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(Un)Happiness, where are you? Evaluating the relationship between urbanity, life satisfaction and economic development in a regional context

Mikko Weckroth ^a and Teemu Kempainen ^b

ABSTRACT

Prior literature suggests that, among the so-called ‘developed economies’, residing in urban contexts is associated with lower life satisfaction. Using data from the European Social Survey (ESS) and Eurostat, we contribute to this literature by focusing on three different indicators of urbanity (subjective domicile, population density and living in a dominant urban region) in a multilevel modelling context in order to define where exactly the relatively lower life satisfaction can be found. Moreover, we account for the level of economic development at both regional and national levels. The results show that subjective domicile is strongly associated with life satisfaction, whereas regional gross domestic product (GDP) and other urbanity indicators are insignificant. Our results also highlight the relatively higher life satisfaction in rural surroundings in more developed countries. We conclude by noting that future contributions to the literature on urban–rural life satisfaction differences should utilize panel data, making it possible to address the spatial sorting versus contextual effects debate, and focus on investigating the higher level determinants at the country level that define the existence of urban–rural differences in life satisfaction within a country.

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INTRODUCTION

Well-being tends to be one of those attributes in human societies that is unequally distributed in space. One specific geographical pattern of well-being that has attracted growing interest in recent years is the relatively lower life satisfaction (as an evaluative measure of subjective well-being (SWB)¹) of residents in large urban agglomerations within developed societies (Berry & Okulicz-Kozaryn, 2009, 2011; Brereton et al., 2011; Dunlop et al., 2016; Easterlin et al., 2011; Morrison, 2011; Morrison & Weckroth, 2018; Piper, 2019; Requena, 2016;

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Shucksmith, 2009; Smarts, 2012; Sørensen, 2014). This pattern is crucial for understanding the relationship between objective and SWB because large urban agglomerations are usually the most productive and affluent regions within a nation, and yet they have been found to have a negative association with life satisfaction. These results have been mirrored by findings on relatively higher life satisfaction in more rural settings in developed countries (Brereton et al., 2011; Gilbert et al., 2016; Pacione, 2003). As a whole, this spatial asymmetry between the objective and subjective dimensions of well-being has been defined as a localized expression of the *paradox of affluence* within countries (Morrison, 2011).

However, even though this pattern is well documented in the literature, it remains poorly understood. Moreover, it is unclear exactly *where* this negative effect on SWB is located. Theoretically, it has been vaguely associated with the 'urban' context, with scholars drawing on literature from classical urban sociology, such as the work of Simmel ([1903] 1976) and Wirth (1938). Their insights have been applied to the empirical analysis of SWB in an urban context in studies by Berry and Okulicz-Kozaryn (2009, 2011) and Sørensen (2014). However, the measures used to capture the urban context or perceptions of urban living have not always been adequately defined or discussed. In technical terms, the existing literature has focused on measures of population density (Cramer et al., 2004), the binary between a capital city and the rest of the country (Morrison & Weckroth, 2018; Piper, 2019; Smarts, 2012) or, alternatively, with self-reported living environment or city size (Requena, 2016; Sørensen, 2014).

Despite an obvious overlap in the way the existing studies have chosen to operationalize urbanity, they each have their own limitations. For example, the measure of population density captures the physical proximity of individuals and thus potentially the intensity of personal interactions, but it is an imperfect indicator of the typology of the urban setting characterizing different regions. In fact, while there is certainly a positive association between urbanity and regional population density, the latter measurement also depends on how the administrative boundaries are defined. It is not infrequent, for instance, for cities with the same population size to be embedded regions with quite different land areas in the Nomenclature of Territorial Units for Statistics (NUTS) classification system. The population density of the NUTS regions (even in the same category, e.g., NUTS-3) can thus serve as a flawed indicator of urbanization. The second approach, on the other hand, is more precise because it captures the rank of each region and consequently the kinds of urban amenities provide only by the largest city-region the resident population has access. At the same time, however, it is imperfect because it is a categorical variable, hence it does not account for the variation that a continuous measure would capture. Finally, the two previous objective measures of urbanity might differ significantly from an individual's own perceptions regarding the level or intensity of urbanity in their living environments. Therefore, there is an apparent need to include all the above-mentioned measures into a single analysis to better define *where* exactly the relatively lower life satisfaction associated with an 'urban' context is located.

As far as the authors are aware, the present study the first to integrate all three measures and definitions of urbanity into a single analysis to better specify the exact location of relatively lower (and higher) levels of life satisfaction. Additionally, this analysis makes a methodological contribution to the surprisingly scarce amount of literature acknowledging the hierarchical structure of the survey data while analysing the relationship between place and SWB and applying a multilevel modelling (MLM) method (Aslam & Corrado, 2012; Ballas & Tranmer, 2012; Cramm et al., 2012; Novak & Pahor, 2017; Pierewan & Tampubolon, 2015). As noted by Ballas and Tranmer (2012), measuring SWB and its determinants is fundamentally 'a multilevel problem' (p. 72) if the intention is to differentiate between the *compositional effects* associated with individual-level characteristics and the potential *contextual effects* associated with regional settings.

Hence, in addition to identifying the most relevant measure of urbanity for the urban-rural life satisfaction gradient, we also discuss some methodological issues when dealing

with hierarchical data sets. More specifically, the hierarchical structure of the data has not always been adequately addressed in prior studies. In studies analysing the role of regional (NUTS) level variables, special care should be taken to include the regional level in the hierarchical design to obtain reliable results, as Aslam and Corrado (2012) highlight. For example, even though Piper (2019) accounts for intra-class correlation at the country level, he neglected a similar effect at the region level, likely resulting in an overly small standard errors, and hence, overly liberal results. In contrast, Okulicz-Kozaryn and Mazelis (2018) utilized county-level data with correspondingly clustered standard errors. However, the results of their study are difficult to generalize to the European context since there are large differences in many major factors, including urban structure, the level and nature of segregation and welfare services as well as the quality of public transport systems. Thus, our study yields important evidence at a Europe-wide level on the contextual nature of life satisfaction well-being (Aslam & Corrado, 2012).

