

**The Effect of *Ethnic and Gender Differences on the Dutch Housing Rental Market on Well Being of Specific Groups.***

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## *Abstract*

The situation in the Dutch rental housing market is far from ideal and researchers claim that problems in this market are shaping the differences between migrants and Dutch individuals, and males and females. These differences are influencing not only the satisfaction with the housing of different groups but also their life outcomes such as overall life satisfaction. Therefore, this paper aims to establish the effect of different sociodemographic factors on life and housing satisfaction. The paper finds a clear, negative effect of being a non-western migrant on an individual's housing satisfaction. This effect, however, does not influence the overall life satisfaction of non-western migrants. The effect of gender in explaining both life and housing satisfaction is ambiguous and rather insignificant. Finally, the paper finds a clear positive relationship between overall life satisfaction and housing satisfaction. The methods used in this research cannot establish the cause of these differences. Therefore, further research should focus on establishing if those are due to inequalities and/or discrimination in the rental housing market.

## *I. Introduction*

Apart from the average standard of living, the ethnic composition of the district was shown as one of the main determinants of differences in relative happiness between districts in Rotterdam (Ouwenell, Burger, and Veenhoven, 2018). The housing market in the Netherlands is on the spotlight of researchers in recent years as it is experiencing huge problems, mainly in the everlasting shortage in the supply of housing. Boelhouwer (2020) argues that problems in the housing market create a space for social inequalities in the relative standard of living, happiness, economic status, and more. Dutchies are among one of the happiest countries in the world (Bjørnskov, 2003) but various studies show that the biggest ethnic immigrant groups are on average less satisfied with their lives than individuals of Dutch origin (e.g., Verkuyten, 1986). Other personal characteristics influence an individual's perception of life satisfaction as well. With some, academic researchers have a hard time establishing a true effect of them. Gender is an example of a factor that divides academic figures; some show females are relatively happier than men (Oswald, 1997), and some think that females' well-being decrease over time relative to men's (Easterlin, 2001). Moreover, there is evidence of differences in rental housing market outcomes due to unique preferences in this market for males and females which then lead to separating gender outcomes (Nijenstein, Haans, Kemberman & Borgers, 2015). Therefore, as satisfaction with housing situation is believed to be one of the main indicators of overall life satisfaction (Layard, 2005), this paper aims to find out if the persistent differences in rental housing market outcomes create differences in their relative happiness.

Although evidence of a correlation between housing and life outcomes exists, the mechanisms behind interactions between life satisfaction, housing satisfaction, ethnic background, and gender remain questionable subjects. Are the immigrants less satisfied with life due to their relatively harder situation in the housing market or does the relatively lower life satisfaction influence their perception of their dwelling situation? Maybe women are happier with their housing than men because of a different approach towards different genders in the housing market or they are simply more satisfied with their life. Willingness to be able to identify those mechanisms leads to the formulation of the main research question of this paper:

*How do ethnic and gender differences in the Dutch rental housing market affect the well-being of specific groups of individuals in the market?*

This topic is approached by constructing two separate multiple regression models. The first model aims to analyze the effect of gender and ethnic background on housing satisfaction and to establish if the differences truly exist in the Dutch rental market. The model will use a set of controlling variables to separate the effect of sociodemographic factors from other factors influencing housing satisfaction. The second model aims to analyze if the ethnic and gender differences in housing satisfaction transmit to the differences in overall life satisfaction. To achieve this, the second model will test the effect of gender and ethnic background on overall life satisfaction with a set of control variables which will be used to again separate the effect of the main independent variables.

The paper finds a clear and negative effect of being a non-western migrant on an individual's housing satisfaction. Contrarily, being a western migrant has no significant effect on housing satisfaction. This effect, however, does not apply to overall life satisfaction – being a non-western migrant has no effect whereas western migrants are on average happier than Dutch individuals. The effect of gender on both life and housing satisfaction is ambiguous and rather insignificant. Finally, the paper finds a strong correlation between housing satisfaction and overall life satisfaction.

The paper is constructed in the following way. The literature review part provides an overview of existing literature which is related to the topics of well-being and housing satisfaction. The main focus of it is the current state of the Dutch rental market and how the situation on it is influencing the outcomes of different socioeconomic groups living in the Netherlands. The data section gives an insight into the construction of the database used for the analysis. Data is retrieved from the LISS Panel database which is carried out each year among individuals and households from the Netherlands. The panel is constructed based on a true probability sample to ensure the external validity of the method. The methodology section aims to explain how each of the Hypotheses is constructed and how they contribute to the analysis. The result section is divided into two parts where the first one aims to establish variables that explain housing satisfaction whereas the second part aim is focused on life satisfaction as a dependent variable. After the results, the paper discusses its relevance in accordance with existing academic literature and the main limitations of

the research. Finally, the conclusion part ultimately answers the main research question and proposes the path that further research in the field could take.

## *II. Literature Review*

This section of the research focuses on accessing existing literature regarding the topics of the housing market, the situation of different socioeconomic groups in this specific market, and the relationship between individuals' housing situation and overall life satisfaction. The paper discusses the findings, links, and limitations of the existing literature on the given topics.

The Section is divided into two independent parts where the first part evaluates the position of different groups in the housing market with an emphasis on gender and ethnic differences, while the second part draws attention to the effect of housing on happiness.

Economic literature has always been keen on relative opportunities on the market and rental housing market literature is not an exception. Kain and Quigley (1972) highlight the fact of unequal housing opportunities for different ethnic groups in the American housing market showing that the limited range of housing services influences the patterns of African American housing consumption. King and Mieszkowski (1973) take one step further and test the interaction between racial and gender discrimination to conclude that black female-headed households have even higher relative markup compared to white males than black male-headed households in the US. More evidence was found in research that covered four major American metropolitan areas which showed that black and Hispanic homebuyers pay premia of around 2% on average across all four cities – a difference that is not explained by variation in buyer income or access to credit (Bayer, Casey, Ferreira, & McMillan, 2017)

The evidence of inferior treatment of ethnic minorities transits to other OECD countries where the differences in the housing market are undeniable. On the rental side of the market, applicants with minority-sounding names and male names are discriminated against in all OECD countries (Flage, 2018). However, due to historical circumstances, the treatment of specific minority groups varies by country. Using Spain as an example, with a well-known design in studies about discrimination, a correspondence study, Bosch, Carner, and Farre (2010) showed that emails sent to landlords with Moroccan-sounding names had a 15 percent less chance of receiving a response than those with Spanish sounding names.

Having a more comprehensive knowledge of the topic, we point attention to the inequalities in the housing market in the Netherlands. As the housing market differs significantly between countries, it is important to have background information about this specific market.

