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A thesis investigating the housing search process and housing affordability issues among Dutch and international students in Groningen.

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Summary

In this research the housing search process and the housing affordability issues of Dutch and international students in Groningen are examined by conducting a survey with quantitative questions. Groningen is a medium-sized student city in the Netherlands with a growing shortage of student housing. Independent samples t-tests, Chi-square and one-way ANOVA tests are used in order to analyse the possible differences between Dutch and international students. In this paper we find that international students experience a longer and more difficult housing search process. Besides, they have more difficulties with paying their monthly rent bill compared to Dutch students. This can be explained by their more limited social and cultural capital, language barriers, and their unfamiliarity with the housing market. As a result, they have a disadvantaged position in the housing market in Groningen.

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1. Introduction

In recent years, Dutch cities are experiencing housing availability and affordability issues (Haffner and Boumeester, 2015). While a vast amount of literature investigates factors determining the housing affordability issues and their consequences in general, there is hardly any empirical evidence available about the affordability problems in the student housing market. In student cities like Groningen, severe student housing shortages are present, making the search processes for students rather difficult. In recent years, renters face rent increases and are therefore more frequently suffering from housing affordability issues (Dewilde, 2018).

Generally, tenants pay a comparatively larger share of their income on housing than house owners in the Netherlands. Mostly in the unregulated private rental housing market, landlords have the ability to charge tenants a higher rent (Haffner and Boumeester, 2014). Especially international students appear to have vulnerable positions in the housing market relative to landlords (O'Connor, 2017). They are known to experience more challenges with finding adequate housing in the Netherlands compared to Dutch students. Due to their disadvantaged position in the housing segment, landlords can more easily demand higher rents, exacerbating the housing affordability issues (Fang and van Liempt, 2021).

In this research, we try to fill the research gap in differences in housing affordability issues among Dutch and international students, so that policies can be developed that can interfere and minimise differences between the housing situation of Dutch and foreign students. Consequently, a healthier student housing market can emerge with more opportunities for international students.

Students really struggle with finding adequate and affordable housing. Sometimes students do not have the possibility to study in certain cities as there is simply no place for them to live, or the rental costs are simply too high (Fang and van Liempt, 2021). Especially international students are forced to live in poorly maintained student rooms, due to their lack of housing options (European Students' Union, 2019). As a result of housing affordability issues, students may be forced to have jobs besides their full-time study in order to finance their costs. Additionally, the issues can result in problems related to stress and health (Bentley, Baker and Mason, 2012). Hence, the housing affordability issues among students can be considered an urgent issue in society.

2. Research Problem

The scarcity in Groningen's student housing supply is a crisis, which is not seen to end, due to growing numbers of students needing appropriate accommodation. The housing affordability issues for students can have several consequences, such as students having to endure poor housing conditions and being forced to jobs besides full-time studies. Mainly international students are struggling to find shelter and can experience discrimination against them during the search process. As a result of the powerful positions of landlords, higher rent prices can be demanded for international students, especially during a housing shortage crisis. This can exacerbate the student housing affordability issues in the Netherlands. A vast amount of literature only researches the general housing shortage crisis, and does not consider the affordability issues on the student housing market, nor the comparison between Dutch and international students.

In this research, the aim is to investigate the difference in student housing affordability issues among Dutch and international students by giving an answer to the following research question: *"To what extent do housing affordability issues and housing searches differ between Dutch and international students in Groningen?"*

In order to derive a coherent overview of the situation, the following secondary questions are formulated:

(1) "Which methods do Dutch and international students use in their housing search process in Groningen?"

(2) "Do international students face higher housing affordability challenges than Dutch students?"

3. Theoretical Framework

3.1 Developments in housing rent prices

Since the last decade, student housing shortage and affordability issues have been on the agenda of several urban cities globally, struggling with the consequences of these issues. In the Netherlands, private investments in rental housing have increased after a period of steady decline (Beswick *et al.*, 2016; B. Aalbers *et al.*, 2021). This growth is driven by several factors. First of all, the increasing market-liberal housing policies contribute to the increased rental yields and house price gains in the Netherlands, where property owners can benefit from (Hochstenbach, Wind and Arundel, 2021). Second, demand for private rental housing is on the rise due to economic and demographic trends such as historically low interest rates (Green and Bentley, 2014). The extension of flexible life arrangements, especially among young adults, and the increasing number of people studying at a high educational institution results in a higher demand for rental housing (Hochstenbach and Boterman, 2017). Furthermore, the increasing housing prices result in affordability issues among people when buying a house. Therefore, a group of relatively young people postpones home ownership and resides longer in a rental house (Coulter, 2017). The increasing demand for private rental housing contributes towards the lucrativeness of private rental housing as an investment option (Hochstenbach, Wind and Arundel, 2021).

Overall, tenants pay a relatively higher amount on housing compared to house owners in the Netherlands. Especially in an unregulated private housing market, landlords have the freedom to charge the tenant what they want (Haffner and Boumeester, 2014). Figure 1 shows the development of the average rent price property in the Netherlands from the first quarter of 2010 to the third quarter of 2021 (in € per square metre). What can be observed, is that the average rents have been increasing significantly between this period, from approximately €11 per square metre in 2010 to approximately €16 by the end of 2021. This is an increase of more than 45%. Especially since 2016, a rapid increase in rents has been occurring. The expected continuity in the tight housing market will not likely result in a significant decrease of the average rent price, exacerbating the housing affordability issues in the Netherlands (Statista, 2021). Especially temporary renters are vulnerable to high rents as temporary contracts hardly provide protection to the tenant. Therefore, the housing market determines the housing rent prices and the contracts are known to be unclear in terms of duration (Huisman, 2016).

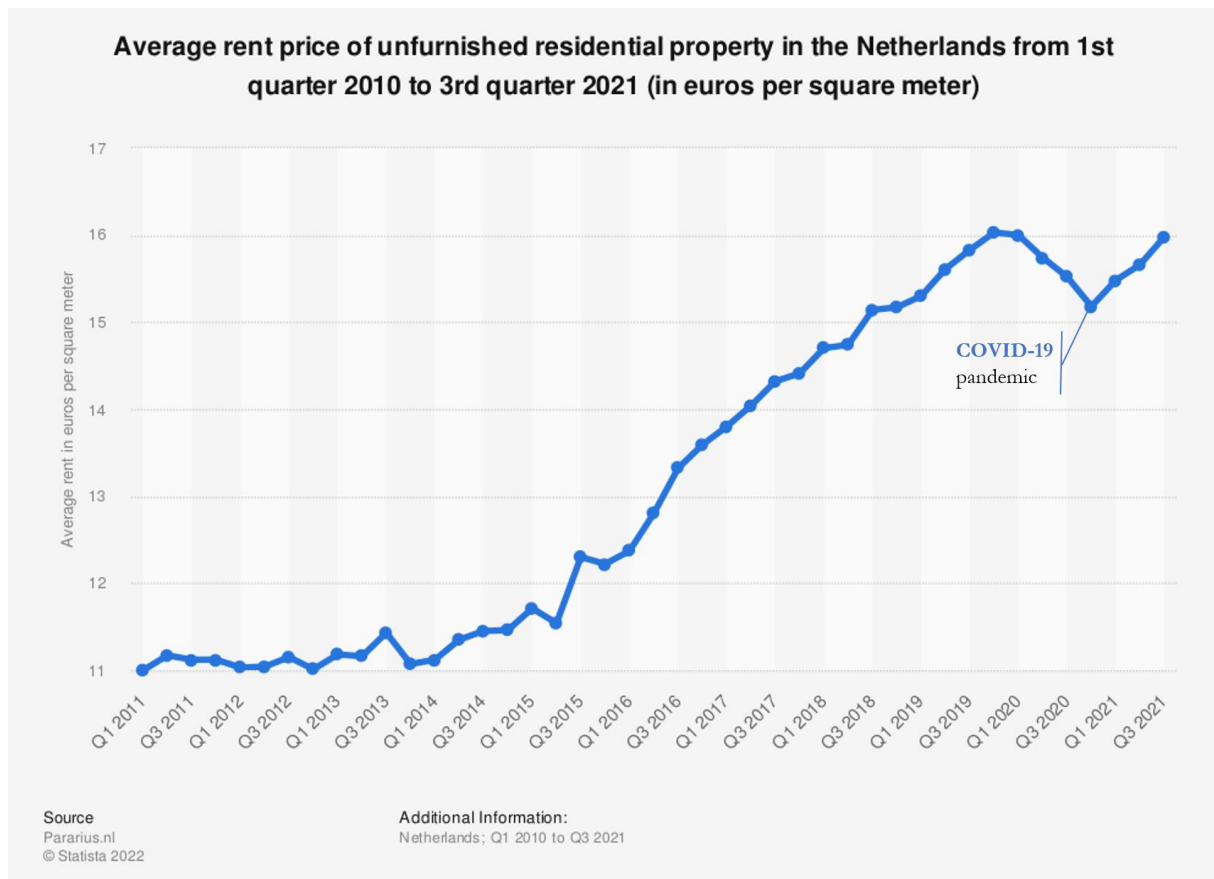


Figure 1: Development of average rent prices in the Netherlands, from Q1 2011 - Q3 2021 (Statista, 2021)

3.2 Housing affordability issues

According to (Galster and Lee, 2021), housing affordability can be defined in several ways. In this research, we use the ratio of housing costs to income as a measure. Especially in the private rental sector, housing affordability issues are significantly more severe than other tenures (Dewilde, 2018). In the Netherlands, the private rental sector includes rental properties that are owned and operated by private landlords or companies (Government of the Netherlands, 2022).

Increasing housing affordability problems result in several consequences. Especially people with "rent burdens", defined as households paying more than 30 percent of their monthly income on rental costs, can experience substantial problems (Gabriel and Painter, 2020). It is possible that households gather up and reside in more densely conditions or decide to decrease their quality of housing in order to save rents (Gabriel and Painter, 2020).

Alternatively, people with rent burdens might lower their spending on other primary needs such as energy costs and food, as they have a restricted spendable income (Pollack, Griffin and Lynch, 2010). Also, they might lower their spending on health costs, posing an increased health risk (Pollack, Griffin and Lynch, 2010).

Due to financial stress, they are more likely to feel sad and discontent with their lives (Watson, Barber and Dziurawiec, 2015). Besides, people with housing affordability issues are more likely to engage in self-destructive behaviour or get violent (Downing, 2016). Additionally, (Bentley, Baker and Mason, 2012) finds that the higher stress levels related to the affordability problems translate into a poorer mental health.

As students are a group of the population that have a relatively limited financial capacity, they have a higher probability of suffering from rent burdens and its consequences (Gabriel and Painter, 2020).

3.3 Housing search costs

During the housing search process, search costs can be involved. The search costs are determined by complex factors, making it challenging to accurately determine the costs (Siqi, Hongyu and Lee, 2006). Examples are the duration of the search time and the type of search method consulted. Generally, home-seekers want to minimise search costs, as they have a restricted amount of time and financial resources devoted to the housing search process (Rae, 2015).

