

Life satisfaction over time and across space

30 Years of Evidence from Italian Regions

Camilla Lenzi^{*} and Giovanni Perucca^{**}

ABSTRACT

The literature on subjective wellbeing converges in pointing out two striking results. First, in the long run life satisfaction does not growth jointly with per capita income. Second, at the territorial level, dense urbanization is associated with the lowest levels of wellbeing. The aim of this paper is to provide evidence on the co-occurrence of these phenomena in Italian regions, making use on a unique data set on self-reported life satisfaction between 1980 and 2012. Empirical results show that the two paradoxes apply also for the Italian case, even if the second one is more evident in the case of Southern regions.

^{*} Department of Architecture, Built Environment and Construction Engineering, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy. Email: camilla.lenzi@polimi.it

^{**} (corresponding author) - Department of Architecture, Built Environment and Construction Engineering, Politecnico di Milano, Piazza Leonardo da Vinci 32, 20133 Milano, Italy. Email: giovanni.perucca@polimi.it

1. Introduction

In the last four decades, a long stream of research focused on the definition and empirical identification of measures of wellbeing alternative to mainstream and strictly economic ones. A relevant branch of this literature, starting from the pioneering works of Easterlin (1974, 1995), focused on survey data in order to elicit individuals' level of subjective (i.e. revealed) wellbeing.¹ In most cases, respondents' statements about their overall level of life satisfaction have been interpreted as a proxy for overall utility. The identification of such a measure allowed researches to check whether the variation both over time and across space of subjective wellbeing is consistent with the assumptions of economic theory.

As far as the changes over time are concerned, the ex-ante expectation is that an increase in the per capita level of income should be associated to a simultaneous increase of life satisfaction. Surprisingly, a number of empirical studies from the seminal paper of Easterlin (1974) documented the opposite: greater happiness does not go hand in hand with higher income (Easterlin et al., 2010), a finding labelled in the literature as the Easterlin paradox.

The second paradoxical result concerns the variation of subjective wellbeing over space and, more in details, across settings with different degrees of urbanization. Large cities are sources of economic growth and the increasing number of people deciding to live in urban areas symbolizes the variety of positive externalities generated by cities on individuals' welfare, in the form of more and better jobs, amenities, variety and so on (Glaeser et al., 1991; Glaeser, 2011). In this case as well, however, the association between subjective wellbeing and urbanization fails to have the expected (positive) sign: greater life satisfaction does not go hand in hand with denser urbanization (Okulicz-Kozaryn, 2015).

Even if the interest towards the urban-rural divide in life satisfaction is certainly more recent, dating back about 15 years ago (Morrison, 2007), it is quite surprising that almost no study focused on the combined effect of the variation of subjective wellbeing both over time and across space. Did the relationship between urbanization and life satisfaction remain stable over time? Or did it change, according to the economic and social transformations occurred in cities?

The present paper aims at filling this gap by providing fresh empirical evidence on this issue. More in details, the study is focused on the analysis of subjective wellbeing in Italian regions between 1980 and 2012. Pooling individual self-reported statements about life satisfaction from several Eurobarometer surveys, the data set presented here allows understanding *i*) whether also for Italy the two paradoxes are confirmed and *ii*) whether the role of urbanization on subjective wellbeing changed over time.

In order to answer to these issues, the rest of the discussion is organized as follows. The next section briefly discusses previous literature on life satisfaction as to clarify clear the objective of the present paper. The third section presents the data set and the statistical approach. The fourth section provides and discusses empirical evidence on the satisfaction of Italian citizens with their life and its variation over time, by examining the relationship between economic growth, subjective wellbeing and urbanization. Conclusions and future research directions end the paper in section 5.

¹ Several survey are conducted worldwide to monitor general and wider aspects of people's lives, such as the World Value Survey at the global scale, the European Values Study and Eurobarometer studies in European countries, the Behavioral Risk Factor Surveillance System survey in the US, the Survey of Household Income and Wealth in Italy.

2. Subjective wellbeing, economic growth and urbanization

More than 40 years after the first empirical verification of the lack of a clear relationship between economic growth and subjective wellbeing (Easterlin, 1974), this topic is still an open issue in the literature. While many studies supported this puzzling finding (Knight and Gunatilaka, 2011) several others provided robust evidence rejecting the Easterlin paradox and suggesting a positive and statistically significant association between the two variables (Helliwell, 2003; Stevenson and Wolfers, 2008). In fact, a generalized consensus has not been reached, since different works provided evidence of a higher impact of economic growth on subjective wellbeing either in developing countries (Lelkes, 2006) or in the most developed ones (Diener et al., 2010), while some analyses did not find any significant difference between the two groups (Wolfers et al., 2013).

Apart from the search of a statistically significant association between change in income and happiness, some studies focused on the theoretical reasons justifying these weak (and unstable) empirical findings. Choudhary et al. (2011), for instance, claimed that as far as individual preferences change over time, so does the balance of pecuniary and non-pecuniary factors in an individual utility function. Clark et al. (2008) suggested that individuals get easily used to new standards of living, and therefore an increase in income might not imply a simultaneous change in welfare. Easterlin (2001) argued that material aspirations change over the life cycle proportionally to income, leading to a neutral effect on experienced utility (e.g. well-being or life satisfaction) since any increase in income generates new (unmatched) desires.

