The Effect of Housing Characteristics on Subjective Well-being in the United Kingdom

A quantitative study analysing the effect of individual characteristics and housing characteristics on subjective well-being

Abstract

The aim of this thesis is to find out what housing characteristics have a significant effect on subjective well-being. To accomplish this, housing characteristics and control variables were chosen based on literature. These variables were then selected from a large dataset focused on the United Kingdom and entered into ordinal logit regression analysis. The findings show multiple socio-demographic variables to have a significant effect on subjective well-being, as well as certain economic activities. Regarding housing characteristics, type of housing tenure is shown to have a significant effect on subjective well-being, as well as noise in the neighbourhood and problems experienced in the neighbourhood, which is attributed to these two variables being representative of general neighbourhood quality. For future research, a larger scale of research with more precise housing characteristic variables is suggested.

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Word Count: 5805

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Introduction

Background

In the field of social sciences, factors affecting well-being and quality of life have been researched for an extended period. While historically, such studies often used objective measures of well-being or 'Quality of Life', subjective measures such as self-perceived well-being are becoming more common as its potential is becoming increasingly recognized (Ballas, 2013).

Additionally, while research into the factors affecting subjective well-being was historically often focussed on socio-economic and socio-demographic characteristics, spatial features such as amenities are becoming more widely researched, for example by Brereton et al. (2007), who analyse subjective well-being based on a wide range of both socio-economic and socio-demographic characteristics as well as spatial characteristics such as proximity to certain facilities. Research into the effect of housing characteristics on subjective well-being, however, is limited. Most studies that focus on housing characteristics look at the effect of specific housing characteristics on overall residential satisfaction, such as Dekker et al. (2011), who, through statistical analysis come to the conclusion that individual characteristics such as age, presence of children and length of stay are more important in explaining residential satisfaction than specific estate characteristics. Bonnefoy et al. (2003) find that housing conditions have an impact on the health perception of residents in Eastern Europe, which is relevant as health is a significant determinant of subjective well-being (Dolan et al, 2008 and Sabatini, 2014).

Zhang et al. (2018), however, find that homeownership and home size play roles in determining overall well-being in urban China. Other than this, the research field for housing characteristics effects on well-being is rather thin. One might argue that housing characteristics are closely related to socio-economic factors such as income, but not all houses of similar prices are of equal quality, and other factors such as social housing further complicate this. Research by Coley et al. (2013) shows that poor housing conditions have a negative effect on the development of children and adolescents, which adds to the societal relevance of research regarding the relationship between housing characteristics and well-being.

Research Problem

To attempt to fill this research gap in the existing literature, this thesis looks at the relationship between housing characteristics and subjective well-being using statistical analysis. This research could have societal relevance similar to other research looking at the determinants of individual well-being, as well-being/happiness or 'Quality of Life' are important topics and increasing these where possible is one of the more general aims of society. A clearer view of what factors impact these measures and how this could be applied through policy to increase well-being could thus have a positive impact on such measures. The Central Research Question of this thesis is, therefore:

To what extent is subjective well-being determined by individual housing characteristics in the United Kingdom?

The Secondary Research Questions are:

- What factors should be considered when discussing the determinants of subjective well-being?
- What factors significantly influence subjective well-being in the UK?
- What implications could the findings have for future housing developments?

Structure of Thesis

First, a theoretical framework is laid out in which the theories and concepts that are most relevant to understand the context of the research are clarified. Additionally, relevant results from past academic literature are discussed here to see how this literature could contribute to the ideas and structure that are applied in this research. Based on these theories and the research literature, a conceptual model of the most important concepts and their relations to each other is formulated, in order to provide a basis for the structure of the concepts that are entered into the data analysis. Finally, in this section, hypotheses concerning the results of the data analysis are formulated.

In the Methodology section, more information is given on what type of data is used for the research, how this data was gathered, and which statistical techniques were applied for the data analysis. The key concepts in the analysis are clearly defined to ensure no confusion can arise concerning the meaning of key concepts. Also, the quality of the gathered data and any potential ethical considerations that could arise in this research are discussed.

The Results section provides relevant descriptive statistics about the dataset, as well as, most notably, the regression analysis that is the base of this research. The found results are then compared to the relevant theory and discussed in order to form a coherent argument.

Lastly, the main findings of the research are summarized in the Conclusions section, where the findings are also be placed in a broader context. Additionally, a discussion evaluating the research is held, as well as what this research means for the future, leading to either additional research or policy recommendations.