According to (Galvez, 2010), it is likely that search costs raise if the search duration increases. Students are generally people with limited economic resources. Therefore, they are more likely to pursue methods that do not require money in order to find housing, such as their connections (Hochstenbach and Boterman, 2015). They also might use other affordable methods such as student housing corporations (e.g. Lefier) and online housing platforms, e.g. Kamernet, where only application fees and subscription of around €20/€30 are demanded.

Currently, the internet is the most frequently used tool at the start of the housing search process in the Netherlands (Rae, 2015) It provides substantial housing listings and can reduce the search costs (Boeing, 2020). As younger people such as students are more affiliated with online technology, it mainly lowers their search costs (Boeing, 2020).

“Outsiders” of the local housing market, e.g. foreign students, generally are less knowledgeable on the local housing market and have a more restricted local social network from which they can draw in order to find housing (Hochstenbach and Boterman, 2015).

Therefore, they relatively make more use of other methods such as real estate agents, which are in general more expensive. As a result, their housing search costs can be higher than local people (Ihlanfeldt and Mayock, 2012).

However, consulting real estate agents increases the probability of finding a home and reduce the search time (Siqi, Hongyu and Lee, 2006)

3.4 Students in the housing market

In general, students are an attractive group for property owners as they are willing to pay a premium for inner-city life due to their “metropolitan habitus”. To this end, students strongly prefer the development of human capital and a high connectedness to global networks, which characterises inner-cities (Kinton *et al.*, 2018) Property owners can enhance their return on investment in the student housing market even more because of the three following reasons. First, the excess demand for student housing provides property owners a powerful position as they can choose their own tenants and ‘prompt’ the rent (Rugg *et al.*, 2000). As the academic year starts in September in Groningen, there is a substantial excess of student housing demand during this period as students are looking for a house before the start of their studies. Therefore, students barely have a choice in the student housing segment and they are forced to accept housing offers, despite the price. Hence, property owners can exploit the high student demand by asking higher rents (Harvey, 2010).

Second, high fluctuations among tenants in student housing allow landlords the ability to make frequent rent adjustments. As students stay for a relatively short period of time in a room, the turnover of tenants is, in general, very high (Zukin, 2014) During a change of

tenant, landlords have the right to change the rent. As a result, landlords can charge a rent until a level that they think the tenant is willing to pay. Especially in a tight housing market, this means that the rent will be adjusted upwards by the landlord (Miessner, 2021).

Third, the demand for small apartments allows landlords to charge high rents per square metre. Over the years, students have gotten more preferences for luxury and private amenities (Verhetsel *et al.*, 2017). In other words, more students would like to have their own apartment. Therefore, relatively small apartments are built in flats, which allows landlords to charge (still) low total monthly rents for apartments, whereas the rent per square metre is higher, resulting in higher returns on investment for landlords (Miessner, 2021). All in all, the powerful position of landlords and their subjectiveness can result in severe affordability problems in the student housing market.

3.5 Position of international students on the housing market

As international students did not grow up in the host country, they usually have less family, friends and other acquaintances there. Therefore, they have a more limited social network in the host country of which they can draw from when finding housing, in relation to domestic students (O'Connor, 2017). Especially when they move to a foreign student city for the first time. Moreover, they are mostly unaware of the student housing market context in the host country. Hence, they lack the relevant knowledge on the housing-market practices. This resonates with the article of (Hochstenbach and Boterman, 2015), which mentions that "outsiders" are unaware of the local housing market. Besides, foreigners face language-related challenges, and therefore also experience more barriers when getting into contact with landlords or property owners (Maslova and Chiodelli, 2018). As relevant information and laws on the Dutch housing market are not written in their mother language, they have more difficulty assessing it (Calder *et al.*, 2016). Hence, international students have less social and cultural capital that can be relevant for finding a student house, compared to Dutch students (O'Connor, 2017).

Therefore, international students, in general, have a more vulnerable position in the housing market. Consequently, international students may experience discrimination against them in the housing market in the Netherlands (Hanassab, 2006). Sometimes Dutch students have the ability to choose their new housemates themselves at hospitality evenings. The invitee who matches the best with the residents will get the room. International students are disadvantaged as Dutch students usually have a strong preference for fellow Dutch students (Fang and van Liempt, 2021). As landlords in the private rental sector are able to choose who they want to have a rental agreement with, bias against certain ethnic international students can be present. Especially when there are housing shortage issues, landlords occupy a powerful position on the student housing market and ask high demands such as temporary rental contracts and maintaining the property poorly. Especially international students can end up in a bad quality student room in relation to the height of the rent they pay (Forbes-Mewett and Nyland, 2008) Due to the distance of foreigners to their parental home, they are dependent on finding a student room. Sometimes they start living in temporary housing and need to find housing quickly (Calder *et al.*, 2016). Therefore, landlords have an even more powerful position and can exploit this position by demanding higher rent prices for them (Fang and van Liempt, 2021).

3.6 The Groningen context

In 2022, the student housing shortage in the Netherlands is estimated to be 26,500 rooms, and it is predicted to increase even more (Savills, 2022b). Construction companies plan to develop additional student housing in order to fulfil the growing demand of students. The total supply of student housing across these cities is estimated to rise by 18,000 housing units until 2026. However, the number of students living outside their parental home is expected to grow by 40,000, meaning that the student housing shortage issue in the Netherlands can be further exacerbated (Savills, 2022). Especially in Groningen, a medium-sized city in the Northern Netherlands, students experience a shortage of student housing. Currently, the housing shortage in Groningen is estimated to be approximately 7,400 homes. In 2025, this lack of housing provision is predicted to rise to 10,000 housing units (The Northern Times, 2022). Student housing in Groningen is mainly offered by private-rental investors (landlords) and the four big housing corporations: Lefier, Nijestee, Patrimonium and De Huismeesters. Due to internationalisation, foreign universities and other higher education institutions have become more popular choices for foreign students. The Erasmus scholarship and the Bologna process are factors that foster the mobility of international students (van der Wende, 2015). Attracting highly-educated international students to the Netherlands stimulates the development of research and innovation, so that a leading role can be maintained (van der Wende, 2015). This belief encourages educational institutions to compete globally in trying to attract new foreign students (Cubillo, Sánchez and Cervio, 2006). The University of Groningen is currently a top 100 university (Times Higher Education, 2023). This ranking increases their reputation and therefore the mobility of foreign students to the city, fostering the demand for student housing in the upcoming years (van der Wende, 2015).

The percentage of international students enrolled at educational institutions in the Netherlands is predicted to increase from 13.3% to 17% in 2030 (Savills, 2022a). Consequently, the Dutch student housing market will stay tight in the Netherlands in the upcoming years, resulting in severe housing affordability issues due to increasing rent prices (Fang and van Liempt, 2021). Housing affordability problems for students come with several consequences. Students may have to endure poor housing conditions during their student time due to higher rents (so living in less expensive housing units with a relatively lower quality). Moreover, students may spend an amount of their time on part-time jobs in order to finance their rents and other fees, although university studies are assumed a full-time occupation in the Netherlands (Sotomayor et al., 2022)

4. Conceptual model / hypotheses

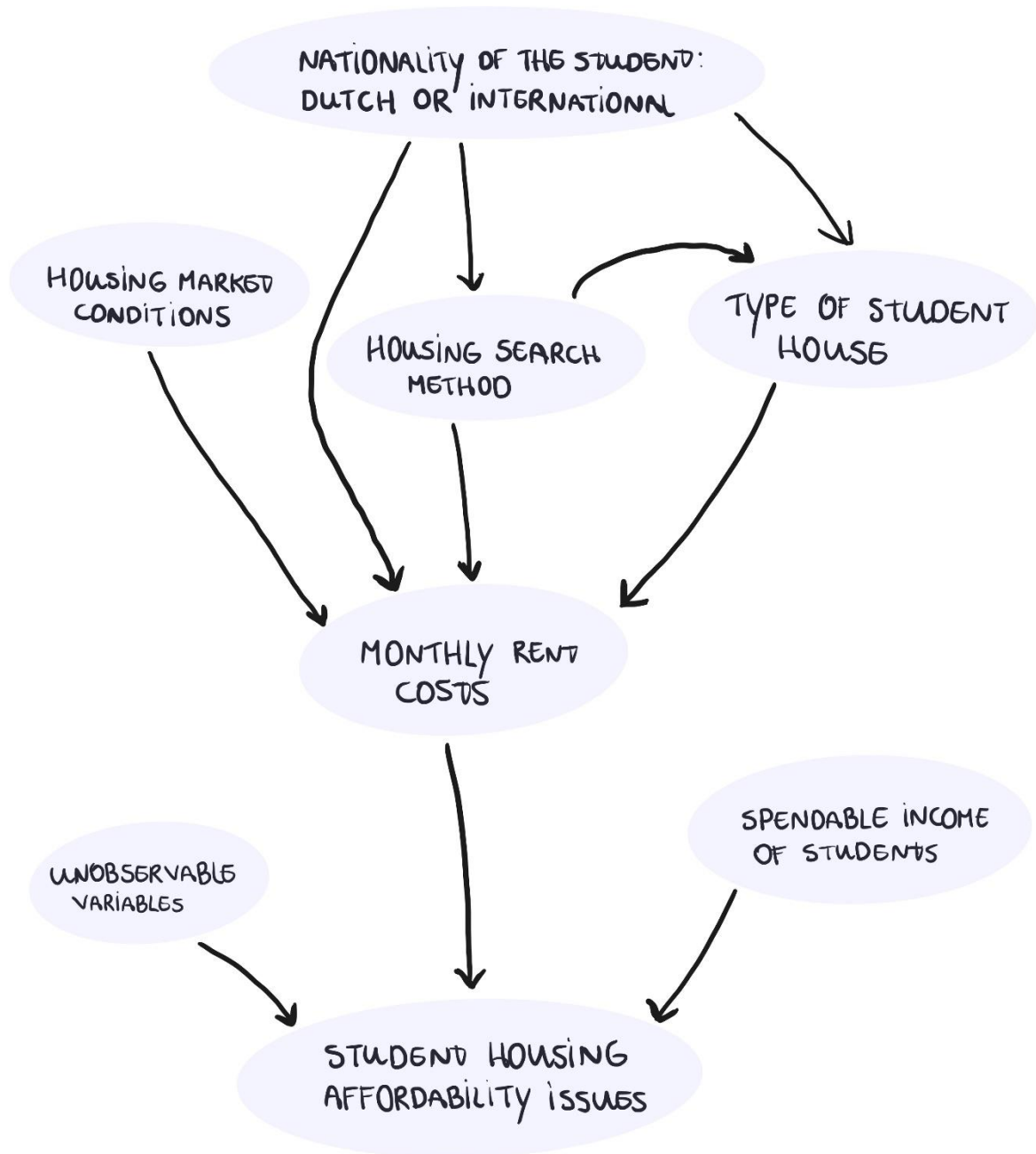


Figure 2: Conceptual model representing the relationships between the variables

The conceptual model above visualises the dependent variable “student housing affordability issues in Groningen”, the independent variables, and the relationship between them in order to get an overview of the student housing situation in Groningen. The research will control for several variables such as years of living in Groningen, housing search methods, gender, etcetera. The nationality of the student can influence the monthly

rent costs via other ways besides the search method and the type of housing, such as discrimination and network effects. Therefore, there is a direct arrow between the nationality and the monthly rent costs, representing these factors. Several factors, such as the tenant's income and the monthly rent, determine the housing affordability issues for students. Furthermore, unobservable variables are shown in the model, to emphasize that there are other factors shaping our outcome variable that we might overlook or are not able to measure (e.g. psychological factors). The conceptual model can contribute to formulating clear hypotheses in our research, due to the clear shown causality between the concepts/variables. The hypotheses are the following;

- International students experience more challenges in their housing search process than Dutch students.
- International students face higher housing affordability challenges than Dutch students.