Finally, by acknowledging the hierarchical nature of the survey data set, this analysis addresses another unresolved question concerning *where* exactly the negative effect of urban living can be found. Acknowledging the fact that individuals are embedded in regions that are themselves subsets of countries, we are able to analyse how economic development at both the national and regional level influences individual life satisfaction. Previous analyses have concluded that the relationship between life satisfaction and urbanity depends on the context of economic development in the country in question (Burger et al., 2020; Easterlin et al., 2011; Requena, 2016; Sørensen, 2014). In other words, the existence of urban–rural differences in life satisfaction is conditioned by the level of economic development of a country. However, the procedure used to examine the role economic development at the country level in previous analyses has relied on creating country groupings (e.g., high, intermediate and low in Sørensen, 2014) or binaries between ‘wealthy’ and ‘developing’ countries (e.g., Requena, 2016) and conducting the analyses separately for each group. What this rather crude empirical approach in fact suggests is that level of development of a country moderates the relationship between urbanity and life satisfaction. To better evaluate this assumption within the MLM framework, we define a three-level model (individual, region and country) and examine the role of a country’s national gross domestic product (GDP), population size and urbanization rate as determinants of individual life satisfaction. Finally, as it is also unclear whether regional level economic development (in the form of GDP) affects individual life satisfaction once country-level affluence has been accounted for, we also include a measure of regional GDP as a potential contextual predictor of individual life satisfaction at the subnational level.

The present analysis uses data from the 7th round of the European Social Survey (ESS), which includes relevant location indicators for each respondent: self-reported domicile (e.g., a large city or farm/countryside). Additionally, we include an objective and continuous measure of urbanity in the form of the population density of the region (NUTS) of each respondent, drawn from the Eurostat database, and we also construct a binary variable indicating residence in the Dominant Urban Region (DUR) within each national context. The 7th round ESS data includes 22 European countries, providing us with solid coverage of countries at different stages of economic development and levels of urbanization.

The article is structured as follows. After having introduced prior studies on the issues affecting the relationship between urbanity, life satisfaction and economic development in a regional context, we further discuss theoretical considerations regarding the relationship between perceptions of urbanity and SWB. Next, we define the contribution of the present analysis and specific research question, followed by a description of the data and methods and the results of the empirical analysis. The paper concludes with a summary of the results and discussion.

THEORETICAL CONSIDERATIONS ON THE RELATIONSHIP BETWEEN URBANITY, ECONOMIC DEVELOPMENT AND WELL-BEING

The question of the relationship between human well-being and urbanity is at the very core of research in the social sciences. Classical urban literature has operated at the intersection of urban sociology and geography and has related urbanism to the broader discussion on modernity and capitalism (Simmel, 1976; Wirth, 1938). Even today, insights from these discussions serve as the central theoretical basis for analysing the conditions that the urban (or rural) context imposes on human well-being. Despite the significant advance of urbanization since the turn of the 20th century, cultural and social differences between rural and urban appear to be rather persistent, being reproduced over time within societies (Fischer, 1975). Thus, in any given national context, and regardless of the level of economic development, cities are considered more 'modern' and 'developed' than rural areas and peripheries. Therefore, the perennial questions that inspired the pioneering scholars of 'the urban' still remain: How should urbanity be defined? How does the urban way of life differ from the rural way of life? And how do urban and rural contexts affect human well-being?

In his early sociological work, Émile Durkheim (Durkheim, 1893) understood that increasing population density impacted economic development and the division of labour, and he understandably reserved a special place for the city in this account. In a similar vein, present-day spatial and urban economists speak of so-called agglomeration effects that cover various benefits for both companies and individuals (Glaeser & Gottlieb, 2009). However, despite the beneficial economic implications, the economic literature also acknowledges that agglomerations of population might create certain disamenities that negatively affect the well-being of urban residents (Alonso, 1976; Kelley, 1977).² These urban disamenities can also be approached through the ideas of Merton (1936), who distinguished between intended and unintended consequences of human action, on the one hand, and between desirable and undesirable consequences on the other. Urban disamenities are clearly a case of undesirable consequences. However, it is less clear whether they are unintended in the sense of being unanticipated or unforeseen, as today urban(ist) planners and policymakers are quite likely to be aware of – and may have been so historically – the negative side effects of their projects. Hence, density or agglomerations may imply both advantages and disadvantages in terms of well-being. Whatever the case, both can be thought of as contextual effects operating on a rather macroscale of urbanity.

The classical literature on urbanisms ultimately suggests that the very largest urban agglomerations tend to attract a specific type of individual through a mechanism of selective migration and spatial sorting. This kind of reasoning would thereby suggest that the largest, most dense, and, in macroeconomic terms, most productive cities are associated with a culture of competition, achievement and social climbing (e.g., Wirth, 1938, p. 15), which negatively contributes to life satisfaction. In sum, these hypotheses are based on assumptions that certain personality traits or human values are concentrated in the largest urban or metropolitan regions, thus implying a relatively lower level of life satisfaction within such areas. Moreover, at least theoretically, the resulting social atmosphere may create negative externalities or urban disamenities for all residents, that is, contextual effects. This line of reasoning has been empirically examined by Morrison and Weckroth (2018), who asked if lower levels of life satisfaction in large cities may depend on the disproportionate concentration of people with extrinsic and personally focused values (i.e., values that have been found to correlate negatively with well-being).

The classical urban scholars of the 20th century (Simmel, 1976; Wirth, 1938) were concerned with the psycho-social implications of urban life in modernizing societies. Their key argument was that the volume, density and heterogeneity of urban populations inevitably entails being in physical proximity with socially distant co-residents, which leads to mental overload.