Theoretical Framework

Theories/concepts and research literature

The concept of self-perceived, or 'subjective' happiness/well-being has not always been prominent in scientific research. While in the past it was not always seen as reliable, studies such as the one done by Lyubomirsky & Lepper (1997) have shown that subjective well-being as a measure has high internal consistency and excellent reliability. Generally speaking, in the literature subjective well-being is measured on a diverse range of scales from three-point to ten-point scales (Brereton et al, 2008). Well-being is difficult to define, which is another reason why a subjective scale works – it allows the respondent to define well-being themselves in a way that is appropriate for their situation. This gives it an advantage over certain more objective measures of well-being. While psychologists such as Daniel Kahneman advocate the use of objective well-being, others such as Alexandrova (2005) argue that the usefulness of objective well-being is largely context-dependent and less accurate than subjective measures of well-being. Oswald & Wu (2010) compare data regarding subjective well-being in the United States to previous quality of life estimations that were approximated based purely on subjective data, and found a significant relation between the two measures, implying that perhaps the difference is not as large or relevant as other scholars tend to think.

To relate this level of subjective well-being to housing characteristics, a selection of housing characteristics needs to be made. In general, housing characteristics refer to all characteristics of an individual's current residence, looking at both physical characteristics and other characteristics, such as ownership. Zhang et al. (2018), who performed a study on the effect of housing characteristics on life satisfaction in urban China, use householder income and homeownership as householder characteristics and combine this with house size, number of bedrooms, housing type and whether the residence has living rooms & bathrooms.

Similar measures of housing characteristics are used in this thesis, although the fact that secondary data is used limits freedom of choice here, as a selection must be made out of the available variables. Research in a similar format but with a different goal was presented by Mohit et al. (2010), who analysed the impact of housing and neighbourhood characteristics on residential satisfaction, but in a very specific context – low cost-housing in Kuala Lumpur. Despite the different geographical context and independent variable, however, their selection of variables, which includes both control variables and housing- or neighbourhood-related variables, can be used as a source of inspiration for the variable selection to be performed in this research, as their research focuses on more specific variables such as distances to certain facilities

Housing characteristics, although the focus of this study, cannot be the only category of variable used in this study, as this would mean lots of other potential impacts on subjective well-being would be ignored, and the accuracy of the variables utilised would thus be greatly reduced due to the hidden impacts of variables not included in the research. Brereton et al. (2008) find that both socio-economic, socio-demographic, and spatial characteristics such as amenities have a significant impact on subjective well-being. Due to the type of data, specific spatial characteristics obtained through GIS cannot be used here, but socio-economic control variables such as age, gender, employment status, education, and additional variables are included in the analysis. Relationship status was meant to be included, as married individuals report the highest level of subjective well-being (Kamp Dush & Amato, 2005), but this variable did not have a sufficient amount of responses in the dataset. Therefore, degree of happiness with relationship is included in its place. Additionally, health issues and lack of social contact are to be included, as they are strongly negatively associated with subjective well-being (Dolan et al, 2008 and Sabatini, 2014).

The fact that the only study that truly focusses on housing characteristics is centred on Urban China, allows for this study to shed new light on the impact of housing characteristics on well-being, building further on the factors that other studies have already shown to impact subjective well-being.

Conceptual Model

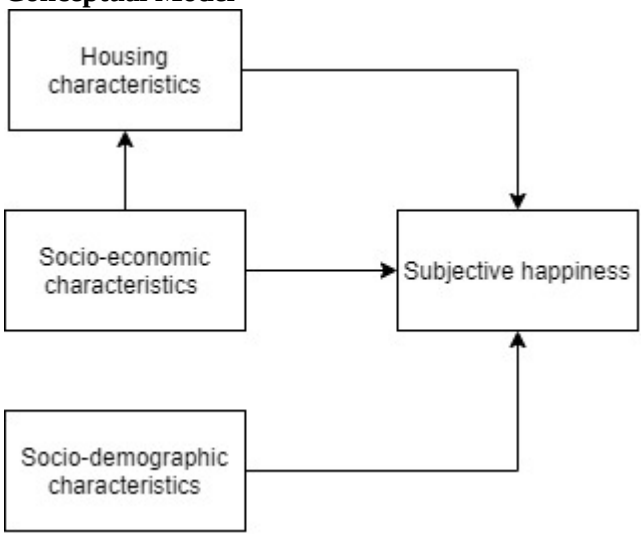

Figure 1: Conceptual model impact of personal characteristics on subjective well-being.