Via our research, we want to test the hypotheses and investigate whether they can be fulfilled or rejected.

5. Methodology & Data collection

In order to find suitable data that can contribute answering our research questions, a quantitative method will be used. As existing data sets from surveys, such as Woononderzoek Nederland (WoOn) and the European Quality of Life Survey, do not contain sufficient suitable participants, and the right questions for our survey, we decide to gather primary data. Therefore, the research can be tailored better towards the research aim, so that more clear and evident answers can be found to our research questions. The quantitative method is applied by developing and conducting a brief survey via Qualtrics. The survey takes about 5 minutes and consists of four sections: a demographic section, a housing situation section, a section about the housing search process, and a housing affordability section.

Qualtrics is a powerful online survey software. In this research, Qualtrics is used as it provides multichannel communication, secures data, is comprehensible and it allows the researcher to tailor the questions completely towards their preference.

The survey contains several questions that enable us to get an insight into the statistics of a large number of our focus group, which is Dutch and International students living in Groningen. By using a survey, conclusions can be drawn about the search process and rent costs differences between Dutch and foreign students from a relatively large sample group. Moreover, a comparison is made between Dutch students in different regions, as students born in the Northern provinces might have an advantage regarding their network. The survey contains questions about the nationality, the monthly rental costs, rate of discrimination, housing search pathways, and financial situations. Appendix 1 shows the survey questions and answer options.

In order to get a randomly sampled, diverse group of participants, we ensured that the survey was not only distributed in the researcher's close network. First, social media channels were used in order to get participants. Moreover, the survey is shared in big WhatsApp group chats of study programmes and people were asked to share the questionnaire further to people they know. Via this way, the respondents do not only consist of the researcher's network, which creates diversity among the participants. As the

researcher is a student living in Groningen itself, it was more convenient to find the right target group.

After gathering the primary data via the survey, the results will be imported in a Statistical Software programme called 'SPSS', where the results can be analysed. The data in SPSS will be analysed by using statistical regressions, so that possible relationships and conclusions can be identified.

In our research, the principles of the General Data Protection Regulation (GDPR) needed to be fulfilled. Furthermore, ethical considerations needed to be considered. First, we ensured people participate voluntarily and that they are aware of what it means for them to take part in the study by asking them for consent before participating in the research. In addition, the respondent's vulnerability is taken into account carefully. Participants might have disabilities that can cause difficulties for participating. We need to consider and be sensitive to their needs, by not making the questions obligatory and including the answer option "other". In addition, we need to be aware of issues that may arise due to their inability to provide full consent.

Moreover, we ensured to not collect any personally identifying information (e.g. names and email addresses) in order to guarantee anonymity. Besides, we ensured general information in the research so that we do not refer to individuals and as a result keep the data confidential. Furthermore, we ensured safe storage of data during the research by backing up and managing it in a clear and efficient way, to prevent losing important data and to keep a good overview of the research.

Our first objective is to investigate the housing search process and whether and to what extent methods used for finding a house differ between Dutch and international students. Thereafter, we analyse the housing situation of the students and their share of income spent on housing rents. Also, questions concerning the difficulty paying the monthly rent bill were asked. Finally, we analyse whether possible differences in housing affordability issues can be explained by differences in nationality and control for several variables such as the age, gender, the years of studying, etcetera. We examine this by conducting independent samples t-tests, comparing the means of both Dutch and international students in Groningen.

Appendix 2.1 reports the characteristics of our data set and the variables, presented separately for Dutch and international students in Groningen. The majority of the sample consists of Dutch students ($n = 94$), though there are sufficient international students ($n = 44$) in order to perform statistical analysis. There were some nonresponses in our results. However, no respondents needed to be excluded as every respondent filled in at least some questions in the survey that enabled us to get an insight into the problem at hand.

6. Results

6.1 The housing search process

In this section, the housing search process is examined. We for instance analyse which methods people use in order to find housing and the amount of search costs involved. A comparison is made between Dutch and international students.

In order to find a student room, several methods can be used. Personal connections, social media channels such as Facebook groups (“Kamer in Groningen”), student housing platforms, housing corporations (e.g. Lefier) and real estate agents, are some of the main methods.

Figure 3 shows the methods that students used by controlling for the region of origin of the respondents. The answers are expressed as the percentage of students that used a certain method in relation to the total number of answers given in their group. The total number of answers chosen are added up in each group, as respondents could choose multiple answers. Otherwise, the percentages would add up to more than 100% (appendix 2.2).

It can be observed that the percentage of students using connections is higher in the three Northern Provinces. Student housing platforms such as Kamernet are generally used more by students born in the Netherlands, but outside the three Northern Provinces. Surprisingly, 0% of the respondents born in the province of Groningen use student housing platforms in order to find student housing. Instead, they mostly rely on their social network and social media channels.

International students make relatively more use of housing corporations, such as SSH and Lefier, than Dutch students. Furthermore, international students consulted real estate agents relatively more (11,9%) compared to the average Dutch students. Hence, in general, the international respondents made more use of methods which are out of their social network, such as real estate agents and housing corporations.

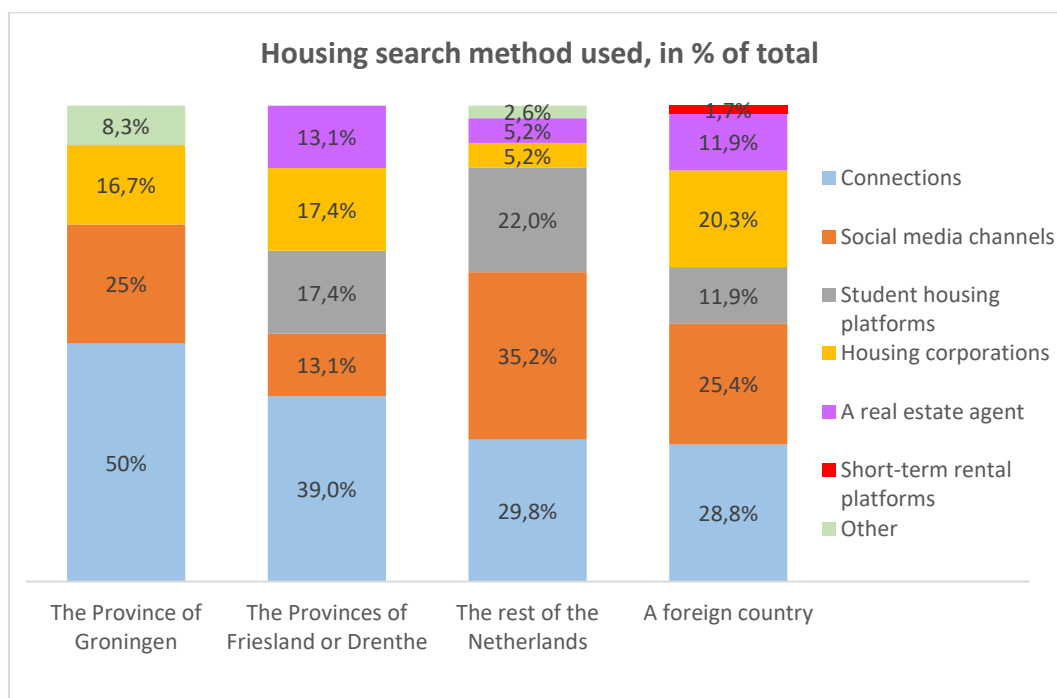


Figure 3: Methods used in the housing search process for every region of origin

Figure 4 shows the average difficulty and length of the housing search process with the corresponding search method. Respondents could express their opinion on the difficulty in categories ranging from “not difficult at all”, coded as 1, to “completely difficult, coded as 5”

Clearly, respondents using their connections experience a less difficult housing search process. Students that consulted a real estate agent have the most difficult process, on average. Generally, the methods outside people’s own network (student housing platforms, housing corporations and real estate agents) correspond with a more difficult housing search.

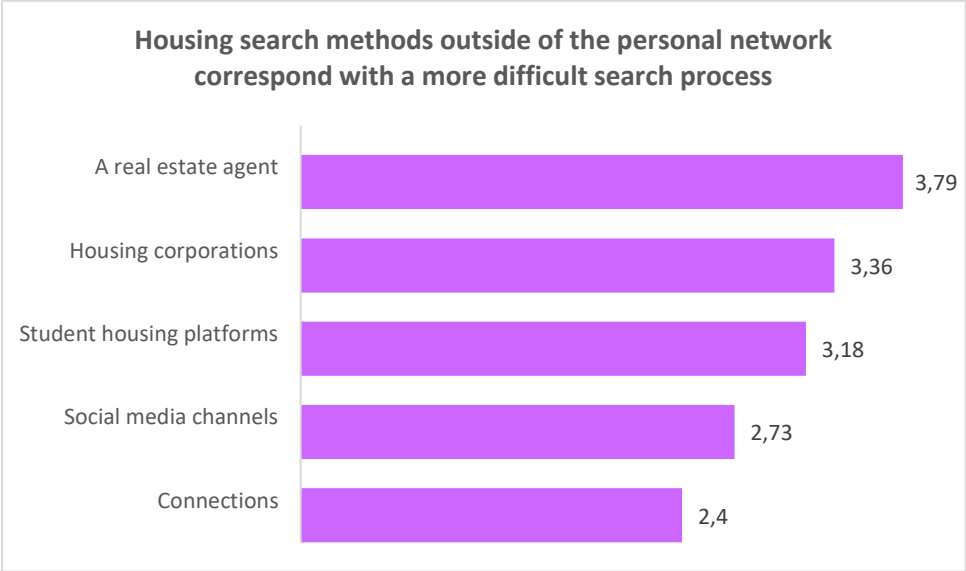


Figure 4: Difficulty of the housing search process for the different housing search methods

Figure 5 shows that the percentages of a relatively short search process is higher for methods within the personal network (connections and social media channels) of the housing-seeker. We can also observe that people using a real estate agent or a housing corporation experience a relatively long housing search process (> 2 months) to a larger extent.