A second paradox arising from the literature on subjective wellbeing is the one pointing out a negative association between urbanization and life satisfaction. A regional and urban approach to happiness is quite recent, dating back to about 15 years ago (Morrison, 2007, 2011). In spite of this, however, the agreement on such urban-rural divide is relatively more robust. While some studies found no significant association between urbanization and subjective wellbeing (Rehdanz and Maddison 2005; Hudson 2006; Appleton and Song 2008), the vast majority of works pointed a negative relationship (Hayo 2007; Gunatilaka 2010; Okulicz-Kozaryn, 2012). Recent contributions extended and refined this argument by showing that the urban-rural divide in subjective wellbeing varies at different urbanization levels (Lenzi and Perucca, 2016a). Urbanization leads to a negative impact on life satisfaction typically in the case of largest cities, i.e. those with more than 250 thousands residents (Berry and Okulicz-Kozaryn, 2011; Rodríguez-Pose and Maslauskaite, 2012). Additionally, this effect is particularly intense in developing countries and at lower levels of per capita income (Easterlin et al., 2011; Lenzi and Perucca, 2016b), suggesting a deterioration of wellbeing in presence of unbalanced, uncontrolled and spatially uneven growth patterns. Moreover, urbanization benefits can be not only direct (i.e. affecting local residents) but also indirect and filter down along the regional urban hierarchy thus reaching external residents, consistently with the borrow size argument (Burger et al., 2015; Meijers et al., 2015). In short, the range of urbanization effects can overcome a city's boundaries and filter down the regional urban hierarchy; such indirect effects are especially positive for those individuals living in rural areas of densely urbanized regions (Lenzi and Perucca, 2016a).

As for the Easterlin paradox, also in this case some studies suggested a theoretical justification for this counterintuitive finding. Sørensen (2014) argued that the positive externalities provided by cities, like job opportunities and amenities, are more than counterbalanced, in the case of the largest

urban centres, by the negative ones, as pollution and social malaise. Lenzi and Perucca (2016b) claimed that the manifestation of urbanization economies does not depend only on city size, but also on the overall level of economic development, since the highest levels of negative externalities characterize urban areas in lagging-behind environments.

Yet, little is known about the interplay between life satisfaction, economic wealth and urbanization in a longitudinal perspective, possibly because research, especially at the international level, has impaired been by limited data availability over time and across space.

The present paper tries to fill this gap by focusing on the evolution of subjective wellbeing in Italian NUTS2 regions between 1980 and 2012, by classifying regions according to their degree of urbanization and by distinguishing them according to their economic dynamics in the period considered, as described next.

Using a data set created by pooling different Eurobarometer surveys monitoring the life satisfaction of Italian citizens, the paper explores the (potential) co-occurrence of the two paradoxes discussed above and, in particular, proposes a twofold contribution of the paper.

First, it is aimed at verifying the presence of a statistically significant relationship between subjective wellbeing and per capita income growth. Compared with previous empirical studies documenting this association, generally using data at the national level, the use of a regional data set allows for a more precise measurement of the level of wealth and its variation over time. Moreover, rather than in an international comparison, generally the usual approach adopted in most of the literature on this topic, we are interested in a *within* country analysis. The latter is particularly interesting because, in this case, many factors that may affect the possible association between economic growth and wellbeing over time, such as the cultural environment or the political scenario, are kept constant.

The second goal of the paper is to study the role of urbanization economies on life satisfaction by observing the evolution of the urban-rural divide over the thirty-year period considered in our analysis. Based on the literature discussed above, we should expect regions characterised by the presence of the largest cities to show the lowest levels of subjective wellbeing, especially in the concomitance of a relative deterioration of (macro-regional) economic conditions over time. Therefore, the urban-rural divide is expected to be particularly acute in southern and central regions, which experienced a lower economic prosperity than the northern part of the country, particularly in recent times.

3. Subjective wellbeing in Italy (1980-2012): data and methods

3.1. Eurobarometer data

Since 1973 Eurobarometer surveys monitor, on behalf of the European Commission, the evolution of EU citizens' attitudes, sentiments and opinions on a variety of topics. Among the latter, a recurrent question in Eurobarometer questionnaires is the following one: "*All things considered, how satisfied are you with your life as a whole these days?*". Differently from other surveys, in

which the possible answers were coded on a 10-point scale², respondents had to choose among the following four options, from “Very unsatisfied”, to “Rather unsatisfied”, to “Rather satisfied”, to “Very satisfied”. The consistency in both the question wording and the methodology applied to the survey studies allows for a comparison of subjective wellbeing over time. In the case of Italy, in particular, this analysis can be carried on from 1980.

