Income and Well-being across European Provinces

Adam Okulicz-Kozaryn

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Abstract

The majority of studies investigate the effect of income on life satisfaction at either individual or country level. This study contributes with analysis at the (sub-national) province level across West European countries. I use a unique dataset Eurobarometer 44.2 Bis that is representative of province populations in a multilevel model. Provinces are defined according to The Nomenclature of Territorial Units for Statistics at second level (NUTS II). Living conditions measured by regional income increase life satisfaction beyond personal income and national income. There is larger life satisfaction inequality between the rich and the poor in poor provinces than in rich provinces. Personal income matters more for life satisfaction in poor provinces than in rich provinces.

KEYWORDS: LIFE SATISFACTION, INCOME, EUROPEAN PROVINCES, LIVABILITY THEORY

Introduction

A key topic in the life satisfaction literature[1] is the relationship between income and well-being. This relationship is important for people: Will making more money make me happier? And it is important for policy makers: Should taxation encourage longer working hours or more leisure?

How income relates to life satisfaction? A major theory that explains this relationship across countries is called livability theory (Veenhoven and Ehrhardt, 1995)[2]. Livability theory, as the name indicates, proposes that "livable" conditions result in life satisfaction – if human needs are satisfied life satisfaction follows. Livability theory predicts that the objective quality of life is associated with life satisfaction. Diener et al. (1993), Veenhoven (1991), and Veenhoven and Ehrhardt (1995) find support for livability theory analyzing country level data. This study innovates using province level data.

Diener and Biswas-Diener (2002) review literature with major finding that personal income is more important for life satisfaction in poor nations and that those who prize material goals are less happy than others. Objective life quality or societal environment matters for life satisfaction. Yet, perceptions of the

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[1] Literature uses different labels: well-being, subjective well-being, happiness or life satisfaction. Well-being is a general concept encompassing happiness and life satisfaction; subjective well-being is self-reported. Life satisfaction and happiness are conceptually different. The former refers to cognition while the latter refers to affect. This study investigates life satisfaction.

[2] Veenhoven and Ehrhardt (1995) also discuss comparison theory and folklore theory. Comparison theory is a part of Multiple Discrepancy Theory (MDT) (Michalos, 1985). According to comparison theory, people compare themselves to other people, for a review see Clark et al. (2008). Under folklore theory, life satisfaction is determined by the "widely held notions about life" or "national character". Folklore theory, however, has not been widely discussed in the literature.

objective quality of life matter irrespective of the objective circumstances and they matter more in countries with poor objective quality of life; in countries with good objective quality of life private support matters more (Bohnke, 2008). Life satisfaction is lowest in Eastern Europe (Delhey, 2005, Somarriba and Pena, 2009). East Europeans value material goods more than West Europeans. On the other hand, West Europeans value more postmaterial goods (e.g. self-actualization and freedom) than East Europeans. There is a bigger gap in satisfaction between the rich and the poor in Eastern Europe (Delhey, 2005). Also, other indicators of life quality are the lowest in Eastern Europe (Somarriba and Pena, 2009).

There are two levels of observation involved: personal and national. Income is an attribute of persons (personal income) and of societies (national income). Why is level of analysis important? National income is a highly aggregated measure. The higher the level of aggregation, the less precise is a measure. It is the average income of the locality where a person lives that determines his quality of life, not the national average. In the extant literature the implicit assumption is that national income reflects local income. Local income provides context for personal income and thus can be called "contextual income". Contextual income is a property of the place where person lives, not of a country. National income measures wealth of society, but wealth of society is not distributed equally within countries. Italy is one example – rich north but poor south (Putnam et al., 1993). Using national income researchers commit so called ecological fallacy. Robinson (1950) demonstrated that the correlations between aggregates and between attributes of the units of analysis can be very different. This study uses province level income to measure wealth of society more precisely. I hypothesize that a similar relationship to that at the country level is observed at province level: there is a positive relationship between regional income and happiness. European provinces are defined according to the Nomenclature of Territorial Units for Statistics. There are 3 levels of aggregation: level 1 (NUTS I) is the highest level of aggregation (the biggest provinces) and level 3 (NUTS III) is the lowest level of aggregation (the smallest provinces).

There were two attempts to analyze life satisfaction at province level across European countries[3]. Yet, both studies use data that may not be representative at NUTS I level. Pittau et al. (2010) use Eurobarometer Mannheim trend data, which is meant to be representative at the country level, not at province level (NUTS I)[4], and divide 15 countries into 70 provinces (authors do not report the sample size). This study uses data from 188 provinces (NUTS II). Aslam and Corrado (2007) use European Social Survey with a sample of about 20,000 people across 15 countries (most provinces are NUTS I), while this study uses a sample of more

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[3]There are few studies analyzing life satisfaction across (sub-national) provinces, but within one country only, and these are following: Frey and Stutzer (2000) analyze institutions in Switzerland; Clark (2003) analyze comparison groups in Great Britain; and Rampichini and Schifini D'Andrea (1998) find that both personal and province level incomes increase life satisfaction in Italy.

[4]Authors somewhat overcome this problem by pooling data from multiple years.

than 30,000 people in 9 countries. Aslam and Corrado (2007) find that both, national and regional incomes increase life satisfaction, but the relationship is not consistent. Pittau et al. (2010) find that personal income matters more in poor provinces. There are obvious advantages of using NUTS II regions over NUTS I regions. They provide finer geographic representation, and hence, the data aggregation problem is smaller. Again, what is true at a disaggregated level is not necessarily true at higher level (Robinson, 1950). Eurobarometers, including Mannheim trend, were designed to be representative at country level.