Dutch Government provides strong support for the demand for housing i.e., via mortgage interest relief for owner-occupiers and rent allowances for tenants. At the same time, it enforces regulations and planning restrictions that are ceasing the production of housing. This makes the current Dutch housing policy inconsistent and ineffective (Boelhouwer & Hoekstra, 2009).

In his other paper, Boelhouwer (2020) sheds light on an important consequence of the Dutch housing market condition. The author shows that problems with the housing market create social inequalities and lead to sharp divisions and instability in society. The biggest problem of the Dutch market remains the rising housing shortage. Besides that, the Dutch housing market suffers from limited accessibility to homeownership, the difficult situation of middle-income groups who earn just too much to enter the social housing sector and just too little to be eligible for a mortgage, the rising differences between households with low income in rented sector and higher-income households in the owner-occupied sector, and the increasing spatial segregation in the major Dutch cities (Boelhouwer, 2020).

The spatial segregation in the four largest Dutch cities (Amsterdam, Rotterdam, Utrecht, and The Hague) is strongly correlated with the ethnic composition of the population. The fact that the largest ethnic minorities tend to concentrate in the older and cheaper districts of the above-mentioned four cities seems to prove the concept of the Dutch housing market creating social inequalities (Bolt, Hooimeijer, Van Kempen, 2002). That creates an incentive for this paper to analyze the situation in the Dutch housing market with a focus on its inconsistencies which possibly create social differences.

To achieve this, the next part of the paper focuses on the background of the ethnic composition of Dutch society and how it is correlated to the housing market.

The share of non-western immigrants in the Netherlands is around 10 percent. This share is expected to increase to over 20 percent of the total Dutch population in 2050, which will be about 4 million out of a total population of 18 million (CBS, 2003). The four largest non-western immigrant groups in the Netherlands are people from Turkey, Morocco, Surinam, and the Dutch Antilles (including Aruba) (CBS, 2003).



Recent figures show that the number of inhabitants with a non-western and western background in the Netherlands is approximately 2.1 million and 1.7 million respectively (CBS, 2022).

The situation of non-western immigrants in the Netherlands is complicated and was rapidly changing throughout the years. In the 1970s and 1980s, Turkish and Moroccan immigrants were denied access to social housing in many municipalities in the Netherlands (Tesser et al, 1996) A survey by the *Nationale Woningraad* (branch organisation of housing corporations) revealed that 35 percent of the housing corporations were using nationality as one of the application selection criteria. (Aalbers, 2002) Other housing corporations only rented their least popular units to the immigrants (Duyvendak and Veldboer, 2000). Other research shows that Institutional exclusion and discrimination in the Dutch housing market are reportedly diminished (Bolt, 2001). There is no doubt, however, that past bias towards ethnic minorities still influences the current state of the market in the Netherlands (Aalbers, 2002).

The lack of up-to-date research and the worsening situation of the supply side of the current Dutch housing market are, thus, two main motivations for this research. We expect that the unstable situation on the supply side of the market may lead to further discrimination towards ethnic minorities on the market and therefore their relatively lower housing satisfaction. This leads us to the formulation of Hypothesis 1:

*Hypothesis 1. Ethnic minority tenants are on average less satisfied with their dwelling than Dutch tenants.*

Individuals with a migration background are not the only group in which academic literature finds evidence for disparate treatment. In fact, Flage (2018) proves the existence of the occurrence of gender differences in the rental housing market in most OECD countries. The discrimination turns out to be mostly towards Arab / Muslim male tenants which shows interactions between gender and ethnic differences on the market. Gender differences are believed to be stronger for minority-sounding names than for majority-sounding names (Flage, 2018). In the experiment conducted in Finland Öblom and Antfolk (2017) come to similar conclusions finding significant evidence for the differences in landlords' response rates for male candidates and candidates with Arabic-sounding names. Additionally, Öblom and Antfol's (2017) work

analyses if the landlord's gender plays a role in discrimination patterns but concludes there is no effect of that.

Academic literature, however, does not give an unambiguous answer to the existence of gender differences in the rental market. Contrary to the results presented above, Carlsson and Eriksson (2014) find that age and gender are not factors used by landlords to sort tenancy applicants, but ethnicity and employment status are. In another study, Mridha (2020) reveals a strong correlation between both the age and gender of the resident and residential satisfaction which then seems to contradict the work of Carlsson and Eriksson (2014).

Academic literature on gender roles in the rental housing market is limited and therefore inconsistent. Moreover, there is little said about landlord gender preferences in the rental market in the Netherlands. According to Nijenstein et al. (2015), male students from Dutch universities put more value on the low price of the dwelling while female students value private kitchens and private bathrooms. These gender differences may lead to the preferences of landlords for their tenants.

The inconsistencies in the academic literature on rental market gender differences and little information regarding the situation in the Netherlands which is limited to information on students gave rise to hypothesis 2:

*Hypothesis 2. Male tenants are on average less satisfied with their dwelling than female tenants.*

After evaluating the state of the Dutch housing market, we turn the attention of this research section to a trending topic of happiness and well-being. Even though the importance of personal happiness differs across cultures, it seems that in general, happiness is considered to be the ultimate goal of life, or at least a desirable one (Veenhoven, 2004; Frey & Stutzer, 2002). However, Layard (2005) formulates a paradox, first identified by Easterlin (1974), that despite the economic growth of western societies, all the evidence shows that their people have not grown happier. On the other hand, Bjørnskov (2003) states that the Netherlands is among the countries with the happiest people in the world. That is why Dutch society is an interesting object to evaluate the determinants of personal well-being and determine if the housing situation is one of them. The part of the research that focuses on life

satisfaction will try to identify if the same groups that are less satisfied with their dwelling are also worse in terms of personal well-being.

Academic literature proposes lots of factors that have an impact on individuals' perception of happiness. In line with the topic of this research, Kozma and Stones (1983) point out housing situation among health, activities, and major life changes as the main indicator of happiness for urban and institutional individuals. Using a different approach, Layard (2005) has identified seven factors affecting happiness. Five of these are family relationships, financial situation, work, community and friends, and health. The sixth factor is a house which is the setting for relationships with family, friends, and community while, at the same time, being a major item in family expenditure and contributing to the good health of house members. The final factor affecting happiness is personal freedom and values. (Layard, 2005; Clapham, 2010) The determinants indicated by Layard (2005) are highly subjective and therefore, Layard (2005) argues that the best way to find out whether someone is happy is to ask them. There is no doubt that the result will be highly subjective and may be subject to change when people change their expectations or their reference group. Nevertheless, it is a subjective perception that the measure is trying to capture (Clapham, 2010). Furthermore, Layard (2005) argues that this method is adequate to measure the overall happiness that people gain from housing.

