

WHERE ARE PEOPLE HAPPIER? THE RELATIONSHIP BETWEEN SUBJECTIVE WELL-BEING AND ENVIRONMENTAL FACTORS IN SLOVAKIA

Veronika Jurčíšínová

Abstract

The subjective approach to the definition and measurement of well-being was neglected in the past. However, subjective well-being (SWB) also varies across countries and regions, as well as between urban and rural areas. Therefore, the environment can be considered one of the factors affecting people's SWB. The main aim of this paper is to explore the relationship between SWB and the environment in which people live. There have been a few studies that examine the characteristics of built environments as forms of external factors at the urban and rural levels. This paper aims to contribute to this stream of the literature by examining how environmental factors in the neighbourhood, such as noise, pollution and crime, can affect the level of SWB in the Slovak Republic. The analyses performed in this study are based on microdata from the *2018 European Union Statistical Survey on Income and Living Conditions*. The results indicate that the selected characteristics of built environments have a negative relationship with SWB. Even so, people are more satisfied in cities, mainly due to their higher incomes.

Key words: Subjective well-being, built environment, EU-SILC, Slovakia.

JEL Code: I31, R23, O18

Introduction

The quality of life is becoming an increasingly important concept not only for psychologists, but also for sociologists and economists. Subjective well-being (SWB) is one of the phenomena that can be used to examine the aspect of people's quality of life. Many people ask themselves what a good and quality life actually is. Diener (2000) explains the quality of life in terms of SWB, which represents the evaluation of one's own life, looking at both positive and negative areas of life.

Like other indicators, SWB is also influenced by many factors. Some authors (Mouratidis, 2017; Okulicz-Kozaryn and Valente, 2019) are of the opinion that it is the

environment that significantly influences individuals' SWB. Similar to Mouratidis (2017), in our study we focus on factors related to a built environment, in particular, noise, pollution and crime. We examine which of the three factors reduces people's satisfaction the most.

Living in an urban area differs from living in a rural one. Life in the city offers more possibilities than life in a village, ranging from more opportunities for education and work, to more opportunities for cultural and social life. However, rural life is associated with greater cleanliness, less noise and crime, and more greenery.

This study aims to approximately determine whether life in urban areas is better than life in rural areas, even if people are affected by negative factors such as noise, pollution and crime.

This study contributes to the existing literature by examining a relationship related to quality of life in Slovakia. Similar research is not so widespread in Slovakia, with the exception of some studies that deal with the very issue of SWB and factors such as income, population and health. In Slovakia, there is a currently prevailing trend of population moving from larger, busier cities to suburbs or to rural areas. It is perhaps the idea of a quiet and less stressful life, without many neighbours, with more space and privacy, that attracts many people to the villages. On the other hand, in Slovakia, it is precisely the cities that can offer better work and higher incomes that can improve the quality of life of the inhabitants, despite the existing negative factors that accompany life in the city.

1 Subjective well-being and relationship with the built environment

People want to live a healthy and happy life. Therefore, the concept of SWB has been gaining attention in the social sciences. SWB is described as “a person's cognitive and affective evaluations of his or her life as a whole” (Diener et al., 2009, p. 187). SWB itself consists of three components – life satisfaction (LS), pleasant (positive) affect (PA) and unpleasant (negative) affect (NA) (Diener and Suh, 1997; Schimmack, 2008). It is often measured through the so-called ladder scale (Cantril, 1965), which is composed of 10 or 11 steps. Respondents answer questions about satisfaction and are supposed to place themselves on one of the steps. The most frequently asked question is: “All things considered, how satisfied are you with your life as a whole these days?”

SWB is a multidimensional concept, therefore it depends on and is influenced by a number of factors, for example, education, income, health, age, etc. (Arrondo et al., 2021; Steptoe et al., 2015). However, it goes without saying that all these factors are also influenced

by the country in which people live and the environment in which they are located. Therefore, it is also important to examine the so-called built environment.

The built environment can be characterized as the “elements” around us that we encounter every day: buildings, infrastructure, forests, parks, etc. Today, a lot of attention is paid to the relationship between SWB and the environment (Okulicz-Kozaryn and Valente, 2019; Northridge et al., 2003). As Mouratidis (2017) states, for example, traffic, buildings, noise, crime and population density affect people’s mood. A greater number of buildings, denser traffic, noise, pollution affect the life of people in the city to a greater extent. It is therefore likely that there are urban-rural differences in SWB.

Living in a city or village is connected to numerous factors that can potentially affect health, well-being and happiness. It is also about the place where people live, meet, and work. Therefore, differences arise in the influence of the environment on SWB (Verheij, 1996).