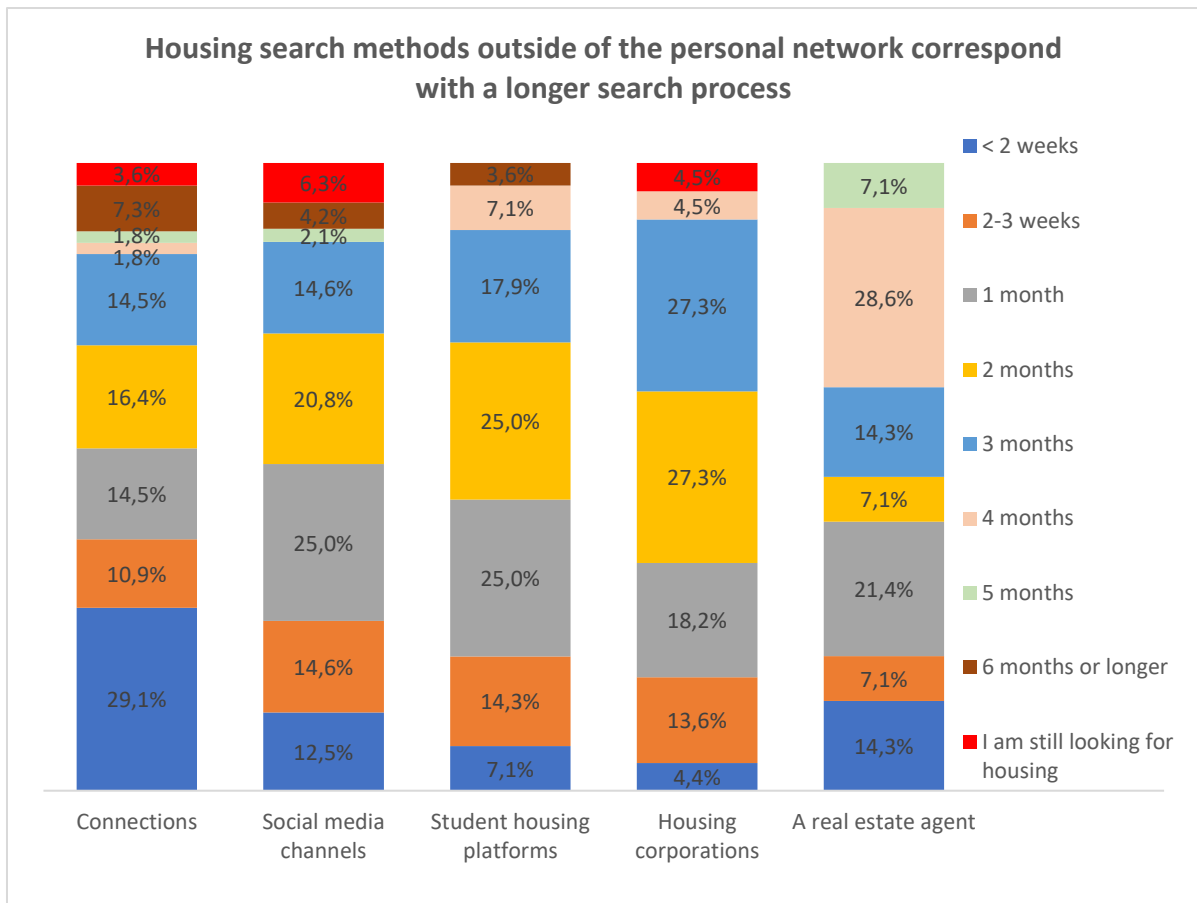


Figure 5: Stacked bar graph (100%) showing the length of the housing process in categories for the different housing search methods.

Figure 6 shows the length of the housing search process in categories. Generally, the percentage of students experiencing a relatively short housing search process (< 1 month), is substantially higher in the three Northern Provinces. Additionally, the figure shows that the percentage of international students experiencing a relatively long search process is higher compared to Dutch students (significant at the 10% level, appendix 2.14.). This is in line with the expectations, as they use methods that correspond with a longer search process to a larger extent.

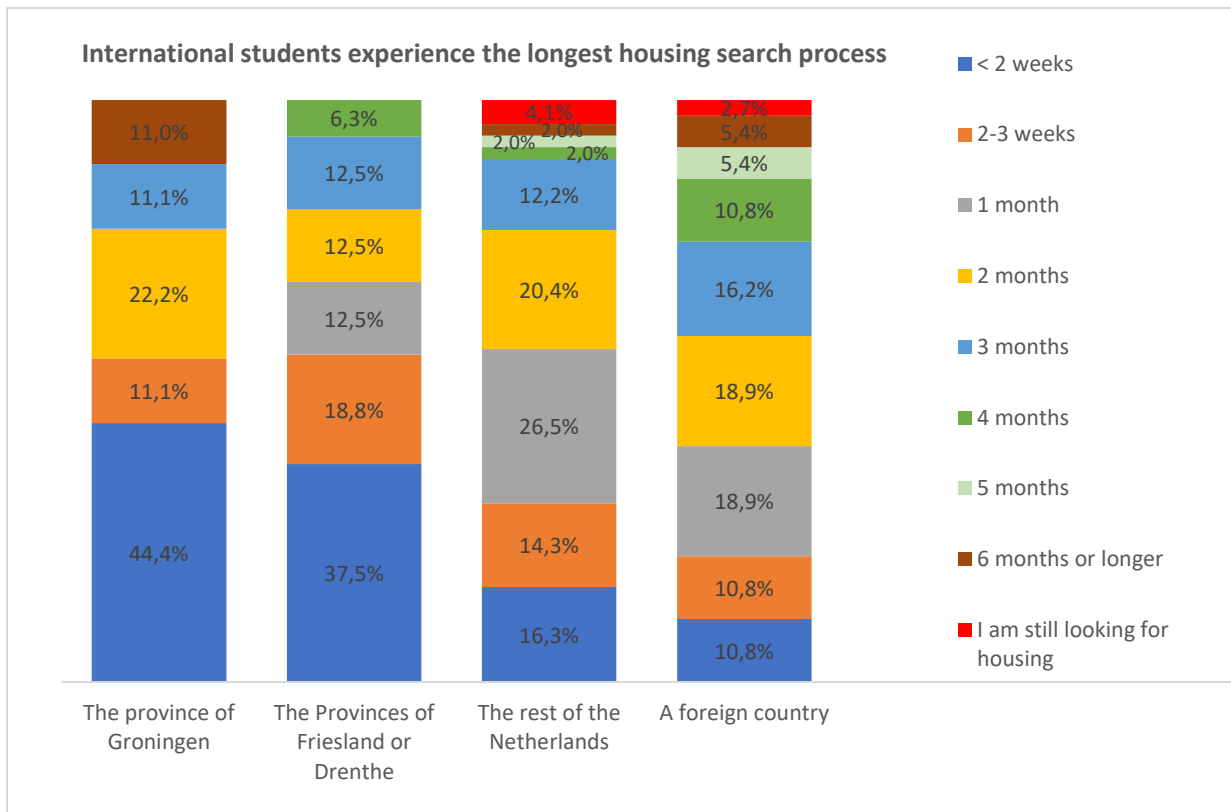


Figure 6: Length of the housing search process for each region of origin, in % of total.

Considering the number of applications, the categories that represent a higher number of applications (10-19, 20+) are more heavily taken up by foreign students and Dutch students born outside the three Northern provinces, as figure 7 shows. Among the respondents born in the province of Groningen, nobody needed more than 20 applications. On average, students born outside the three Northern provinces, especially international students, submit more applications than respondents that were born in the three northern provinces (significant at the 10% level, see appendix 2.15) .

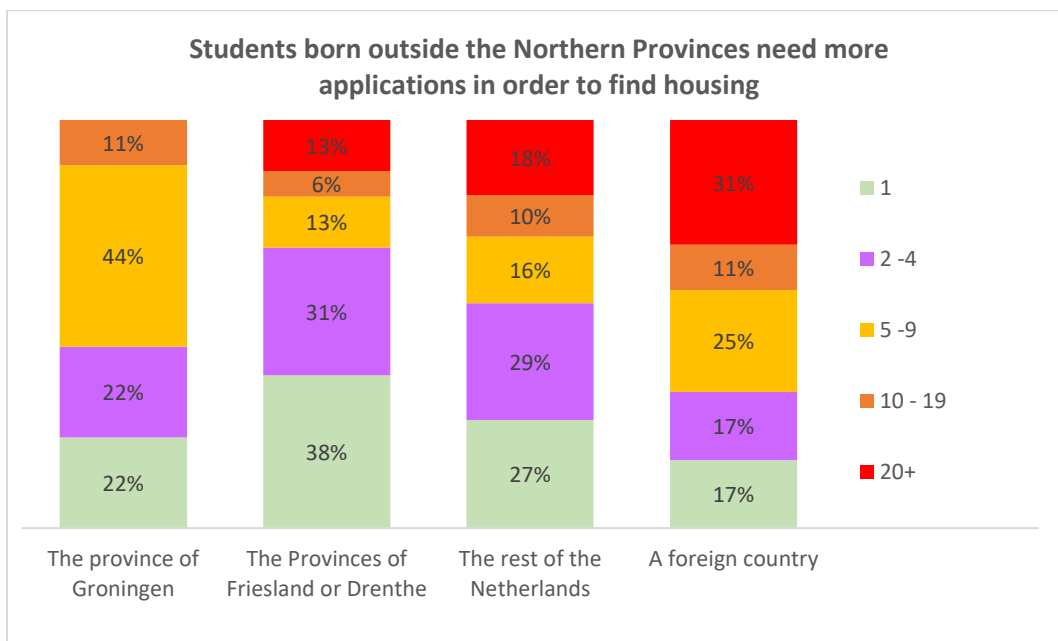


Figure 7: Number of applications submitted in order to find student housing

Considering search costs, there is no substantial difference between Dutch and international students. The average search costs for Dutch students are €26,19 and therefore only €4,08 higher compared to foreign respondents (appendix 2.1). So, the search costs are relatively low and do not explain the difference in the housing pathways between Dutch and international students. Additionally, the search cost results are not statistically significant (appendix 2.13)

Figure 8 shows the division of the extent of difficulty with finding suitable housing. Respondents could choose from options ranging from not difficult at all to completely difficult. The majority of the foreign respondents experience the process as 'very difficult or completely difficult', whereas this is less than 17% among the Dutch respondents. Among the respondents born in the northern provinces, no one experienced the housing pathway like this.

The majority of the Dutch students experience "no or somehow difficulties" with their housing search process. This percentage is significantly less among internationals (significant at the 5% level, see appendix 2.13).