To achieve that, we ought to have a closer look at the perception of happiness of Dutch inhabitants to determine all factors affecting their well-being. Ouwenell, Burger, and Veenhoven (2018) analyze the differences in happiness among the districts of Rotterdam to identify the ethnic composition of the neighborhood and related differences in average standards of living as two main determinants of happiness. To prove this statement, roughly thirty years ago the Dutch were found to be the happiest, followed by the Moroccans, the Surinamese, and the Turks in the Netherlands. Immigrants have seemed to be less happy than the locals (Verkuyten, 1986) and part of this difference is believed to be explained by lower socioeconomic status (Cornelisse-Vermaat, 2005). In a more recent study, Burger (2021) indicates a higher share of immigrants as one of the indicators of differences in happiness levels subject to a degree of urbanization.

The lack of nationwide study regarding the differences in life satisfaction between tenants subject to their ethnic groups is a motivation for the formulation of the next Hypothesis:

*Hypothesis 3. Through relatively lower housing satisfaction, the life satisfaction of ethnic minority tenants is on average smaller than the one of Dutch tenants.*

Moreover, Hypothesis 3 serves as a continuation of Hypothesis 1 as it aims to find if relatively lower housing satisfaction of ethnic minorities translates to their overall life satisfaction.

The factor that brings uncertain effect on Dutchies happiness in the eyes of the academic literature is individuals' gender. In general, women are happier than men throughout the years (Oswald, 1997). However, over the cohorts', women's happiness declines relative to men's (Easterlin, 2001). The overall effect of gender is believed to be rather insignificant (Cornelisse-Vermaat, 2005). The lack of certainty in the effect of gender on one's life satisfaction and the overall interest in the results for Dutch tenants leads to a formulation of the last hypothesis:

*Hypothesis 4. Through lower housing satisfaction, the life satisfaction of male tenants is smaller than that of female tenants*

Similarly, to Hypothesis 3, Hypothesis 4 is connected to Hypothesis 2 and aims to find if gender differences in housing satisfaction of tenants mirror the differences in overall life satisfaction.

### III. *Data and Methodology*

#### *Data*

The research is conducted with the use of four datasets provided by Longitudinal Internet studies for the Social Sciences (LISS) Panel Core study. LISS core study is a longitudinal study carried out each year in the LISS panel that supplies measures of the same set of variables for the same individuals and households in the Netherlands. (LISS Panel, n.d., a) It consists of 5,000 households and approximately 7,500 individuals. The Panel is constructed with the use of a true probability sample of households drawn from the population register by Statistics Netherlands (LISS Panel, n.d., b). This is essential to ensure the external validity of this paper's analysis as the sample is said to represent the characteristics of the Dutch population. All the information is retrieved with the use of internet surveys.

The research uses four datasets, independently constructed in the LISS Panel. Each dataset contains different, key information regarding society in the Netherlands. Due to inconsistencies in the beginning and ending dates of Waves in the Panel, different Waves were selected for datasets to ensure time overlapping as much as possible.

Background Information dataset consists of questionnaires that must be completed before joining the Panel by a household. This paper uses the Background Information dataset from July 2021. For the second dataset, Economic Situation: Housing, the paper uses the most recent Wave 14 constructed in July and August 2021. The third dataset, Personality Wave 13, was constructed in June and July 2021. The data for the last dataset, Health Wave 14, was collected in November and December 2021. Since LISS Panel Core Study does not change its input throughout the waves, so there are no new or deleted households from the data, minor differences in the collection of data from the databases used should not influence the analysis.

From each of the datasets, selected variables are used for this research. The Background Information dataset is *used* to get access to basic sociodemographic information about the individuals in the LISS panel. Variables *panel number*, *gender*, and categorical variable *migration background* are central to the analysis. *Panel number* is used to identify data from each dataset and assign it to the individual in the

panel whereas *migration background* and *gender* will be used as the main variables of interest in the analysis. Apart from these three variables, the paper uses the *housing satisfaction* variable from the Housing Dataset and the *life satisfaction* variable from the Personality dataset as dependent variables in Hypothesis 1 and 2, and Hypothesis 3 and 4 respectively. Additionally, as the focus of the paper is on the rental side of the housing market, the final sample consists of tenants and subtenants only. Observations of owners are subtracted from the final sample with the use of the variable *owner*. The selection of remaining control variables, used for the analysis, is explained in the methodology part of this section.

Because a sufficient subset of panel members did not complete Economic Situation: Housing and/or Personality questionnaires, the final sample differs substantially from the initial, full sample of the LISS Panel. The initial dataset containing background information about individuals contained 11 040 observations. The use of this dataset as an initial one is motivated by the fact that this is the only questionnaire compulsory for all LISS Panel members. After dropping observations that did not contain information about the migration background of the individuals, the sample size decreased by 3 281 observations. Next, the Background Information dataset was merged with the three remaining datasets. Due to non-compulsory participation in other questionnaires, the merging decreased the number of observations by 4669. Finally, the individuals who identified themselves as (co-)owners were dropped from the sample as all four hypotheses focus on the differences between tenants. This, again, decreased the sample size by 2 059 observations. After cleaning data from missing variables, the final sample size is, therefore, 908.

Descriptive statistics in Table 1 explain the composition of the final sample by gender and background characteristics of individuals respectively.

Table 1 shows that 76.32 percent of the sample population has a Dutch background while the rest, 23.68 percent, is the first or second generation of western / non-western immigrants. For simplicity, the paper does not distinguish between the first and second generation of migrants in contrast to the LISS Panel approach. This paper uses CBS Statline definitions for western and non-western immigrants. According to CBS (2003), a non-western migrant is a person originating from a country in Africa, South America, Asia (excl. Indonesia and Japan), or Turkey. A western migrant originates from a country in Europe (excluding Turkey), North America, and Oceania, or from Indonesia or Japan. The composition of the sample is consistent with

the structure of Dutch society according to Centraal Bureau voor de Statistiek (CBS). According to CBS (2022), the total population of the Netherlands for 2021 was 17 475 415 whereas the number of citizens of Dutch origin was 13 169 507 which accounts for roughly 75 percent of the total population.

Looking again at Table 1, males and females account for 40 and 60 percent of the sample respectively. CBS (2022) indicate that in 2021 the total number of males in the Netherlands rose to 8 686 536 which stands for 49.71 percent.