Life in the city offers many possibilities and opportunities. Greater opportunities include those in the labor market, higher incomes, wide educational opportunities, leisure activities, socialization and much more. However, the greater number of positive possibilities for life has a kind of “price” that people have to pay. The concentration of large numbers of people in cities later causes overcrowding. Nowadays, when almost every adult owns a car, congestion, noise caused by honking, pollution (emissions, dust, etc.) arise in cities. All these factors can contribute to causing stress. With stress, nervousness and poverty, crime (vandalism, robberies, assaults) can occur more often. All these factors can cause some kind of discomfort. On the contrary, a place that is calm, pleasant and quiet can create pleasant feelings accompanied by higher well-being (Verheij, 1996; Requena, 2016). Less populated, quieter and greener places to live can also represent rural areas. According to Sørensen (2014), people are more satisfied in rural areas. This may be due to cleaner air (Navarro et al., 2020), better accessibility to greenery (Sørensen, 2021) and safety (Verheij, 1996).

This study contributes to the literature including Mouratidis (2017), who theoretically clarified which environmental (neighbourhood) factors can influence the SWB dimension. We carry out the research for the case of Slovakia and focus on three specific factors, where we extend the research to the level of urban and rural areas.

2 Data and methods

The analyses presented in this article are based on the microdata from the *2018 European Union Statistical Survey on Income and Living Conditions* (EU-SILC) that concern the Slovak

Republic. The SWB is operationalized by responses to the “Overall life satisfaction” question, to which respondents answer on a scale from 0 (not at all satisfied) to 10 (completely satisfied). The question in this survey is: “Overall, how satisfied are you with your life these days?” In the model, we employ three key explanatory variables representing the characteristics of built environments: noise, pollution and crime. The respondents were asked to indicate whether they experienced any of these problems in their place of residence. To explore the differences between different levels of urbanisation, we adopt the DEBUGRA classification:

- a) densely-populated area;
- b) intermediate area;
- c) thinly-populated area.

In line with OECD (2021), densely-populated and intermediate areas represent urban areas, and while thinly-populated areas represent rural areas.

We assume that SWB is a linear function of certain variables. To determine the relationship between the environmental factors, SWB and the degree of urbanisation, we employ a linear regression model, where SWB will be considered as an explained variable and the variables of the environmental factors (noise, pollution, crime) and degree of urbanisation will be considered as explanatory variables. OLS is created for three separate models for individual factors, and at the same time we also add models with an interaction effect (urban:environmental factor) to find out whether the influence of environmental factors on SWB is different in the urban and in the rural areas. At the same time, we add typical control variables to the model, which are often used in similar analyses regarding the quality of life. We add variables like log income, age, gender, education, status, health and marital status. Table 1 shows the descriptive statistics for the adjusted sample. The sample is cleaned of missing and negative values. Results are shown for both urban and rural areas. As can be seen, on average, city residents report higher SWB than residents in villages, even though the average income is higher in rural areas. The fact that people are more satisfied in the city can also be seen in the regression results, which are shown in the next subsection.

In 2018, 3331 respondents from the EU-SILC survey answered that they live in cities or towns – in urban areas. Rural areas accounted for 2,068 of the people interviewed. On average, respondents who state that they experience noise, pollution and crime have a lower level of SWB than people who do not; this applies to both urban and rural residents. In order to find out whether environmental factors negatively affect SWB in Slovakia, and whether,

despite existing factors in the neighborhood, people are more satisfied in the city or in the countryside, we created the regression model.