As a solution or coping strategy, people adopt a certain social distance or interpersonal indifference, and consequently, the urban way of life becomes quite remote from the idealized notion of a paradise lost: a form of interpersonal life characterized by solidarity, stability and non-pecuniary social interaction.³ As Wirth (1938, pp. 12, 23) memorably puts it, '[t]he contacts of the city may indeed be face to face, but they are nevertheless impersonal, superficial, transitory, and segmental'. As noted above, this approach has frequently been applied in analyses of urbanity and life satisfaction, and the existing body of literature has revealed that in the context of more affluent countries, the urban experience is associated with relatively lower life satisfaction, while living in rural areas correlates positively with higher life satisfaction (Berry & Okulicz-Kozaryn, 2009; Okulicz-Kozaryn, 2017; Requena, 2016; Sørensen, 2014).

In sum, the literature suggests that perceptions of urbanity, levels of economic development and, by implication, modernity are all intertwined. Hence, empirical analyses of the relationship between urbanity and well-being are inevitably associated with the question of the contextual role of societal development. Despite their perennial importance, classical 20th-century theses on urbanity never specified how to operationalize the concepts of well-being and perceptions of urbanity. This empirical analysis builds on the abovementioned theoretical theses by questioning what specific dimension of urbanity associate with a relatively lower life satisfaction and also evaluating the contextual role of economic development at both regional and national level.

MEASURING URBANITY: LITERATURE REVIEW, EPISTEMIC MODALITY AND THE PRESENT STUDY

This analysis employs three different indicators of urban context and investigates their association with life satisfaction. The theoretical grounding of this analysis is introduced here through these three different measures. The indicators not only represent a different operationalization of urbanity; they are also based on different theoretical assumptions regarding the so-called contextual effect of the urban environment on human activity and functioning.⁴ In other words, the question regarding the specific features impacting different measures of urbanity and the extent to which they overlap is not just of technical importance, but also of central theoretical importance since different operationalizations also refer to the different underlying mechanisms affecting urban–rural differences in life satisfaction.

Prior analyses conducted from the perspective of regional science have tended to favour more objective measures of the urban environment and level of urbanization. For example, Lenzi and Perucca (2016) used a ranking of NUTS-2 regions based on the population residing in large urban zones, a classification originally developed by Camagni et al. (2015), while examining whether more urbanized areas are a source of life satisfaction. In addition, following the emphasis based on objective indicators of urban characteristics and amenities, Brereton et al. (2008) attempted to elaborate on the relationship between geography, happiness and environment utilizing indicators of population density, proximity to natural amenities and various climate variables. Such an approach typically steers discussion on urban living in the direction of so-called urban amenities.

The second dimension in the well-being effects of urban living relates to the question of whether the negative well-being effect of a city is a linear function of density and population size or whether it is associated only with *the* largest urban agglomeration in a given national context. This approach has been followed, for example, by Piper (2019), who focused on the capital city regions in 15 European countries, and by Morrison and Weckroth (2018), who concentrated on the difference in life satisfaction between the Helsinki-Uusimaa capital region and the rest of Finland, and by Smarts (2012), who reviewed the level of SWB in London with a focus on the relative difference from the rest of the UK. If the effect is in fact localized to the dominant metropolitan region of a particular country, this suggests different hypotheses

and theoretical assumptions concerning the link between urban context and well-being. Two possible explanations for the negative effect on well-being can be developed from either a small interdisciplinary cluster of geographical psychology studies or from research on the geography of human values (Jokela, 2015; Morrison & Weckroth, 2018; Oishi, 2015; Rentfrow et al., 2015; Weckroth & Kemppainen, 2016). The psychological approach operates with personality types (e.g., extraversion and neuroticism), and, related to this perspective, Jokela (2015) have demonstrated that personality traits correlate differently with life satisfaction in different postal districts of the London metropolitan area. By contrast, the latter line of thought concentrates on the idea that individuals with certain set of human values (e.g., power or achievement) are sorted out into the DUR(s) of a country. For example, Morrison and Weckroth (2018) applied a concept and measure of human values and ‘value dissonance’ derived from the socio-psychological literature and suggested that at least a partial explanation for lower life satisfaction in the largest urban region in the country has to do with the fact that individuals with certain values associated with low life satisfaction are concentrated in capital city regions.

However, in the existing literature the most common strategy has been to rely on respondents’ self-reported definitions of their residence. These analyses have relied on survey items asking respondents to describe their domicile (Easterlin et al., 2011; Requena, 2016) or the population of the city in which they live (Berry & Okulicz-Kozaryn, 2009; Sørensen, 2014). This approach tends to emphasize the subjective perceptions and psychological consequences of social life in certain urban surroundings.

As considerable variation clearly exists between the three approaches, it is necessary to include them in a single analysis in order to localize this pattern of spatial divergence between objective and subjective measures of well-being. In other words, despite a rather extensive body of literature documenting differences in the systematic pattern of urban and rural life satisfaction, it is still far from clear whether these differences are associated with either a self-reported level of urbanity, population density in the region or, alternatively, residence in the DUR in the country (usually the capital region).

The three different measures of urbanity employed in this study are classified in Figure 1 according to their varying geographic scale and epistemic modality.

In technical terms, these indicators of urbanity differ from each other in three ways. First, they differ in geographic scale. Compared with the domicile indicator, DUR and density are clearly more macro-level indicators and refer to NUTS-2 or -3 regions in the ESS data, depending on the country. By contrast, the wording of the domicile item mentions the area where the respondent lives; moreover, the questionnaire previously mentions items that explicitly connect

Epistemic modality	Subjective	Domicile (Cat.)	E.g. Domicile profile aggregated from survey (**)
	Objective	E.g. Density from a micro-scale database (*)	DUR-NUTS (Cat.) Density-NUTS (Cont.)
		Micro	Macro
Geographic scale			

Figure 1. Conceptual scheme of the urbanity indicators.