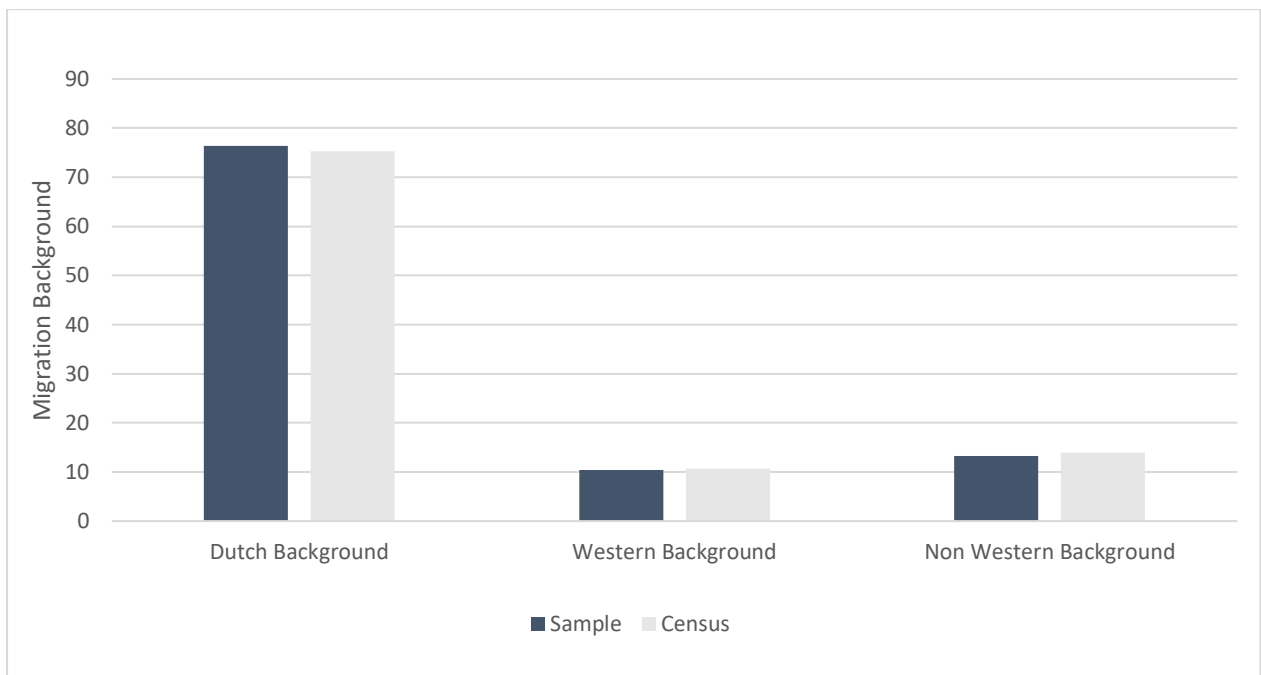
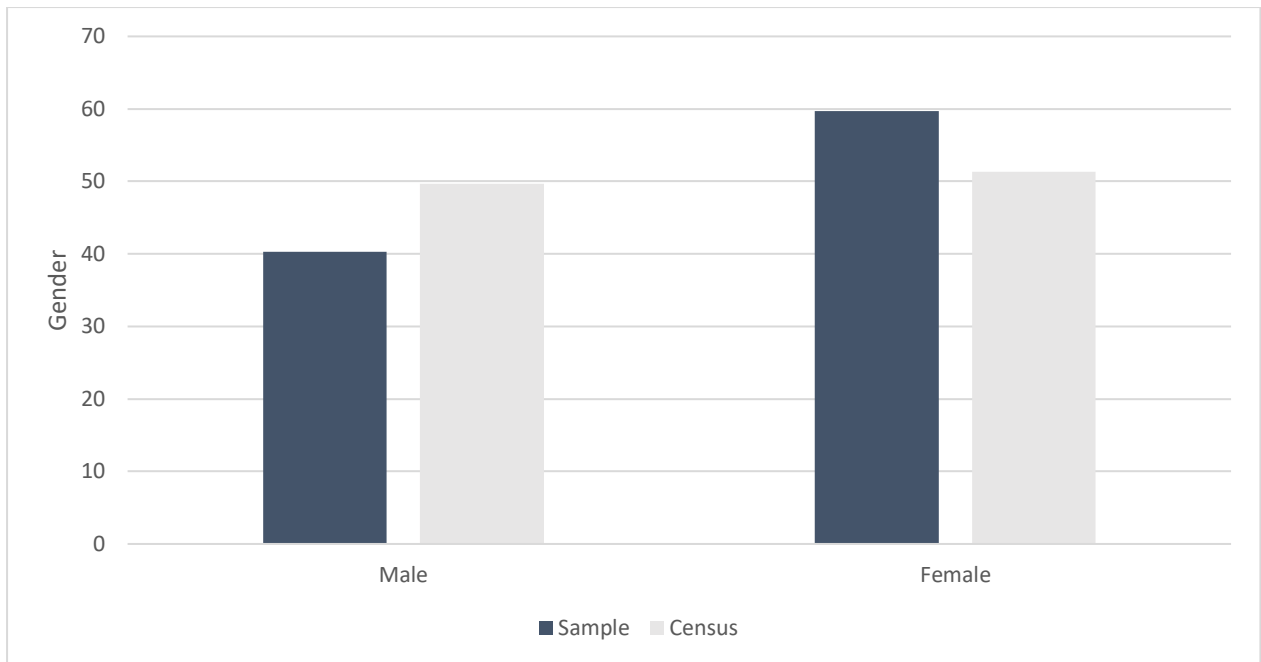


Figure 1. Comparison of migration background characteristics between the sample and census.



*Figure 2. Comparison of gender characteristics between the sample and census.*

Figures 1 and 2 provide a graphical representation of the differences between the sample and census composition. Looking at Figures 1 and 2, we can conclude that sample composition for both gender and migration background characteristics guarantees the external validity of the experiment as it is in line with the characteristics of the total population of the Netherlands.

### *Methodology*

Hypotheses 1 and 2 are constructed to test the existence of differences in housing satisfaction between groups with different characteristics. Hypotheses 3 and 4, on the other hand, aim to find the effect of those characteristics on the overall life satisfaction of an individual. The aim of all hypotheses is not to find the cause of given differences but rather to establish if those differences occur in the rental housing market.

For all the hypotheses in the analysis, we will use a multiple regression approach. To isolate the effect of the variables of interest, we will use a set of control variables that will differ depending on the model.

To control for outside disturbances, the first variable to consider is the income of the individual as it has a direct effect on housing satisfaction through the effect on standards of living (e.g., Burger & Veenhoven, 2018)., LISS Panel provides the data



for both personal and *household income*. Due to the high collinearity between these two variables, we decide to include only the *household income* variable in the final analysis as we believe that it represents the wealth and economic status of a whole household and thus has more explanatory value for the quality and satisfaction with housing. Household income is expressed in logarithmic values in the model.

To be able to unbiasedly explain the effect of sociodemographic characteristics on house satisfaction we must include the information about the dwelling itself in the model as the satisfaction of housing hugely relies on the relationship between housing characteristics and its price.