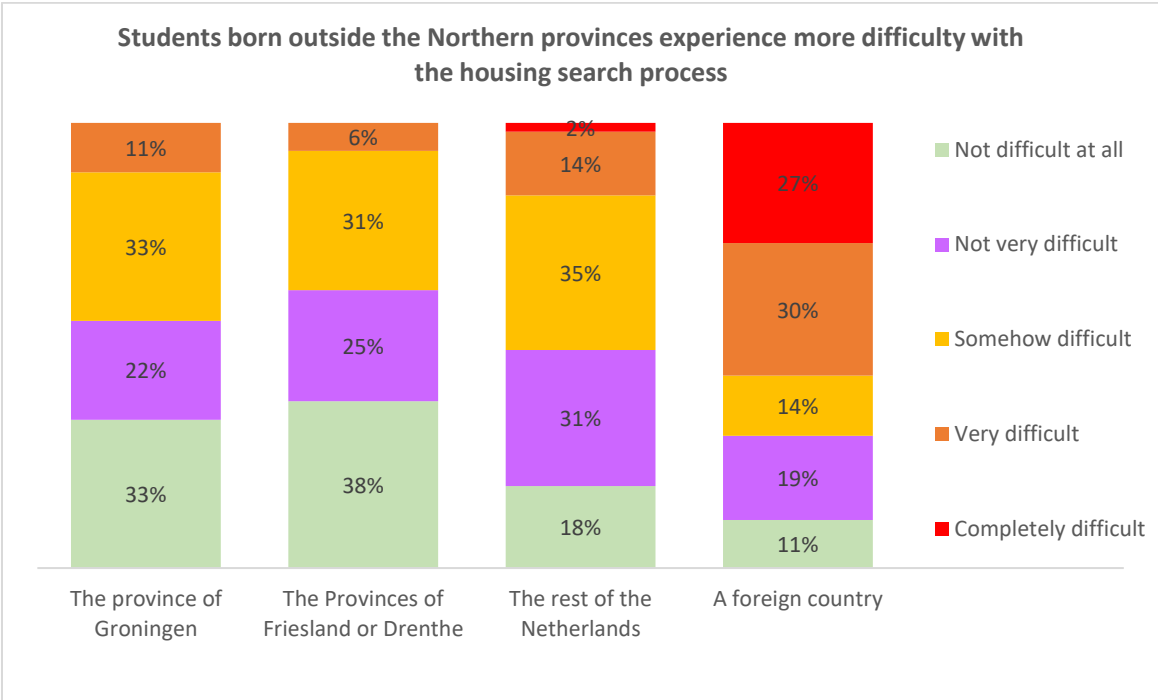


Figure 8: Difficulty of the most recent housing search process, division of the four regions of origin

6. 2 Housing Affordability issues

In this subsection, the housing affordability situations of the respondents are examined. We analyse the rent costs and to what extent the housing situation results in challenges to pay the monthly rent bill. Students can live in different types of housing. The survey categorizes them in four groups; a room in a student house with shared facilities, a room in a student flat with shared facilities, an independent room in a student flat with private facilities, and an independent apartment with private facilities. As only 2 of our respondents live in the

latter category, we combined it with the other group of private facilities, as it is not statistically evident to make claims about this type of student housing.

Figure 9 shows the mean monthly rent costs (including water and energy costs) for the different types of student housing. It can be observed that the monthly rent costs are significantly higher for independent student housing with private amenities (significant at the 1% level, appendix 2.11).

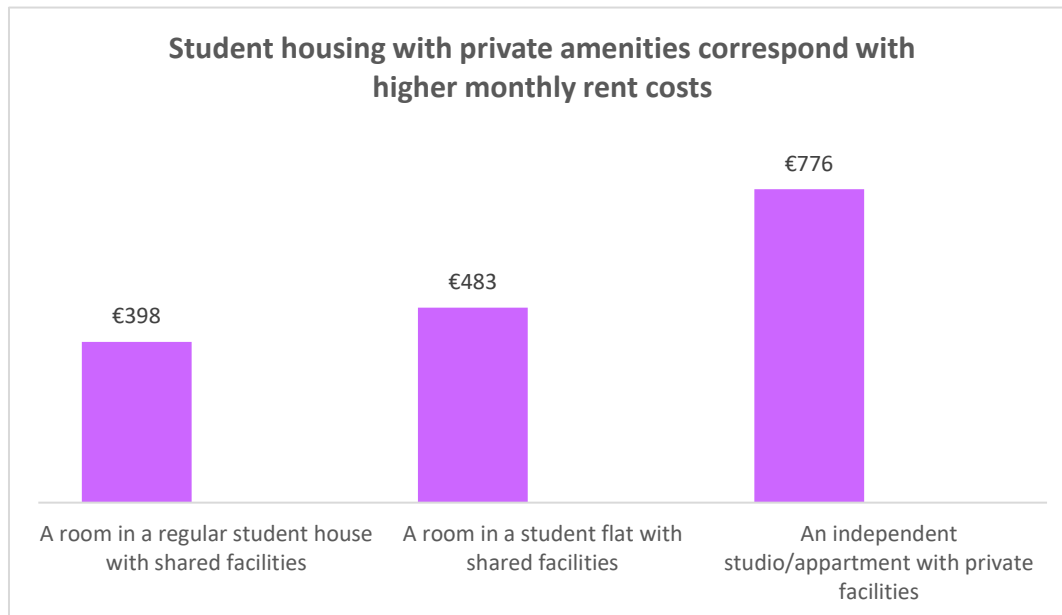


Figure 9: Average monthly rent costs for the different types of student housing

The higher rent costs are expected to lead to a larger share of spendable income devoted to rents, keeping other variables fixed (*ceteris paribus*). Our data supports this assumption, as shown in appendix 2.7 The percentage of spendable income devoted to rent is 48% for people living in a room in a regular student house with shared facilities, 52% for respondents residing in rooms in student flats with shared facilities, and 58% for people living in independent rooms with private facilities.

Figure 10 shows the distribution of the student respondents across the different types of housing. Evidently, international students reside comparatively more in rooms with private amenities, while Dutch students tend to live more in student housing with shared facilities. As the type of housing influences the housing rents, we would expect international students paying higher (average) housing rents than Dutch students.

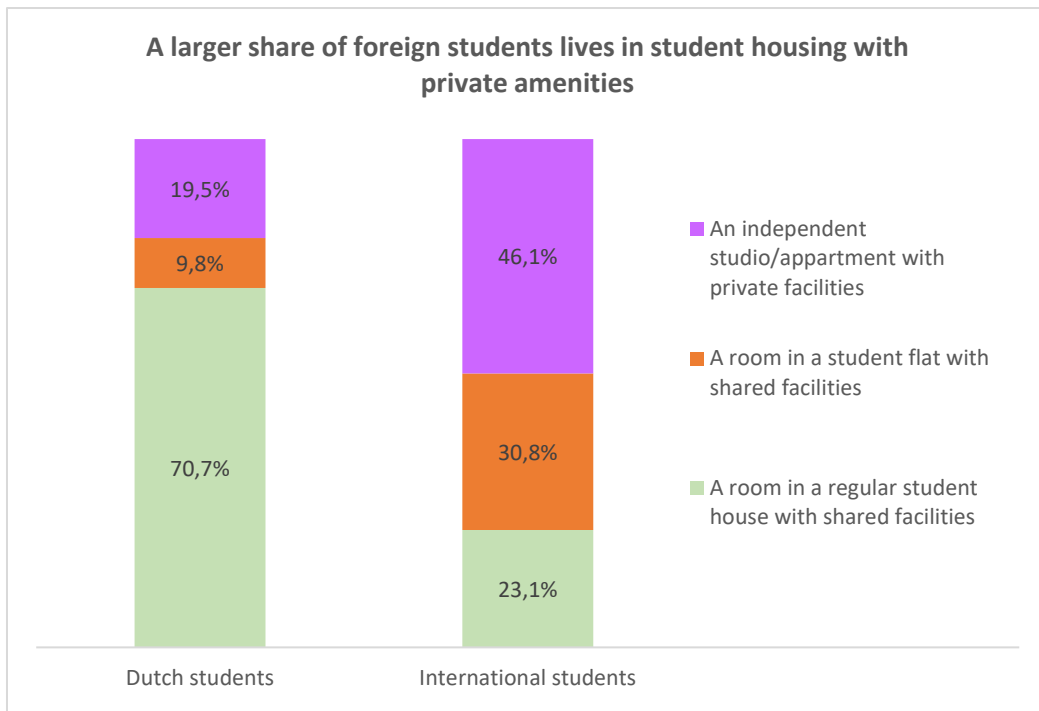


Figure 10 Division of Dutch and international students among the different types of student housing

Figure 11 shows the average monthly rent costs that Dutch and international students pay, including water and energy costs. The mean monthly rent costs of foreign students, €633, are significantly higher compared to the rent of Dutch students, which equals €450 (statistically significant at the 1% level, see appendix 2.13). However, the standard deviation of the rent costs among Dutch and foreign students equals 170 and 214 respectively, implying a substantial variance in rents (appendix 2.1).

International students face higher monthly rent costs

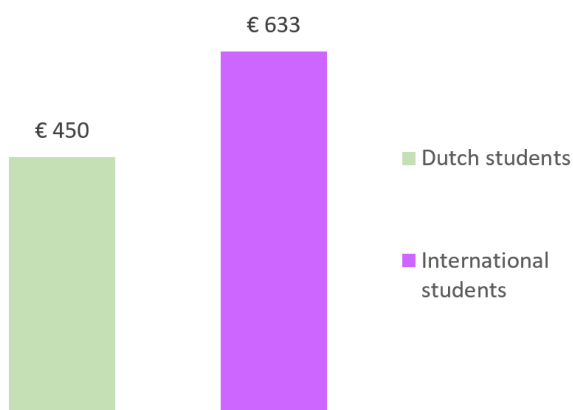


Figure 11: Average monthly rent costs for Dutch and international students

On average, 49% of the spendable income of the Dutch student respondents is devoted to rents. Alternatively, this percentage is 55% for international students (statistically significant at the 10% level, appendix 2.13).

By looking at the difficulties of paying the monthly rent bill, we are able to examine to which extent students experience challenges with their housing affordability. Figure 12 depicts the extent of difficulties with paying the monthly rent bill, expressed in categories ranging from not difficult at all to completely difficult. According to our data, 13,5% of the international respondents experience the difficulty of paying the rent bill as very or completely difficult, whereas this is 4,2% among the Dutch respondents.

Besides, 60,5% of the Dutch respondents experience the difficulty of paying the bill as 'not difficult at all or not very difficult', though this is 43,2% for the international respondents. Generally international students have more difficulty with paying their monthly rent bill. Hence, international students experience housing affordability issues to a larger extent than Dutch students (significant at the 5% level, appendix 2.13).