Note: Cat. = categorical measurement; Cont. = continuous measurement; *not available in this study; and **not used in this study.

the term area to neighbourhoods. Second, there are also differences in the epistemic modality of the indicators. Density and DUR are based on register data, and, as a consequence, they are more objective than domicile, which is derived from respondents' self-reported evaluations of urbanity. Finally, the three indicators in Figure 1 are different kinds of measures. DUR and domicile are categorical indicators, whereas density is a continuous variable. Hence, these conceptual differences should be kept in mind when interpreting the findings of previous research and those of the present study.

To conclude, based on the above theoretical and empirical literature review, we focus on the following questions in our empirical analysis:

- What is the empirical overlap between the three measures of urbanity used in the present study?
- How are each of the three measures associated with life satisfaction after controlling for key sociodemographic (individual) and country specific fixed effects in multilevel regression analysis?
- Does the level of economic development (in GDP) at both the regional and national levels have an impact on life satisfaction?

Finally, our empirical strategy, operating within a MLM context, allows us to re-examine an argument presented by Lenzi and Perucca (2016) suggesting an interaction effect based on a specific combination of these different location indicators and dimensions of urbanity. Lenzi and Perucca proposed that urbanization benefits (in terms of higher life satisfaction) are especially positive for those individuals living in the rural parts of otherwise highly urbanized regions. Hence, it is possible for an individual to maximize his/her life satisfaction by 'cherry-picking' certain combinations of contexts, on different geographical scales, that contribute to higher life satisfaction. More precisely, while empirical analyses have shown that in economically more developed contexts, rural settings are associated with higher life satisfaction, the proximity or accessibility of certain services provided only by the largest cities do have a positive effect on life satisfaction. Thus, residing in a rural domicile within the capital region (or DUR) of a country would offer an optimal mix for higher life satisfaction. This hypothesis is empirically examined in this analysis using the interaction term for domicile and DUR.

DATA, INDICATORS AND METHODS

Data

The present study has made use of data from the 7th round of the European Social Survey (ESS) (2014), collected in 2014 from 22 countries, together with register data from Eurostat on the European NUTS regions. The data sets provide post-stratification weights that account for the varying selection and response probabilities as well as population weights for each country. Post-stratification was based on age, gender, education and region (ESS, 2016). As our study concentrated on the regional level, we constructed regional analysis weights by dividing the population of each region (2014) by the corresponding number of respondents and scaled the mean of the weight variable to 1.

Indicators

Dependent variable: life satisfaction

The life satisfaction item used the following wording: 'All things considered, how satisfied are you with your life as a whole nowadays?' The response scale was a numeric 11-point scale with 0 (extremely dissatisfied) and 10 (extremely satisfied) as the endpoints.

Domicile

The original survey item included five categories, ranging from *a big city* to *a farm or home in the countryside*. On the basis of a bivariate analysis of domicile and life satisfaction, we combined the middle three categories (*suburbs or outskirts of a big city*, *town or small city*, *country village*) as our reference group and constructed dummy indicators for both ends of the scale.

DUR

We obtained the data used for this indicator from Eurostat's regional database. The DUR for each country was defined based on a combination of three regional level (NUTS) indicators: cumulative net migration for the last five years, total population and a GDP index (euros per inhabitant as a percentage of the EU-27 average).⁵

Population density and regional GDP

We used the Eurostat regional data to obtain regional indicators on population density (population per km²) from 31 May 2017 and regional GDP⁶ (at current market prices per inhabitant) from 2017. A logarithm form was used in the models for both population density and regional GDP.

Country

Country dummies were used, with Austria as the reference group.

Socio-demographic control variables

Gender (dummy, reference: men), age (continuous), living with a partner (dummy, reference: lives alone), education (categorical, reference: ES-ISCED I; less than lower secondary), main activity (categorical, reference: paid work) and a subjective evaluation of the household's economic situation (categorical, reference: living comfortably) were used as individual-level control variables. Education was indicated by categories derived from the International Standard Classification of Education (ISCED). Table 1 provides descriptive statistics for the data and more information on the control variable categories.

Region

The regional data scale of the analysis applied the NUTS classification, a geographical nomenclature subdividing the territory of the European Union (EU) into regions at three different levels (NUTS-1, -2 and -3, respectively, moving from larger to smaller territorial units). With respect to the 7th-round ESS data, some countries use NUTS-1, while others use NUTS-2 or -3; the lack of precision also varies depending on the ESS round. The 7th round of the ESS data included regional NUTS classifications⁷ ranging from NUTS-1 (Germany and the UK) to NUTS-3 (e.g., Sweden, Slovenia and Ireland). The data from the ESS and EUROSTAT were then merged based on the smallest possible common nominator at the respective NUTS level. Descriptive statistics of the continuous and categorical variables used in the analysis are presented in Table 1.

Methods

Due to the hierarchical design of our study, with individuals being nested in specific regions, we estimated multilevel models, and more specifically, linear random intercept models. The basic equation for life satisfaction as a function of domicile, regional density and living in a DUR can be expressed as follows (for individual i in region j):

$$\text{Satis}_{ij} = \beta_0j + \beta_1 * \text{bigcity}_{ij} + \beta_2 * \text{farm}_{ij} + \beta_3 * \ln(\text{dens2014})_j + \beta_4 * \text{DUR}_j + e_{ij} \quad (1)$$

Table 1. Descriptive statistics of categorical and continuous variables used in the analysis.

Categorical variables			
Variable	Frequency	%	Variable
Domicile			Lives with partner
A big city	6953	19.9	Yes
Suburbs or outskirts of big city	4178	12.0	No
Town or small city	11733	33.7	Country
Country village	9551	27.4	Austria
Farm or home in countryside	2363	6.8	Belgium
Dominant Urban Region (DUR)			Czech Republic
DUR	6773	19.4	Germany
Other region	27993	80.6	Denmark
Gender			Estonia
Male	16378	47.0	Spain
Female	18467	53.0	Finland
Education			France
Primary education or none	3740	10.7	Great Britain
Lower secondary education	6052	17.4	Hungary
Upper secondary education	6038	17.3	Ireland
Post-secondary non-tertiary education	5995	17.2	Latvia
Short-cycle tertiary education	4931	14.1	Netherlands
Bachelor's or equivalent	3654	10.5	Norway
Master's or Doctoral	4227	12.1	Poland
Other	108	0.3	Portugal
Subjective economic hardship			Sweden
Living comfortably on present income	10793	31.0	Continuous variables
Coping on present income	16278	46.7	n
Difficult on present income	5761	16.5	Mean
Very difficult on present income	1718	4.9	SD
Main activity of the respondent			Minimum
Paid work	17385	49.9	Maximum
			34766
			34793
			230
			230
			0
			14
			0.7
			8.4
			11.3

(Continued)

Table 1. Continued.