This conceptual model shows in what way the study's main concepts influence each other. Housing characteristics, socio-economic characteristics, and socio-demographic characteristics all individually influence subjective well-being, as indicated by previous studies (Brereton et al, 2008 and Zhang et al, 2018).

Socio-demographic characteristics refer to variables such as age and gender. In this study, these variables are treated as control variables as housing characteristics are the focus of this study, yet that does not make these variables less relevant. Multiple studies show the effect of such variables on subjective well-being, such as Brereton et al. (2008), or Kamp Dush & Amato (2005), who show that different types of relationship status are associated with different, significant effects on well-being. This category also includes health-related factors, as multiple studies (Dolan et al, 2008 and Sabatini, 2014) find that poor health has a negative effect on well-being.

Socio-economic characteristics, such as income and level of education are likewise part of the analysis and the conceptual model. Brereton et al. (2008) use three different categories of education, and find that only the lowest level, which is 'Lower secondary/junior high school' is significant at the 5% level. This is reinforced by Cuñado & Pérez de Gracia (2012), who identified a relation between education level and well-being in Spain, although they attribute this result to secondary effects caused by education such as income and employment probability. Income is significant at the 1% level in this study by Brereton et al. (2008). This conclusion is reinforced by other studies such as the one performed by Headey et al. (2008), who find a significantly positive relation in 5 different countries between economic circumstances and well-being, with wealth being the most relevant economic circumstance – and thus more relevant than income.

Lastly, housing characteristics, the focus of this research, are expected to have a significant effect on subjective well-being. There is not currently a lot of research in this area, although Zhang et al. (2018) find significant effects of housing characteristics on subjective well-being in Urban China. The different geographical context of this research, however, could play a part in determining a different outcome than previous studies such as the one in China. Additionally, in the conceptual model, socio-economic characteristics are assumed to have an effect on housing characteristics, as a great deal of the variables that are considered part of the 'housing characteristics' section are connected to socio-economic variables such as income. It is expected that those with higher incomes are able to afford a higher quality of housing. The relation between these variables could cause issues with multicollinearity in the statistical analysis, which will be tested for, yet this situation is likely preferable to leaving certain socio-economic indicators out of the analysis to avoid this.

Hypotheses

By looking at past research and using logical reasoning, certain hypotheses for the analysis can be formulated. Firstly, a large amount of the control variables – which in this case are socio-economic and socio-demographic variables – are expected to have a significant effect on subjective well-being. Age, gender, employment status, education, and health have all had significant effects in previous studies, and it is, therefore, likely that they once again have a significant effect in this study. The main variable that could provide uncertainty in this area could be degree of happiness with relationship, as even though multiple previous studies prove the significance of relationship status or quality, they are less plentiful than studies looking at other factors. Issues with unexpected multicollinearity, inappropriate data documentation, or a lack of responses on certain questions could also cause variables that are expected to be significant to not have a significant effect on well-being.

Regarding housing characteristics, the type of homeownership is the main variable that is expected to have a significant effect on well-being. For other variables, it is simply harder to state hypotheses are prior research on them is rather thin. The number of rooms in the house could not be significant, as this is dependent on other factors such as the number of people living in the household and the stage of their life an individual is currently in. Variables such as problems with noise in the household or other problems experienced in the household, therefore, are expected to have a higher chance of proving to have a significant effect on well-being than the aforementioned variables regarding the number of rooms.

Methodology

Research method & data collection

For this research, ordinal logit regression analysis is used. This is because the dependent variable, 'life satisfaction', is measured on an ordinal Likert scale and it is not continuous and not cardinal. Regression analysis allows for an integrated approach to analysing the data, illustrating the effects all the different independent variables have on the dependent variable.

For the research, a secondary dataset is used, as an appropriate dataset containing the necessary variables is readily available online for academic use, and the scope & accuracy of this dataset is larger than that of data that could be gathered specifically for this study. The dataset to be used is 'Understanding Society: The UK House Longitudinal Study' (University of Essex, 2018). Longitudinal, in this case, means the study is repeated upon the same subjects every year for researchers to be able to monitor change and development in statistics, although in the case of this study only the data of the most recent wave (2018) is used, as the longitudinal part of the study does not particularly benefit the topic of the study. Understanding Society is based at the Institute for Social and Economic Research at the University of Essex and funded by the Economic and Social Research Council.