Data

This study uses Eurobarometer 44.2 Bis Mega-Survey: "Policies and Practices in Building Europe and the European Union", collected between January and March 1996[5], thereafter EB. As noted in the codebook, which is quoted in the next paragraph, the

"Eurobarometer 44.2bis covers the population of the respective nationality of the European Union member countries, aged 15 years and over, resident in each of the Member States. The basic sample size of the 44.2bis MEGA-survey is about 3000 respondents in Belgium, Denmark, East Germany, Greece, Ireland, the Netherlands, Austria, Portugal, Finland, and Sweden; about 6000 respondents in West Germany, Spain, France, Italy and Great Britain; about 600 and 1000 respondents in Northern Ireland and Luxembourg respectively. Next to this basic sample an oversample of people working in the sector of agriculture, fishery or forestry was carried out. A minimum number of such interviews per region was imposed. A multistage, random (probability) basic sample design was applied in all Member States. In each EU country, a number of sampling points was drawn with probability proportional to population size (for a total coverage of the country) and to population density. For drawing the basic sample, sampling points were drawn systematically from all "administrative regional units", after stratification by individual unit and type of area. They thus represent the whole territory of the Member States according to the EUROSTAT-NUTS II and according to the distribution of the national resident population of the respective EU-nationalities in terms of metropolitan, urban, and rural areas. In each of the selected sampling points a starting address was drawn at random. Further addresses were selected as every Nth address from the initial address by standard random route procedures. In each household the respondent was drawn at random."

Eurobarometer 44.2 Bis has not yet been used for the study of subjective wellbeing at province level[6]. EB dataset has a great advantage over other datasets. As discussed above, it is representative of NUTS II provinces. For details about NUTS classification see http://ec.europa.eu/eurostat/ramon/nuts.

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[5]Data is available at http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/6748

[6]Blanchflower and Oswald (2004) use it to study satisfaction at country level. Okulicz-Kozaryn (2010) use it to show life satisfaction variation across European provinces but does not estimate any models.

Table 1: Countries in the sample.

country code	country name
AT	Austria
BE	Belgium
DE	Germany
DK	Denmark
ES	Spain
FI	Finland
FR	France
IT	Italy
LU	Luxembourg
PT	Portugal
SE	Sweden
UK	United Kingdom

EB life satisfaction question reads: "On the whole are you very satisfied, fairly satisfied, or not at all satisfied with life you lead?". Responses were coded on a scale from 1(not at all satisfied) to 4(very satisfied).

Diener and Biswas-Diener (2002) urge to use better measures of income, and the best measures, they argue, are at the societal level because measures of income at person level may be inaccurate. People misreport their income, and income varies over time – people are temporarily poor or rich. I use two measures of income at province level[7]:

- regional income; Gross Domestic Product (GDP) at current market prices, Purchasing Power Standard, euro per inhabitant[8]

- regional disposable income; Disposable income based on final consumption, Purchasing Power Standard based on final consumption per inhabitant

The choice of control variables is dictated by the literature (for a review see Diener and Biswas-Diener (2002), Diener et al. (1993), Clark et al. (2008)). The set of variables used in this study is somewhat limited due to data availability. All person level variables come from EB. All province level variables come from Eurostat[9]. There are about 30,000 observations[10], across 188 provinces. Counts and means of life satisfaction and regional income levels are set in table **??** in the appendix A. All results include full sample unless data are missing – there are some provinces with missing income – see table **??** in the appendix A.

Literature finds higher correlation between income and and life satisfaction at country level than at person level and that richer countries are happier than rich people (Diener and Biswas-Diener, 2002, Schyns, 2002).

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[7]Stiglitz et al. (2009) recommend the following: "Recommendation 1: When evaluating material well-being, look at income and consumption rather than production [...] GDP mainly measures market production [...] Material living standards are more closely associated with measures of net national income, real household income and consumption – production can expand while income decreases or vice versa." Province level income data for this study come from Eurostat `http://epp.eurostat.ec.europa.eu`

[8]For data sources see appendix C.

[9]For details see appendix A, table 4 and figure 5. For data sources see appendix C.

[10]Due to missing province level data on income the sample used in this study excludes Denmark, Finland and Sweden in regression models.
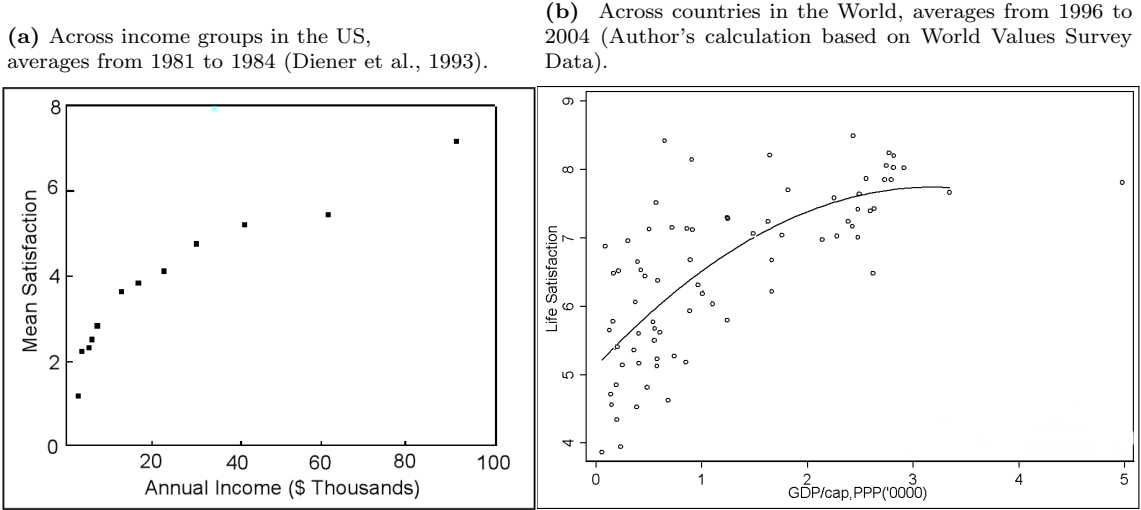
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₁₀₃ Income and life satisfaction correlations in EB data are following:[11]

₁₀₄ • personal income: .18

₁₀₅ • regional income: .34

₁₀₆ • national income: .52

₁₀₇ Province level correlations fall between country and person levels. At higher levels of aggregation corre-
₁₀₈ lations may be higher because higher national income also captures other good things such as public goods
₁₀₉ Clark et al. (2008). Also, personal characteristics that highly correlate with life satisfaction are averaged
₁₁₀ out at higher levels of aggregation. For instance, genetic disposition explain as much as 50 percent of life
₁₁₁ satisfaction (Diener et al., 1999).