Variable	Categorical variables		
	Frequency	%	Variable
Education	2936	8.4	
Unemployed looking for job	1362	3.9	
Unemployed not looking for job	544	1.6	
Permanently sick or disabled	925	2.7	
Retired	9006	25.8	
Community or military service	17	0.1	
Housework looking after children others	2213	6.4	
Other	372	1.1	

We let the intercept β_{0j} vary between regions around the population mean γ_{00} , with departure u_{0j} for region j :

$$\beta_{0j} = \gamma_{00} + u_{0j} \tag{2}$$

Table 5 shows how we controlled for gender, age and age², education, main activity, subjective economic hardship and living with a partner in models 2–5.

Linear random intercept models were estimated using Stata 15.1.

RESULTS

We first explored the relationships between our three urbanity indicators. Table 2 shows that in the DUR, almost half the respondents reported that they live in a big city, but the indicators also helped us identify more rural settings. Naturally, rural environments are clearly more common outside the DUR.

Next, we divided the regions into two categories on the basis of density, using the average as the cut-off point. Urban domiciles proved markedly more common in high-density regions than in low-density regions (Table 3). However, like above, we also identified rural domiciles in high-density regions.

Finally, we used the regional data to explore population density in the DURs and other regions, with the expected result that DURs would be considerably denser than other regions (Table 4).

Table 2. Crosstabulations between DUR and domicile.

	DUR	Other regions	Total
A big city	44.7	14.0	20.0
Suburbs or outskirts of big city	25.5	8.8	12.0
Town or small city	16.1	38.0	33.7
Country village	11.6	31.3	27.5
Farm or home in countryside	2.1	7.9	6.8
Count	6763	28,015	34,778

Table 3. Crosstabulations between population density and domicile.

	Low density	High density	Total
A big city	16.7	30.6	20.0
Suburbs or outskirts of big city	8.5	23.2	12.0
Town or small city	37.1	23.1	33.7
Country village	29.6	20.7	27.5
Farm or home in countryside	8.2	2.4	6.8
Count	26,436	8339	34,775

Table 4. Crosstabulation between population density and DUR.

	DUR	Other regions	Total
Low density	38.9	87.3	83.5
High density	61.1	12.7	16.5
Count	18	212	230

While these three indicators showed considerable empirical overlap, they also displayed independent variations. In general, each captures a certain dimension of urbanity, but, as [Figure 1](#) indicates, they focus on different geographical scales and also exhibit variance in their epistemic modality. Thus, it is important to include all of them in an analysis of the urban–rural difference in life satisfaction. The degree of their independent variation shows that severe multicollinearity is unlikely, and diagnostics of the full model revealed only modest variance inflation factors (VIFs) for urbanity measures ranging from 1.15 (farm or home in the countryside) to 4.11 (density).

[Table 5](#) reports selected coefficients from a series of multilevel models run for the data on all 22 countries. Phase 0 reports the results for the null model, which shows that approximately 7% of the total variance was between-region variance. Model 1 reports the results from three separate bivariate models, run individually for all three urbanity indicators and GDP. Here, only the domicile variable returned significant results in the expected direction, showing that living in a big city is associated with relatively lower life satisfaction compared with other domiciles. Phase 2 includes all the urbanity variables and also introduces the individual-level socio-demographic controls. As a consequence, living in a big city loses some of its predictive power, but living on a farm/having a home in the countryside emerges as a significant positive predictor of life satisfaction. Controlling for country-specific fixed effects by including country dummies in Phase 3 did not significantly change these estimates, nor did introducing regional level GDP (€ per inhabitant) in Phase 4. However, one could argue that certain omitted regional level attributes exist that correlate with our domicile variables and have an impact on life satisfaction. Hence, we included regional (NUTS) dummies in Phase 5, which again did not cause significant changes in the domicile estimates. In sum, [Table 5](#) shows that the self-reported domicile was the strongest predictor of urban–rural differences in life satisfaction, and these results are robust concerning fixed effects at both the regional and country levels.

As robustness checks, we ran a fully adjusted global model with the following specifications: (1) no weights, (2) equal weight for all regions, (3) household income decile variable included and (4) original domicile variable with five categories included. The main results were generally robust from a substantive perspective. In check 2, we obtained a non-significant coefficient for big city ($p = 0.184$). Additionally, we run the models in [Table 5](#) with two alternative DUR classifications. We constructed separate dummy variables (see [Appendix B](#)) for (1) those countries that follow more bipolar pattern concerning the most dominant urban region(s) (BE, ES, NL and SE); and (2) those where DUR is defined as the capital region (DE, ES, IT). Applying either of these measures instead of our original DUR measure did not change the results presented in [Table 5](#).

The existing literature suggests that the ‘urban happiness penalty’ is a trait specific only to so-called ‘developed economies’ (e.g., [Morrison & Weckroth, 2018](#), p. 326). Thereby, we first estimated the full model (model 4 in [Table 5](#)) separately for countries above and below the European average GDP, following the procedure established by, for example, [Sørensen \(2014\)](#) and [Requena \(2016\)](#). In line with these analyses, we found that the rural–urban difference with respect to domicile remains in the wealthier countries, but it could not be observed in the group of less affluent countries. However, simple stratified analysis is not sufficient to detect differences in coefficients between country groups. A cross-level interaction of GDP and domicile is needed, which implies that we need a three-level model for this purpose. Therefore, we estimated a three-level model in the final stage of our empirical analysis, where individuals were nested in regions that were then nested in countries. The model also included the interaction of the dichotomic country’s GDP with domicile as well as with the national population size and share of urban population in the country as control variables. The results of this analysis are presented in [Appendix A](#) along with the effects of individual-level socioeconomic controls.