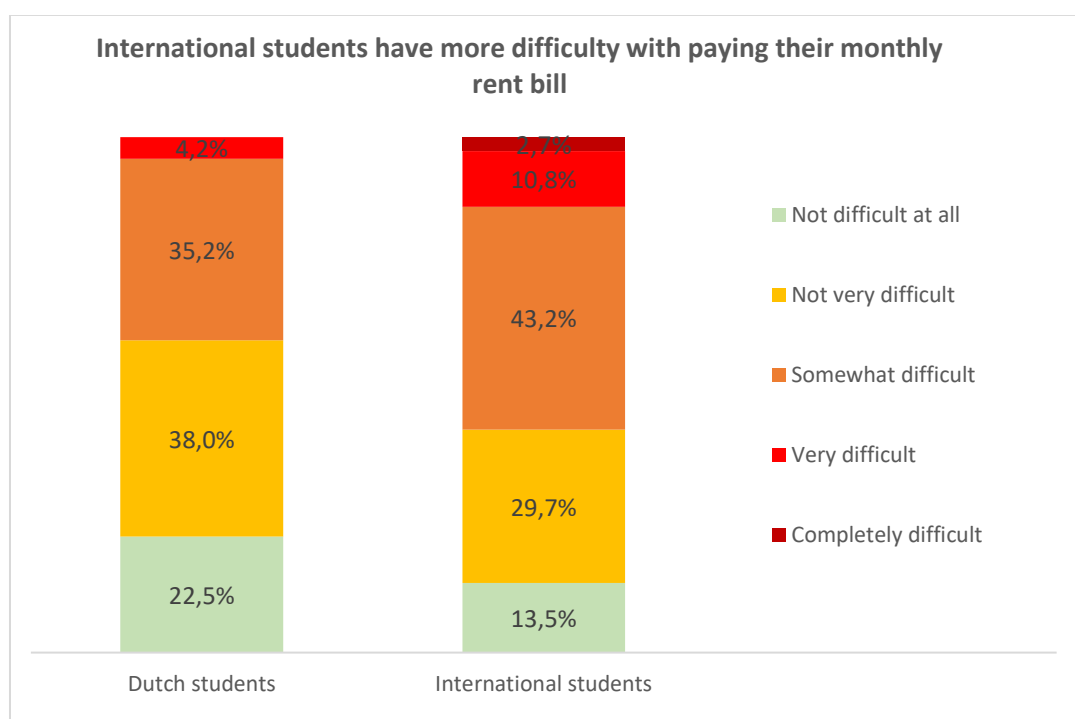


Figure 12: Difficulties with paying the monthly housing rent bill for Dutch and international students

In the survey, the question about the price/quality ratio of the student rooms provides respondents the possibility to choose between 5 categories, ranging from very inexpensive to very expensive. Figure 13 shows the division of respondents in the different categories. Generally, international respondents fall more heavily in the categories "expensive" and "very expensive". The average valuation of the price/quality ratio of the housing situation for Dutch and international students is 3,20 and 3,78 respectively, implying that they value the price / quality ratio worse than Dutch students (significant at the 1% level, appendix 2.13).

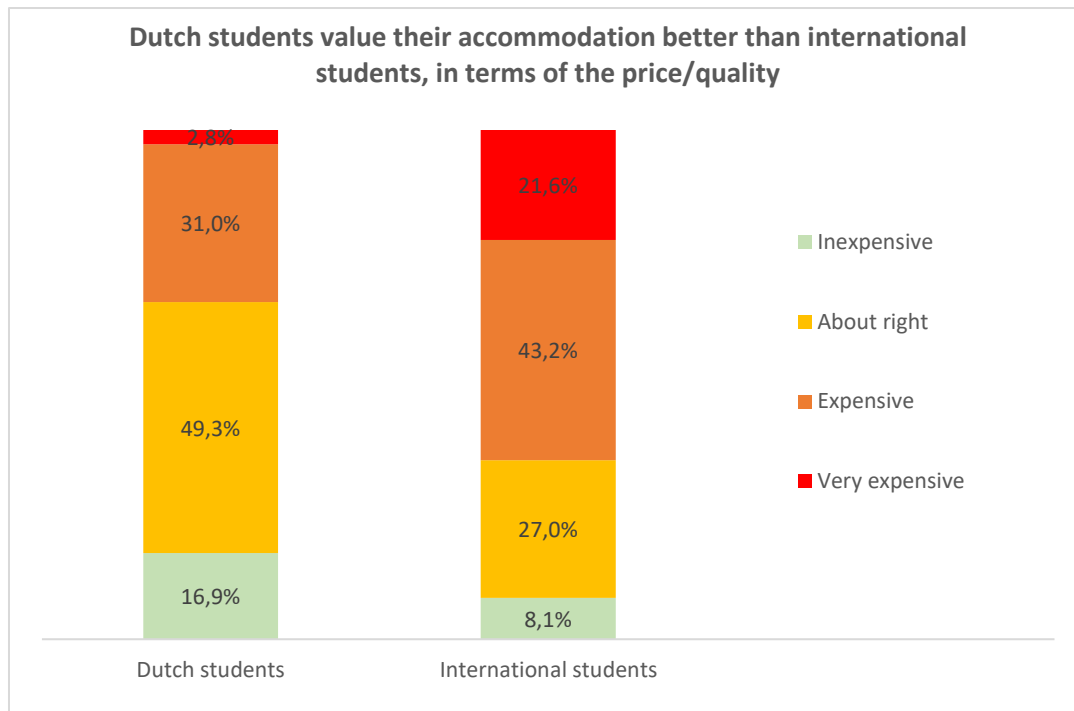


Figure 13: Price/quality ratio of student housing, in % of total.

7. Discussion

Our results reveal that the percentage of Dutch students using their connections to find housing is higher compared to foreign students. This resonates with the paper by (O'connor 2017), which states that foreigners have a more restricted social network in their host country and are therefore less likely to find housing via connections. However, this argument mainly holds for foreign students moving to Groningen for the first time. After living in the city for a while, the student's local network expands. This argument also holds to a limited extent for people born in the rest of the Netherlands, as they have a higher probability of having a more limited local network compared to people born in the Northern Provinces.

Besides, the length of the housing search is not the shortest for people born in the Province of Groningen. This result is not in line with the expectation, as based on the local network effects, we would expect people born in the provinces of Groningen to have the shortest housing search process in general, as they grew up in the same area and therefore could make more use of their social and cultural capital in order to find student rooms.

The finding that students born outside the Northern provinces experience more difficulty with their housing search process, is supported by the article of (Fang and van Liempt, 2021), which states that international students might experience longer housing search pathways due to their vulnerable position in the student housing segment. Due to their lack of knowledge about the rules and regulations, their limited social network in Groningen, and their relatively defined cultural capital, they might experience a longer process and even suffer from discrimination by landlords. The relatively longer housing search process of Dutch students born in 'the rest of the Netherlands' is also supported by the article as they are more likely to have a more limited local network in the region of Groningen due to growing up elsewhere in the Netherlands. However, they speak the same language and have more knowledge about the culture and regulations in the housing market compared to foreign students. Therefore, they are more likely to experience a shorter search process.

Literature supports the finding that accommodations with private amenities drive up the housing rents. (Miessner, 2021) mentions that landlords can demand a premium for private amenities. Consequently, the monthly rent prices can be higher compared to student residences with shared facilities. As the percentage of foreign students living in accommodations with private amenities is higher, their monthly rent costs are generally higher. Moreover, rent costs are higher for student flats compared to regular student houses. This is also in line with the article, which finds that relatively small apartments in flats provides landlords the opportunity to charge higher rents per square metre.

The mean monthly housing rent that international respondents pay is significantly higher than for Dutch students. This is in line with our expectation based on the type of housing they live in and the article by (Fang and van Liempt, 2021), stating that landlords can demand higher prices for foreign students as a result of their vulnerable position in the student housing market. Also, foreign students value the quality of their housing lower in relation to the price (in general). This result is in line with the article by (Fang and van Liempt, 2021), which discusses that mainly international students can end up in poorly maintained student rooms.

There are multiple limitations in our study. First, the total sample size of the survey is relatively limited (N = 138). Especially regarding international students, the sample size is just sufficient to conduct statistical analysis (N = 44). Therefore, an analysis can be performed, however, the results would be more precise if we would have a bigger sample size. Secondly, the survey is shared via social media channels and the researchers' network. By asking people to share the survey further, random sampling is stimulated. However, still sampling bias can emerge due to e.g. oversampling of specific types of students who are somehow related to the network of the researcher. Therefore, the data might reveal results that are not completely representative for the student population in Groningen. Thirdly, the data set contains some nonresponses, which could be due to the reluctance of respondents to share certain private information. Therefore, there is a higher difficulty to capture accurate relationships between variables.

Fourthly, our study failed to capture discrimination as it is difficult to measure and caused by unobservable variables, such as preferences of Dutch students to live with other Dutch students in their student house. Additional questions regarding respondent's personal experience of possible discrimination could have been asked in order to examine this issue more carefully. There might also be other unobservable variables that might be overlooked in this research, that do have an influence on the housing affordability challenges of students, but that we do not control for. All in all, the limitations might result in some bias in our results.

8. Conclusion

In this study, we investigated the housing search process and housing affordability issues for students in Groningen. In our research, a key comparison is made between Dutch and international students in order to examine possible differences in their search process and housing affordability. This was investigated by conducting a survey among students in Groningen, consisting of quantitative questions. The results of the questionnaire can be used in order to answer our research question "To what extent do housing affordability issues and housing searches differ between Dutch and international students in Groningen?", by conducting an independent samples t-test.

Considering the housing search process of students, we found statistical evidence that international students have more difficulty with finding housing compared to Dutch students. On average, the former are mainly distributed among the categories "somewhat difficult and very difficult", while the latter is mainly distributed among "not very difficult" and "somewhat difficult". The difference can be explained by the susceptible position that international students occupy in the housing market. Their more limited social and cultural capital, language barriers, lack of knowledge about the rules, and preferences of Dutch students for fellow native speaking students, results in them being more devoted to different housing search methods. These search methods such as real estate agents are more out of their network and correspond with a longer housing search process.

In addition, we found statistical evidence that foreign students experience more difficulty with paying their monthly rent bill and thus their housing affordability, compared to Dutch students. Nevertheless, the difference in the mean difficulty is moderate. On average, the respondents experience the housing affordability issues as "not very difficult" and "somewhat difficult". The difference in difficulty can be explained by the more private way of living of foreigners, leading to higher monthly rent costs.

As mentioned in the discussion, our study has several limitations, including a restricted sample size, nonresponses, sampling bias, unobserved variables and subjectiveness. It is especially difficult to find evidence to what degree the lower price/quality of housing for international students can be explained and to what extent it is because of discrimination. This might lead to some biased results, especially because discrimination is challenging to measure. As the research is conducted in the context of Groningen, the situation might be different in other cities and countries. Therefore, it is challenging to apply the findings of our study directly in other contexts.

Further research should take these limitations into consideration. We would suggest to increase the sample size, making an extended differentiation between Western and non-Western students, and include more control variables. Besides, we would recommend to investigate further to what extent the difference in housing affordability is justified by arguments, and to what extent it is caused by discrimination.

This research is relevant as it fills in the current research gap related to the housing affordability issues among students (especially among international students). The findings of this study stress the relevance of the financial housing challenges of students. The results can provide insight to policy makers about the causes of the differences in housing affordability between Dutch and foreign students (and students in general). Subsequently, policy makers can develop new policies that are more focused on the housing affordability and student housing shortage, so that the challenges can be decreased and possible discrimination against international students prevented. This study has relevance for spatial planning as it highlights the importance of student housing quality maintenance and the student housing rents. Therefore, spatial planners can recognize the relevance more by devoting more effort in student housing plans to prevent further housing shortage and housing affordability issues.

