

The Easterlin paradox and the urban-rural divide in life satisfaction: Evidence from Romania

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Abstract

Based on the literature on agglomeration economies and on the empirical observation that economic growth and life satisfaction evolution in Central and Eastern European countries do not conform to the Easterlin paradox, this paper studies life satisfaction evolution in Romania in the period 1996-2011. Findings indicate that, similarly to economic growth, life satisfaction is characterized by an urban-rural divide although the positive effects of agglomeration economies hold up to a certain threshold. These effects are both direct (people living in large cities are generally more satisfied than the people living in rural areas) and indirect (people living in rural areas embedded in more urbanized regions are more satisfied than people living in rural areas embedded in less urbanized regions).

1. Introduction

The outcome of the post socialist transformation in Central and Eastern European (CEE) countries has been the object of a long stream of research. After a decade of generalized recession (Campos and Coricelli, 2002) a steady economic recovery characterized the years towards the European Union (EU) accession (Lejour et al., 2009), leading to a process of catching up at national level, combined with an increasing trend of polarisation at the regional level (Monastiriotis, 2011). The literature interpreted this process as the result of a mechanism of growth mainly based on high levels of foreign direct investments (FDI) (Nicolini and Resmini, 2010), on a sharp increase in internal demand (Bakker and Gulde, 2010) and on the intensification of foreign trade (Gorzela 1998). The disproportionate concentration of these factors in large urban areas, and in particular in capital cities, has however generated unbalances in regional development paths leading to a general process of regional divergence and increased disparities.

The burgeoning literature on the ‘economics of happiness’ (Frey and Stutzer, 2002; Dolan et al., 2009; Blanchflower and Oswald, 2011) has also contributed to the understanding of (and has provided a complementary perspective on) the impact of the transition reforms by looking at other measurements of individual well-being, such as self-reported life satisfaction¹, rather than at national and regional macroeconomic indicators. Generally, CEE citizens still record, on average, lower levels of life satisfaction than people living in western European countries (Sanfey and Teksoz, 2007; Easterlin, 2009; Rodríguez-Pose and Maslauskaitė, 2012). More importantly, and in contrast with the Easterlin paradox (1974), indicating that economic growth does not translate into increases of life satisfaction, these studies do not provide consistent results on the relation between economic growth and life satisfaction in CEE, reporting some a positive association (Easterlin, 2009; Rodríguez-Pose and Maslauskaitė, 2012), some a non significant relation (Hyo, 2007).

Given the unbalanced regional growth pattern detected in most CEE countries (especially in those with a highly differentiated territorial structure), favouring in particular (capital) cities at the expenses especially of more peripheral and rural areas, it is therefore interesting to understand whether the diverging trend detected for economic growth at the spatial level was also matched by a similar pattern in life satisfaction.

The rich literature on agglomeration economies, in fact, points to the many benefits deriving from increased size and density in cities (see for reviews Rosenthal and Strange, 2004; Duranton and Puga, 2004; Henderson, 2010; Puga, 2010) although negative externalities in large cities (e.g. congestion costs, pollution, social conflicts and higher crime rates, labour crowding, greater costs of living and reduced purchasing power) can increase the attractiveness of smaller urban centres if not of rural areas (Djekstra et al., 2013). The prevalence of agglomeration benefits over agglomeration costs, at the basis of the diverging trend detected for economic growth and of an increasing urban-rural divide (largely documented in the literature), by extension, could also drive a diverging pattern in life satisfaction thus explaining the observed (unusually) joint evolution of GDP and life satisfaction.

¹ As it is customary in the literature, this paper uses the words life satisfaction, happiness and subjective well-being interchangeably (Blanchflower and Oswald, 2004; Hayo, 2007).

To explore this conjecture, the paper builds on the insights of two large stream of research, one on the economics of happiness, and the other on agglomeration economies, and aims to provide answer to questions such as: Did the economic benefits generated by agglomeration in cities lead to a greater individual well-being with respect to people residing in rural areas? Or, conversely, did diseconomies of agglomeration and higher urban costs prevent a simultaneous growth of GDP and life satisfaction? To the best of our knowledge in fact, these questions still remain rather under-explored in the literature and have been addressed only by a few recent works (Easterlin et al., 2011; Berry and Okulicz-Kozaryn, 2009; Knight and Gunatilaka, 2010).

Differently from other studies in the field of economics of happiness, the empirical analysis focuses on the evolution of life satisfaction in Romania in the period 1996-2010. A within-country analysis was preferred to a cross-country analysis better to emphasize the within-country territorial differences and heterogeneity, especially relevant in the European context. Romania in particular represents an extremely interesting case study for two main reasons. First, its development path in the last two decades closely reflects the mechanisms pointed out in the literature, i.e. the dominant role of the capital city in fostering national economic growth (Petrakos, 2001). Second, Romania is characterized by the presence of several rural and urban areas other than the capital region and shows a more differentiated urban structure compared with other CEE countries (Suditu et al., 2010). These characteristics particularly suit the present research given its focus on life satisfaction in different spatial settings.

The remainder of the paper is organized as follows. The next section briefly reviews the literature on life satisfaction in CEE countries, pointing out the need for a territorial perspective. Then, some evidence on the evolution of GDP and life satisfaction in Romania is presented in section 3. After a discussion of the data and statistical methods employed in the analysis in section 4, section 5 presents the main results. Section 6 concludes the paper.

2. Life satisfaction in CEE countries and the need for a territorial perspective

From the seminal paper of Easterlin (1974) a broad literature was devoted to the analysis of self-reported life satisfaction and its relationship with some individual, institutional and macroeconomic variables as extensively reviewed in Frey and Stutzer (2000 and 2002) and more recently in Dolan et al., (2009) and in Blanchflower and Oswald (2011).

As far as CEE countries are concerned, previous studies suggest that the evolution of life satisfaction in CEE countries followed a pattern very similar to the one observed for economic growth, marked by a massive output fall in the first years of transition followed by a steady recovery in the late '90s (Hayo, 2007; Sanfey and Teksoz, 2007). Some studies, however, pointed out how the rate of growth of subjective well-being remained well below the one of GDP (Easterlin, 2009). In 2008, compared with Western countries, CEE citizens were still much less satisfied with their life (Blanchflower and Oswald, 2011). Therefore, the economic convergence occurred in the last decade with respect to western European countries was not matched by a corresponding catching up in the levels of happiness (Rodríguez-Pose and Maslauskaitė, 2012). Guriev and

Zhuravskaya (2009) propose that the deterioration of the public goods (in particular, health care services) typically provided for free under the socialist regimes can explain this result. All in all, the studies on CEE partially contradict one of the most significant results in the literature on life satisfaction, the so-called “Easterlin paradox” (Easterlin, 1974), referring to the lack of a link (if not a negative relationship) between happiness and economic development, traditionally measured in terms of GDP growth.