Therefore, the first important factor regarding the dwelling is the quality of the housing. We need to include this determinant in the model as the better the quality of the housing the higher satisfaction from the housing is expected to be (Elsinga & Hoekstra, 2005). As a broad term that it is, we cannot explain housing quality with one variable. The variables indicating problems with the dwelling, retrieved from Housing Dataset, *too small dwelling*, *too large dwelling*, *too dark dwelling*, *inadequate heating*, *leaking roof*, *damp walls*, *rotten window frames*, and *too noisy dwelling* will, therefore, create a new index – *house index* which will be used to determine the condition of the dwelling excessively. To account for housing problems intensively, the variable *no housing problems* is also used in the model. The *dwelling type* variable and *number of rooms* variable are added to better establish the quality of housing.

Furthermore, the cost of housing is an important factor in determining dwelling satisfaction. If the house is overpriced, no matter how good it is, the occupant will not be fully satisfied with it (Elsinga & Hoekstra, 2005). The problem with the price factor is that the pricing schemes for tenants and homeowners are diversified. It is difficult to establish one measurement for a price consistent for both types of house occupants as homeowners pay monthly mortgage instalments and tenants pay monthly rent. As owning and renting differ fundamentally in this aspect it would be inconsistent to integrate these two variables into one (Elsinga & Hoekstra, 2005). Fortunately, by limiting the final sample to individuals referring to themselves as tenants we can include only a variable explaining the cost as a monthly rent – *cost of housing*. For simplification of the regression, the variables *cost of housing* and *number of rooms* are combined to create one variable *cost of housing per room*.

To complete the model, two sociodemographic factors of the individuals are added to the model – *education* and *age*. The positive correlation between age and

housing satisfaction is exhibited in multiple studies that conceptualize residential satisfaction as the gap between actual and desired housing situations (Diaz-Serrano, 2006). Furthermore, a higher education level of an individual is associated with a higher level of housing satisfaction as well (Vera-Toscano & Ateca-Amestoy, 2008), therefore the last variable included in the model is *education*.

Table 1 serves as a summary of all the relevant variables and presents the descriptive statistics for the variables in all models (Models 1,2,3 and 4) which are then used to test all Hypotheses of the report.

*Table 1. Descriptive Statistics for variables in Models 1,2,3 and 4.*

<b>Variable name</b>	<b>Count</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
<i>Housing satisfaction</i>	908	7.42	1.77	0	10
<i>Migration</i>					
<i>Background</i>					
<i>Dutch</i>	693	76.32			
<i>Western</i>	95	10.46			
<i>Non-</i>	120	13.22			
<i>Western</i>					
<i>Female</i>	908	.6	.49	0	1
<i>Household income</i>	874	2307.39	5050.735	0	147416
<i>House index</i>	906	.62	.97	0	7
<i>No housing problems</i>	906	.61	.49	0	1
<i>Dwelling type</i>					
<i>Self-owned</i>	30	3.3			
<i>Rental</i>	852	93.83			
<i>Cost free</i>	26	2.86			
<i>Cost of Housing per</i>	879	218.85	125.18	.2	1225
<i>Room</i>					
<i>Age</i>	908	55.39	18.86	19	96
<i>Education</i>					
<i>No education</i>	2	.22			
<i>Primary</i>	72	7.95			
<i>secondary</i>	323	35.57			
<i>vocational</i>	391	43.06			
<i>University</i>	120	13.22			
<i>Variables added in Models 3 and 4</i>					
<i>Life satisfaction</i>	908	7.05	1.65	0	10

<i>Health Status</i>	908	2.94	.84	1	5
<i>Partner</i>	908	.33	.47	0	1
<i>Number of children</i>	908	.25	.66	0	4
<i>Trust in people</i>	906	5.66	2.55	0	10
<i>Work Status</i>					
<i>employed</i>	353	38.88			
<i>Unemployed</i>	35	3.85			
<i>/ job seeker</i>					
<i>Student</i>	50	5.51			
<i>Retired /</i>	465	51.21			
<i>unpaid work</i>					
<i>Something</i>	5	0.55			
<i>else</i>					

Hypotheses 3 and 4, on the other hand, are constructed differently than the previous two hypotheses. The main reason behind it is that the dependent variable in the model changes from *housing satisfaction* to *life satisfaction*. *Housing satisfaction* remains in the model as it is believed to be one of the main determinants of overall life satisfaction (Peck & Kay Stewards, 1985), but the main variables of interest remain *migration background* and *female* respectively. The purpose of Hypotheses 3 and 4 is, thus, to test if the differences found between different sociodemographic groups in housing satisfaction transpose to their overall life satisfaction as well.

As already specified in the Literature Review, being an extremely subjective matter, it is a challenging task to determine all the relevant determinants of life satisfaction. Following the definition of Layard (2005), the model assumes that housing situation, health, family relationships, financial situation, community and friends, and work status are factors affecting individuals' happiness the most. Layard (2005) points out personal freedom and values as important factors as well, however, due to the high relativity of those terms, we won't include them in the model.

Table 1 provides an overview of the variables included in the model for Hypothesis 3 and 4 as well. Descriptive Statistics of the variables that appear in the analysis for the first time are placed in the bottom part of the table.

For some of the determinants of life satisfaction, the model used multiple variables to make the definitions as precise as possible. As Table 1 shows, the model uses one variable to indicate the health of the individual, but the family relationships

are more complex, and the model includes variables *partner* and *number of children* to account for family ties. The financial situation is being determined the same way as in previous models where we included both household and individual monthly income in the regression. For simplicity, the relationship with community and friends represents just one variable, namely, *trust in people*, on a scale from 0 to 10. Finally, the *work status* variable represents the work position of the individual. The last two variables, *age* and *education* are constructed the same way as in previous models.

For all four hypotheses, the stepwise (phased) multiple regression analysis is followed. In the first phases only two variables – dependant and main variable of interest – are included in the regression. In the later phases, variables from the same ‘category’ of determinants are gradually added to the regressions.