₁₁₂ We know from the literature that there are diminishing marginal returns from income to life satisfaction,
₁₁₃ at both, person and country levels (Diener et al., 1993, Sanfey and Teksoz, 2005). Figure 1 shows these
relationships. This study finds a similar relationship at province level (figure 2) [12]. The relationship

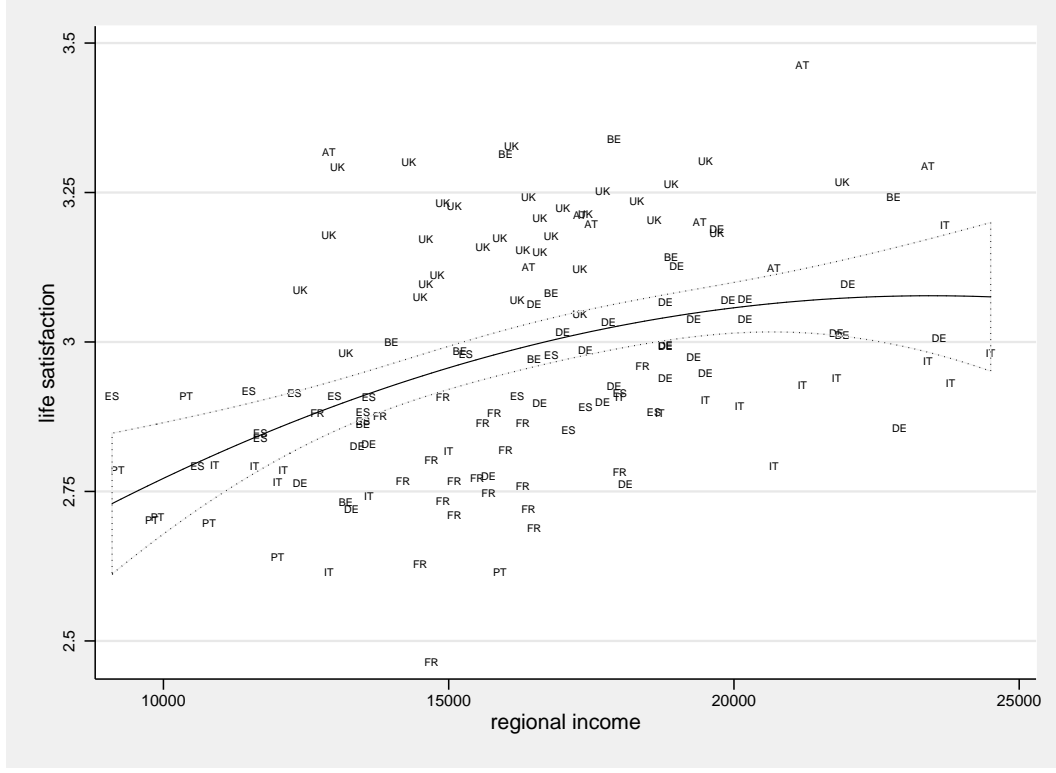**Figure 1:** Income and life satisfaction.

(a) Across income groups in the US, averages from 1981 to 1984 (Diener et al., 1993).

(b) Across countries in the World, averages from 1996 to 2004 (Author's calculation based on World Values Survey Data).

₁₁₄

₁₁₅ between life satisfaction and regional income is quadratic[13] and similar to that across people and countries.
₁₁₆ There are two clusters of outliers: The British (UK) are more satisfied than their income would suggest,

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[11]All significant at .05 level of significance, personal income correlation is polychroic; correlations with regional income in previous year are almost the same.

[12]The happiest country Denmark is not shown because regional income data are missing – for detailed data on life satisfaction and regional income see table 4 in the appendix A.

[13]There is a similar relationship between life satisfaction and regional disposable income (see figure 7 in the appendix A.)

Figure 2: Life satisfaction across European regions, quadratic fit with 95% confidence interval. Provinces with income>25,000 euro are not shown because they are outliers (See figure 6 in the appendix A for full sample). For a list of countries and their income see table **??** in the appendix A.

while the French (FR) and Italians (IT) are less satisfied than income predicts. There are big differences in mean life satisfaction across provinces. There are many provinces with mean life satisfaction below 2.75 or above 3.25 on scale from 1 to 4^{14}.
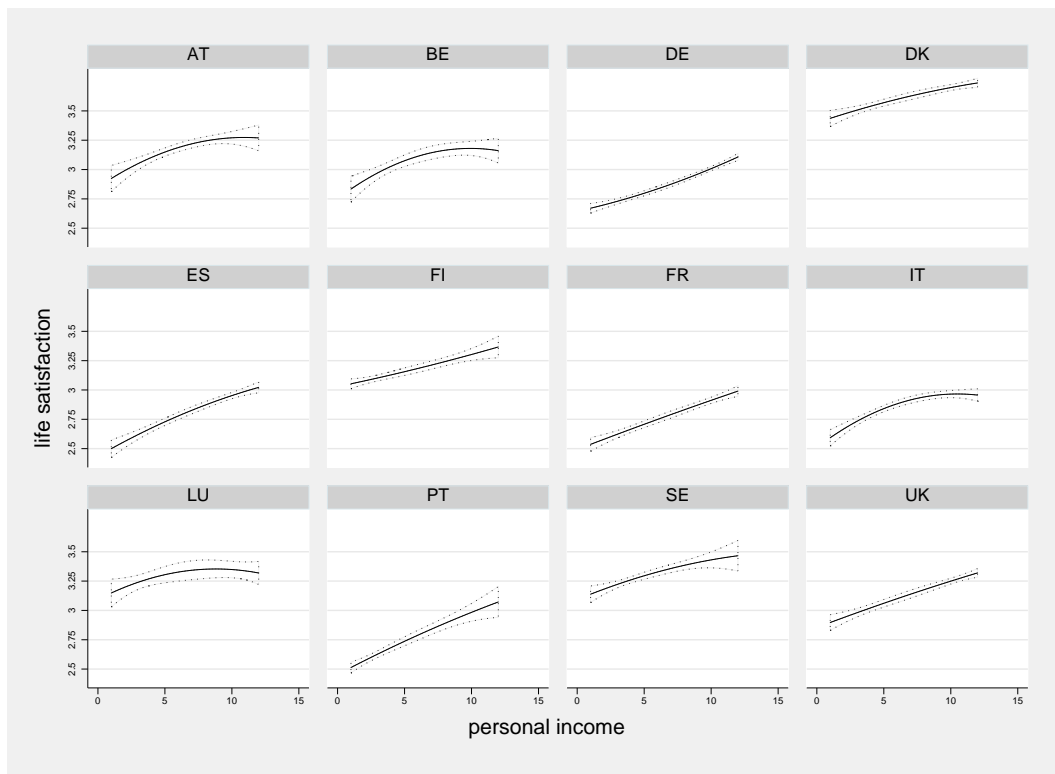
The quadratic relationship between income and life satisfaction is conceptualized in figure 3. In poor provinces or countries income is more important for life satisfaction, but in rich provinces or countries lifestyle is more important for life satisfaction. It is a similar idea to Maslow's needs pyramid (Maslow, 1987): people first need to satisfy basic needs such as nutrition or shelter, and then higher level needs such as self-actualization. In Maslow's terminology this is the difference between coping and expression.