Table 5. Coefficients from linear regression models.

	Phase 0		Phase 1		Phase 2		Phase 3		Phase 4		Phase 5	
	B	p	B	p	B	p	B	p	B	p	B	p
<i>Domicile (Reference: other)</i>												
A big city			-0.249	0.003	-0.162	0.015	-0.163	0.01	-0.162	0.014	-0.153	0.023
Other	Reference		0.176		Reference		Reference		Reference		Reference	
Farm or home in countryside					0.216	0.011	0.196	0.02	0.196	0.020	0.205	0.015
<i>Regional variables</i>												
Dominant Urban Region (DUR)			0.155	0.274	0.064	0.907	0.074	0.24	0.105	0.122		
Density (ln)			0.068	0.059	0.053	0.121	-0.003	0.92	0.007	0.840		
Regional GDP per inhabitant (ln)									-0.094	0.499		
Individual socio-demographic controls ^a	No		No		Yes		Yes		Yes		Yes	
Country dummies ^b	No		No		No		Yes		Yes		No	
Regional dummies	No		No		No		No		No		Yes	
Variance components: region	0.3229		0.318		0.196		0.026		0.026			
Variance components: individual	4.4588		4.446		3.722		3.724		3.724			
Observations	34.763		34.676		34.610		34.610		34.610			

Notes: Model descriptions: Phase 0: Null model. Phase 1: Bivariate model (number of observations and variance components from the domicile variable). Phase 2: Domicile, DUR and density included (plus individual sociodemographic controls^a). Phase 3: Domicile, DUR and density included (plus individual socioeconomic controls plus country dummies). Phase 4: Domicile, DUR, density and regional GDP included (plus individual sociodemographic controls plus country dummies). Phase 5: Domicile, DUR and density included (plus individual sociodemographic controls plus regional NUTS dummies). Phases 0-4 = two-level linear regression models; Phase 5 = simple ordinary least squares (OLS) regression.

^aSociodemographic controls included gender (*gender*), age (*agea*), age², education level (*education*), subjective economic hardship (*hardship*), main activity in the last seven days (*activity*) and living with a partner (*partner*). Estimates with $p \leq 0.05$ are shown in bold.

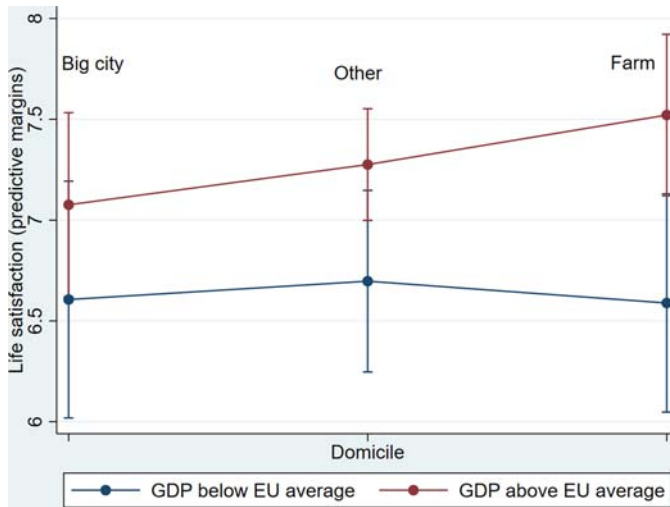


Figure 2. Life satisfaction, domicile and gross domestic product (GDP): interaction results.

Substance-wise, the interaction results (see Appendix A) were in line with the stratified analysis displayed in Figure 2.

The p -value for the overall GDP*domicile interaction was 0.051, while the specific interaction term GDP*farm/countryside reached a higher significance of $p = 0.015$. The other term, GDP*big city, did not achieve any notable significance ($p = 0.621$). Taken together, these results provide evidence that the association of life satisfaction with urbanity may depend on the wider societal context.

Finally, we examined the thesis by Lenzi and Perucca (2016) on the combination of a rural residence in relative proximity to the amenities provided by a nearby large city. We investigated the interaction effect of the DUR and domicile by adding the corresponding interaction terms to the full model (Phase 4 in Table 5). No moderation was found: the p -value for the interaction of domicile and DUR was 0.734. Similar results were obtained by running these models in the subset of more affluent countries. Therefore, we found no evidence for the thesis presented by Lenzi and Perucca (2016) that residing in close proximity to a large urban agglomeration, but with a rural local environment, has an additional positive effect on life satisfaction.

DISCUSSION AND CONCLUSIONS

This analysis examined the relationship between urbanity, life satisfaction and economic development in a regional context by applying MLM, which takes into account the hierarchical structure of data. First, we discovered that the three different indicators of urbanity used individually in prior studies share a significant amount of covariance. For example, a large proportion of the population residing in DURs reported living in the neighbourhood category of 'big city'; moreover, the population density of these regions was also extremely high. These findings inform not only further analyses on the relationship between different geographical contexts and SWB, but also other studies where defining the urban context is of importance. In other words, these findings are of central importance for all analyses operating on urban and regional scales and in a multivariate modelling context.

Second, we found that life satisfaction on the entire European scale was lower in the most urban domiciles and higher in the more rural domiciles. These results are in line with previous studies (Easterlin et al., 2011; Requena, 2016; Sørensen, 2014), but we have shed more light on

their findings by controlling for other relevant regional and country-level indicators of urbanity in a multilevel framework, which is a novel contribution.

Here we also showed that these life-satisfaction patterns are localized with respect to the context of more affluent countries. This too is in line with previous studies (Easterlin et al., 2011; Requena, 2016; Sørensen, 2014). However, we advanced this thesis by examining the country-level attributes in a hierarchical setting. In other words, country-level geographical framing provides information on the contextual level of development that affects the emergence of urban–rural differences in life satisfaction.