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Appendix

Appendix 1.1: Survey

Q1: What city/town do you live in?

- Groningen
- Other:

Q2: At which educational institution did you study?

- RUG
- Hanzehogeschool
- Other:

Q3: What is your age?

Q4: In what year of your studies are you?

- First year
- Second year
- Third year
- Fourth year
- Fifth year
- Sixth year
- > sixth year

Q5: Where are you from?

- The province of Groningen
- The provinces of Friesland and Drenthe
- The rest of the Netherlands
- A foreign country:

Q6: what is your gender?

- Male
- Female
- Other

Q7: For how long have you been living in Groningen?

Number of years:

Number of months:

Q8: What type of building do you live in?

- A room in a regular student house with shared facilities
- A room in a student flat with shared facilities
- An independent studio/apartment with no shared facilities
- An independent room in a student flat with no shared facilities

Q9: How many housing units (residential places with their own address) are in your building?

- 1
- 2 – 4
- 5 – 9
- 10 – 19
- 20 – 49
- 50+

Q10: With how many people do you live (including yourself?)

Q11: With who do you live?

- Fellow students
- Parents / caretakers
- Alone
- Other:

Q12: Do you have your housing accommodation arranged for the rest of the year?

- Yes
- No (what is then your current housing situation?)

Q13: When was your most recent housing search? Enter the month and year when you intended to move, for example if you wanted to move into a home just before the start of the 2022 academic year, enter September 2022.

Month:

Year:

Q14: How long did your most recent housing search process take, from the time when you started looking to the time when your housing was fully confirmed?

- Less than 2 weeks
- 2 – 3 weeks
- 1 month
- 2 months
- 3 months
- 4 months
- 5 months
- > 6 months
- I am still looking for housing

Q15: What method did help you finding your residence?

- Connections (such as friends, family)
- Via social media channels such as Facebook groups
- Student housing platforms such as Kamernet.nl
- Via housing corporations such as Lefier, Nijestee, SSH, etcetera.
- Via a real estate agent
- Short-term rental platforms (such as Airbnb)
- Other: -----

Q16: How many applications did you need to submit in order to find a house?

- 1
- 2 – 4
- 5 -9
- 10 – 19
- 20+

Q17: How difficult was it for you to find a home in your most recent housing search?

- Not difficult at all
- Not very difficult
- Somewhat difficult
- Very difficult
- Completely difficult

Q18: How many search costs were approximately involved in your housing search process (for instance membership costs on Kamernet, or real estate agent costs)?

Q19: How many search costs were approximately involved in your housing search process (for instance membership costs on Kamernet, or real estate agent costs)?

Q20: What % of your monthly spendable income is devoted to monthly rent costs (approximately)?

Q21: What is your opinion on the price/quality ratio of your living situation?

- Very inexpensive
- Inexpensive
- About right
- Expensive
- Very expensive

Q22: To what extent do you have difficulties financing your monthly rent bill?

- Not difficult at all
- Not very difficult
- Somewhat difficult
- Very difficult
- Completely difficult

Q23: If you would like to share anything more about your housing affordability situation or your housing search process, feel free to share it below.

Appendix 1.2: Informed consent form

Dear respondent,

You are invited to participate in a study investigating student housing affordability issues in Groningen. My name is Teun Scholten. By filling out this questionnaire you will help me conduct this research as part of my bachelor thesis in the Spatial Planning & Design program at the University of Groningen, under the supervision of Dr. Sarah Mawhorter.

This survey is intended for students in Groningen who have moved out of their parents' homes and now live independently, on their own or with roommates. The survey will take less than 5 minutes. Participation in this survey is voluntary, and you may withdraw at any time. In order to assure your privacy, responses are collected anonymously; the survey only asks for general personal information and no personally identifying information is collected. The data is encrypted and only the researcher and supervisor will have access to this data via a password. By filling out this questionnaire you give me permission to use your answers for my research. The aggregated results of my research will be published in my bachelor thesis, and also may be published in articles or book chapters.

Thank you in advance for taking the time to share your thoughts and experiences!

Teun Scholten

Email address: t.h.scholten.1@student.rug.nl

Appendix 2.1

Group Statistics

	Nationality	N	Mean	Std. Deviation	Std. Error Mean
What is your age? - Years:	Dutch students	86	21,59	4,818	,519
	International students	43	23,74	3,009	,459
In what year of your studies are you?	Dutch students	87	3,86	1,374	,147
	International students	40	3,05	1,431	,226
What is your gender?	Dutch students	87	1,67	,474	,051
	International students	44	1,70	,462	,070
For how long have you been living in your current city? - Number of years	Dutch students	80	5,13	5,897	,659
	International students	28	2,50	1,644	,311
What type of building do you live in?	Dutch students	82	1,49	,805	,089
	International students	39	2,28	,887	,142
How many housing units (residential places with their own address) are in your building?	Dutch students	82	2,11	1,440	,159
	International students	39	3,31	1,976	,316
With who do you live?	Dutch students	82	1,34	,805	,089
	International students	39	2,10	1,188	,190
Do you have your housing accommodation arranged for the rest of the academic year?	Dutch students	74	1,03	,163	,019
	International students	37	1,08	,277	,045
When was your most recent housing search? Enter the month and year when you intended to move, for example if you wanted to move into a home just before the start of the 2022 academic year, enter September 2022. - Month	Dutch students	6	342,00	822,544	335,802
	International students	2	11,50	,707	,500
	Dutch students	72	2019,72	2,932	,346

When was your most recent housing search? Enter the month and year when you intended to move, for example if you wanted to move into a home just before the start of the 2022 academic year, enter September 2022. - Year	International students	35	2020,97	1,317	,223
How long did your most recent housing search process take?	Dutch students	74	3,23	1,976	,230
	International students	37	4,16	2,075	,341
How many applications did you need to submit in order to find a house?	Dutch students	74	2,54	1,387	,161
	International students	36	3,22	1,476	,246
How difficult was it for you to find a home in your most recent housing search?	Dutch students	74	2,38	1,030	,120
	International students	37	3,43	1,365	,224
How many search costs were approximately involved in your housing search process?	Dutch students	42	26,19	46,915	7,239
	International students	19	22,11	51,594	11,837
What are your personal monthly rent costs in € (including water and energy)?	Dutch students	67	450,17	169,907	20,757
	International students	34	633,29	214,081	36,715
What % of your monthly spendable income is devoted to monthly rent costs (approximately)? - %	Dutch students	68	48,6765	16,46746	1,99697
	International students	36	55,3056	20,46156	3,41026
What is your opinion on the price/quality ratio of your living situation?	Dutch students	71	3,20	,749	,089
	International students	37	3,78	,886	,146
To what extent do you have difficulties financing your monthly rent bill?	Dutch students	71	2,21	,844	,100
	International students	37	2,59	,956	,157

Appendix 2.2

Statistics

Where are you from? - Selected Choice			Connections (such as friends, family)	Social media channels such as Facebook groups (e.g. "Kamer in Groningen")	Student housing platforms such as Kamernet.nl
.	N	Valid	0	0	0
		Missing	7	7	7
The Province of Groningen	N	Valid	6	3	0
		Missing	6	9	12
	Mean		1,00	1,00	
The Provinces of Friesland or Drenthe	N	Valid	9	3	4
		Missing	12	18	17
	Mean		1,00	1,00	1,00
The rest of the Netherlands	N	Valid	23	27	17
		Missing	31	27	37
	Mean		1,00	1,00	1,00
A foreign country:	N	Valid	17	15	7
		Missing	27	29	37
	Mean		1,00	1,00	1,00

Statistics

Where are you from? - Selected Choice			Housing corporations such as Lefier	A real estate agent	Short-term rental platforms (such as Airbnb)
.	N	Valid	0	0	0
		Missing	7	7	7
The Province of Groningen	N	Valid	2	0	0
		Missing	10	12	12
	Mean		1,00		
The Provinces of Friesland or Drenthe	N	Valid	4	3	0
		Missing	17	18	21

	Mean		1,00	1,00	
The rest of the Netherlands	N	Valid	4	4	0
		Missing	50	50	54
	Mean		1,00	1,00	
A foreign country:	N	Valid	12	7	1
		Missing	32	37	43
	Mean		1,00	1,00	1,00

Statistics

Where are you from? - Selected Choice			Other
.	N	Valid	0
		Missing	7
The Province of Groningen	N	Valid	1
		Missing	11
	Mean		1,00
The Provinces of Friesland or Drenthe	N	Valid	0
		Missing	21
	Mean		
The rest of the Netherlands	N	Valid	2
		Missing	52
	Mean		1,00
A foreign country:	N	Valid	0
		Missing	44
	Mean		

Appendix 2.3

How long did your most recent housing search process take, from the time when you started looking to the time when your housing was fully confirmed? - Selected Choice

Where are you from? - Selected Choice			Frequency	Valid Percent	Cumulative Percent
.	Missing	System	7		
	Valid	Less than 2 weeks	4	44,4	44,4
2-3 weeks		1	11,1	55,6	
2 months		2	22,2	77,8	
3 months		1	11,1	88,9	
6 months or longer		1	11,1	100,0	
Total		9	100,0		
Missing		System	3		
Total		12			
The Provinces of Friesland or Drenthe	Valid	Less than 2 weeks	6	37,5	37,5
		2-3 weeks	3	18,8	56,3

		1 month	2	12,5	68,8
		2 months	2	12,5	81,3
		3 months	2	12,5	93,8
		4 months	1	6,3	100,0
		Total	16	100,0	
	Missing	System	5		
		Total	21		
The rest of the Netherlands	Valid	Less than 2 weeks	8	16,3	16,3
		2-3 weeks	7	14,3	30,6
		1 month	13	26,5	57,1
		2 months	10	20,4	77,6
		3 months	6	12,2	89,8
		4 months	1	2,0	91,8
		5 months	1	2,0	93,9
		6 months or longer	1	2,0	95,9
		I am still looking for housing (please note how long you have been looking)	2	4,1	100,0
		Total	49	100,0	
			Missing	System	5
		Total	54		
A foreign country:	Valid	Less than 2 weeks	4	10,8	10,8
		2-3 weeks	4	10,8	21,6
		1 month	7	18,9	40,5
		2 months	7	18,9	59,5
		3 months	6	16,2	75,7
		4 months	4	10,8	86,5
		5 months	2	5,4	91,9
		6 months or longer	2	5,4	97,3
		I am still looking for housing (please note how long you have been looking)	1	2,7	100,0
		Total	37	100,0	
			Missing	System	7
		Total	44		

Appendix 2.4

How many applications did you need to submit in order to find a house?