Together with their level of life satisfaction, individuals are asked to provide information on some individual characteristics, like age, gender, occupation and marital status. Moreover, each respondents can be associated to the NUTS2 region of residence.³

The data used in the present study were obtained by pooling survey data from 71 Eurobarometer studies in the period 1980 - 2012.⁴ This leads to a data set with more than 79,900 observations on individual self-reported life satisfaction.

3.2. The empirical model

In our empirical model, the dependent variable is represented by the level of individual life satisfaction, a variable taking values from 1 (very unsatisfied) to 4 (very satisfied). An extensive branch of the literature on subjective wellbeing discussed how to treat survey data and, in particular, whether it is more appropriate to consider the statements on individual wellbeing as either continuous (i.e. cardinal) or categorical (i.e. ordinal) variables. In their study, Ferrer-i-Carbonell and Frijters (2004) claimed that the results of models for continuous and categorical variables lead to very similar empirical estimates. Based on this evidence, in the present work we consider the level of life satisfaction as a continuous variable. We checked, however, the consistency of our results by using alternative estimation techniques, confirming the main findings (see footnote 11 in Section 4).

A second methodological issue concerns the hierarchical structure of the data. As discussed in the previous section, individuals in the sample live in different NUTS2 regions, each of them characterized by different territorial conditions. Therefore, it is reasonable to expect two randomly selected individuals from the same area to be more similar in terms of life satisfaction than any two people randomly chosen from other groups. If these group-effects are not taken into account, the independence assumption of the residuals in the estimated model will not hold. In the literature, the most common solution to overcome this problem is to include in the estimated model a set of dummies for the groups (Frey and Stutzer, 2010). However, a finer and more correct solution to this problem involves the adoption of linear multilevel modelling strategy, so to explicitly treat the

² See for example the World value survey.

³ Eurobarometer surveys do not disclose information on the city of residence of the respondent for confidential reasons. The lowest geographical level publicly available in Eurobarometer surveys is the NUTS2 level.

⁴ More in details, the Eurobarometer waves considered are the following ones: for 1980 (ZA1038), 1981 (ZA1206), 1982 (ZA1208, ZA1209), 1983 (ZA1318, ZA1319), 1984 (ZA1320, ZA1321), 1985 (ZA1541, ZA1542), 1986 (ZA1543, ZA1544), 1987 (ZA1712, ZA1713), 1988 (ZA1714, ZA1715), 1989 (ZA1750, ZA1751, ZA1752), 1990 (ZA1753, ZA1960, ZA1961, ZA1962), 1991 (ZA2031, ZA2081), 1992 (ZA2141, ZA2242, ZA2294, ZA2295), 1993 (ZA2346, ZA2459), 1994 (ZA2490, ZA2563), 1995 (ZA2637), 1996 (ZA2828, ZA2830), 1997 (ZA2936), 1998 (ZA3052), 1999 (ZA3204, ZA3205), 2000 (ZA3296, ZA3387), 2001 (ZA3507, ZA3626, ZA3627), 2002 (ZA3639, ZA3640, ZA3693), 2003 (ZA3938), 2004 (ZA4229, ZA4231), 2005 (ZA4233, ZA4411, ZA4414), 2006 (ZA4506, ZA4526), 2007 (ZA4530, ZA4565), 2008 (ZA4744, ZA4819), 2009 (ZA4971, ZA4972, ZA4973, ZA4994), 2010 (ZA5234, ZA5235, ZA5449), 2011 (ZA5481, ZA5564, ZA5567), 2012 (ZA5612, ZA5613).

hierarchical structure of the data and to obtain correct standard errors.⁵ More in details, we estimate a random intercept model where the intercept of the group regression lines is allowed to randomly vary across areas (i.e. NUTS2 regions). Random intercept was preferred to random slopes since there are not strong assumptions about the variation of coefficients across groups.

Therefore, the empirical model to be estimated for any individual i in any NUTS2 region r is as follows:

$$(Life\ satisfaction) = F(age_i, gender_i, marital\ status_i, education_i, occupation_i, per\ capita\ GDP_r, \Delta\ per\ capita\ GDP_r, urbanization_r, Eurobarometer\ issue\ dummies) \quad [1]$$

The independent variables can be classified into two groups, as described in Table 1.

The first group includes the controls for the individual characteristics made available (longitudinally) in all the survey studies: gender, age, occupation, level of education and marital status of the respondents.⁶

The second groups of variables include a control for the average level of income, expressed in terms of per capita real GDP in each NUTS2 regions.⁷ A quadratic term is added to the model specification, based on previous studies (Lenzi and Perucca, 2016b) pointing out a non-linear relationship between income and life satisfaction. The relationship between the growth rate of income and subjective wellbeing is investigated by including the percentage change in per capita real GDP compared with the previous year (Beja, 2014). The joint inclusion of per capita real GDP level and rate of growth allow to check whether Italian regions, in the considered period, complied with the predictions of the Easterlin paradox or rather departed from it.