Model 1, which is constructed for Hypotheses that use the *housing satisfaction* variable as a dependent variable (Hypotheses 1 and 2), consists of five different phases where phases 1 and 2 contain solely the dependent variable and one of two variables of *interest*. Phase 3 adds financial situation variables and condition and quality of housing variables to the model, as well as the price of housing per room. Lastly, Phases 4 and 5 add sociodemographic variables –*age* and *education* to complete the full model. The distinction between Phases 4 and 5 is that the first one uses an extensive variable *house index* to assess the quality of housing and the latter uses an intensive variable *no housing problems*. The full regression equation for Model 1 used in Hypothesis 1 and 2 is:

*housing satisfaction<sub>i</sub>*

$$\begin{aligned}
 &= \alpha + \beta_1 \textit{western} + \beta_2 \textit{nonwestern} + \beta_3 \textit{female} \\
 &+ \beta_4 \log(\textit{household income}) + \beta_5 \textit{house index} \\
 &+ \beta_6 \textit{no housing problems} + \beta_7 \textit{rental} + \beta_8 \textit{cost free} \\
 &+ \beta_9 \textit{cost of housing per room} + \beta_{10} \textit{age} + \beta_{11} \textit{primary} \\
 &+ \beta_{12} \textit{secondary} + \beta_{13} \textit{vocational} + \beta_{14} \textit{university} + \varepsilon_i
 \end{aligned}$$

In Model 2, the regression uses *life satisfaction* variable as a dependent variable, and it consists of more phases. Phases 1 and 2 still consist of only dependent and variables of interest – *migration background* and *female* respectively. In Phase 3, the model is extended by the *housing satisfaction* variable. Afterward, in Phase 4, the model is

broadened with the categoric variable *health status*, family ties, relations with community and friends, and labour situation variables followed by the *household income* variable. Finally, in Phases 5 and 6 we show a full model by introducing the remaining socioeconomic determinants, *age* and *education*. Apart from socioeconomics, Phases 5 and 6 add the interaction terms between *housing satisfaction* and *migration background* in the former and between *housing satisfaction* and *female* in the latter. As we want to see how the high perception of housing satisfaction acts with two variables of interest, for interaction terms we use a binary variable that has a value of 1 if the *housing satisfaction* of an individual is higher or equal to 8. The value of the mean of *housing satisfaction*, 7.42, suggests that this is a good threshold to indicate high housing satisfaction. The full regression equation for Model 2 used in Hypothesis 3 and 4 is:

$$\begin{aligned}
 & \textit{life satisfaction}_{i,t} \\
 & = \alpha + \beta_1 \textit{western} + \beta_2 \textit{nonwestern} + \beta_3 \textit{female} \\
 & + \beta_4 \textit{housing satisfaction} + \beta_5 \textit{health status} \\
 & + \beta_6 \textit{partner} + \beta_7 \textit{children} + \beta_8 \textit{trust in people} + \beta_9 \textit{unemployed} \\
 & + \beta_{10} \textit{student} + \beta_{11} \textit{retired} + \beta_{12} \textit{something else} \\
 & + \beta_{13} \textit{household income} + \beta_{14} \textit{age} + \beta_{15} \textit{primary} + \beta_{16} \textit{secondary} \\
 & + \beta_{17} \textit{vocational} + \beta_{18} \textit{university} + \beta_{19} \textit{western} \\
 & * \textit{housing satisfaction} + \beta_{20} \textit{non western} * \textit{housing satisfaction} \\
 & + \beta_{21} \textit{female} * \textit{housing satisfaction} + \epsilon_i
 \end{aligned}$$

## IV. Results

The results part is divided into two parts which represent the topic of the analysis. The first part focuses on Models 1 and 2 presenting the results regarding housing satisfaction determinants presented in Table 2 while the second part uses Models 3 and 4 to analyse determinants of overall life satisfaction. The results for Models 3 and 4 are presented in Table 3.

Starting with housing satisfaction, the first phase introduces only the main variable of interest in both models. Looking at Table 2 we can see that the *non-western* beta coefficient is statistically significant (at 1% significance level) and negative, whereas the *western* beta coefficient does not have explanatory value on the *housing satisfaction* of the individual. The *female* beta coefficient, introduced in Phase 2, does not have any significant effect on housing satisfaction.

It cannot be said that the result of the *female* beta coefficient was expected, however, the inconsistent conclusions from previous studies regarding the influence of gender on housing satisfaction implied that possibility. Surprisingly, the full model presented in Table 2 displays a significant and positive effect of *female* on the dependent variable. Because of the inconsistencies in results, it is hard to draw conclusions about the effect of gender on one's housing satisfaction, however, the significance of the beta coefficient in a full model suggests that being a female increases one's relative housing satisfaction compared to being a male. The overall effect seems to be small due to a low significance level (10%).

The results for another variable of interest – *migration background* - are more straightforward. The beta coefficient of one group of migrants – *western* – remains insignificant throughout all five Phases of the Model while the beta coefficient of another group *non-western* has a consistently significant effect in all Phases of the Model. In phase 3, variables representing financial situation and conditions and the quality of housing are introduced into the model. This results in the substantial reduction of the effect of the *non-western* variable on the dependant variable, however, the effect of the main variable of interest is still significant. This suggests that the non-western background, housing satisfaction, and the quality and conditions of housing are strongly correlated to each other. This cannot be said about variable *household income* as its effect on the dependent variable in Model 1 is highly insignificant. To

conclude, in Phase 3 of Model 1, the variables that have a significant and negative effect on the dependent variable are *migration background*, *house index*, and *rental*. Variables *cost free* and *cost of housing per room* have no explanatory power for the model.

Phases 4 and 5 in Model 1 finally introduce a full model with an addition of the sociodemographic variables, namely *age* and *education*. Both newly introduces variables have a significant effect on the dependent variable. Table 2 shows that the older an individual is the higher his / her housing satisfaction is. Moreover, in a full model, coefficients of variables *female* and *cost of housing per room* become significant (at a 10% significance level) as well. Finally, both coefficients of predictors of quality of housing, *house index* and *no housing problems* display a significant effect of those variables on *housing satisfaction*.

More importantly, in the complete Model 1, the *non-western* beta coefficient is a statistically significant factor, explaining housing satisfaction at a 1% significance level. Therefore, we can conclude that non-western migrants are on average less satisfied with their dwellings than individuals with a Dutch background. On the other hand, being a western migrant does not have any significant effect on the housing satisfaction of individuals compared to having a Dutch background. The *female* variable seems to have a less important, but still significant effect on the dependent variable.

Table 2. Beta Parameters and Standard errors (in parenthesis) in the regression analysis for Model 1.

Variable	Phase				
	1)	2)	3)	4)	5)
<b>Dependent Variable</b>	<i>Housing satisfaction</i>				
<b>Western</b>	-0.27 (.17)		-0.26 (.17)	-0.2 (.16)	-0.19 (.17)
<b>Non-Western</b>	-1.09*** (.22)		-0.83*** (.21)	-0.64*** (.22)	-0.66*** (.22)
<b>Female</b>		.13 (.09)	.12 (.11)	.18* (.11)	.18* (.11)
<b>Household income</b>			-0.0007 (.09)	-0.004 (.09)	.02 (.1)
<b>House index</b>			-0.88*** (.06)	-0.81*** (.06)	
<b>No housing problems</b>					1.34*** (.12)
<b>Self Owned</b>			Omitted	Omitted	Omitted
<b>Rental</b>			-0.55** (.24)	-1.01*** (.27)	-1.07*** (.3)
<b>Cost Free</b>			-0.55 (.36)	-0.64* (.36)	-0.58 (.39)
<b>Cost of Housing per room</b>			.0003 (.0005)	.001* (.0005)	.0009* (.0005)
<b>Age</b>				.02*** (.003)	.02*** (.003)
<b>No Education Primary</b>				Omitted 2.54*** (.32)	Omitted 1.99*** (.35)
<b>Secondary</b>				2.57*** (.24)	2.02*** (.26)
<b>Vocational</b>				2.32*** (.23)	1.77*** (.25)
<b>University</b>				2.4*** (.24)	1.86*** (.27)
<b>Constant</b>	7.59*** (.06)	7.34*** (.09)	8.51*** (.77)	5.34*** (.78)	4.42*** (.82)
<b>R-square</b>	.04	.00	.28	.32	.27

Notes. \* p-value <0.1; \*\* p-value <0.05; \*\*\* p-value <0.01



Moving on to the second part of the result section, we turn the attention to the effect of two variables of interest, *migration background* and *female* on overall life satisfaction. This section, therefore, concentrates on the multiple regression for Model 2 which can be found in Table 3.