The data covers everyone within a single household, and it, therefore, provides two datasets; one with individual characteristics regarding a wide variety of subjects, often in socio-economic and socio-demographic categories, while the other dataset has characteristics regarding households. These two datasets can be combined using the variable 'Household ID' to create a dataset containing both information on the personal level as well as characteristics of the household an individual lives in, providing us with the necessary data to perform regression analysis.

For the regression analysis to be performed, some changes had to be made to the data to ensure it was fit for the regression analysis once the data was imported into the statistical analysis program of choice, SPSS. Firstly, the individual dataset and household dataset had to be merged to create one large dataset containing both individual characteristics and household characteristics. Other than that, the performed data management largely consisted of transforming nominal variables such as 'education status' into dummy variables, leaving out one of the categories for it to serve as the reference category. Which categories were chosen as reference categories is clarified in the regression analysis itself, as the reference categories are listed in brackets behind the variable names.

Overview of cases & variables

In total, the dataset contains 36,055 cases. Not all these cases are usable, as missing responses are always a problem. For the dependent variable, 'i_sclfsato', which is labelled as 'Satisfaction with life overall', 2623 out of the 36,0555 cases are missing due to a variety of reasons – mainly respondents answering 'inapplicable', in this case. For the regression analysis, fewer cases than the 36,055 are used, as a result of ordinal regression automatically omitting cases with missing variables.

The selection of variables that are included as independent variables in the regression analysis can be found in the table below. A selection of relevant variables was performed based on the results of previous literature, such as Brereton et al. (2008), Zhang et al. (2018), Sabatini (2014) & Kamp Dush & Amato (2005). Potential multicollinearity between the chosen variables was tested, and no critically high VIF values presented themselves, indicating that issues with multicollinearity are limited.

Table 1: Selection of variables to be entered into regression analysis, as well as the corresponding measurement types. (University of Essex, 2018)

Variable Name	Variable Label	Measurement Type
i_sex	Gender	Binary
i_dvage	Age	Ratio/Interval
i_jbstat	Current economic activity	Nominal
i_qfhigh	Highest educational qualification	Nominal
i_closenum	Number of close friends	Ratio/Interval
i_health	Long-standing illness or disability	Binary
i_scsf1	Rating of general health	Ordinal
i_screlhappy	Degree of happiness with relationship	Ordinal
i_prfitbw	Total personal gross monthly income	Ratio/interval
i_gor_dv	Government Office Region	Nominal
i_hsbeds	Number of bedrooms	Ratio/Interval
i_hsrooms	Number of other rooms in accommodation	Ratio/Interval
i_tenure_dv	Housing tenure	Nominal
i_noisyn	Noise from neighbours	Binary
i_crcraf, i_crrubsh, i_crteen, i_srdrnk, i_crvand, i_crrace, i_crburg, i_crcar & i_crmugg	Extent of: Graffiti on walls, Rubbish on street, Teenagers hanging about, Drunks/Tramps on street, Vandalism, Racial insults/attacks, Homes broken into, Cars stolen/broken into & People attacked on street	Computed ratio variable representing total experienced problems, adding up said variables and dividing by 9
i_hhsize	Household size, incl. absent members	Ratio/Interval

Data quality & ethical considerations

The data used in this research was gathered by professionals (University of Essex, 2018), and it is therefore expected that the data is of high quality. The only potential problem regarding data quality might be that, as secondary data is being used, the variables do not fit the goal of the research adequately, as the questions asked to respondents were not specifically made to benefit this specific research. Additional housing-related variables such as the size of a house in square meters or house price could have been rather useful in order to enhance the research. The data is of a tremendous scale, however, and the number of variables included is so high that a sufficient selection of variables that fit the aim and scope of this research can be made. Additionally, the high number of cases in the dataset greatly benefit this research, seeing as the number of cases is over 36,000, a number which could simply not be reached with primary data gathering considering the scope of this thesis. One disadvantage is that the dataset focuses solely on the UK, which might limit the usefulness of the conclusions drawn from the research as they are set in a specific geographical context.

The nature of this thesis severely limits the potential ethical considerations that could conflict with performing the research. Firstly, all the data from the secondary dataset is completely anonymous, which limits the potential harm it could do to participants. Secondly, the research will not be openly published in a journal or sent to policymakers, which means that any conclusions to be drawn from this research that could negatively impact individuals will not come into existence.