There is also a positive relationship between personal income and life satisfaction within countries as shown in figure 4. The relationship is stronger in poor countries as suggested in the literature (Diener and Biswas-Diener, 2002). The richest Luxembourg has the flattest slope and poor Portugal and Spain have stepper slopes. Personal income is more important in poor countries.

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[14]Table 5 in the appendix A shows means and standard deviations for life satisfaction and income variables.
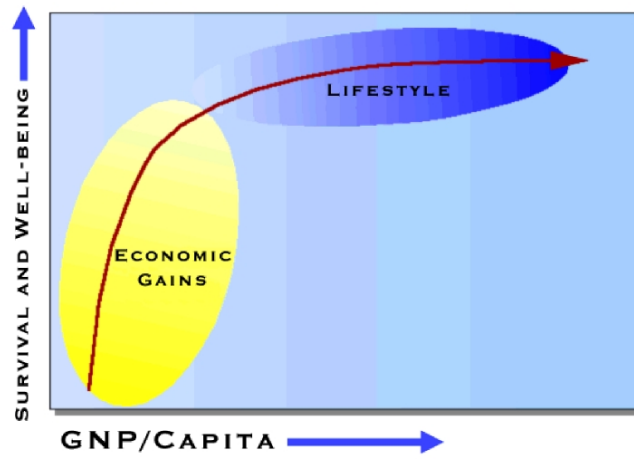
Figure 3: Life Satisfaction and income, (Inglehart, 1997).

Figure 4: Personal income and life satisfaction across countries. Solid lines are quadratic regression slopes, and dotted lines show 95% confidence intervals.

Analysis

This section examines income-life satisfaction relationship in a regression framework, controlling for basic predictors of life satisfaction: unemployment, marital status, age, education and community size[15]. A natural framework for analysis of data at different levels is called multilevel modeling[16]. Multilevel models account for nesting of individuals within provinces. Appendix B shows model equations. The coefficient estimates are similar in ordinal logistic and linear models, and hence, I use linear model for ease of interpretation[17]. Table 2 shows coefficient estimates.

Table 2: Regression Results of Life Satisfaction. Regional and national incomes are in 1,000s of euro.

	a1	a2	a3	a4	a5	a6
personal income	0.027***	0.032***	0.046***	0.056***	0.046***	0.055***
community size	-0.011	-0.022***	-0.023***	-0.022***	-0.025***	-0.024***
unemployment	-0.331***	-0.340***	-0.339***	-0.338***	-0.342***	-0.340***
finished education at 15 or earlier	-0.163***	-0.058***	-0.057***	-0.057***	-0.057***	-0.057***
married	0.097***	0.074***	0.074***	0.074***	0.074***	0.073***
age	-0.022***	-0.024***	-0.024***	-0.025***	-0.024***	-0.025***
age2	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
regional income		0.008**	0.015***		0.010**	
income∗ income			-0.000**		-0.000**	
regional disposable income				0.041***		0.031***
income∗ disposable income				-0.000**		-0.000**
national income					0.015	
national disposable income						0.025
Constant	3.292***	3.132***	3.003***	2.805***	2.821***	2.651***
n	39653	30316	30316	29613	30316	29613
AIC	83529	61852	61876	60552	61751	60424
BIC	83597	61961	61993	60668	61885	60557

*** p<0.01, ** p<0.05, * p<0.1

Column a1 shows a basic OLS model that does not control for contextual effects. Personal income is positive and significant. Column a2 adds regional income in a multilevel model (all subsequent models are multilevel). If a person increases his income by one category (there are twelve categories) it produces as much life satisfaction as increasing regional income by 4,000 euro. Column a3 adds cross level interaction of personal income and regional income, and the effect is negative, but very small – personal income matters less for life satisfaction in rich provinces. Column a4 repeats the same model but replaces regional income with disposable regional income. As expected, regional disposable income has bigger effect on life satisfaction than regional income. Regional income measures production and would increase, for instance, if traffic congestion increases, and hence, regional disposable income is a better measure of objective quality of life. Finally, columns a5 and a6 repeat columns a3 and a4 adding national income and national disposable income. National incomes turn out insignificant.

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[15]The choice of variables is dictated by the literature (for a review see Diener and Biswas-Diener (2002), Diener et al. (1993), Clark et al. (2008)). The set of variables used in this study is somewhat limited due to data availability.

[16]For some common problems that multilevel analysis overcomes and definitions of the concepts see `http://www.paho.org/English/DD/AIS/be_v24n3-multilevel.htm`. Kreft and de Leeuw (1998) is a good introduction to multilevel modeling, and Rabe-Hesketh and Skrondal (2005) show applied analysis.

[17]Ferrer-i-Carbonell and Frijters (2004) reached similar conclusion.

The estimated models suggest substantial effect of regional income on well-being. For instance, coefficient of 0.008 on regional income in column a2 means that an increase by 1,000 euro in regional income will increase life satisfaction by 0.008 on 1-4 scale for everybody in a province. This is a big effect. To better understand size of this effect, imagine that there are one million people living in a province and this is equivalent to shifting 8,000 people from one satisfaction category to another, say from "not very satisfied" to "fairly satisfied"[18]. These findings support livability theory. People are happier in rich provinces – objective living conditions matter for life satisfaction.

Table 3 shows differences in life satisfaction between top income quartile and bottom income quartile by regional income quartiles. The life satisfaction gap between the rich and the poor is smaller in rich provinces. This finding supports livability theory, too. According to competing comparison theory regional income should not matter for personal income comparisons[19].