On the other hand, the association between urbanization and life satisfaction is addressed with the inclusion of a dummy taking value of 1 if the NUTS2 region is characterized by the presence of the capital city or second tier city and equal to 0 otherwise. Impaired with the possibility to use data at the city (or at least provincial) level, as noted above, the paper adopts the conceptualization of urbanization effects proposed by Camagni et al. (2015) that not only emphasizes the direct effects of urbanization on life satisfaction but also the indirect ones spilling over the regional urban system. In particular, the paper focuses on regions (and not on cities) and classifies them according to the size of the regional urban system (i.e. the population residing in urban areas); for the purpose of this study, in fact, the internal urban structure of the region is neutral vis-à-vis the research questions, while the size of the urban system matters.⁸ In particular, the identification of urbanization effects

⁵ Pittau et al. (2010) and Aslam and Corrado (2011) provide a fuller discussion and justification of the appropriateness and advantages of this approach with respect to the introduction of regional groups dummy variables.

⁶ The selection of the individual-level variables, unfortunately, has been largely constrained by data availability and comparability across waves. Recent literature indicate how environmental conditions, health status, security, social capital and personal relations, affect individual well-being (Dolan et al., 2008; Banchflower and Oswald, 2011; Zivin and Neidell, 2011; Ferrara et al., this issue). The dataset large temporal coverage however dictated a trade-off with respect to the number of individual level determinants of well-being included in the regression analysis.

⁷ Using per capita GDP as a proxy for the available income of households can be questionable, as discussed by several works (see for instance Stiglitz and al., 2009) but it remains the best option available to control for individual economic wealth in a so long longitudinal time span.

⁸ This categorization of regions and urban systems closely mirrors the notion of city-regions. Despite its increasingly widespread use, in the literature there is no commonly accepted definition of what a city-region is (Parr, 2005). Generally, a city-region refers to the presence in a region either of a core city linked by functional ties to a hinterland, or

employed in this work is based on the classification of cities developed by EUROSTAT (EUROSTAT, 2009). According to the size of the population residing in the metropolitan area, cities are classified in mutually exclusive categories, among which the most relevant ones are capital cities and second-tier metro (i.e. the largest cities in the country excluding the capital). Accordingly, EU regions are classified as capital regions or second tier metropolitan regions according to the presence of either the country capital or a second-tier city. In this paper, Italian NUTS2 regions including these major cities are those with a significantly higher degree of urbanization.⁹ The inclusion of this dummy variable enables to check whether the residents of more urbanized regions are characterized by lower levels of subjective wellbeing than those living in less urbanized regions, as the urban-rural paradox highlighted in the literature would suggest.

Table 1. List of independent variables.

Name	Description	Source	Year
Individual characteristics (survey data)			
<i>Gender</i>	Gender of the respondent (reference category = males)	Eurobarometer	1980-2012
<i>Age</i>	Age of the respondent (number of years). A quadratic effect is introduced to check for a non-linear relationship between age and life satisfaction.	Eurobarometer	1980-2012
<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	1980-2012
<i>Occupation</i>	Occupation of the respondent: non-working, student, employed, self-employed (reference category = non-working)	Eurobarometer	1980-2012
<i>Marital status</i>	Marital status of the respondent: single, married, divorced, widow (reference category = single)	Eurobarometer	1980-2012
Regional variables (NUTS2)			
<i>Per capita GDP</i>	Per capita real GDP in the NUTS2 region of residence. A quadratic effect is introduced to check for a non-linear relationship between income and life satisfaction	Cambridge Econometrics	1980-2012
<i>Δ per capita GDP</i>	% change in per capita real GDP in the NUTS2 region of residence compared with the previous year	Cambridge Econometrics	1980-2012
<i>Urbanization</i>	Dummy equal to 1 if the NUTS2 region of residence hosts the capital city or second tier cities and equal to 0 otherwise	EUROSTAT	1980-2012

a polycentric geographical unit, which frequently leads to the formation of networked city-regions (Scott et al., 2001; Faludi, 2002; Hall and Pain, 2006; Rodríguez-Pose, 2008).

⁹ In Italy, four NUTS2 regions out of 20 host a capital/second tier city: Piemonte (Torino), Lombardia (Milano), Lazio (Roma) and Campania (Napoli).

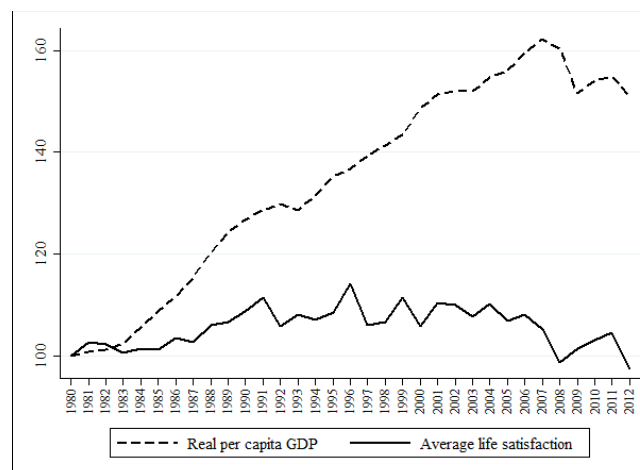
Finally, all models include a set of dummies to control for the Eurobarometer wave from which the data were extracted. The inclusion of these variables are important because they capture all the exogenous factors that, over time, might have affected individuals' perceived wellbeing.