As in previous Models, Phases 1 and 2 introduce the main variables of interest, *migration background* and *female*, respectively. Table 3 shows that, in Phase 1, the *non-western* beta coefficient is again negative and significant (at a 5% significance level), meaning that it explains some variation in overall life satisfaction. However, similar to the case in Model 1, the *female* variable and *western* variable remain insignificant until the very last Phase of the model. Successive Phases of Model 2 do not change the effect of *female* and *western* on overall life satisfaction. However, in Phase 6, with the introduction of the full model and interaction effects between *female* and *housing satisfaction*, the beta coefficient of *female* becomes significant for the model. Being a female has a positive effect on life satisfaction, however, the coefficient of the interaction effect of *female x housing* is negative suggesting that being a female with a relatively high housing satisfaction decreases, on average, one's life satisfaction. Due to the inconsistencies, we cannot confirm the sign of an effect of gender on relative satisfaction.

Finally, Phase 6 in Table 3 introduces full Model 2 with interaction variable *female x housing* which shows that beta coefficients of variables *female*, *housing satisfaction*, *health status*, *partner*, *trust in people*, *work status*, *household income*, *age*, *education*, and *female x housing* are statistically significant and thus they have an explanatory value for the overall life satisfaction. Apart from that only *children* and *migration background* beta coefficients do not have any explanatory value for the model, thus, are statistically insignificant.

Knowing the result for the *female* beta coefficient research turns the attention toward the effect of the *migration background* variable. Although only the *non-western* coefficient is significant in Phase 1, the situation changes in later Phases. The introduction of the *housing satisfaction* variable in Phase 3 reduces the influence of *non-western* on the dependent variable. *Non-western* beta coefficient, in Phase 3 and in later Phases of Model 2, becomes insignificant in the Model. Surprisingly, from Phase 3 onwards, the *western* beta coefficient becomes a positive and significant factor. This means that compared to individuals with a Dutch background, western

migrants are on average more satisfied with their life. In the full Model with interaction variables *western x housing* and *nonwestern x housing* (Phase 5), coefficients of *housing satisfaction*, *health status*, *partner*, *trust in people*, *work status* categories, *household income*, *age*, and *education* categories turn out to be statistically significant as well. Similarly, as in Phase 6, *children* and *migration background* beta coefficients do not have an explanatory value for Model 2. Additionally, in Phase 5 *female*, *western x housing* and *nonwestern x housing* turn out to be statistically insignificant as well.

Model 2 does not provide satisfactory outcomes regarding two main variables of interest as the interpretation can only point out their unimportance in explaining life satisfaction. However, they give us valuable information for this paper with a confirmation of a strong positive correlation between the housing satisfaction of an individual and his overall life satisfaction which is visible in the full Model.

Table 3. Beta Parameters and Standard errors (in parenthesis) in the regression analysis for Model 2.

Variable	Phase					
	1)	2)	3)	4)	5)	6)
<b>Dependant Variable</b>	<i>Life satisfaction</i>					
<b>Western</b>	.18 (.15)		.26* (.15)	.26* (.16)	.49*** (.18)	.26* (.15)
<b>Non-Western</b>	-.46** (.19)		-.17 (.19)	-.03 (.17)	.13 (.21)	.04 (.17)
<b>Female</b>		.09 (.12)	.05 (.11)	.04 (.11)	.1 (.11)	.33** (.16)
<b>Housing Satisfaction</b>			.27*** (.04)	.22*** (.04)	.16*** (.06)	.16*** (.06)
<b>Health Status</b>				.55*** (.07)	.58*** (.07)	.58*** (.07)
<b>Partner</b>				.2* (.12)	.24** (.12)	.21* (.12)
<b>Children</b>				-.08 (.07)	-.06 (.07)	-.06 (.07)
<b>Trust in People</b>				.08*** (.02)	.07*** (.02)	.07*** (.02)
<b>Employed</b>				Omitted	Omitted	Omitted
<b>Unemployed</b>				-.69**	-.87***	-.91***

				(.3)	(.3)	(.3)
<b>Student</b>				.13	.43*	.4*
				(.23)	(.24)	(.23)
<b>Retired / unpaid work</b>				-.05	-.4***	-.43***
				(.11)	(.15)	(.15)
<b>Something else</b>				-.01	-.25	-.2
				(.51)	(.55)	(.51)
<b>Household income</b>				.44***	.39***	.39***
				(.12)	(.12)	(.12)
<b>Age</b>					.02***	.02***
					(.005)	(.005)
<b>No Education</b>					Omitted	Omitted
<b>Primary</b>					-3.5***	-3.77***
					(.33)	(.32)
<b>Secondary</b>					-3.69***	-3.97***
					(.26)	(.26)
<b>Vocational</b>					-3.61***	-3.91***
					(.26)	(.25)
<b>University</b>					-3.81***	-4.09***
					(.26)	(.25)
<b>Western Housing</b>	<b>x</b>				-.45	
					(.3)	
<b>Non-western Housing</b>	<b>x</b>				-.2	
					(.34)	
<b>Female Housing</b>	<b>x</b>					-.4*
						(.21)
<b>Constant</b>	7.09***	6.99***	5.02***	.06	3.5***	3.78***
	(.06)	(.09)	(.32)	(.97)	(.94)	(.93)
<b>R-square</b>	.01	.00	.08	.27	.27	.28

Notes. \* p-value <0.1; \*\* p-value<0.05; \*\*\* p-value<0.01

## V. *Discussion*

The results highlighted in the section above answer some questions that have arisen throughout an academic evaluation of the Dutch rental housing market. Severe consequences of the 2008 financial crisis accentuated already existing inefficiencies of the market (Boelhouwer, 2020). Bolt, Hooimeijer, and Van Kempen (2002) show that the negligible state of the market creates social inequalities in all four biggest Dutch cities. Although some authors (Bolt, 2001) argue that the gap between ethnic minorities and Dutch inhabitants, in terms of housing conditions, was decreasing, the results of Hypothesis 1 confirm that, currently, being a nonwestern immigrant negatively influences housing satisfaction compared to individuals with a fully Dutch background. The effect of migration background is significant at a 1% significance level in every Phase of Model 1 which implies that it is a relevant and important factor in determining housing satisfaction. The fact that the research uses nationwide LISS Panel data means that the research can confirm existing racial differences in the Dutch Rental Housing market. However, the method used in this research does not enable us to identify the inequalities in the market. The analysis confirms only that there exist ethnic differences in the Dutch rental market which can be a consequence of social inequalities and/or discriminatory behavior. Moreover, a significant difference exists only between Dutch individuals and non-western migrants.