As recently discussed in Easterlin et al., (2011) and Dolan et al., (2009), a relatively neglected issue in the literature on life satisfaction is the role of urbanization; indeed, these studies invoke more empirical research on the analysis of subjective well-being across different urban settings. Although the important role of geographic location is clearly demonstrated by Oswald and Wu (2010) for US states, the vast majority of works are cross-country comparisons and the few ones adopting a regional perspective often miss to consider the impact of urbanization on self-reported happiness (Pittau et al., 2010). To the best of our knowledge only a few studies dealt with this issue. Appleton and Song (2008) investigate the determinants of life satisfaction in urban China. While the impact of individual characteristics such as age, gender and personal income are pretty similar to the ones for other countries, the authors find no significant results linking the urban environment (and in particular its diseconomies, as congestion and pollution) to subjective well-being. Still focusing on the Chinese case, Knight and Gunatilaka (2010) explicitly compare the levels of life satisfaction in urban and rural settings. Their results point out, after controlling for individual heterogeneity, lower levels of happiness for city residents. This evidence is explained by the higher income inequalities and degrees of insecurity associated to large towns. Similarly, Hyao (2007) reports lower level of satisfaction in cities with respect to rural areas and Easterlin et al. (2011) show that the urban-rural divide tends to flatten if not to reverse as a country develops and grows following a process of convergence in occupational structures and income. Rodríguez-Pose and Maslauskaitė (2012) indicate no differences between rural areas and small to medium cities but a relatively negative effect of residing in very large cities with respect to small and medium ones. On the other hand, Rehdanz and Maddison (2005) show that population density does not affect happiness and Hudson (2006) report no differences in life satisfaction in rural *versus* urban areas. Therefore, the scant research available on the role of urbanization and the differences in life satisfaction across different spatial settings still provides inconclusive results (Dolan et al., 2009).

Despite the scarce knowledge on urban-rural differences in life satisfaction, this topic is of some interest, especially in the case of CEE countries. As mentioned above, in the last 25 years life satisfaction in CEE countries shared, even if to a lower extent, the same trend of GDP growth. This evolution at country level hides, however, broad regional growth imbalances. The convergence to Western economies was led, especially in the first phase of transition, by capital and few other major cities (Kallioras and Petrakos, 2010). According to Eurostat data, between 1995 and 2010 real GDP in CEE capital regions raised of about 103 per cent, while in the other regions it increased of about 45 per cent. Hence, the issue of whether this unbalanced change in objective well-being (i.e. GDP growth) matched the trend of life satisfaction in urban *versus* rural areas is particularly relevant, since it would provide further evidence on the outcomes of the process of transition undertaken by CEE countries.

The rich literature on agglomeration economies, in fact, points to the many benefits deriving from increased density in cities in terms of productivity, learning and knowledge exchanges, innovation and creativity as well as amenities (see for reviews Rosenthal and Strange, 2004; Duranton and Puga, 2004; Henderson, 2010; Puga, 2010) although increased city size and population density have been also associated with higher land rent (Partridge et al., 2009), greater environmental costs mostly in terms of congestion and pollution (Glaeser and Kahn, 2008), unregulated urban expansion (Glaeser and Kahn, 2004) and more diffused social conflict and malaise (Glaeser and Sacerdote, 1999), as already pointed out in the early urban studies (Berry and Okulicz-Kozaryn, 2009; Camagni et al., 2013) and debated in the attempts to measure the quality of life in urban areas (Cheshire and Magrini, 2006; Carlini and Saiz, 2008). The prevalence of agglomeration benefits over agglomeration costs, at the basis of the diverging trend detected for economic growth and of the largely documented increasing urban-rural divide, by extension, could also drive a diverging pattern in life satisfaction thus explaining the observed (unusually) joint evolution of GDP and life satisfaction.

However, the ways in which economies and diseconomies deriving from agglomeration may be mirrored in the levels of life satisfaction is more questionable. On the one hand, cities are likely to produce positive externalities for the residents through many channels. The higher factor productivity translates into higher wages (Glaeser and Mare, 2001) and relative income that could positively influence life satisfaction. Also, spatial proximity multiplies the possibilities of social interaction and large towns give access to a variety of public services and recreational facilities not available elsewhere (Clarke and Cosgrave, 1991), thereby improving life satisfaction. On the other hand, greater urban size may generate diseconomies such as the high cost of living (Dijkstra et al., 2013), poor environmental quality (Anderson and Crocker, 1971), congestion and social conflicts (Meijers, 2008), all elements that can reduce life satisfaction.

Therefore, these opposing relations and the inconclusive results about the relationship between urbanization and life satisfaction call for additional empirical analyses to test whether the advantages of agglomeration prevail over the corresponding disadvantages and whether this evidence is consistent across cities of different size. Hence, this paper aims at answering the following research questions:

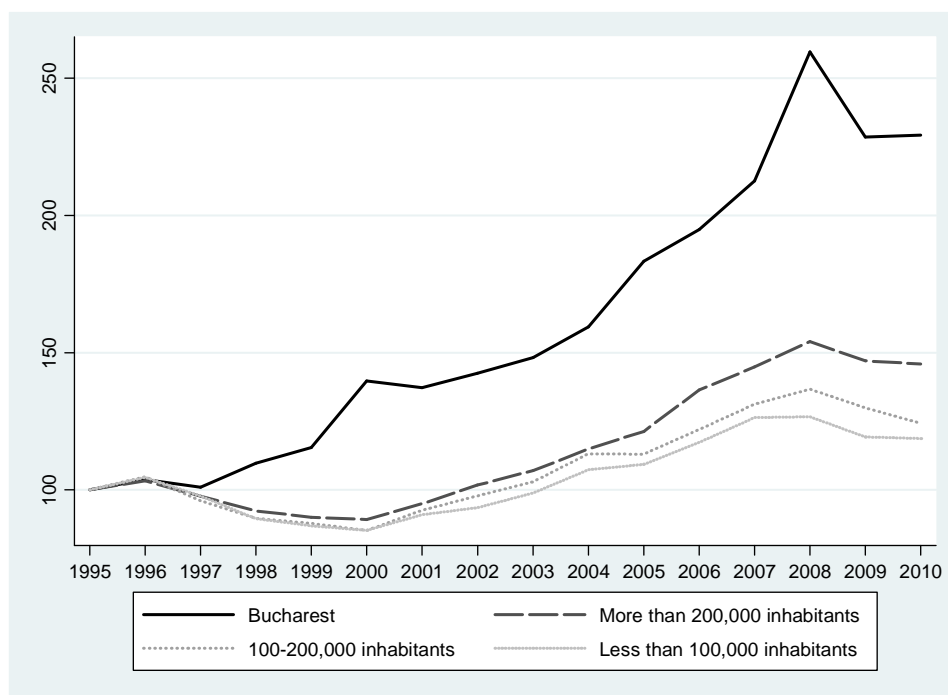
- Are people living in larger cities happier than the others?
- Considering just the residents in rural settings, does living in a more urbanized region have a positive impact on the self reported well-being?
- What are the agglomeration economies/diseconomies responsible for the unbalanced levels of life satisfaction observed across different urban settings?