4. The evolution of subjective wellbeing in Italy (1980-2012)

The first issue under investigation concerns the relationship between the change in income and subjective wellbeing. Figure 1 shows the evolution of both per capita real income and average life satisfaction in the period considered. This picture seems to confirm the Easterlin paradox: in 2012 the average Italian citizen was much richer than in 1980, but the level of subjective wellbeing was, on average, the same if not even lower.

This descriptive evidence is clearly missing to consider all the other factors that might affect life satisfaction. In order to control for these elements, a model taking the form of equation [1] has been estimated. The results are available in Table 2.

Figure 1. Life satisfaction and per capita real GDP: 1980-2012 (1980 = 100)



Source: authors' own estimations on Cambridge Econometrics and Eurobarometer data. The average level of life satisfaction is calculated as the mean value of all the self-reported statements in a given year, where to the very unsatisfied, rather unsatisfied, rather satisfied and very satisfied respondents was respectively associated a value of 1, 2, 3 or 4.

The relationship between income growth rate and subjective wellbeing has been tested as follows. Model (a) in Table 2 includes as regressors only the yearly change in per capita real GDP and the set of dummies for the Eurobarometer surveys. In model (b) individual characteristics of the respondents are included, while the overall level of per capita real GDP and its square term are added in model (c). Finally, model (d) corresponds to the full specification of equation [1], with also the dummy for urbanization.

It is interesting to note that the finding suggested by the descriptive evidence of Figure 1 is confirmed in the econometric model. The coefficient associated to the income growth is positive and slightly insignificant (p-value = 0.101) when controlling just for the survey issues (model a). At

a first glance, therefore, this result suggests the occurrence of an income-well-being puzzle also in the case of Italy.

Once the other controls are introduced, however, the magnitude of the coefficient reduces, so as its statistical significance. Therefore, it seems that the positive and significant association between the two variables might be explained by the omission of relevant controls.

Individual characteristics (model b) have all the expected results such as, for instance, the non-linear path of life satisfaction over the life cycle (Easterlin 2001) or the lower subjective wellbeing of females, unmarried respondents and individuals with low education (see also for comparable results, Ferrara et al., this issue). Their introduction, however, does not affect radically the coefficient associated to income growth, whose p-value remains at 0.154.

Importantly, instead, the inclusion of the overall level of income (model c) drastically reduces the size of the coefficient associated to economic growth. The level of income has, in its linear term, a positive and statistically significant coefficient, pointing out that higher levels of per capita real GDP are associated to higher subjective wellbeing. Above a certain threshold, however, a further increase in the level of income has a lower and lower effect on life satisfaction, as showed by the negative coefficient associated to the quadratic term (see for a similar result Easterlin, 1995).

Table 2. Life satisfaction, income growth (1980 =100) and urbanization.

	(a)	(b)	(c)	(d)
Yearly change in per capita real GDP	0.283 (0.172)	0.246 (0.173)	0.097 (0.175)	0.090 (0.175)
Age		-0.013*** (0.001)	-0.013*** (0.001)	-0.013*** (0.001)
Age ²		0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)
Female		-0.029*** (0.006)	-0.028*** (0.006)	-0.028*** (0.006)
Single		-0.128*** (0.008)	-0.129*** (0.008)	-0.129*** (0.008)
Separated/divorced		-0.262*** (0.014)	-0.260*** (0.014)	-0.260*** (0.014)
Widower		-0.215*** (0.011)	-0.216*** (0.011)	-0.216*** (0.011)
Graduate		0.106*** (0.008)	0.107*** (0.008)	0.107*** (0.008)
Manual worker		-0.093*** (0.009)	-0.094*** (0.009)	-0.094*** (0.009)
Retired		-0.000 (0.010)	-0.002 (0.010)	-0.002 (0.010)
Housewife		-0.045*** (0.009)	-0.048*** (0.009)	-0.048*** (0.009)
Student		0.136*** (0.011)	0.135*** (0.011)	0.135*** (0.011)
Per capita GDP			0.104***	0.105***

			(0.009)	(0.008)
Per capita GDP square			-0.002***	-0.002***
			(0.000)	(0.000)
Urbanization				-0.048
				(0.039)
Surveys FE	Yes	Yes	Yes	Yes
Constant	2.718***	3.118***	2.129***	2.129***
	(0.051)	(0.058)	(0.095)	(0.093)
Observations	77,955	76,564	76,564	76,564

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: married (marital status), employee (occupational status), non-graduated (education).

The last column of Table 2 (model d) introduces the dummy variable for the urbanization level of the NUTS2 region of residence. The coefficient of this variable shows that, on average and on the full period considered, living in a NUTS2 region characterized by the presence of a large cities was not likely to have any significant effect on the perceived life satisfaction (p-value = 0.217).¹⁰

In principle, this result contradicts existing literature about the occurrence of a trade-off between intense urbanization and subjective wellbeing.

However, this unexpected result can become less striking when considering additional interlinked elements and trends that took place in the time span under analysis and their variations across space.