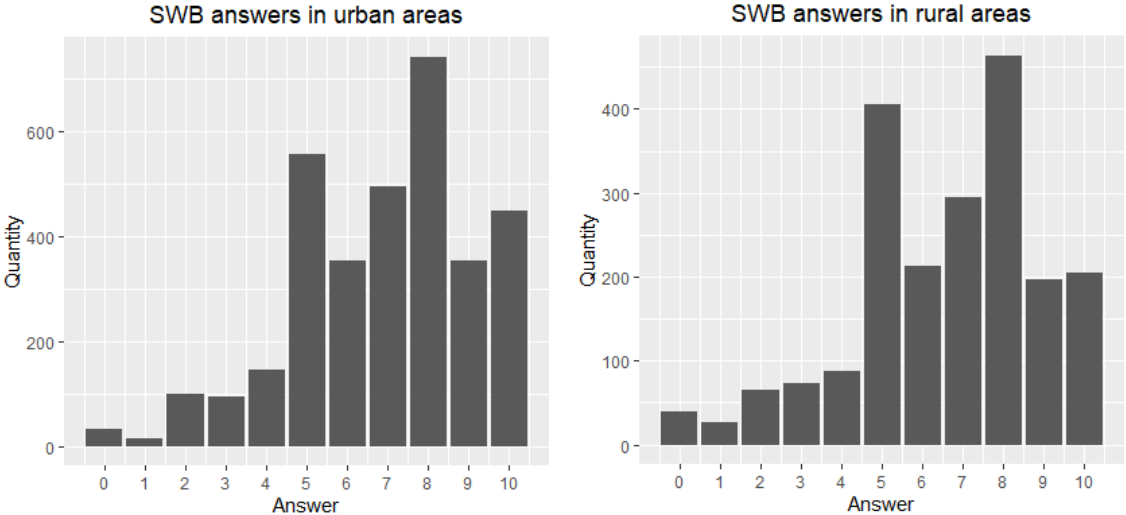
Tab. 1: Descriptive statistics

	<i>Urban</i>				<i>Rural</i>			
	<i>Min</i>	<i>Mean</i>	<i>S.D.</i>	<i>Max</i>	<i>Min</i>	<i>Mean</i>	<i>S.D.</i>	<i>Max</i>
<i>SWB</i>	0	6.91	2.20	10	0	6.58	2.31	10
<i>Income</i>	225	14 127	7 616	61 656	501	14 434	8 107	59 446
<i>n</i>	3 331				2 068			

Source: authors’ calculations based on data from EU-SILC

At the same time, we add a number of answers to the question about SWB. The x-axis shows the responses to SWB, on a scale from 0 to 10, and the y-axis shows the number of responses, i.e. how many individuals from our sample answered each possible response. In both cases, in urban and rural areas, the most frequently occurring answer was 8 – above average satisfaction. Also from the histogram it is possible to see that, in principle, people living in urban areas have higher SWB.

Fig. 1: Histogram of the number of responses to the SWB question



Source: authors’ calculations based on data from EU-SILC

3 Results

To begin with, we implement the aforementioned OLS model, which we also supplement with a model with an interaction effect. The results of both models for all factors are shown in Table 2:

Tab. 2: Regression output including control variables

	<i>Dependent variable: SWB</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Constant</i>	2.652*** (0.733)	2.661*** (0.733)	2.645*** (0.734)	2.613*** (0.733)	2.737*** (0.733)	2.808*** (0.734)
<i>Degree of urbanisation (urban)</i>	0.110 (0.058)	0.105 (0.061)	0.106 (0.058)	0.126* (0.061)	0.118* (0.058)	0.106 (0.059)
<i>Noise</i>	-0.080 (0.084)	-0.123 (0.173)				
<i>Urban*Noise</i>		0.060 (0.190)				
<i>Pollution</i>			-0.034 (0.091)	0.112 (0.167)		
<i>Urban*Pollution</i>				-0.214 (0.199)		
<i>Crime</i>					-0.290* (0.124)	-0.514* (0.225)
<i>Urban*Crime</i>						0.291 (0.267)
<i>Log income</i>	0.318*** (0.058)	0.317*** (0.057)	0.318*** (0.058)	0.319*** (0.058)	0.316*** (0.058)	0.314*** (0.058)
<i>Gender (female)</i>	-0.022 (0.058)	-0.022 (0.058)	-0.024 (0.058)	-0.023 (0.058)	-0.026 (0.058)	-0.028 (0.058)
<i>Marital status (single)</i>	0.281** (0.102)	0.281** (0.102)	0.282** (0.102)	0.283** (0.102)	0.279** (0.102)	0.280** (0.102)
<i>Marital status (married)</i>	0.342*** (0.072)	0.343*** (0.072)	0.343*** (0.072)	0.342*** (0.072)	0.343*** (0.072)	0.343*** (0.072)
<i>Status (employed)</i>	0.250** (0.093)	0.250** (0.093)	0.251** (0.093)	0.253** (0.093)	0.247** (0.093)	0.246** (0.093)
<i>Status</i>	-1.662***	-1.662***	-1.664***	-1.661***	-1.651***	-1.646***