Moving on to the relative position of male against female tenants in the rental housing market, Hypothesis 2 results do not help in the examination of landlords' gender preferences in their choice of future tenants, but they analyze the role of gender in explaining the housing satisfaction of an individual. As there is a visible gap in the analysis of a correlation between the two mentioned factors, Model 1 aimed to thoroughly discuss that relationship. Similarly, to Carlsson and Eriksson (2014) and Öblom and Antfol (2017), Model 1 finds that the role of gender is irrelevant to the housing market. We find little or no effect of gender in explaining the housing satisfaction of tenants in the Dutch rental market in all of the five Phases of the Model.

The works of Kozma (1983) and Layard (2005) are one incentive to turn the attention of further research into a topic of relative happiness and well-being as both papers name housing satisfaction as one of the most important determinants of overall life satisfaction. Therefore Hypotheses 3 and 4 are created to explore if the relationship

between migration background/gender with housing satisfaction translates to the relationship of these variables with life satisfaction.

The results of Burger (2021) gave rise to a statement of Hypothesis 3 that tenants with a migration background are less satisfied with their life than Dutch ones. Phase 1 of Model 2 seems to confirm that relationship indicating a significant and negative relationship between variables *non-western* and *life satisfaction*. However, further Phases of Model 2 show that other variables are responsible for lower life satisfaction of individuals with a non-western background. In later Phases of Model 2, the *western* beta coefficient has a positive and significant effect on the dependent variable. The analysis confirms, therefore, a view of Cornelisse-Vermaat (2005) who first acknowledged that migrants' lower life satisfaction is caused by their lower socioeconomic status relative to locals. Because of that, an introduction of other variables explaining life satisfaction in Model 2 cancels out the effect of non-western migration background on individuals' life satisfaction. The result for western migrants is rather surprising and is not in line with any academic literature discussed in the paper.

Hypothesis 4 tests the correlation between gender and life satisfaction that brought the most uncertainty into academic literature. Oswald (1997) argued that, in general, females are more satisfied with their life than males. On the other hand, Easterlin (2001) shows that over the years women's happiness declines relative to men's. In the first five Phases of Model 2, gender does not sufficiently explain the life satisfaction of the individual. However, the full model displays a significant effect of both the *female* variable and an interaction term *female x housing*. The low statistical importance of those two variables and no effect of gender in any other regression constructed in the analysis suggest that the results of Model 2 are, however, again in line with the work of Cornelisse-Vermaat (2005) which states that gender has an ambivalent and rather insignificant effect on life satisfaction.

Apart from the analysis of the influence of sociodemographic factors on life satisfaction, Hypotheses 3 and 4 investigate the influence of housing situation on the happiness of individuals. In agreement with Layard (2005), Models 3 and 4 show that housing satisfaction is a significant and positive determinant of life satisfaction.

There are a few limitations to the research. The first shortcoming is the fact that despite concluding there is a negative correlation between having a migration background and housing satisfaction, the cause of that relationship cannot be

indicated. The multiple regression method is not an objective measure and therefore different approach would need to be used to test for the cause of this relationship.

The second limitation is the measure of housing situation (housing satisfaction) and its relative subjectiveness. The lower satisfaction with housing satisfaction of ethnic minorities may be an effect of their perception of housing standards rather than the standards themselves.

Another important limitation is the fact that the causality of the relationship between housing satisfaction and life satisfaction remains unknown and the analysis can be subject to reverse causality. The research cannot conclude if higher housing satisfaction causes higher life satisfaction or if the causality works the other way. Two possible explanations remain; either through higher housing quality and higher life satisfaction, individuals are more satisfied with their life as well or high life satisfaction of individual causes his / her high perception of housing satisfaction.

Lastly, there are unobservable variables that are impossible to include in the model, but which certainly affect the dependent variables in all four Hypotheses. To give an instance personal freedom and values are important determinants of one's life satisfaction (Layard, 2005) but due to their high subjectivity, Model 2 did not include them.

## VI. Conclusion

With the constantly increasing housing shortage in the Dutch rental housing market, many issues arise and try to be addressed. One of them is the central question of this paper *'How do ethnic and gender differences in the Dutch rental housing market affect the well-being of specific groups of individuals in the market?'*

. This review indicates that there is enough evidence to conclude that ethnic differences still exist in the Dutch rental housing market. The research shows that individuals from non-western ethnic minorities are on average less satisfied with their dwelling than Dutch individuals taking into account their different socioeconomic circumstances. Being a western migrant, however, has no effect on one's housing satisfaction. This seems to be consistent with the work of Bolt et al (2002) stating that the largest migrant groups suffer most on the Dutch rental market. This may be a result of discrimination towards non-western migrants, but our analysis cannot either prove or deny it. The results for the effect of gender on housing satisfaction are less clear. Although research finds little correlation between gender and housing satisfaction, surprisingly, Model 2 finds an explanatory value of gender on overall life satisfaction. Nevertheless, the effect of gender that the paper finds is ambivalent and rather insignificant.

On the other hand, despite playing an important role in explaining housing satisfaction, the non-western migration background of an individual does not have any effect on the overall life satisfaction. Surprisingly, being a migrant with western background has a significant and positive effect on overall life satisfaction of an individual. Moreover, the paper confirms that higher housing satisfaction is, indeed, correlated with higher life satisfaction.

Further research on the topic of the rental housing market should focus mainly on the cause of existing ethnic differences in the market. One possible explanation can be discriminative behavior towards ethnic minorities which can be tested with the simulated random tenant application method. Further research could also improve the existing knowledge on the topic by conducting a longitudinal study instead of a cross-sectional one like the one in this paper. A longitudinal study could analyze how ethnic differences shifted throughout the years in the Dutch rental housing market and, therefore, help to find the right cause of these differences. Lastly, this paper failed to analyze the interaction effects of gender and migration background on housing

satisfaction which according to e.g., Flage (2018) are significant and therefore worth analyzing in the Dutch market specifically.



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