In fact, the urban-rural divide pointed out in the literature was tested on survey data collected from 1995 on. To the best of our knowledge, no evidence is available for previous years. Yet, the time span considered is a relevant issue. In fact, the three decades examined are characterised by a radical process of post-industrial transformation and reconversion from manufacturing to services affecting most of EU large cities. Such trend however did not take place with the same intensity and success across Italy, leading to unbalanced economic patterns across different parts of the country (Capello, 2016). In some areas (e.g. Northern regions), such processes sustained the functioning of local labour markets, acting as a pulling factor, and turning into a source of agglomeration economies. Large cities in the northern part of the country, in fact, experienced a significant reconversion from the manufacturing to the service sector following a sharp tertiarization trend. In 1980, the share of total employment in manufacturing activities was equal to 45 and 38 percent in Torino and Milano, respectively.¹¹ In 2012, these shares dropped to 20 per cent for both areas.

In other regions (e.g. Central and Southern ones), instead, these processes occurred weakly or unsuccessfully, preventing the advantages related to agglomeration to prevail on the relative disadvantages. In fact, in the central and southern part of Italy, the same process of industrial reconversion took place with a much lower extent, being local economies not heavily specialized in

¹⁰ The main empirical findings of Table 2 are confirmed also by using alternative estimation techniques, chiefly ordered logit estimation. Results are available from the authors upon request.

¹¹ For a similar observation, see Corrocher et al. (2013). With reference to Lombardy in particular, the region has experienced an important process of tertiarization despite a traditional orientation toward industrial activities, as confirmed by a sharp increase in the number of local units and employment in the service sector generally and in knowledge intensive business services in particular. This evidence is in line with the idea that the role of KIBS appears to be particularly significant in advanced regions, where competitiveness depends on the content of knowledge provided by highly specialized suppliers to high- and medium-tech business users. In fact, between 1997 and 2007, the number of local units in these sectors increased by 74.4 per cent in Lombardy, compared to a 61.1 per cent growth rate for Italy.

the manufacturing sector. In Roma, for instance, the share of employment in manufacturing decreased from 10 to 6 per cent, while in Napoli from 23 to 10 per cent. These differences in the economic sectoral structure of northern and central/southern Italian regions are matched by several other divergences in some territorial characteristics of social, cultural and institutional nature (Capello, 2016). In 2012, for instance, the unemployment rate was equal respectively to 8.9 and 7.1 per cent for the NUTS2 regions of Torino and Milano, while the values for the regions of Roma and Napoli was much higher, equal respectively to 10.4 and 18.7 per cent.¹² All together, these factors contribute in explaining the gap in the success of the process of economic reconversion and the consequent economic performance in more recent times of the two different parts of the country.

Figure 2. Per capita real GDP in Italy, Northern and Central/Southern second tier regions.