Table 3: Difference in life satisfaction between top income quartile and bottom income quartile by regional income quartiles.

regional income quartile	mean happiness difference
1	0.35
2	0.36
3	0.30
4	0.29
Total	0.33

Summarizing results, regional income and especially regional disposable income matter for life satisfaction beyond personal and national incomes[20]. In fact, national income turns out insignificant when controlling for regional income. This is expected result. What matters for life satisfaction is "livability" or average income in the locality where a person lives. National income is a poor proxy for local income. There is larger life satisfaction inequality between the rich and the poor in poor provinces. Personal income matters more for life satisfaction in poor provinces than in rich provinces.

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[18]Of course, this is just a specific example and it does not mean that always almost .8 percent of province population shift from one category to another. It may be 1.6 percent of population shifting by .5 on happiness measure, etc. As a robustness check provinces with fewer than 200 observations were dropped (external validity for provinces with few respondents may be low) and models were reestimated, and results are similar . See table 6 in the appendix A.

[19]Also, there is a negative relationship between life satisfaction and life satisfaction inequality (see figure 8 in the appendix A).

[20]That is, regional income is a significant predictor of life satisfaction when controlling for personal and national incomes.

**Table 4:** Definitions of variables (for frequencies see figure 5).

| variable	definition
life satisfaction	"On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the life you lead? Would you say you are...?"
married	1(married; living as married); 0(otherwise)
age	age in years
personal income	"We also need some information about the income of this household to be able to analyze the survey results for different types of households. Here is a list of income groups. (SHOW INCOME CARD) Please count the total wages and salaries PER MONTH of all members of this household; all pensions and social insurance benefits; child allowances and any other income like rents, etc... Of course, your answer as all other replies in this interview will be treated confidentially and referring back to you or your household will be impossible. Please give me the letter of the income group your household falls into before tax and other deductions."
unemployment	"What is your current occupation?" 1(Unemployed or temporarily not working); 0(otherwise)
community size	"Would you say you live in a ...?"
finished education at 15 or earlier	"How old were you when you finished your full-time education?" 1(up to 15 years); 0(otherwise)
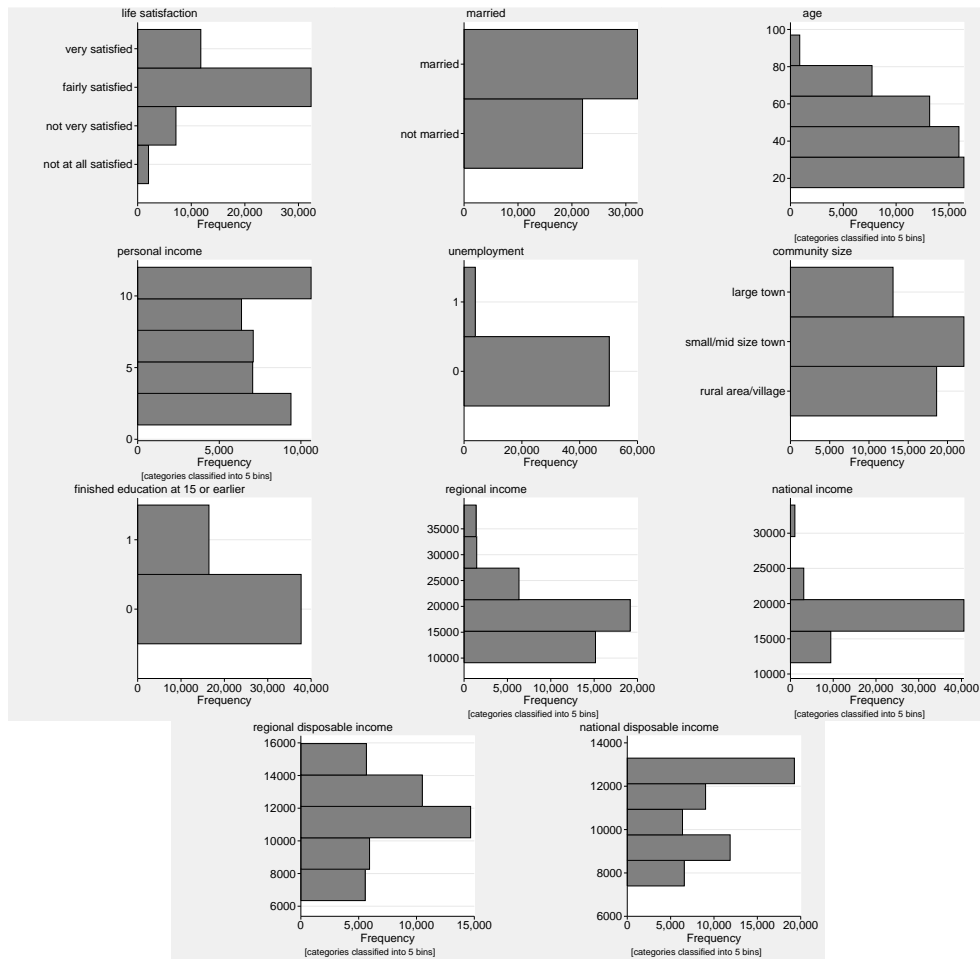
Figure 5: Histograms of variables.
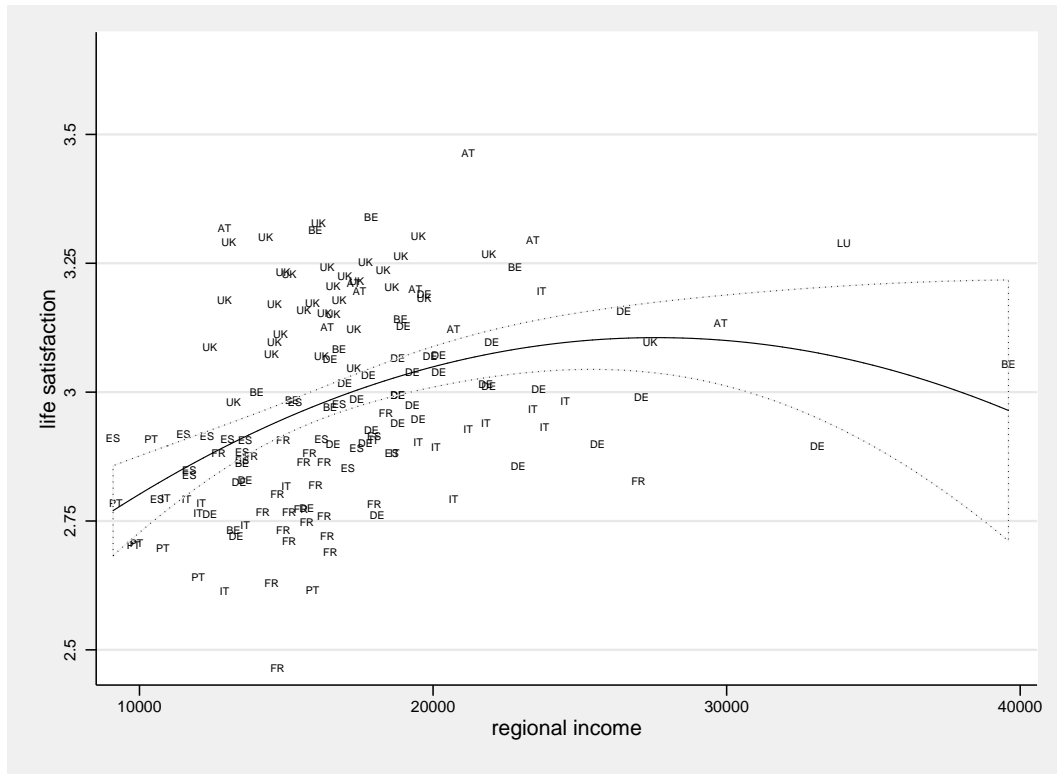
Figure 6: Life satisfaction across European regions, quadratic fit with 95% confidence interval.
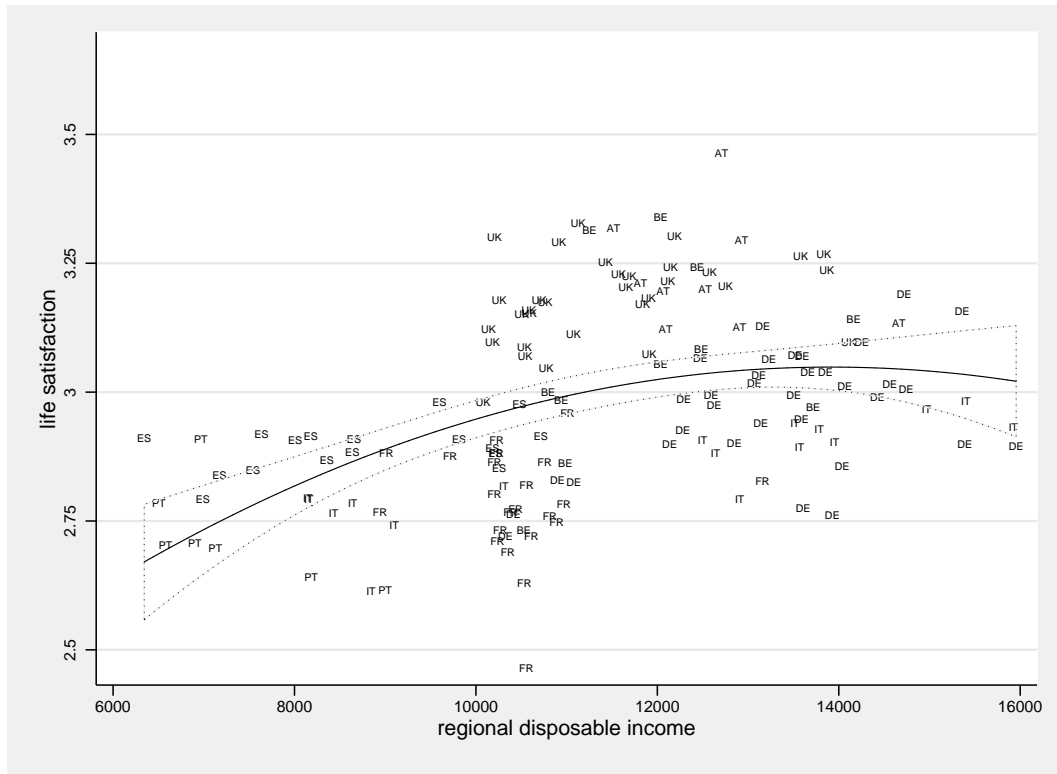
Figure 7: Life satisfaction across European regions, quadratic fit with 95% confidence interval.
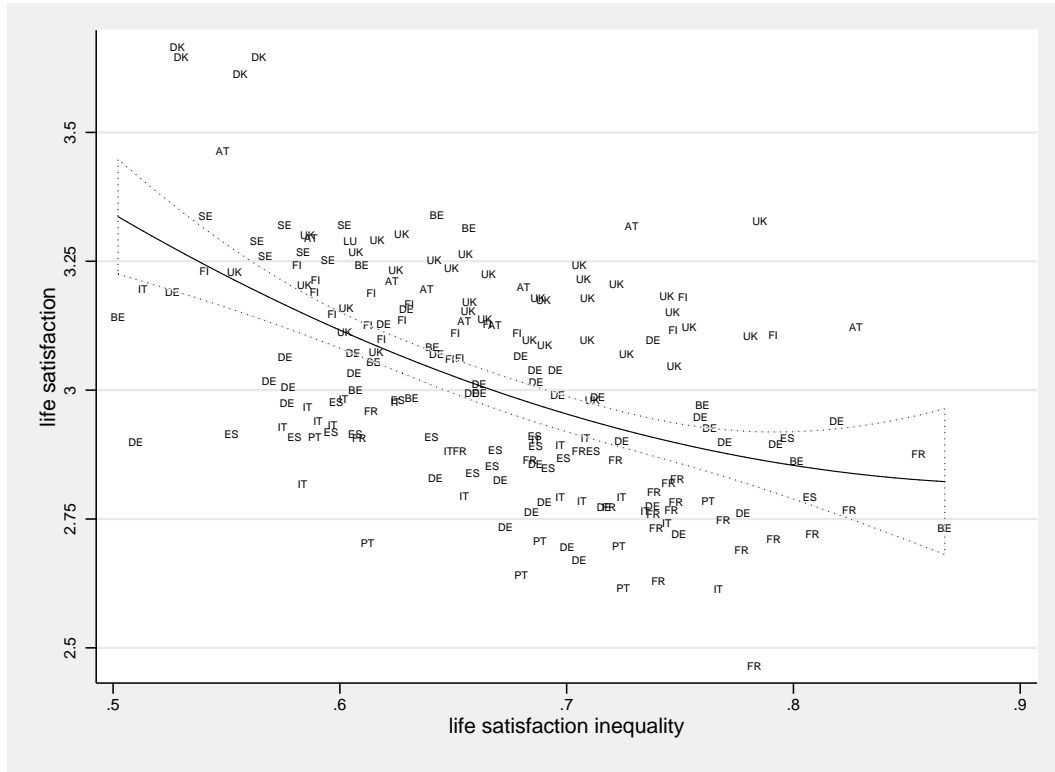
Figure 8: Life satisfaction and life satisfaction inequality (standard deviation of life satisfaction).