Results

Descriptive statistics

Some descriptive statistics are now given for the interval/ratio and ordinal variables used in the analysis, to provide additional background regarding the individuals in the dataset used for the analysis. The dependent variable, which is subjective well-being, or 'life satisfaction' as listed in the dataset, is the most relevant here. The mean life satisfaction for the individuals in the dataset is 5,15, which can be seen in Table 2. There are, however, differences in subjective well-being that arise as a result of geographical differences. Therefore, in the map of Figure 2, mean subjective well-being is illustrated per Government Office Regions of the United Kingdom. To account for such geographical differences, these Government Office Regions are also entered into the regression analysis.

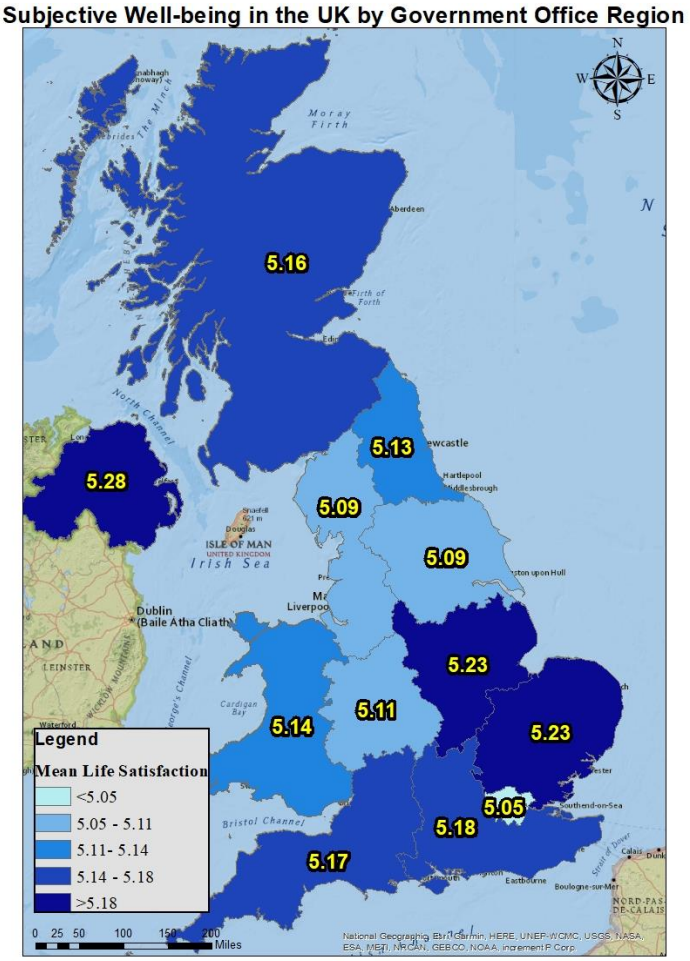

Figure 2: Mean life satisfaction per Government Office Region in the United Kingdom (University of Essex, 2018)

As can be seen from this map, Northern Ireland has the highest mean subjective well-being with 5.28 – which is rather high, considering well-being is measured here on a scale from 1 to 7. The East Midlands and East of England follow closely behind, with a mean subjective well-being rating of 5.23. Subjective well-being is the lowest in the Government Office Region of London, with a rating of 5.05. It is important to acknowledge, however, that no independent variables were taken into account when calculating these mean ratings, which means that variables other than geographical location could have an impact on subjective well-being in these regions, such as differences in income. Therefore, the differences in well-being in these locations could differ in the regression analysis itself, as other variables are accounted for in that case.

Table 2: Descriptive statistics for interval/ratio and ordinal variables used in regression analysis (University of Essex, 2018)

Variable	Mean	Standard Deviation	Minimum	Maximum
Satisfaction with live overall	5.15	1.486	1	7
Age	49.34	18.813	16	103
How many close friends	5.35	6.864	0	600
Rating of general health	3.29	1.044	1	5
Degree of happiness with relationship	4.91	1.234	1	7
Total monthly personal income gross	1813.27	1630.55	0	28149.67
Number of bedrooms	3.09	1.057	0	29
Number of other rooms in accommodation	1.94	1.054	1	38
Household size, incl. absent members	2.93	1.553	1	13
Average amount of housing problems experienced	1.5938	.53105	1	4