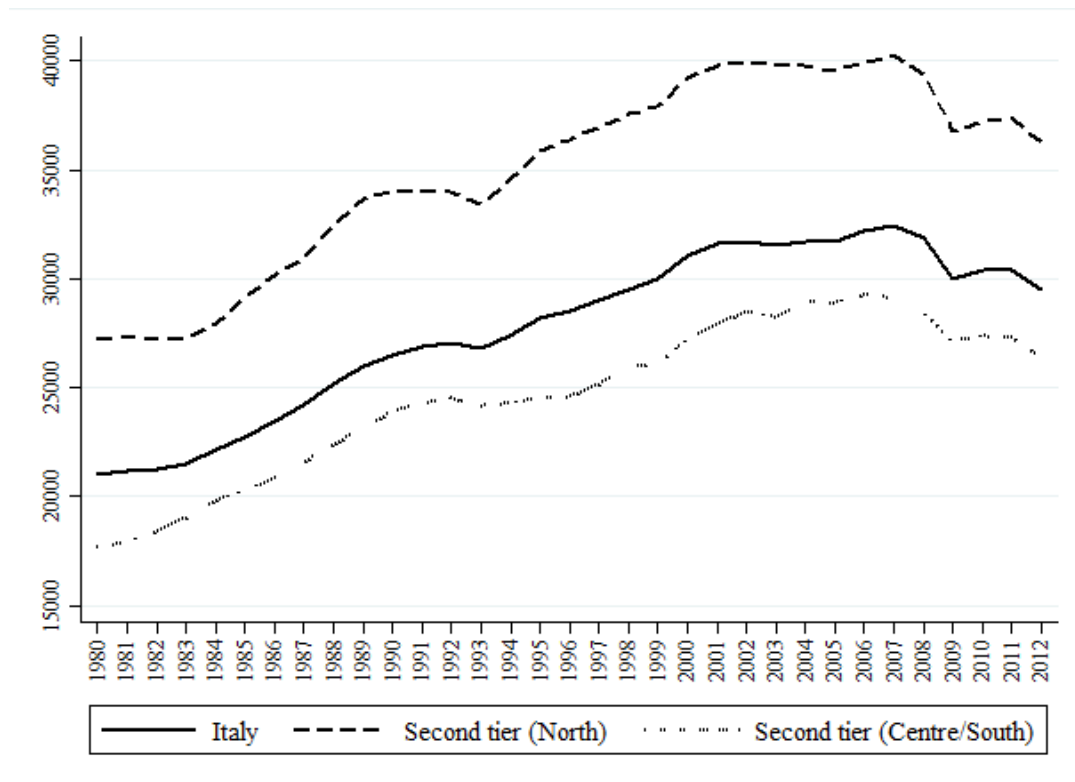


Figure 2 shows the growth of per capita real GDP in the whole country and in the second tier regions of both Northern and Central/Southern Italy. Even if the trend in the 30 years considered is basically the same across different areas, Central/Southern second tier regions are still characterized in 2012 by a level of per capita income well below the country average and, in particular, lower than the one in the most urbanized regions in Northern Italy.

Based on this reasoning, we expect the positive externalities of urbanization, especially in terms of job opportunities and the vitality of the local job market linked to structural change in local economies, to be more intense in Northern regions than in Central/Southern ones. In the latter case, a mechanism similar to the one pointed out by Lenzi and Perucca (2016b) is assumed to take place: urbanization economies are not strong enough to compensate the negative externalities generated by large cities. By consequence, the outcome has been one of progressive deterioration of well-being and perceived life satisfaction by local residents in Southern and Central regions.

¹² Source: Eurostat. Unemployment rate for people between 20 and 64 years old.

In fact, by replicating the analysis presented in model (d) of Table 2 for Northern and Central/Southern regions, separately, two opposite conclusions can be drawn. While the effect of urbanization is neutral at North, it becomes negative and statistically significant for Central/Southern regions, thus confirming the proposed interpretation of the aggregate effect detected in Table 2.

Table 3. Life satisfaction and income growth in Northern and Southern Italy (1980 = 100).

	North	Centre and South
Yearly change in per capita real GDP	0.130 (0.420)	0.167 (0.228)
Age	-0.012*** (0.001)	-0.014*** (0.001)
Age ²	0.000*** (0.000)	0.000*** (0.000)
Female	-0.030*** (0.008)	-0.029*** (0.008)
Single	-0.112*** (0.011)	-0.145*** (0.011)
Separated/divorced	-0.238*** (0.018)	-0.285*** (0.021)
Widower	-0.219*** (0.015)	-0.214*** (0.016)
Graduate	0.067*** (0.012)	0.141*** (0.012)
Manual worker	-0.086*** (0.012)	-0.108*** (0.013)
Retired	-0.011 (0.014)	0.005 (0.015)
Housewife	-0.037*** (0.013)	-0.056*** (0.012)
Student	0.113*** (0.015)	0.152*** (0.014)
Per capita GDP	0.022 (0.018)	0.075*** (0.013)
Per capita GDP ²	-0.000 (0.000)	-0.002*** (0.000)
Urban rank	-0.043 (0.045)	-0.068* (0.038)
Surveys FE	Yes	Yes
Constant	2.955*** (0.218)	2.409*** (0.122)
Observations	35,231	41,333

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Reference categories: married (marital status), employee (occupational status), non-graduated (education).

In order to examine more in depth these different outcomes across space and to understand the evolution of the relationship between urbanization and wellbeing over time, the sample has been split into three periods and the same analysis reported in Tables 2 and 3 replicated for each of them.

The chosen periodization is closely related to important macro-economic events/milestones that affected the country in the frame of the process of European integration. In fact, the European integration process strongly affected the operation of agglomeration forces inside the continent while pushing for radical processes of industrial transformation and consolidation within countries. Moreover, by reducing transaction costs, integration has brought substantial economic benefits to citizens.

The first period, then, encompasses the years between 1980 and 1991. This decade preceded the signature of the Maastricht Treaty and did not experience major advances and steps in favour of deeper integration, therefore with a limited push in terms of industrial reconversion (i.e. a substantial stability in the economic specialization of local economies) and of reinforcement of the operation of agglomeration forces.

The second periods, instead, includes the years between the Maastricht Treaty and the adoption of euro (1992-2002). This decade has been characterised by important steps towards deeper integration inside the Union, with a reinforcement of the operation of economic forces leading to industrial transformation (and, therefore, a relevant change in local industrial specialization) and agglomeration.

Finally, the last period (2002-2012) has been marked by the introduction of the common currency and, lastly, by the economic crisis; both phenomena had important but also unbalanced effects across regions, favouring in particular the most advanced ones, the Northern ones in the present context (Christoferson et al., 2015).

As far as the change of the relationship between urbanization and subjective wellbeing over the three decades, it is reasonable to expect that it can be invariant over time in the case of Northern regions, in which the benefits from agglomeration (i.e. from the self-adaptation, reconversion and well-functioning of local labour markets) can offset the relative disadvantages. On the other hand, it is reasonable to expect a worsening of the effect of urbanization over time in Central and Southern regions, in which positive agglomeration forces tended to become feeble due to weak and ineffective transformation of local economic structure and labour markets.

