☐ **Library)**
	     Other (explain):

2.3. (If applicable): if you have selected 'Secondary analyses on existing datasets': who provides the data set?	☐ Data is supplied by the University of Groningen. ☐ Data have been supplied by an external party. (Please mention the party here).

3 Storage, Sharing and Archiving	

3.1 Where will the (raw) data be stored *during* research?
 	
If you want to store research data, it is good practice to ask yourself some questions:
• How big is my dataset at the end of my research?
	☐ X-drive of UG
	☐ network Y-drive of
	   UG network
	   (Shared) UG Google Drive
	☐ Unishare
	☐ Personal laptop or computer
	☐ External devices (USB, harddisk, NAS)

• Do I want to collaborate on the data? • How confidential is my data? • How do I make sure I do not lose my data? Need more information? Take a look at the site of the Digital Competence Centre (DCC)) Feel free to contact the DCC for questions: dcc@rug.nl	☐ Other (explain): **The data is stored on the personal Hanze laptop of the researcher. Only accessible through two-factor authentication.**
3.2 Where are you planning to store / archive the data after you have finished your research? Please explain where and for how long. Also explain who has access to these data NB do not use a personal UG network or google drive for archiving data!	☐ X-drive of UG ☐ network Y-drive of UG network ☐ (Shared) UG Google Drive ☐ Unishare ☐ In a repository (i.e. DataverseNL) ☐ **Other (explain): Location mentioned in 3.1. The only one who can access the data is the researcher.** The retention period will be **[3]** months.
3.3 Sharing of data With whom will you be sharing data during your research?	☐ **University of Groningen** ☐ Universities or other parties in Europe ☐ Universities or other parties outside Europe I will not be sharing data

4. Personal data	
4.1 Collecting personal data Will you be collecting personal data? If you are conducting research with personal data you have to comply to the General Data Privacy Regulation (GDPR). Please fill in the questions found in the appendix 3 on personal data.	Yes/no
If the answer to 4.1 is 'no', please skip the section below and proceed to section 5	
4.2 What kinds of categories of people are involved? Have you determined whether these people are vulnerable in any way (see FAQ)? If so, your supervisor will need to agree.	My research project involves: ☐ Adults (not vulnerable) ≥ 18 years ☐ Minors < 16 years ☐ Minors < 18 years ☐ Patients (other) vulnerable persons, namely (please provide an explanation what makes these persons vulnerable) (Please give a short description of the categories of research participants that you are going to involve in your research.) **The participants that are involved in the research are young adults between the ages of 18 and 32**
4.3 Will participants be enlisted in the project without their knowledge and/or consent? (E.g., via covert observation of people in public	Yes/no If yes, please explain if, when and how you will
places, or by using social media data.)	inform the participants about the study.

4.4 Categories of personal data that are processed. Mention all types of data that you systematically collect and store. If you use particular kinds of software, then check what the software is doing as well. Of course, always ask yourself if you need all categories of data for your project.	☐ Name and address details Telephone number ☐ Email address ☐ Nationality ☐ IP-addresses and/or device type Job information ☐ Location data ☐ Race or ethnicity Political ☐ **opinions** ☐ Physical or mental health ☐ Information about a person's sex life or sexual orientation ☐ Religious or philosophical beliefs Membership of a trade union Biometric information ☐ Genetic information ☐ Other (please explain below):
4.5 Technical/organisational measures Select which of the following security measures are used to protect personal data.	☐ **Pseudonymisat ion** ☐ Anonymisation ☐ **File encryption** ☐ **Encryption of storage** ☐ Encryption of transport device Restricted access rights VPN Regularly scheduled backups Physical locks (rooms, drawers/file cabinets) None of the above Other (describe below):
4.6 Will any personal data be transferred to organisations within countries outside the European Economic Area (EU, Norway, Iceland and Liechtenstein)? If the research takes places in a country outside the EU/EEA, then please also	Yes/no If yes, please fill in the country.

indicate this.	
5 – Final comments	
Do you have any other information about the research data that was not addressed in this template that you think is useful to mention?	No