Where are you from? - Selected Choice		Frequency	Valid Percent	Cumulative Percent
.	Missing System	7		
The Province of Groningen	Valid	1	2	22,2
		2 - 4	2	22,2
		5 - 9	4	44,4
		10 - 19	1	11,1
		Total	9	100,0
	Missing System	3		

	Total		12		
The Provinces of Friesland or Drenthe	Valid	1	6	37,5	37,5
		2 - 4	5	31,3	68,8
		5 - 9	2	12,5	81,3
		10 - 19	1	6,3	87,5
		20+	2	12,5	100,0
		Total	16	100,0	
	Missing	System	5		
	Total		21		
The rest of the Netherlands	Valid	1	13	26,5	26,5
		2 - 4	14	28,6	55,1
		5 - 9	8	16,3	71,4
		10 - 19	5	10,2	81,6
		20+	9	18,4	100,0
		Total	49	100,0	
	Missing	System	5		
	Total		54		
A foreign country:	Valid	1	6	16,7	16,7
		2 - 4	6	16,7	33,3
		5 - 9	9	25,0	58,3
		10 - 19	4	11,1	69,4
		20+	11	30,6	100,0
		Total	36	100,0	
	Missing	System	8		
	Total		44		

Appendix 2.5

How difficult was it for you to find a home in your most recent housing search?

Where are you from? - Selected Choice			Frequency	Valid Percent	Cumulative Percent
.	Missing	System	7		
The Province of Groningen	Valid	Not difficult at all	3	33,3	33,3
		Not very difficult	2	22,2	55,6
		Somehow difficult	3	33,3	88,9
		Very difficult	1	11,1	100,0
		Total	9	100,0	
	Missing	System	3		
	Total		12		
The Provinces of Friesland or Drenthe	Valid	Not difficult at all	6	37,5	37,5
		Not very difficult	4	25,0	62,5
		Somehow difficult	5	31,3	93,8
		Very difficult	1	6,3	100,0

		Total	16	100,0	
	Missing	System	5		
		Total	21		
The rest of the Netherlands	Valid	Not difficult at all	9	18,4	18,4
		Not very difficult	15	30,6	49,0
		Somehow difficult	17	34,7	83,7
		Very difficult	7	14,3	98,0
		Completely difficult	1	2,0	100,0
		Total	49	100,0	
		Missing	System	5	
		Total	54		
A foreign country:	Valid	Not difficult at all	4	10,8	10,8
		Not very difficult	7	18,9	29,7
		Somehow difficult	5	13,5	43,2
		Very difficult	11	29,7	73,0
		Completely difficult	10	27,0	100,0
		Total	37	100,0	
		Missing	System	7	
		Total	44		

Appendix 2.6

Statistics

What are your personal monthly rent costs in € (including water and energy)?

A room in a regular student house with shared facilities	58
	9
	397,95
A room in a student flat with shared facilities	16
	4
	483,19
An independent student room with private facilities	26
	8
	776,38

Appendix 2.7

Statistics

What % of your monthly spendable income is devoted to monthly rent costs (approximately)? - %

.	N	Valid	1
		Missing	16
	Mean		27,0000
A room in a regular student house with shared facilities	N	Valid	58
		Missing	9
	Mean		47,9138
A room in a student flat with shared facilities	N	Valid	18
		Missing	2
	Mean		52,2778
An independent student room with private facilities	N	Valid	27
		Missing	7
	Mean		57,5556

Appendix 2.8

What type of building do you live in?

Nationality			Frequency	Valid Percent	Cumulative Percent
.	Missing	System	7		
Dutch students	Valid	A room in a regular student house with shared facilities	58	70,7	70,7
		A room in a student flat with shared facilities	8	9,8	80,5
		An independent student room with private facilities	16	19,5	100,0
		Total	82	100,0	
	Missing	System	5		
	Total	87			
International students	Valid	A room in a regular student house with shared facilities	9	23,1	23,1
		A room in a student flat with shared facilities	12	30,8	53,8
		An independent student room with private facilities	18	46,2	100,0
		Total	39	100,0	
	Missing	System	5		
		Total	44		

Appendix 2.9

To what extent do you have difficulties financing your monthly rent bill?

Nationality			Frequency	Valid Percent	Cumulative Percent
.	Missing	System	7		
Dutch students	Valid	Not difficult at all	16	22,5	22,5
		Not very difficult	27	38,0	60,6
		Somewhat difficult	25	35,2	95,8
		Very difficult	3	4,2	100,0

		Total	71	100,0	
	Missing	System	16		
		Total	87		
International students	Valid	Not difficult at all	5	13,5	13,5
		Not very difficult	11	29,7	43,2
		Somewhat difficult	16	43,2	86,5
		Very difficult	4	10,8	97,3
		Completely difficult	1	2,7	100,0
		Total	37	100,0	
	Missing	System	7		
		Total	44		

Appendix 2.10

What is your opinion on the price/quality ratio of your living situation?

Nationality			Frequency	Valid Percent	Cumulative Percent
.	Missing	System	7		
Dutch students	Valid	Inexpensive	12	16,9	16,9
		About right	35	49,3	66,2
		Expensive	22	31,0	97,2
		Very expensive	2	2,8	100,0
		Total	71	100,0	
		Missing	System	16	
		Total	87		
International students	Valid	Inexpensive	3	8,1	8,1
		About right	10	27,0	35,1
		Expensive	16	43,2	78,4
		Very expensive	8	21,6	100,0
		Total	37	100,0	
		Missing	System	7	
		Total	44		

Appendix 2.11

One-way ANOVA for personal monthly rent costs and type of building (as the dependent variable is a numerical variable and the independent variable is categorical and has more than 2 groups)

ANOVA

What are your personal monthly rent costs in € (including water and energy)?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2584675,155	2	1292337,578	80,587	<,001
Within Groups	1555549,809	97	16036,596		
Total	4140224,964	99			

Appendix 2.12

One-way ANOVA for difficulty during the search process across the four regions.

ANOVA

How difficult was it for you to find a home in your most recent housing search?

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	30,073	3	10,024	7,563	<,001
Within Groups	141,819	107	1,325		
Total	171,892	110			

Appendix 2.13

Independent samples t-test between Dutch and international students

Independent Samples Test

	t-test for Equality of Means		
	t	df	Significance Two-Sided p
How many search costs were approximately involved in your housing search process (for instance membership costs on Kamernet, or real estate agent costs)?	,305	59	,761
What are your personal monthly rent costs in € (including water and energy)?	-4,681	99	<,001
What is your opinion on the price/quality ratio of your living situation?	-3,625	106	<,001
To what extent do you have difficulties financing your monthly rent bill?	-2,140	106	,035
How difficult was it for you to find a home in your most recent housing search?	-4,144	57,120	<,001
What % of your monthly spendable income is devoted to monthly rent costs (approximately)? - %	-1,793	102	,076

Appendix 2.14

Chi-square test: length of the housing search in 2 categories, Dutch and international students (Chi-square because both the outcome and independent variable are categorical).

How long did your housing search process take? * Nationality Crosstabulation

		Nationality		Total	
		Dutch students	International students		
How long did your housing search process take?	< 1 month	Count	29	8	37
		Expected Count	24,7	12,3	37,0

	1 month or longer	Count	45	29	74
		Expected Count	49,3	24,7	74,0
Total		Count	74	37	111
		Expected Count	74,0	37,0	111,0

Chi-Square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	3,426 ^a	1	,087
Fisher's Exact Test			,087
N of Valid Cases	111		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 12,33.

Appendix 2.15

Chi-square test: number of applications in categories, Dutch and international students (Chi-square because both the outcome and independent variable are categorical).

Number of applications in categories * Nationality Crosstabulation

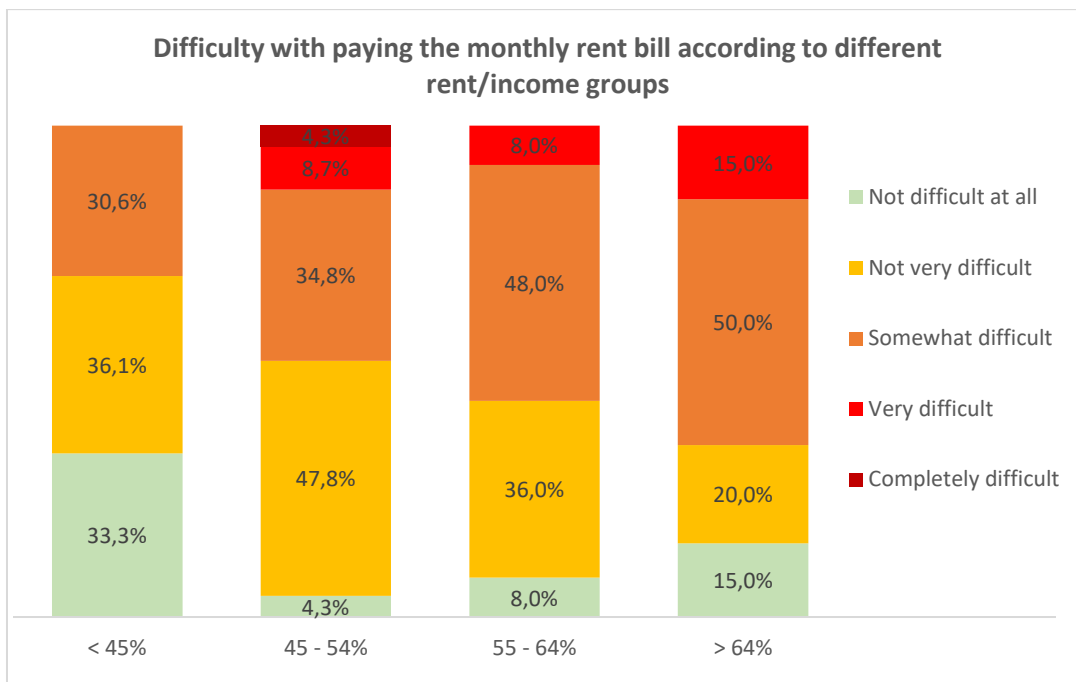
			Nationality		Total
			Dutch students	International students	
Number of applications in categories	< 10	Count	56	21	77
		Expected Count	51,8	25,2	77,0
	10 or more	Count	18	15	33
		Expected Count	22,2	10,8	33,0
Total		Count	74	36	110
		Expected Count	74,0	36,0	110,0

Chi-Square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	3,468 ^a	1	,078
Fisher's Exact Test			,078
N of Valid Cases	110		

a. 0 cells (0,0%) have expected count less than 5. The minimum expected count is 10,80.

Appendix 2.16



By categorizing the monthly rent/income share in four groups (so that they consist of sufficient cases each), we can investigate whether students paying higher rent/income shares actually have more difficulty paying their monthly rent bills. Appendix 2.16 shows what percentage of each of the four groups experiences which level of difficulty. Out of the people paying < 45% of their spendable income on rents, no one experiences paying the rent bill as 'very difficult' or 'completely difficult'. In the other categories, respondents do experience such levels of difficulties. Overall, we can see that the difficulty of paying the rent bill increases if the rent/income share increases.