The results call attention to the role of self-reported domicile as a predictor of life satisfaction in more affluent economies. A possible reason for the centrality of this indicator is that once a certain average level of more objective economic well-being has been attained, other factors start to play more of a role, including residential context, which shapes the everyday experience of life through its physical structure, but also more subjective and social aspects. This would represent a contextual analogy to Maslow's hierarchy of needs, and thus this pattern may indeed be referred to as the localization of the paradox of affluence, as suggested by Morrison (2011). These results could also be interpreted in the light of discussions on materialism and post-materialism and their relation to human well-being. Welzel and Inglehart (2010) have argued that once the existential conditions associated with material and survival values become permissive, people begin to place stronger emphasis on emancipative and post-materialistic values and a sense of agency in response to more opportunities in life. When applying this universal human development model to a regional context, one could argue that living in a rural setting in a developed country provides suitable conditions for pursuing self-transcendence values, such as benevolence and conformity (Morrison & Weckroth, 2018), thereby resulting in higher life satisfaction in rural areas. These plausible – but as yet preliminary – arguments on the geography of human values and their interaction with various levels of subjective and objective well-being should nevertheless be further analysed in future studies.

Additionally, we found no empirical evidence for the thesis that living in a rural domicile, but in close proximity to the dominant urban centre, results in especially high life satisfaction. However, it should be noted that our indicators of urbanity differed from those used by Lenzi and Perucca (2016). Likewise, it could be possible that the 'urban amenities but rural surroundings' thesis proposed by Lenzi and Perucca would actually play out more at the national level. Hence, the optimal combinations of contexts for high life satisfaction would involve living in rural surroundings in a country with a relatively high level of economic development, modest interregional differences and thus also good infrastructure also in more peripheral settings. In fact, such an argument would be in line with recent observations during the Covid-19 pandemic that rural living has become more desirable for those segments of the population who have the chance for teleworking.

In sum, despite making a clear contribution to the geographical literature on well-being, the results of this analysis leave certain important questions unanswered. First, we are still unaware of precisely which factors in the immediate urban residential environment negatively impact SWB. In other words, a range of questions must be answered before the now well-documented and scrutinized pattern of low life satisfaction associated with the urban experience can be turned into recommendations for urban and regional policymaking. As presented above, Simmel and Wirth point to the negative implications of residing in close proximity to a large number of socially distant co-residents. However, we do not know if the strength of the self-reported domicile indicator in the present study is due to its being based on more fine-grained geographical evaluations of the surroundings of the respondent (e.g., neighbourhood scale) or because it emphasizes the subjective dimension of their contextual experience. In addition, our cross-sectional data prevent us from taking a strong stance on the selection versus contextual effect debate. Therefore, when addressing this question future studies should seek to collect and utilize

data sets with a more exact and objective location indicator than one based on the NUTS classification. Naturally, longitudinal data would enable more robust causal inference. For example, panel data would make it possible to adjust for unobserved but significant time-constant heterogeneity (e.g., Mulligan & Zieba, 2010). In our case, the use of country fixed effects helped us control for the unobservable between-country differences related to, say, cultural perceptions of well-being, national level of economic and social well-being, level of unemployment and so forth.

To conclude, based on the results of this analysis we emphasize two lines of research for future analysis of geographical differences in life satisfaction within countries. First, more research is needed on the higher level determinants at work at the country level that define the existence of urban–rural differences in life satisfaction within a country. The GDP of a country most likely serves only as a proxy for some attribute of the spatial organization of a society that causes urban residence to be perceived less favourably (and rural areas more favourably) in terms of life satisfaction. Hence, sorting out these country-level characteristics would be an important area for future research. In fact, as recent analyses examining the spatial nature of SWB (Hoogerbrugge et al., 2021; Lenzi & Perucca, 2020) have suggested the studies should move their focus from simple urban–rural differences to account the spatial form (e.g., polycentricism or rank in the urban hierarchy) of societies in more multidimensional and profound manner as determinant of individual SWB. Moreover, there is an apparent need for cohesive analysis being able to account for a proximity to certain urban amenities, perceptions of urbanity and urbanization as well as more immediate social context of individual in a single empirical scrutiny. Second, we believe there remains little that can be gained from relying on cross-sectional data sets examining the relationship between well-being and place. Thereby, we strongly encourage those scholars who have access to high-quality panel data sets, including a measure of SWB and place of residence of the respondent, to pursue this important question.

Finally, while being the most commonly used indicator of the broader concept of SWB (Kristjansson, 2010; OECD, 2013), the measure of individual life satisfaction might not reflect SWB as a whole. The literature on positive psychology contains arguments on the importance of the so-called eudaimonic dimension of human well-being (Huppert, 2013; Ryan & Deci, 2001; Ryff & Singer, 2008). When taking these arguments on board, future analyses could make use of relevant data sets to examine how the urban context, associated with lower life satisfaction as an evaluative measure of SWB, is related to other measures of SWB such as the eudaimonic dimension, emphasizing the sentiments of agency, competence and self-realization.

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NOTES

¹ This analysis conceptually follows the most common form of classification when measuring SWB (e.g., Organisation for Economic Co-operation and Development (OECD), 2013), which distinguishes between three theoretical accounts and related measures: (1) life evaluations account (evaluative measures), (2) hedonistic account (affect measures) and (3) eudaimonic account (flourishing and functioning measures) (see also Kristjansson, 2010; Ryff & Singer, 2008). This distinction is especially relevant for analyses on the geography of SWB, since recent

studies (Burger et al., 2020) have shown that the urban–rural gradient in SWB can be identified only in life satisfaction accounts. Hence, this analysis focuses only on the measure of individual life satisfaction. Subjective well-being is referred in the text as an umbrella concept that covers the above-mentioned three dimensions and measures.