The descriptive statistics for independent variables of a ratio/interval or ordinal measurement scale are shown in Table 2. Mean life satisfaction across the entirety of the United Kingdom is 5.15, which matches the means per Government Office Region as shown in Figure 2. It is relevant to keep in mind that some of these statistics, such as monthly gross income, are rather vulnerable to outliers. The median of this variable, which is 1457.06 is, however, not that different from the mean of 1813.27. The fact that the mean of certain variables is rather high when compared to national averages – such as the mean age of 49.34 – should not be a problem for the analysis, as these variables are entered into the regression and thus accounted for. The data does include outliers that were not taken out of the analysis, as there is no accurate way to evaluate which of these outliers are accurate and which are not. Next up, the regression analysis is performed. It is important to keep in mind that coefficients for categorical variables are, in this case, relative to the reference category, which means that a negative coefficient means the variable has a more negative effect on well-being compared to the reference category, and not necessarily a negative effect on well-being in general.

Regression Analysis (N=16.262)

Table 3: Ordinal logit regression analysis (University of Essex, 2018)

Variable Name (Reference Category)	Variable	Coefficient Estimate	Two-sided Significance
Thresholds	***Life Satisfaction = 1***	***.261***	***.170***
	Life Satisfaction = 2	***1.693***	***.000******
	Life Satisfaction = 3	***2.593***	***.000******
	Life Satisfaction = 4	***3.452***	***.000******
	Life Satisfaction = 5	***4.547***	***.000******
	Life Satisfaction = 6	***7.472***	***.000******
Gender (Female)	Male	-.221	.000***
Age		.012	.000***
Current economic activity (Self-employed)	Paid employment	-.053	.319
	Unemployed	-.451	.000***
	Retired	.551	.000***
	On maternity leave	.608	.000***
	Family care	.145	.091*
	Full time student	-.439	.040**
	Sick or disabled	-.849	.000***
	Unpaid family business	-.753	.218
	Apprenticeship	-.162	.829

Highest educational qualification (1st degree or equivalent)	University higher degree	-.008	.886
	Diploma in higher education	-.028	.662
	Teaching qualification excluding PGCE	-.016	.892
	Nursing/other medical qualification	-.068	.533
	Other higher degree	.370	.320
	A level	.024	.724
	Welsh baccalaureate	-3.443	.001***
	International baccalaureate	-.435	.475
	AS level	-.047	.794
	Highers (Scottish)	.057	.732
	Certified 6th year studies	-.362	.219
	GCSE/O level	.094	.061*
	CSE	.019	.829
	Standard/o/lower	.221	.126
	Other school certification	.218	.065*
	None of the above	.176	.001***
Number of close friends		.008	.001***
Long-standing illness (No)	Yes	-.063	.089*
Rating of general health		.734	.000***
Degree of happiness with relationship		.521	.000**
Total personal gross monthly income		.000016	.110
Government Office Region (London)	North East	-.074	.412
	North West	-.062	.355
	Yorkshire	-.132	.060*
	East Midlands	-.052	.477
	West Midlands	-.019	.791
	East of England	.003	.961
	South East	-.093	.153
	South West	-.137	.050**
	Wales	-.086	.293
	Scotland	-.112	.145
	Northern Ireland	.016	.855
Number of rooms	Number of bedrooms	.015	.431
	Number of other rooms in accommodation	-.008	.611
Housing tenure (Owned outright)	Owned with mortgage	-.141	.001***
	Local authority rent	-.218	.005***
	Housing association rented	-.373	.000***
	Rented from employer	-.281	.056**
	Rented unfurnished	-.346	.000***
	Rented furnished	-.090	.429
	Other tenure	.347	.359
Noise from neighbours (No)	Yes	-.108	.006***
Number of persons in household		-.017	.242
Number of problems experienced in household		-.299	.000***

*Note: *Significant at 10% level; **Significant at 5% level; ***Significant at 1% level.*

Discussion

The results of the ordinal logit regression analysis can be found in Table 3. The dependent variable thresholds are all significant except for the lowest category which is a result of the low number of respondents who put themselves in this category – only 2.5% of the total responses for the dependent variable. The rest of the dependent variable thresholds are all significant at a high level of confidence.