To this end, the next section presents some evidence on the economic growth and life satisfaction pattern in Romania between 1995 and 2010.

3. The evolution of GDP and life satisfaction in Romania: 1995-2010

After the fall of the Iron Curtain all CEE countries experienced a period of deep economic recession (Sokol, 2001). Romania did not represent an exception: in 1999 national GDP was still below the 1989 level. The economic recovery followed to this first phase of transition was mainly driven by the capital city. Figure 1 shows the real GDP growth between 1995 and 2010 for different groups of NUTS3 regions², grouped according to the size of the largest city. Bucharest outperformed all the other regions, and its GDP has more than doubled in the period analyzed. Other urban areas performed better than less populated regions, even if these territorial differences are less evident when considering the data in per capita terms (Table 1, panel A).

Figure 1. Real GDP levels in Romania for different groups of NUTS3 regions, defined by the number of residents in the largest city. (1995 = 100).



Source: Own elaboration on Romanian National Institute of Statistics data

The importance of the capital city is also confirmed by its increased contribution to national GDP (Table 1, Panel B), which occurred at the expenses especially of regions with fewer than 200,000 inhabitants.

At the country level, population shrank (Table 1, Panel C). While the resident population in the capital is almost constant (-1.99 per cent between 1995 and 2010), the other Romanian regions were characterized by the most intense outflows of migrants. Migration flows, however, were predominantly directed abroad as the share of national population in the different groups of NUTS3 regions do not show major variations (Table 1, Panel D).

² The nomenclature of territorial units for statistics classification (NUTS) is a hierarchical system for dividing up the economic territory of the European Union for the purpose of the collection, development, and harmonization of EU regional statistics. NUTS2 regions in particular are basic regions for the application of regional policies.

Table 1. GDP, population and life satisfaction evolution for different groups of NUTS3 regions, defined by the number of residents in the largest city.

Panel A					
	Per capita GDP (constant 1995 national currency, RON)				
	1995	2000	2005	2010	Δ95-10
Bucharest	426	468	783	882	+107%
Over 200,000	355	320	450	524	+48%
100,000-200,000	301	257	364	399	+33%
Less than 100,000	307	263	333	371	+21%
Panel B					
	Share of national GDP				
	1995	2000	2005	2010	
Bucharest	0.151	0.221	0.226	0.252	
Over 200,000	0.322	0.307	0.315	0.313	
100,000-200,000	0.271	0.247	0.245	0.225	
Less than 100,000	0.255	0.225	0.213	0.210	
Panel C					
	Population (thousands of residents)				
	1995	2000	2005	2010	Δ95-10
Bucharest	2,308	2,286	2,210	2,262	-1.99%
Over 200,000	6,933	6,880	6,619	6,598	-4.82%
100,000-200,000	6,887	6,853	6,655	6,578	-4.48%
Less than 100,000	6,556	6,436	6,174	6,024	-8.11%
Panel D					
	Share of national population				
	1995	2000	2005	2010	
Bucharest	0.102	0.102	0.102	0.105	
Over 200,000	0.306	0.306	0.306	0.307	
100,000-200,000	0.304	0.305	0.307	0.306	
Less than 100,000	0.289	0.287	0.285	0.281	
Panel E					
	Satisfied on unsatisfied ratio (% of respondents)				
	1996-1998	2001-2003	2004-2006	2009-2011	Δ95-10
Bucharest	0.209	0.366	0.529	0.464	122%
Over 200,000	0.262	0.408	0.560	0.539	106%
100,000-200,000	0.265	0.384	0.534	0.524	98%
Less than 100,000	0.287	0.447	0.436	0.409	43%

Source: Own elaboration on Romanian National Institute of Statistics data and Eurobarometer data

The unbalanced growth patterns and population trends showed in Figure 1 and Table 1 can be explained on the basis of the vast literature about the benefits associated to urban location and increased density in cities, i.e. the operation of agglomeration economies (Camagni et al., 2013).³ Factor productivity in large urban environments is higher than in small towns (Segal, 1976). On the other hand, the costs of the provisions of public services are lower due to the economies of scale related to the city size (Ladd, 1992). The proximity among economic agents facilitates the transfer of knowledge and information (Rosenthal and Strange, 2004). Finally, the presence of universities and, as a consequence, of highly educated workers, constitutes an additional advantage of large cities compared with other areas (Clark and Kahn, 1988). In the case of CEE countries all these elements concurred both in the reinforcement of the regional endogenous growth factors and in the attractiveness of FDI (Resmini, 2003).

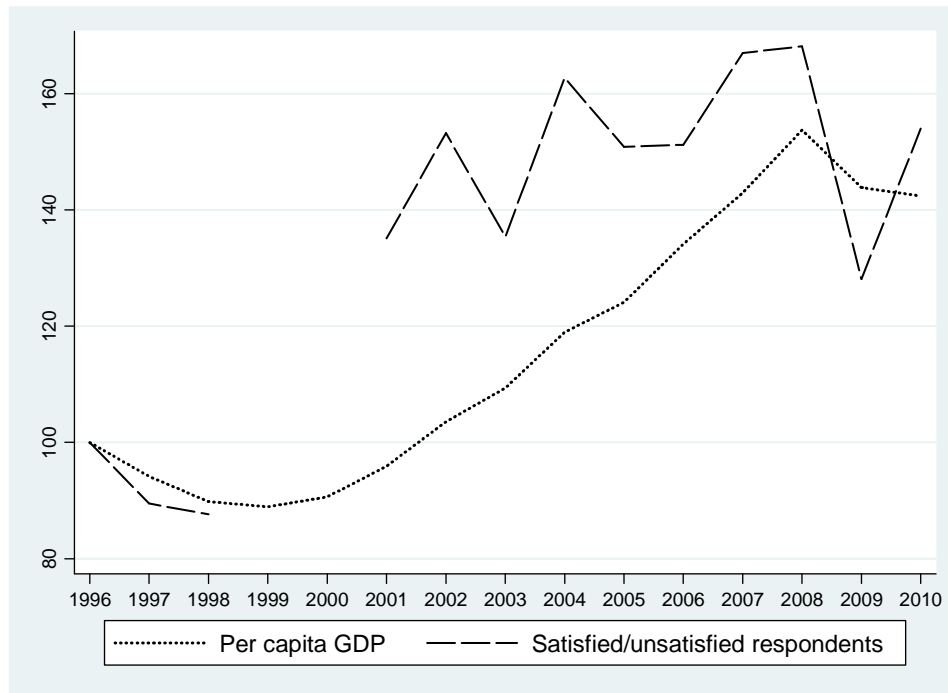
³ Given the focus on the evolution of life satisfaction in Romanian cities, this paper uses the words agglomeration economies/diseconomies and urbanization economies/diseconomies interchangeably.