Table 5: Means and standard deviations at province level and within countries.

country	Mean life satisfaction	Sd life satisfaction	Mean regional income	Sd regional income	Mean regional disposable income	Sd regional disposable income
AT	3.2	0.1	19.8	4.8	12.6	0.9
BE	3.1	0.2	18.6	7.5	11.9	1.2
DE	2.9	0.1	19.5	4.2	13.3	1.3
DK	3.6	0.0				
ES	2.9	0.0	14.1	2.8	8.8	1.4
FI	3.1	0.1				
FR	2.8	0.1	16.0	2.8	10.5	0.8
IT	2.9	0.1	18.0	4.8	11.8	2.8
LU	3.3		34.0			
PT	2.7	0.1	11.1	2.3	7.3	0.9
SE	3.3	0.0				
UK	3.2	0.1	16.6	2.9	11.5	1.2
Total	3.0	0.2	17.3	4.7	11.4	2.2

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Table 6: Regression Results of Life Satisfaction. Provinces with sample smaller than 200 dropped (25% of cases). Regional and national incomes are in 1,000s of euro.

	b1	b2	b3	b4	b5	b6
personal income	0.027***	0.031***	0.049***	0.064***	0.049***	0.063***
community size	-0.006	-0.019**	-0.019**	-0.019**	-0.020**	-0.020**
unemployment	-0.343***	-0.348***	-0.347***	-0.345***	-0.348***	-0.346***
finished education at 15 or earlier	-0.174***	-0.043***	-0.043***	-0.042***	-0.042***	-0.042***
married	0.094***	0.064***	0.065***	0.064***	0.063***	0.063***
age	-0.021***	-0.023***	-0.023***	-0.024***	-0.023***	-0.024***
age^2	0.000***	0.000***	0.000***	0.000***	0.000***	0.000***
regional income		0.008*	0.018***		0.011**	
income* income			-0.000**		-0.000**	
regional disposable income				0.049***		0.039***
income* disposable income				-0.000***		-0.000***
national income					0.016	
national disposable income						0.026
Constant	3.271***	3.107***	2.923***	2.705***	2.778***	2.559***
n	29623	22473	22473	21825	22473	21825
AIC	62708	45896	45917	44685	45874	44639
BIC	62775	46000	46030	44797	46002	44767

*** p<0.01, ** p<0.05, * p<0.1

Appendix B

Multilevel Model

Without subscripting for individual right-hand variables, the classical regression model is given by:

$$y_{ij} = \alpha_j + \beta_{1j}X_{1ij} + \mathbf{X}_{ij}\beta + \epsilon_{ij} \tag{1}$$

where y_{ij} is life satisfaction score for individual i in province j. X_{ij} is a vector of person level variables and, in addition, X_{1ij} is personal income. In its present form this model assumes a single intercept α_j and that $\beta_{1j} = \beta_1$ across all j. Both assumptions need to be relaxed.

In a multilevel model α_j is not constant across provinces:

$$\alpha_j = \gamma_0 + \gamma_1 Z_{1j} + \mathbf{Z}_j\gamma + \zeta_j \tag{2}$$

where $\mathbf{Z}_j$ is a vector of province level predictor variables (excluding Z_{1j}). If Z_{1j} is a province level variable, say Per Capita Gross Domestic Product ($PCGDP$), that is suspected to have interactive effect with a person level variable, say personal income, insertion of (2) into (1) will produce the random intercept model to be estimated:

$$y_{ij} = (\gamma_0 + \zeta_j) + \gamma_1 Z_{1j} + \mathbf{Z}_j\gamma + \beta_{1j}X_{1ij} + \mathbf{X}_{ij}\beta + \epsilon_{ij} \tag{3}$$

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The province specific intercept is given by $(\gamma_0 + \zeta_j)$.

In addition, slope for X_{1ij} is likely to be different across provinces. For simplicity, assume that β_{1j} varies by province depending only on Z_{1j}.

$$\beta_{1j} = \lambda_{01} + \lambda_{11} Z_{1j} + u_{1j} \tag{4}$$

Insertion of (4) into (3) gives:

$$
\begin{aligned}
y_{ij} &= (\gamma_0 + \zeta_j) + \gamma_1 Z_{1j} + \mathbf{Z}_j \gamma + \lambda_{01} X_{1ij} + \lambda_{11} X_{1ij} Z_{1j} + \beta_{1j} X_{1ij} + \mathbf{X}_{ij} \beta \\
&\quad + (\epsilon_{ij} + u_{1j} X_{1ij}) \\
\beta_{1j} &= \beta_1
\end{aligned} \tag{5}
$$

λ_{01} is a random slope coefficient. λ_{11} is a cross level interaction random slope coefficient.