In the study population of the United Kingdom, males are significantly less happy when compared to females. This is in accordance with previous research looking into the factors affecting well-being, such as Brereton et al. (2007) and Headey et al. (2008). Though there is research confirming this effect, there is less research looking exactly into what causes this higher well-being for women. Dong Yue et al. (2017), however, suggest that women express more emotional feelings, causing higher levels of both happiness and depression. Age also has a significantly positive effect on well-being, which is not as consistent through past academic literature. Fugl-Meyer et al. (2002) and Brereton et al. (2007) find that age is not significant in determining well-being, while Headey et al. (2008) even find that age has a negative effect on well-being. It cannot be determined where this difference in results originates from, though the focus of this research on the United Kingdom could cause differences.

Individuals who are retired or on maternity leave report significantly higher levels of well-being when compared to the reference group of self-employed persons. The fact that retired individuals have higher well-being matches up with the finding that age has a positive effect on well-being in the United Kingdom. Full-time students report lower levels of well-being compared to the reference category of self-employed individuals. People who are unemployed or are not able to work in general due to a sickness or disability report significantly lower levels of well-being. Winkelmann and Winkellmann (1998) report that this is potentially associated with the loss of income while unemployed, and that being out of the labour force causes negative well-being especially for men aged between 30-49. This effect is even stronger for those who are not able to work due to a sickness or disability, as bad health is negatively associated with well-being (Dolan et al, 2008 and Sabatini, 2014).

All levels of education are not significant at the 5% level except for the Welsh baccalaureate. The high coefficient and the fact that there are only 18 respondents in this category, however, make it possible to attribute this to outliers. Cuñado and Pérez de Gracia (2012) find that education has a secondary effect on well-being through income and labour status, which could have caused the insignificance of education level in this analysis. While testing for multicollinearity, however, no critically high VIF values were found.

Number of close friends has a significantly positive effect on well-being. Previous research has shown that friends are an important source of support and both friendship intensity and quality can be positively associated with life satisfaction (Amati et al., 2016). Reporting a long-standing illness has no significant effect when taking a significance level of 5%, although it would be significant if a level of 10% was taken. Rating of general health has a positive effect, however, in accordance with previous literature (Dolan et al, 2008 and Sabatini, 2014). Relationship quality has a significantly positive effect on well-being. Kamp Dush & Amato (2005) also find that relationship quality has this effect.

Income has no significant effect, which could be a result of multicollinearity with other variables such as education level and current economic activity. Brereton et al. (2007) find income to be a significant determinant of happiness, while Headey et al. (2008) find that wealth is more relevant in determining wellbeing, although income additionally has a significant effect in their study. As the last control variable, some of the Government Office Regions entered into the analysis have a significant effect, which can be attributed to geographical differences. Most Government Office Regions have a negative effect on well-being when compared to London now that other variables are controlled for, while Figure 2 shows London to have the lowest mean well-being rating when such variables are not controlled for.

Housing Characteristics

Housing characteristics are the focus of this research. The first two characteristics, number of bedrooms and number of other rooms in accommodation both do not have a significant effect on well-being at a significance level of 5%. Zhang et al. (2018) find that house size does have a significant effect on life satisfaction. However, the correlation between house size and number of bedrooms/number of other rooms remains unproven. Khajehzadeh & Vale (2016) find that, in the study area of New Zealand, number of bedrooms and number of rooms are no longer accurate standards for determining house size. Other research, such as Dekker et al. (2011), generally tends to focus on house size instead of number of rooms, and Dekker et al. (2011) find that this significantly determines housing satisfaction, although this research does not relate this housing satisfaction to general life satisfaction as Zhang et al. (2018) do.

Most types of housing tenure have a significant effect on well-being. Brereton et al. (2007) found public housing to be the only type of housing tenure that has a significantly negative effect on well-being, although their housing tenure variables are limited compared to other research such as Zhang et al. (2018), which find that type of housing tenure has a significant effect on both housing satisfaction and life satisfaction in general. The reference category of owned outright has the most positive effect on well-being, as the other variables except for 'other tenure' – which is not significant, and vaguely specified of nature have lower coefficient estimates when compared to the reference category. This could be due to the fact that owning a house outright without a mortgage reflects a better financial situation for the individual than having a mortgage, and wealth is positively associated with well-being (Headey et al, 2008). Not having to worry about paying off mortgages or having to move out of a rented home could also play a part in this. Out of the significant categories for housing tenure, owned with mortgage has the second-highest coefficient, followed by local authority rent. Those that rent from a housing associated or rent unfurnished report the lowest levels of well-being, with the rest of the categories not having a significant effect. Comparing this to past research is difficult, as research that focuses on the effect of housing characteristics such as Zhang et al. (2018) treats housing tenure as a binary variable, with homeownership and no homeownership being the only options. Regardless, the data shows that in the focus area of the United Kingdom, type of housing tenure has a significant effect on subjective well-being.