Data reported in Table 1 - Panel E describe the change of the ratio of satisfied over unsatisfied respondents across different urban settings in four periods, from 1996-1998 to 2009-2011. While the share of satisfied respondents increased everywhere, the intensity of this process was unbalanced across the different typologies of regions. NUTS3 areas with no city with more than 100,000 inhabitants registered the highest score between 1996 and 1998 and the lowest one between 2009 and 2011, followed by Bucharest (46.4 per cent). Differently, in medium-large regions (with cities of more than 100,000 inhabitants) the number of people satisfied with their life exceeds the number of those unsatisfied; life satisfaction has in fact increased constantly in the last decade, despite a small decline in the years of the economic crisis. Overall, life satisfaction more than doubled in cities of more than 100,000. Interestingly, less populated regions (with cities of fewer than 100,000 inhabitants) experienced a steady decline in satisfaction levels during the last decade, amplified by the effects of the economic downturn in the last years.

As discussed in the previous section, the behaviour of life satisfaction and GDP in CEE countries seems not to conform to the so-called Easterlin paradox as the two variables followed a similar pattern of growth. Figure 2 shows the evolution of the share of satisfied over unsatisfied respondents at country level⁴ from 1996 to 2011, jointly with per capita GDP and setting the levels of the first year equal to 100. Although data on self-reported happiness are not available for 1999 and 2000 the two trends are remarkably similar. After a couple of years marked by a decrease of both GDP and self-reported life satisfaction, a steady growth of the two variables occurred up to 2008. Interestingly enough, the economic slowdown is mirrored in the simultaneous decline of subjective well-being. Nevertheless, the levels of both GDP per capita and the ratio of satisfied on unsatisfied are substantially greater during the economic crisis than at the early stages of the transition process.

⁴ Data are collected from various Eurobarometer waves. A detailed description of the data is provided in Section 4.

Figure 2. Real GDP growth and ratio of satisfied over unsatisfied individuals in Romania (1996 = 100)



Source: Own elaboration on Romanian National Institute of Statistics and Eurobarometer data. Data for life satisfaction in 1999 and 2000 are not available

What presented here is just a first piece of evidence supporting the need for a territorial approach to look at life satisfaction evolution. The scope of the next sections is to analyze the role of agglomeration on life satisfaction, while controlling for other determinants of subjective well-being indicated in the literature (Blanchflower and Oswald, 2011).

4. Data and methods

4.1. Data on life satisfaction in Romania

The empirical analysis is based on data drawn from different Eurobarometer waves. Eurobarometer studies are *ad hoc* surveys conducted on behalf of the European Commission since 1973 to monitor public opinion on several topics. One of the recurrent questions in Eurobarometer surveys is to what extent EU citizens are satisfied with their life. Respondents are usually asked to choose their answer among four options: very satisfied, rather satisfied, rather unsatisfied and very unsatisfied.

From 1990 Eurobarometer opinion polls were carried out also in the New Member Countries, initially under the label “Central and Eastern Eurobarometer” (1990-1997) and then as part of the “Candidate Countries Eurobarometer Series” (1998-2004). After the first EU enlargement in May 2004 surveys on CEE countries are integrated in the “Standard and Special Eurobarometer Series”. Unfortunately the question wording is not always consistent across different studies. As far as Romania is concerned, data on self-reported life satisfaction are available (and fully comparable)

from 1996 to 1998 and from 2001 and 2011.⁵ Pooling different cross sectional studies over time leads to the creation of a data set of more than 27,000 observations on subjective well-being. Apart from the question on life satisfaction, survey data provide information on some individual characteristics. These individual factors are likely to have an impact on happiness (Frey and Stutzer, 2000) and they are employed in the empirical analysis as discussed in the next section.

4.2. The empirical model

Eurobarometer respondents were asked to rank their level of life satisfaction on a four-point scale: very satisfied, rather satisfied, fairly dissatisfied or very dissatisfied. These alternative choices are only ordinally comparable, while the true level of satisfaction, S_i^* , is not observed. Therefore, we assume they are generated by a latent variable model taking the form:

$$S_i^* = \beta_0 + \mathbf{x}_i' \boldsymbol{\beta} + e_i \quad (1)$$

where $i = 1, \dots, N$ for a sample of N individuals, $\mathbf{x}_i' \boldsymbol{\beta} = \beta_1 x_{i1} + \dots + \beta_k x_{ik}$ represents a set of controls including individual characteristics, macroeconomic factors and a set of year dummies.

Self-reported level of satisfaction has been re-coded into a dichotomous variable, S , taking a value of 1 if the individual is very or rather satisfied and equal to 0 otherwise. Even if, in principle, the ordinal dependent variable would require an ordered estimation model, such as ordered logit or probit, this choice presents two main drawbacks. First of all since these models assume that the relationship between different categories of the dependent variable is always the same. This hypothesis is often rejected, calling for the use of multinomial models. The latter, and here comes the second argument in favour of binomial regression, are difficult to interpret since would produce, in the present empirical study, a set of three coefficients for each regressor. Focusing on the different degrees of satisfaction would divert attention from the main issue of the paper, i.e. the overall impact of urban agglomeration on subjective well-being.⁶

Finally, e_i is a continuously distributed variable independent of \mathbf{x}_i , and accounts for unobserved heterogeneity. As S_i^* is latent, for each individual i , one can only observe

$$S_i = 1[S_i^* > 0]$$

where $1[\cdot]$ is equal to 1 if the respondent is satisfied with her/his life and equal to zero otherwise.

Assuming that e_i follows a logistic distribution we obtain the logit model:

$$\begin{aligned} \Pr(S = 1 | \mathbf{x}) &= \Pr(S^* > 0 | \mathbf{x}) = \Pr(e > \beta_0 - \mathbf{x}\boldsymbol{\beta} | \mathbf{x}) = \\ &= 1 - \Phi(\beta_0 - \mathbf{x}\boldsymbol{\beta}) = \Phi(\mathbf{x}\boldsymbol{\beta} - \beta_0) \equiv p(\mathbf{x}) \end{aligned} \quad (2)$$

⁵ More in details, the survey waves employed in the present paper are the following ones. For the period 1996-1998 data come from the collection “Studies from Eastern Europe - Quality of life diagnosis in Romania”, edition 1996 (ZA3645), 1997 (ZA3646) and 1998 (ZA3647). Between 2001 and 2003 data are provided by the surveys from the series “Candidate Countries Eurobarometer Series”, edition 2001 (ZA3978), 2002 (ZA4153 and ZA3979) and 2003 (ZA3986 and ZA3983). Finally, for the other years data are available from the “Standard and Special Eurobarometer Series”, edition 2004 (ZA4229 and ZA4231), 2005 (ZA4411 and ZA4414), 2006 (ZA4506 and ZA4526), 2007 (ZA4530 and ZA4565), 2008 (ZA4744 and ZA4819), 2009 (ZA4971, ZA4972 and ZA4973), 2010 (ZA5234, ZA5235 and ZA5449), 2011 (ZA5481, ZA5564 and ZA5567).