² Despite being primarily known for his bid-rent theory of urban land markets, Alonso (1976) also discussed the possible negative externalities associated with the urban context. He suggested that urban living is characterized by a ‘trade-off between material productivity and human well-being’ (p. 52).

³ Durkheim (1893) does not ascribe to this kind of nostalgic and anti-urbanist view, but tries instead to provide an account of how social cohesion or solidarity could also be possible in modern and more individualized contexts.

⁴ This categorization is clearly rather simplistic, but we believe it is useful for highlighting how different disciplines have tended to favour certain indices, epistemologies and theories when discussing the relationship between the urban context and well-being.

⁵ The DUR indicator was defined as the average of the z-scores of these three indicators (no weighting applied). For the list of dominant urban regions and the data used for defining them, see Appendix B in the supplemental data online.

⁶ The regional level by country in the 7th round ESS were as follows: AT = NUTS-2, BE = NUTS-2, CZ = NUTS-3, DK = NUTS-2, DE = NUTS-1, EE = NUTS-3, IE = NUTS-3, ES = NUTS-2, FR = NUTS-2, IT = NUTS-2, LT = NUTS-3, NL = NUTS-2, HU = NUTS-3, NL = NUTS-2, PL = NUTS-2, PT = NUTS-2, SI = NUTS-3, SK = NUTS-3, FI = NUTS-3, SE = NUTS-3, UK = NUTS-1, CH = NUTS-2 and NO = NUTS-3.

⁷ See http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nama_10r_3gdp.

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APPENDIX A

Table A1. Cross-level interactions and individual controls

	<i>B</i>	<i>p</i>
<i>Domicile</i>		
A big city	0.091	0.642
Other	Reference	
Farm or home in countryside	-0.017	0.950
<i>Regional variables</i>		
Dominant urban region (DUR)	0.088	0.056
Density (ln)	0.005	0.901
Regional GDP(ln)	-0.049	0.744
<i>Country variables</i>		
GDP above EU average	0.578	0.004
GDP below EU average	Reference	
Level of urbanization (%)	0.012	0.093
Total population in country	0.000	0.348
<i>Cross-level interactions</i>		
GDP above EU average*A big city	-0.108	0.621
GDP above EU average*Farm or home in countryside	0.354	0.015
<i>Individual-level controls</i>		
<i>Gender</i>		
Male	Reference	
Female	0.037	0.196
<i>Age</i>		
Age	-0.056	0.000
Age ²	0.000	0.000
<i>Lives with a partner</i>		
No	Reference	
Yes	0.480	0.000
<i>Education level</i>		
Primary education or none	Reference	
Lower secondary education	-0.041	0.623
Upper secondary education	0.038	0.748
Post-secondary non-tertiary education	0.105	0.415
Short-cycle tertiary education	0.099	0.428
Bachelor's or equivalent	0.171	0.256
Master's or Doctoral	0.123	0.518
Other	0.102	0.394
<i>Subjective economic hardship</i>		
Coping well on present income	Reference	
Coping on present income	-0.742	0.000
Difficult on present income	-1.719	0.000
Very difficult on present income	-2.702	0.000
Don't know	-1.043	0.000
<i>Main activity of the respondent</i>		
Employed	Reference	
Education	0.095	0.058
Unemployed, looking for a job	-0.783	0.000
Unemployed, not looking for a job	-0.754	0.000
Permanently sick or disabled	-1.060	0.000

(Continued)

Table A1. Continued.

	<i>B</i>	<i>p</i>
Retired	0.021	0.707
Community or military service	1.302	0.000
Housework, looking for children	0.148	0.007
Don't know	-0.323	0.003
Other	0.015	0.824
Variance components: country	0.111698	
Variance components: region	0.0313041	
Variance components: individual	3.722916	
Observations	34 610	

Note: Estimates with $p \leq 0.05$ are shown in bold.

APPENDIX B

Table B1. Dominant urban regions per country.

Country	DUR (single node)		DUR (bipolar)		Capital region	
	NUTS label		NUTS label		NUTS label	
Austria	AT13	Wien	AT13, AT32	Wien, Salzburg	AT13	Wien
Belgium	BE10	Bruxelles	BE10, BE21	Bruxelles, Antwerp	BE10	Bruxelles
Czechk	CZ010	Prague	CZ010	Prague	CZ010	Prague
Denmark	DK01	Huvudstadt	DK01	Huvudstadt	DK01	Huvudstadt
Germany	DE2	Bayern	DE2	Bayern	DE3	Berlin
Estonia	EE001	Pohja Eesti	EE001	Pohja Eesti	EE001	Pohja Eesti
Ireland	IE021	Dublin	IE021	Dublin	IE021	Dublin
Spain	ES51	Katalonia	ES51, ES30	Catalonia, Madrid	ES20	Madrid
France	FR10	Il de France	FR10	Il de France	FR10	Il de France
Italy	ITC4	Lombardia	ITC4	Lombardia	ITI4	Lazio
Latvia	LT00A	Vilnius	LT00A	Vilnius	LT00A	Vilnius
Hungary	HU101	Budapest	HU101	Budapest	HU101	Budapest
Netherlands	NL32	Noord-Holland	NL32, NL33	Noord-Holland, Zuid-Holland	NL32	Noord-Holland
Poland	PL12	Warsaw	PL12	Warsaw	PL12	Warsaw
Portugal	PT17	Lisbon	PT17	Lisbon	PT17	Lisbon
Slovenia	SI021	Ljubljana	SI021	Ljubljana	SI021	Ljubljana
Slovakia	SK010	Bratislava	SK010	Bratislava	SK010	Bratislava
Finland	FI1B1	Uusimaa	FI1B1	Uusimaa	FI1B1	Uusimaa
Sweden	SE110	Stockholm	SE119, SE232	Stockholm, Västra Götalands län	SE110	Stockholm
United Kingdom	UKI	London	UKI	London	UKI	London
Switzerland	CH04	Zurich	CH04	Zurich	CH04	Zurich
Norway	NO01	Oslo	NO01	Oslo	NO01	Oslo