Noise from neighbours and number of problems experienced in the household both have significantly negative effects on well-being. The number of problems experienced variable is a summation of 4 other variables, which can be found in Table 1, asking respondents to rate their problems with the applicable problem on a scale of 1 to 4, which was then divided by 9 to get a sense of the average number of problems the individual experienced in their neighbourhood. Neighbourhood satisfaction is highly correlated with happiness (Shieu, 2012). Indicators of negative neighbourhood quality such as the two aforementioned variables provide a general sense of neighbourhood quality, which could explain the significant effect it has on well-being. Growing up in bad neighbourhoods has negative effects on health, and creates potential to resort to criminality, as well as a higher possibility for childhood injury or abuse (Sellstrom & Bremberg, 2006), which could explain the negative effect these indicators of neighbourhood quality have on well-being.

Lastly, the number of persons in an individual's household does not have a significant effect on well-being, although the coefficient is negative in the sample. Brereton et al. (2007), similarly, find that having 3 or more children in a household has a negative effect on well-being, which indicated that a further specification of this variable could have potentially led to a different effect.

Conclusions

This thesis used a literature review to inform the formulation of research hypotheses on the effect of housing characteristics on subjective well-being in the United Kingdom, combined with socio-demographic and socio-economic control variables. These variables were then entered into ordinal logit regression analysis to confirm their effect on subjective well-being.

In the Theoretical Framework laid out in Figure 1, it was hypothesized that both socio-demographic and socio-economic variables would significantly influence well-being, while socio-economic variables would also affect housing characteristics. The effect of socio-economic characteristics on housing characteristics was not tested in the regression, but multiple sources of academic literature reinforce this effect. Regarding the socio-demographic variables age, number of close friends, rating of general health, and degree of happiness with relationship were shown to all have a positive effect in determining subjective well-being. Being male was shown to have a significantly negative effect on well-being when compared to the female reference category. For socio-economic variables, certain economic activities were shown to have a significant effect on well-being. Those who are unemployed, full-time students, and the sick and disabled have significantly lower well-being when compared to the reference group of self-employed individuals, while those who are retired or on maternity leave report significantly higher levels of well-being. Surprisingly, income had no significant effect on well-being.

Housing characteristics were the focus of this research. In the theoretical framework, it was hypothesized that certain housing characteristics would significantly affect subjective well-being. The ordinal logit regression analysis showed that the number of bedrooms and number of other rooms in a house do not significantly affect subjective well-being. Diverse types of housing tenure, however, have significant effects on subjective well-being, with owning a house outright or through mortgage having the most significant effects, which is in accordance with previous academic literature. Number of persons in a household has no significant effect on well-being, while noise from neighbours and average problems experienced in the neighbourhood have significant negative effects. It is concluded that this is because these variables are representative of general neighbourhood quality, which has a negative effect on well-being.

Housing is often considered a positional good (Ballas, 2013), meaning that the desire for and distribution of housing has an effect on its value. This partially explains the significant relation between housing and subjective well-being, as a high quality of housing is a status symbol for those who have attained a higher status in society. Not all of the housing-related variables that were found to be significant in this research, however, reflect this degree of positionality in the way they are formulated, which limits the representation of the potential positionality of housing in this research.

The size and accuracy of the dataset contributed greatly to the accuracy of the findings in this research. For the ordinal regression analysis, 16.262 cases were used. Potential weaknesses of this research include the focus on the United Kingdom, limiting its usefulness in other geographical areas. The high amount of missing cases on certain variables also made it less viable to include certain variables, such as legal marital status. The findings of the research could be implemented into policy by using said policy to adapt significant determinants of well-being in a way that would ultimately increase total well-being, which is a noble societal goal. The policy use of the findings regarding housing characteristics, however, is limited, as changing types of housing tenure and neighbourhood quality is not easily achieved. Future research should attempt similar analysis on a larger geographical scale with a dataset more suited towards the specific goals of the research, allowing respondents more room in indicating their specific housing characteristics.

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