Appendix C

Data sources

All person level indicators from Eurobarometer:

Reif, Karlheinz, and Eric Marlier. EUROBAROMETER 44.2BIS MEGA-SURVEY: POLICIES AND PRACTICES IN BUILDING EUROPE AND THE EUROPEAN UNION, JANUARY-MARCH 1996 [Computer file]. Conducted by INRA (Europe), Brussels. 2nd ICPSR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer], 2001. Cologne, Germany: Zentralarchiv fur Empirische Sozialforschung/Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributors], 2001. doi:10.3886/ICPSR06748

http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/6748

Regional income; Gross Domestic Product (GDP) at current market prices, Purchasing Power Standard, euro per inhabitant:

http://appsso.eurostat.ec.europa.eu/nui/show.do?query=BOOKMARK_DS-075725_QID_-69E25FC0_
UID_-3F171EB0&layout=TIME,C,X,0;GEO,B,Y,0;UNIT,L,Z,0;INDICATORS,C,Z,1;&zSelection=DS-075725INDICATORS,
OBS_FLAG;DS-075725UNIT,PPS_HAB;&rankName1=TIME_1_0_0_0&rankName2=INDICATORS_1_0_-1_2&rankName3=
UNIT_1_0_-1_2&rankName4=GEO_1_2_0_1&sortC=ASC_-1_FIRST&rStp=&cStp=&rDCh=&cDCh=&rDM=true&cDM=
true&footnes=false&empty=false&wai=false&time_mode=NONE&lang=EN [note: this page loads slowly]

Regional disposable income; Disposable income based on final consumption, Purchasing Power Standard, euro per inhabitant:

http://appsso.eurostat.ec.europa.eu/nui/show.do?query=BOOKMARK_DS-053856_QID_-17C0DCE0_
UID_-3F171EB0&layout=TIME,C,X,0;GEO,B,Y,0;INDIC_NA,L,Z,0;UNIT,L,Z,1;INDICATORS,C,Z,2;&zSelection=
DS-053856INDICATORS,OBS_FLAG;DS-053856UNIT,PPCS_HAB;DS-053856INDIC_NA,B6N_U;&rankName1=TIME_
1_0_0_0&rankName2=INDIC-NA_1_0_-1_2&rankName3=INDICATORS_1_0_-1_2&rankName4=UNIT_1_0_-1_2&rankName5=
GEO_1_2_0_1&sortC=ASC_-1_FIRST&rStp=&cStp=&rDCh=&cDCh=&rDM=true&cDM=true&footnes=false&empty=
false&wai=false&time_mode=NONE&lang=EN [note: this page loads slowly]

References

ASLAM, A. AND L. CORRADO (2007): "No Man is an Island: the Inter-personal Determinants of Regional Well-Being in Europe," Unpublished.

BLANCHFLOWER, D. AND A. OSWALD (2004): "Money, sex and happiness: An empirical study," *The Scandinavian Journal of Economics*, 393–415.

BOHNKE, P. (2008): "Does Society Matter? Life Satisfaction in the Enlarged Europe," *Social Indicators Research*, 87, 189–210.

CLARK, A. E. (2003): "Inequality-Aversion and Income Mobility: A Direct Test," *DELTA Working Paper*, 03-11.

CLARK, A. E., P. FRIJTERS, AND M. A. SHIELDS (2008): "Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles," *Journal of Economic Literature*, 46, 95–144.

DELHEY, J. (2005): *Life satisfaction in an enlarged Europe*, Eurofound.

DIENER, E. AND R. BISWAS-DIENER (2002): "Will money increase subjective well-being? A Literature Review and Guide to Needed Research," *Social Indicators Research*, 57, 119–169.

DIENER, E., E. SANDVIK, L. SEIDLITZ, AND M. DIENER (1993): "The relationship between income and subjective well-being:relative or absolute?" *Social Indicators Research*, 28, 195–223.

DIENER, E., E. M. SUH, AND R. E. LUCAS (1999): "Subjective well-being: three decades of progress," *Psychological Bulletin*, 125, 276–302.

FERRER-I-CARBONELL, A. AND P. FRIJTERS (2004): "How Important is Methodology for the Estimates of the Determinants of Happiness?" *Economic Journal*, 114, 641–659.

FREY, B. S. AND A. STUTZER (2000): "Happiness, Economy and Institutions," *Economic Journal*, 110, 918–938.

INGLEHART, R. (1997): *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*, Princeton Univ Pr.

KREFT, I. AND J. DE LEEUW (1998): *Introducing Multilevel Modelling*, London: Sage Publications.

MASLOW, A. (1987): *Motivation and personality*, Longman, 3 ed.

18

222 MICHALOS, A. C. (1985): "Multiple Discrepancies Theory (MDT)," *Social Indicators Research*, 16, 347–413.

223 OKULICZ-KOZARYN, A. (2010): "Geography of European Life Satisfaction," *Forthcoming in Social Indicators*
224   *Research*.

225 PITTAU, M., R. ZELLI, AND A. GELMAN (2010): "Economic Disparities and Life Satisfaction in European
226   Regions." *Social Indicators Research*, 96, 339 – 361.

227 PUTNAM, R. D., R. LEONARDI, AND R. Y. NANETTI (1993): *Making Democracy Work: Civic Traditions*
228   *in Modern Italy.*, Princeton University Press.

229 RABE-HESKETH, S. AND A. SKRONDAL (2005): *Multilevel and Longitudinal Modelling Using Stata*, College
230   Station: Stata Press.

231 RAMPICHINI, C. AND S. SCHIFINI D'ANDREA (1998): "A hierarchical ordinal probit model for the analysis
232   of life satisfaction in Italy." *Social Indicators Research*, 44, 41 – 69.

233 ROBINSON, W. S. (1950): "Ecological correlations and the behavior of individuals." *American Sociological*
234   *Review*, 15, 351 – 357.

235 SANFEY, P. AND U. TEKSOZ (2005): "Does Transition Make You Happy?" EBRD Working Paper 58.

236 SCHYNS, P. (2002): "Wealth of nations, individual income and life satisfaction in 42 countries: a multilevel
237   approach," *Social Indicators Research*, 60, 5–40.

238 SOMARRIBA, N. AND B. PENA (2009): "Synthetic Indicators of Quality of Life in Europe," *Social Indicators*
239   *Research*, 94, 115–133.

240 STIGLITZ, J., A. SEN, AND J. FITOUSSI (2009): "Report by the Commission on the measurement of economic
241   performance and social progress," *Paris, available at www. stiglitz-sen-fitoussi. fr.*

242 VEENHOVEN, R. (1991): "Is happiness relative?" *Social Indicators Research*, 24, 1–34.

243 VEENHOVEN, R. AND J. EHRHARDT (1995): "The Cross-National Pattern of Happiness: Test of Predictions
244   Implied in Three Theories of Happiness," *Social Indicators Research*, 34, 33–68.