<i>(unemployed)</i>	(0.191)	(0.190)	(0.191)	(0.191)	(0.191)	(0.191)
<i>Health (good)</i>	0.716*** (0.068)	0.715*** (0.068)	0.718*** (0.068)	0.719*** (0.068)	0.716*** (0.068)	0.717*** (0.068)
<i>Health (bad)¹</i>	-1.217*** (0.089)	-1.218*** (0.089)	-1.219*** (0.090)	-1.217*** (0.089)	-1.215*** (0.521)	-1.216*** (0.089)
<i>Education (secondary)</i>	0.316 (0.525)	0.315 (0.524)	0.320 (0.526)	0.323 (0.526)	0.258 (0.521)	0.213 (0.519)
<i>Education (tertiary)</i>	0.816 (0.529)	0.815 (0.528)	0.821 (0.531)	0.822 (0.530)	0.755 (0.526)	0.710 (0.524)
<i>Age (young adults)</i>	0.450*** (0.089)	0.450*** (0.089)	0.449*** (0.089)	0.447*** (0.089)	0.454*** (0.089)	0.454*** (0.089)
<i>Age (old adults)</i>	0.385*** (0.094)	0.385*** (0.094)	0.387*** (0.094)	0.389*** (0.094)	0.383*** (0.094)	0.381*** (0.094)
<i>Adjusted R²</i>	0.208	0.208	0.208	0.208	0.209	0.209
<i>p-value</i>	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***

Source: authors' calculations based on data from EU-SILC

Notes: Level of significance: $p < 0.1^*$, $p < 0.05^{**}$, $p < 0.01^{***}$

¹ We also performed an ordered probit model, where we also replaced the general health question with a question asking whether the individual suffers from any chronic (long-standing) illness. The results were qualitatively similar to those of the presented model. People who suffer from chronic illness have lower SWB.

In Table 2, we see the outputs for all three models, as well as the outputs for models with an interaction effect. In the case of models where the explanatory variables are noise and pollution factors, these factors come out statistically insignificant, but the models themselves come out significant as a whole. The only factor that is statistically significant is the crime factor. The crime rate thus negatively affects the overall satisfaction with the life of individuals, therefore if crime increases in the environment in which people live, it will result in a decrease in overall satisfaction.

The results of the model show that people in Slovakia are more satisfied with their lives in the city. This could be influenced by more opportunities for work, availability of services, etc. Even if, according to the data, the average income is higher in rural areas, as shown in Table 1, it may not really be the case that people living in the countryside can earn more than people living in the city. In general, it is clear that when cities offer more job opportunities, they also offer higher incomes. Nowadays, however, it is no longer the case that rural residents are employed only in agriculture, many people have jobs in the city (and thus a higher income), can work from home, but live in the countryside, mainly because of cheaper accommodation, contact with nature, lower incidence of crime, and its being more quiet.

It can be seen that there is no interaction relationship between the two predictor variables (urban and environmental factor), since in all three cases the coefficients are statistically insignificant. We considered the inclusion of the interaction term reasonable because we expected that the effect of environmental factors on SWB would not be the same regardless of whether an individual lives in a urban or rural area. Since the coefficients turned out to be statistically insignificant, we cannot confirm this with certainty. Therefore, there is probably no evidence that there is a synergistic effect between these variables: their combination is not stronger than the sum of their effects.

At the same time, if we notice the adjusted R^2 , we do not see changes in the OLS model and the model with the interaction effect, that is, the model with interaction did not change the variability of the result, and therefore we cannot claim that the model with interaction is better.

Conclusion

This article examines the relationship between subjective well-being (SWB) and environmental factors – noise, pollution, crime - at the urban and rural level in Slovakia.

The results suggest that environmental factors, especially crime, negatively influence SWB. In addition to crime, other important factors that reduce well-being are being unemployed and being sick. Despite the greater occurrence of negative environmental factors, people are more satisfied with their lives in the city and therefore we can say that the city itself positively affects SWB. This is probably also due to income, because as income increases, so does the SWB.

Clearly, negative factors will affect people's lives negatively. But the place is also important. It seems that the place of residence (city, village) can be considered as one of the other factors influencing SWB. In Slovakia, the trend of moving from the city to the rural area is starting to prevail, but as the results show, higher happiness can be achieved by living in the city.

The results of this study can be useful for policy makers, municipalities and for urban planning. Creating and providing means to reduce the crime rate can contribute to the better satisfaction of the current residents of cities, but at the same time such steps can increase the attractiveness of the city and thus attract more people to cities. Regarding the limits of this study, there are data that did not provide positive factors, such as the availability of services in the vicinity, the amount of greenery, cultural opportunities (museums, theatres, cinemas), etc. It would be interesting to look at the mentioned positive environmental factors together with the negative and overall relationship to SWB.

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Contact

Veronika Jurčíšínová

Technical university of Košice, Faculty of Economics

Němcovej 32, 040 01 Košice, Slovak Republic

e-mail: veronika.jurcisinova@tuke.sk