⁶ Although not presented here, the main conclusions of the analysis are robust to the estimation of ordered logit models, where the probability of satisfaction is measured on a four-item satisfaction scale. Results are available from authors upon request.

where Φ is the standard normal cumulative density function. The partial effect of x_j , $j = 2, \dots, k$ on $p(\mathbf{x})$ depends on \mathbf{x} through the standard normal density function, $\phi(\mathbf{x}\beta)$, as $\partial p(\mathbf{x}) / \partial x_j = \phi(\mathbf{x}\beta) \beta_j$. Errors are clustered at the year level to correct for any correlation that may affect all individuals in a given year.

The regressors of the estimated models are summarised in Table 2. Based on Frey and Stutzer (2000) a first group of determinants of happiness is represented by individual and demographic factors. The controls include the age of the respondent, gender, education, occupation and family status.⁷

The second category of variables includes what Frey and Stutzer defined as the micro- and macroeconomic factors assumed to have an impact on life satisfaction. Since data on income are not available at the individual level for all waves, per capita GDP in the respondent's NUTS2 region of residence is used as a proxy. While income is expected to raise self-reported happiness, a quadratic term is added to the model specification to control for decreasing returns.

In order to capture the possible effects of urbanization generated by the spatial agglomeration of activities and individuals in cities, we make use of a specific question available in the questionnaire. In fact, Eurobarometer asks respondents to indicate the size of the community they live in by choosing from five options: less than 30,000 residents (rural areas), 30,000-100,000 residents (small cities), 100,000-200,000 residents (medium cities), more than 200,000 residents (apart from Bucharest, large cities), Bucharest.⁸ Therefore, the effect of city size (i.e. our proxy for urbanization and

⁷ In the surveys from the series "Studies from Eastern Europe - Quality of life diagnosis in Romania" (1996, 1997, 1998), age was coded into 5 categories. Therefore, we transformed the continuous variable from the other Eurobarometer waves according to this five-point scale. The inclusion of further controls at the individual level, such as vote intention, religion, trust, health is constrained by the limited comparability of the questionnaires over time.

⁸ It is worth remarking that in Romania there are several large cities (>200,000 inhabitants) but none of them achieves a population greater than 350,000 whereas Bucharest has a population of about 2 million inhabitants (Source: Romanian National Institute of Statistics, Census 2011). As to the definition of rural areas adopted in this paper, this departs from standard definitions such as the OECD or EUROSTAT ones nor it is provided by the Eurobarometer survey.

Unfortunately, the OECD and the EUROSTAT classifications could not be applied as they are defined on the basis of different population density thresholds at the NUTS3 level (Source: http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-HA-10-001-15/EN/KS-HA-10-001-15-EN.PDF), whereas Eurobarometer only discloses the NUTS2 of respondents. Also, according to these classifications most of the Romanian territory would be classified as rural and most of respondents therefore would be living in rural settings, thus providing little information on the variety of the residence settings of respondents. For example, according to EUROSTAT, 60% of NUTS3 Romanian regions would be classified as rural and only 55% of population would live in urban areas (being the share of urban population in the EU close to 80% (Source: http://ec.europa.eu/regional_policy/activity/urban/index_en.cfm)).

In fact, by guaranteeing international comparability, these classifications may overlook important territorial specificities of single countries. In the present case, although by international standards Romania could look a relatively rural country, it still presents an heterogeneous urban structure composed of cities of different size and accomplishing different functions (Suditu et al., 2010). Furthermore, Eurobarometer only offers information on the population size of the residence area and not of the population density of the area, the information generally used to identify urban areas. Therefore, given data availability constraints and the characteristics of the urban system in Romania, the definition of rural areas adopted in this paper is based only on the population size of the residence area as in Berry and Okulicz-Kozaryn (2009). A different threshold has been set to identify rural regions (i.e. 30,000 inhabitants rather than 5,000 inhabitants). This choice is not only constrained by data availability but, on conceptual grounds, represents a more conservative criterion to identify the possible effects due to agglomeration. Although, one cannot exclude that

agglomeration) on happiness is captured through a set of dummy variables, one for each of the five categories identified in the questionnaire. A positive and statistically significant coefficient is interpreted as reflecting the predominant effect of agglomeration economies on diseconomies, while a negative coefficient should reflect the opposite mechanism.

The use of a more fine grained classification of cities according to their population size is an advantage of this empirical analysis with respect to previous ones, frequently using only two extreme categories to detect the possible effects of urbanization. For example, Hayo (2007) groups together all cities with a population greater than 100,000. Rodríguez-Pose and Maslauskaitė (2012) and Berry and Okulicz-Kozaryn (200) contrast very small towns (less than 5,000 inhabitants) to very large cities (more than 500,000 inhabitants) to all the others. Easterlin et al. (2011) as well use only two categories (i.e. rural areas or small villages versus big cities and their suburbs), where the definition of these categories is based on respondents perception of the size of their residence areas rather than on objective numerical classes provided by the questionnaire.

Also, the use of extreme categories to detect the possible effects of agglomeration may overlook the operation of more subtle compensation mechanisms between economies and diseconomies stemming from agglomeration that can manifest differently at different population size levels.