Table 4 reports the results of the analysis. The top of the table shows the findings for the whole Italy, while the panels A and B show the regression results respectively for the northern and central/southern regions. The estimated models are consistent with the specification of model [1].

When the entire country is considered, the association of urbanization on subjective wellbeing appears to be neutral between 1980 and 1991, while it gains statistical significance in the two following periods. Therefore, the average effect showed in Table 2 (model d) was hiding an unstable relationship between urban environments and life satisfaction: only in the last two decades living in a region with a large city is likely to lead to lower perceived wellbeing. This result is consistent with the literature summarized in section 2.

Table 4. Life satisfaction and urbanization over time and across different territorial settings.

<i>Italy</i>	<i>1980-1991</i>	<i>1991-2002</i>	<i>2002-2012</i>
Urban rank	-0.038 (0.037)	-0.045* (0.026)	-0.096** (0.045)

Individual characteristics	Yes	Yes	Yes
Per capita real GDP	Yes	Yes	Yes
Surveys FE	Yes	Yes	Yes
Constant	3.027*** (0.131)	3.292*** (0.092)	2.971*** (0.094)
Observations	22,877	28,269	26,530
<i>Panel A -Northern regions</i>	<i>1980-1991</i>	<i>1991-2002</i>	<i>2002-2012</i>
Urban rank	-0.060* (0.035)	-0.038 (0.037)	-0.059 (0.054)
Individual characteristics	Yes	Yes	Yes
Per capita real GDP	Yes	Yes	Yes
Surveys FE	Yes	Yes	Yes
Constant	2.912*** (0.160)	3.221*** (0.174)	2.887*** (0.294)
Observations	10,619	13,268	11,819
<i>Panel B -Central and southern regions</i>	<i>1980-1991</i>	<i>1991-2002</i>	<i>2002-2012</i>
Urban rank	-0.048 (0.045)	-0.061** (0.028)	-0.127* (0.066)
Individual characteristics	Yes	Yes	Yes
Per capita real GDP	Yes	Yes	Yes
Surveys FE	Yes	Yes	Yes
Constant	2.742*** (0.101)	3.222*** (0.080)	3.018*** (0.127)
Observations	12,258	15,001	14,711

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.¹³

However, by replicating this analysis for Northern and Central/Southern regions, separately, two opposite scenarios emerge.

As far as Northern regions are concerned, living in a NUTS2 region with a city of higher rank was likely to decrease individuals' life satisfaction only in the first period (1980-1991). In the next periods considered, on the other hand, this effect vanishes. It is interesting to remark that the years after 1991 are those in which these urban settings experienced the most intense economic and productive conversion. Possibly, after the first decade in which reconversion started and the initial costs were considered as greater, the advantages of adaptation of local labour markets and, more generally, of urbanization were sufficient to offset the perceived disadvantages from agglomeration.

The opposite holds for Southern and Central regions. While in the first period the difference in the subjective wellbeing of more and less urbanized regions was not statistically significant, an urban-rural divide arises between 1991 and 2002 and it persists until 2012. Possibly, the failure in reconversion and transformation impeded the unfolding of the benefits from urbanization such to compensate the relative disadvantages.

¹³ The variable capturing the change in GDP is not reported in the regression results, since we are interested in the long-term relationship between economic growth and life satisfaction. The literature showed (Easterlin, 2001) that in the short period there might be an association between these two variables. This association, however, is not structural and persistent over time, which leads to the abovementioned paradox.

5. Conclusions and further research

The present paper provided empirical evidence on the evolution of subjective wellbeing in Italy from 1980 to 2012. In particular, the study analysed the relationship between life satisfaction, income growth and urbanization.

The empirical results are in line with those from the literature on this subject, pointing out a puzzling lack of association between economic growth and subjective wellbeing. At the same time, our estimates confirmed the negative effect of urbanization on life satisfaction. In this case, however, the present paper presented some innovative findings.

The first one concerns the change over time of the relationship between urbanization and subjective wellbeing. This work was the first one to provide empirical evidence on the long-period evolution of the urban-rural divide in life satisfaction. This divide appeared not to be constant, which implies that urban life is not a source of dissatisfaction *per se* but, rather, the combination of positive and negative externalities and their impact on perceived wellbeing can vary over time.

The second innovative result concerns the unequal effect of urbanization in urban settings characterized by different socioeconomic conditions, like the Northern and Central/Southern regions of Italy. In this case, our empirical results suggest that the urban-rural divide arises when the most urbanized settings are less effective in providing the expected positive externalities (mainly job opportunities) to the resident population.

From this analysis, several extensions can be envisaged and are welcome. Firstly, an extension of the present research to other countries would be beneficial to corroborate the findings achieved. Eurobarometer surveys can enable such an extension for some major European countries, such as France and Spain, with a comparable longitudinal coverage. Secondly, a finer measurement of urbanization effects with specific attention on the forces operating in the labour market would be desirable to test with further precision the soundness of the proposed interpretation. Lastly, additional controls for alternative sources of agglomeration economies could be introduced and checked for by, even if with substantial limitation on temporal coverage. We hope to extend our future research in these directions.

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