Table 2. Data description

Name	Description	Source	Year
<i>Gender</i>	Gender of the respondent (reference category = males)	Eurobarometer	1996-1998; 2001-2011
<i>Age</i>	Age of the respondent: number of years coded into six categories, under 20, 21-30, 31-40, 41-50, 51-60, over 60 (reference category = under 20)	Eurobarometer	1996-1998; 2001-2011
<i>Education</i>	Level of education of the respondent according to the ISCED classification. Low education = ISCED 1-2, medium education = ISCED 3-4, high education = ISCED 5-6, (reference category = low education)	Eurobarometer	1996-1998; 2001-2011
<i>Occupation</i>	Occupation of the respondent: non-working, student, employed, self-employed (reference category = non-working)	Eurobarometer	1996-1998; 2001-2011
<i>Marital status</i>	Marital status of the respondent: single, married, divorced, widow (reference category = single)	Eurobarometer	1996-1998; 2001-2011
<i>Per capita GDP</i>	Per capita GDP in NUTS2 regions	Eurostat	1996-1998; 2001-2011
<i>City size</i>	Size of the city of the respondent (number of inhabitants): Less than 30,000 inhabitants, 30,000-100,000 inhabitants, 100,000-200,000 inhabitants, more than 200,000 inhabitants (apart from Bucharest), Bucharest (reference category = less than 30,000 inhabitants)	Eurobarometer	1996-1998; 2001-2011

Finally, controls on the social and economic institutional conditions (Frey and Stutzer, 2000), as the design of federal institutions, are not included in the empirical analysis since they are assumed to be

respondents reporting to live in settings of greater population size could be classified as living in (predominantly) rural areas, this threshold should sufficiently discriminate between more populated (and thus urbanized) settings from less populated (and thus predominantly rural) settings.

homogeneous within the same country. The same holds for some macroeconomic factors defined at national level, as for instance the inflation rate. Year dummies, likely, can control for their evolution over time.

5. Results

5.1. Are people living in larger cities happier than the others?

Table 3 reports the estimates of equation 2. Consistently with the literature (recently reviewed in Blanchflower and Oswald, 2011), individual characteristics are important determinants of life satisfaction and mostly show with the expect sign and significance. The results in particular suggests that younger people are happier than older people although the effect of ages seems U-shaped being people aged between 51-60 happier than those aged between 41-50 and people aged over 60 even more happier than those aged between 31-40. This effect is consistent across all specifications displayed in Table 3. Highly educated people are also happier whereas those with intermediate educational attainment seem at disadvantage with respect to those with low educational attainment⁹. Employed, self-employed and students are more satisfied than people that do not work. Married people are also happier than singles, whereas divorced and widow are less satisfied than singles. Finally, and contrasting with previous research, females do not appear to be happier than males¹⁰.

The time dummies also report results consistent with the literature. In fact, after a period of generalised decline in the early stages of the transition process, life satisfaction started increasing in the years before the accession to the EU and peaked in 2009 to slow down again in the years of the global crisis in 2010-2011. It is worth noting that still during the crisis, life satisfaction was significantly greater than in 1996, a few years after the collapse of the communist regime.

Per capita GDP, the proxy for individual income, indicate that its influence on life satisfaction follows an inverted U-shaped form suggesting positive though diminishing returns. This is consistent with the view that happiness is more influenced by relative income than by absolute income (Rodríguez-Pose and Maslauskaitė, 2012).

The variables capturing the population size of the residence area turn out not significant, indicating that people living in cities are as happy as those living in less populated and rural areas (Table 3, model 3), with the exception of those living in intermediate towns with 100-200,000 residents, who are more satisfied than the others. More interestingly, by separating out the effect of the capital city (Bucharest) from that of the other large cities, i.e. cities with more than 200,000 inhabitants (Table 3, model 4), results indicate that people living in these areas are happier than those residing in less populated areas, suggesting the existence of an urban-rural divide in life satisfaction favoring relatively larger cities (with more than 100,000 residents). Differently, living in the capital city is detrimental for life satisfaction. With the exception of Bucharest, then, Romanian people living in larger cities seem happier than the others.

⁹ This counterintuitive finding may be explained by the fact that, due to differences in the question wording of Eurobarometer surveys, it is not possible to discriminate among the various categories of non-working respondents: retired people, unemployed, and housekeepers. In our sample, 32 per cent of low educated individuals are older than 61 years, while the same share for those with intermediate education is about 15 per cent. Since retired people are generally more satisfied than both housekeepers and unemployed workers (Blanchflower and Oswald, 2004), the coefficients for the educational attainment reported in Table 3 may reflect, at least in part, the categorization of the data.

¹⁰ One possible explanation for this evidence involves the attitudes toward women in Romania. As claimed by Oprica (2008) gender equality is still far from being achieved.

Although, at a first glance, this result for Bucharest may seem quite unexpected, it can be interpreted through the concept of agglomeration economies/diseconomies. In particular, agglomeration benefits seem to prevail over agglomeration costs but only up to a certain threshold when increased population size seem to provide more disadvantages than advantages, as it may be the case of Bucharest. Possibly, the presence of greater congestion costs, pollution, social conflicts, crime rates, labour crowding, costs of living and reduced purchasing power can reduce the attractiveness of the capital city with respect to other large city in the country. Section 5.3 will offer some additional evidence to support this interpretation.

Table 3. Life satisfaction determinants: the role of city size

Dependent variable: Satisfied/very satisfied = 1		(1)	(2)	(3)	(4)
	Gender: female	0.004 (0.028)	0.003 (0.028)	0.001 (0.028)	0.002 (0.028)
Age	21-30	-	-	-	-0.325***
	31-40	0.310*** (0.047)	0.314*** (0.048)	0.319*** (0.048)	-0.456*** (0.041)
Ref.: under 20	41-50	-	-	-	-0.626***
	51-60	0.449*** (0.038)	0.454*** (0.040)	0.457*** (0.040)	-0.588*** (0.051)
	Over 60	-	-	-	-0.421***
	Medium	0.610*** (0.067)	0.616*** (0.069)	0.619*** (0.070)	0.483*** (0.039)
Education level	High	-0.098** (0.038)	0.101*** (0.037)	0.105*** (0.037)	0.499*** (0.047)
	Ref.: low	0.498*** (0.048)	0.489*** (0.048)	0.472*** (0.037)	0.529*** (0.064)
Occupation	Employed	0.522*** (0.047)	0.517*** (0.047)	0.512*** (0.047)	0.656*** (0.113)
	Self-employed	0.513*** (0.068)	0.522*** (0.066)	0.528*** (0.064)	-0.344***
Family status	Student	0.677*** (0.113)	0.679*** (0.112)	0.675*** (0.115)	0.089** (0.038)
	Widow	-	-	-	0.002*** (0.001)
Ref.: single	Divorced	0.353*** (0.083)	0.348*** (0.084)	0.345*** (0.083)	-0.000***
	Married	0.415*** (0.068)	0.420*** (0.067)	0.423*** (0.066)	0.115*
Per capita GDP		0.072* (0.039)	0.082** (0.038)	0.085** (0.037)	0.002*** (0.001)
Per capita GDP^2		-	-	-	-0.000***
City size	30-100,000 residents		0.000*** (0.000)	0.000*** (0.000)	(0.000)
	100-200,000			-0.005 (0.062)	-0.012 (0.063)
Ref.: less than 30,000 res				0.115*	0.116*

	residents				
	> 200,000 residents			(0.071) 0.063 (0.064)	(0.071)
	> 200,000 residents (without Bucharest)				0.161***
	Bucharest				(0.057) -0.283* (0.153)
Year dummies	1997	-	-	-	-0.167***
<i>Ref.: 1996</i>		0.150*** (0.003)	0.164*** (0.005)	0.164*** (0.005)	(0.005)
	1998	-	-	-	-0.187***
		0.195*** (0.007)	0.188*** (0.008)	0.189*** (0.008)	(0.009)
	2001	0.577*** (0.016)	0.602*** (0.014)	0.598*** (0.013)	0.605*** (0.016)
	2002	0.850*** (0.016)	0.856*** (0.015)	0.855*** (0.015)	0.852*** (0.015)
	2003	0.648*** (0.015)	0.635*** (0.018)	0.611*** (0.034)	0.718*** (0.054)
	2004	0.856*** (0.022)	0.833*** (0.027)	0.841*** (0.020)	0.818*** (0.023)
	2005	0.594*** (0.020)	0.546*** (0.032)	0.554*** (0.026)	0.519*** (0.032)
	2006	0.599*** (0.021)	0.554*** (0.032)	0.561*** (0.025)	0.517*** (0.034)
	2007	0.799*** (0.020)	0.736*** (0.037)	0.744*** (0.030)	0.688*** (0.043)
	2008	0.752*** (0.021)	0.677*** (0.041)	0.686*** (0.033)	0.616*** (0.051)
	2009	0.804*** (0.020)	0.739*** (0.039)	0.750*** (0.031)	0.661*** (0.056)
	2010	0.170*** (0.029)	0.101** (0.046)	0.110*** (0.039)	0.036 (0.053)
	2011	0.690*** (0.020)	0.628*** (0.037)	0.638*** (0.030)	0.568*** (0.049)
	Constant	-	-	-	-1.322***
		0.785*** (0.082)	1.225*** (0.138)	1.236*** (0.148)	(0.141)
	Observations	27,255	27,255	27,255	27,255

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the year level.

5.2. Considering just the residents in rural settings, does living in a more urbanized region have a positive impact on the self reported well-being?

The previous part of the empirical analysis was aimed at pointing out whether residents in urban settings of different size are more likely than the others to be satisfied with their life. The second research question refers to the indirect effect of urbanization on subjective well-being and asks whether the population living in towns with less than 30,000 inhabitants have higher probability of being satisfied if their town is in a region with a higher degree of urbanization. Based on the literature discussed in the second section the expectation is that, keeping other things constant, rural communities located in urbanized regions may benefit from the positive externalities generated by larger cities in the region, having access to their services without suffering from their diseconomies.

Empirically, equation 2 was estimated on a sub-sample of the respondents, those living in communities with less than 30,000 residents. The degree of urbanization in the region is captured by the share of people living in cities with more than 30,000 inhabitants at the NUTS2 level.

The general message stemming from Table 3 is further confirmed by looking at life satisfaction determinants of people living in rural areas as reported in estimated in Table 4.

The individual control variables largely show the same sign and significance. Differently, the year dummies suggest a generalized decrease in life satisfaction over time, which is consistent with the figures reported in section 3 indicating that the less populated areas experienced the slowest increase in GDP per capita and the largest population decline (Table 1, panels A and C). More interestingly, the variable accounting for the level of urbanization in the NUTS2 region indicates that the positive effects deriving from agglomeration are not only direct as shown in Table 4 but also indirect, as people are happier if they live in rural areas that are embedded in more urbanized regions. This result confirms once more the existence of an urban-rural divide in life satisfaction favoring relatively larger cities.

Table 4. Life satisfaction determinants in rural areas: the role of urbanization

Dependent variable: Satisfied/very satisfied = 1		(5)	(6)
	Gender: female	0.032 (0.047)	0.031 (0.047)
Age <i>Ref.: under 20</i>	21-30	-0.304*** (0.082)	-0.308*** (0.080)
	31-40	-0.416*** (0.083)	-0.418*** (0.083)
	41-50	-0.579*** (0.090)	-0.583*** (0.089)
	51-60	-0.483*** (0.065)	-0.485*** (0.065)
	Over 60	-0.445*** (0.106)	-0.449*** (0.105)
Education level <i>Ref.: low</i>	Medium	0.045 (0.045)	0.046 (0.046)
	High	0.445*** (0.088)	0.445*** (0.090)
Occupation <i>Ref.: non-working</i>	Employed	0.592*** (0.048)	0.588*** (0.048)
	Self-employed	0.142** (0.057)	0.148*** (0.056)
	Student	0.670*** (0.168)	0.671*** (0.167)
Family status <i>Ref.: single</i>	Widow	-0.475*** (0.120)	-0.473*** (0.120)
	Divorced	-0.520*** (0.130)	-0.519*** (0.130)
	Married	0.045 (0.061)	0.050 (0.060)
	Per capita GDP		0.005 (0.004)
	Per capita GDP ²		-0.000 (0.000)
	% of people living in urban settings	1.939*** (0.466)	1.566*** (0.541)
Year dummies <i>Ref.: 2001</i>	2002	0.211*** (0.008)	0.175*** (0.029)

2003	-0.932*** (0.245)	-0.610 (0.404)
2004	0.364*** (0.020)	0.252*** (0.084)
2005	-0.123*** (0.020)	-0.271*** (0.102)
2006	-0.111*** (0.022)	-0.268** (0.105)
2007	0.036* (0.022)	-0.140 (0.112)
2008	0.112*** (0.021)	-0.078 (0.119)
2009	0.228*** (0.023)	0.026 (0.125)
2010	-0.540*** (0.037)	-0.738*** (0.130)
2011	-0.013 (0.025)	-0.207* (0.123)
Constant	-0.893*** (0.194)	-1.698** (0.731)
Observations	9,461	9,461

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors clustered at the year level. The analysis cover the years 2001-2011 as data of the percentage of people residing in urban areas is available from 2001 onwards. Consequently, the dummies for the years 1996, 1997 and 1998 were dropped.

5.3. What are the agglomeration economies/diseconomies responsible for the unbalanced levels of life satisfaction observed across different urban settings?

The negative and statistically significant coefficient of the dummy variable for Bucharest in Table 3 was interpreted as the prevailing effect of the perceived diseconomies generated by the capital city on the advantages stemming from agglomeration. To confirm this interpretation we drew on information deriving from two surveys, conducted in 2006 and 2009 in a sample of large EU cities.

Since 2004 Flash Eurobarometer studies represent the tool through which the European Commission (DG Regional Policy) collects information on various urban issues. In 2006 and 2009 two surveys¹¹ were devoted to the assessment of the most important social and economic issues of cities. Questions concerned a range of topics, from environmental quality to social integration. Three Romanian cities were involved in the survey: Bucharest, Cluj-Napoca and Piatra Neamt. Each of these towns pertains to a different category of city size defined in our empirical analysis: in 2007 the resident population in Piatra Neamt was slightly above the 100,000 units, while the values for Cluj-Napoca and Bucharest were equal respectively to 310,000 and almost 2 million of inhabitants. The analysis of this survey data allows us verifying whether the perception of the advantages and disadvantages of agglomeration varies across these cities, whose sizes are remarkably similar to the categorization used in the regression estimates displayed in Table 3. Based on the results discussed above, Bucharest is expected to be associated more than the other two cities to the diseconomies generated by agglomeration, such as pollution, congestion and the cost of living.

The empirical analysis is structured as follows. Two groups of questions were aimed at investigating the perception of urban residents towards the main issues of their cities. In the first category (q2) respondents had to assert whether they strongly agree/fairly agree/ fairly disagree/ strongly disagree with some statements proposed by the interviewer. In the second group of

¹¹ Flash Eurobarometer 194 (ZA4727) in 2006 and Flash Eurobarometer 277 (ZA5214) in 2009.

questions (q3) individuals were asked to state whether they have ever encountered some difficulties in paying the bills at the end of the month (question q3a) and if they feel safe in their city (question q3b). The answers to these questions have been re-coded into a set of dichotomous variables. In the first case (questions q2) the dummy takes a value equal to 1 if the respondent agrees with the statement and 0 otherwise. Concerning questions q3, the dummy is equal to 1 if the respondent rarely/never encountered problems in paying the bills or if she/he rarely/never feel safe in the city of residence and 0 otherwise.

Therefore, a binomial logit model comparable with the one in equation 2 is estimated, where the depend variable is represented by the dichotomous variables described above and the regressors are the individual characteristics summarized in Table 2, jointly with a set of dummies for the city of residence, whose coefficient are reported in Table 5¹².

Consistently with the literature on agglomeration economies, results suggest that living in the capital city implies better job opportunities (Rosenthal and Strange, 2004 - question q2a) and higher income (Glaeser and Mare, 2001 - question q3a). These positive effects, however, are counterbalanced by a number of disadvantages compared with cities of smaller size. In fact, Bucharest is characterized by lower social integration (question q2c) and higher insecurity (questions q3b), possibly due to higher crime rates. These negative externalities confirm what pointed out by several works on agglomeration (Glaeser and Sacerdote, 1999; Meijers, 2008). A similar reasoning applies to the higher rent prices (question q2d) and to the greater environmental problems (questions q2h, q2i and q2j) associated with Bucharest and discussed by a broad literature (Anderson et al., 1996; Glaeser and Kahn, 2008). Finally, congestion effects (Craig, 1987) may arise, leading to higher dissatisfaction with the provision of public services (questions q2g and q2k).

Differently, living in Cluj, despite providing lower job opportunities, is characterised by higher social integration (question q2c) and relatively smaller problems in terms of security (question q3b) and pollution (questions q2h, q2i and q2j). Also in this case, there is a higher dissatisfaction with the provision of public services with respect to the reference case (questions q2g and q2k). Importantly, income is higher (question q3a) despite relatively higher rent prices (question q3d). Interestingly, the disadvantages stemming from agglomeration are lower in Cluj than in Bucharest (see the difference in the coefficients of the variables deriving from questions q2d, q2g, q2j, and q2k). In some cases, also, the disadvantages stemming from agglomeration are not even perceived (see questions q2h and q2i).

These results, therefore, lend support to the interpretation offered about the negative coefficient of the dummy variable for Bucharest in Table 3, i.e., in the capital city the effect of the perceived diseconomies seem to prevail on the advantages stemming from agglomeration.

¹² Due to space limitations the coefficients for the individual characteristics of the respondents are not reported here. Results are available from authors upon request.

Table 5. The role of different sources of agglomeration advantages and disadvantages across cities of different size

City dummies <i>Ref.: Piatra Neamt</i>		
Do you agree (y=1) or not (y=0) with the following statements? In your city...		
q2a – It is easy to find a job	Bucharest	0.388***
	Cluj	-0.372***
q2c – Foreigners who live in the city are well integrated	Bucharest	-0.346***
	Cluj	0.054***
q2d – It is easy to find a good housing at a reasonable place	Bucharest	-1.027***
	Cluj	-0.028***
		-0.886***
q2g – When you contact the administrative services they help you efficiently	Bucharest	
	Cluj	-0.074***
q2h – Air pollution is a big problem	Bucharest	2.192***
	Cluj	-0.024*
q2i – Noise is a big problem	Bucharest	1.677***
	Cluj	0.011
q2j – Is a clean city	Bucharest	-3.751***
	Cluj	-0.366***
q2k – The city spends its resources in a responsible way	Bucharest	-1.972***
	Cluj	-0.173***
It rarely or never (y=1) happens to me to...		
q3a – have difficulty paying the bills at the end of the month	Bucharest	0.166***
	Cluj	0.059***
q3b – feel safe in the neighbourhood I live in	Bucharest	1.726***
	Cluj	0.041***
	Observations	3,033

Note: *** p<0.01, ** p<0.05, * p<0.1.

6. Conclusions

This paper has moved from the observation that the evolution of life satisfaction and GDP in Romania (as well as in many other CEE countries) do not conform to the so-called ‘Easterlin paradox’. Based on the paramount role played by urbanization and agglomeration forces in driving the growth patterns of CEE countries (as well as of Romania) during the transition process, that has been largely emphasized in the literature, the paper has advanced the conjecture that urbanization also played an important role in shaping the evolution of life satisfaction.

The paper has tested this conjecture on Romanian data in the period 1996-2011. Data confirms that life satisfaction and GDP grew in parallel in the observed period but the national figures also hide important imbalances in the way the benefits stemming from increased happiness and wealth have been reaped in different spatial settings.

Consistently with the agglomeration argument, more populated and thus urbanized areas experienced a more favourable increase in their life satisfaction. Econometric results qualify further this result and indicate that especially in large cities the advantages related to agglomeration more than offset the disadvantages whereas this was not case of the capital city. In fact, our findings indicate that, despite providing similar advantages, the disadvantages stemming from agglomeration are lower in large cities such as Cluj than in Bucharest. The benefits deriving from agglomeration are not only direct but also indirect as people residing in rural areas embedded in more urbanized

regions seem happier than people residing in rural areas embedded in less urbanized regions. With the exception of Bucharest, therefore, the urban-rural divide that has characterised the evolution of GDP in the transition phase seems also to have characterized the evolution of life satisfaction.

These results not only add empirical evidence about outcomes of the process of transition undertaken by CEE countries but also has emphasised the importance of a spatial approach to analyze the evolution of life satisfaction. An extension of the present study to countries in different development stages (advanced as well as developing) is an extremely promising research direction to explore the role of agglomeration and urbanization processes not only as determinants of economic wealth increases but also of the evolution of individual life satisfaction.

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