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Can policy make us happier? Individual characteristics, socioeconomic factors, and life satisfaction in Central and Eastern Europe

by

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Abstract

In the last decade, Central and Eastern European (CEE) countries have witnessed a rapid economic convergence vis-à-vis Western Europe. However, this rapid growth has not been matched by a similarly rapid increase in life satisfaction, which has remained low in the European context. This paper sets out to address this conundrum, by looking at the individual and macro-level determinants of individual life satisfaction in ten CEE countries. The results highlight that while Central and Eastern Europeans share the same individual determinants of happiness as people in the West (despite some significant cross-country variation), macroeconomic and institutional differences are the key factors behind the lack of convergence in life satisfaction. On the macroeconomic side, GDP growth is still a source of increasing well-being, but the happiness bonus associated with it is becoming smaller. The different levels of individual happiness in CEE are therefore mostly determined by institutional factors such as corruption, government spending and decentralisation, making policies aimed at enhancing institutional quality capable of bringing about substantial improvements in the overall life satisfaction of the people in the region.

Keywords: Happiness, Convergence, Easterlin paradox, Institutions, Corruption, Decentralisation, Central and Eastern Europe

JEL Codes: D31, D73, I31, P36

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Introduction

"The greatest happiness is to know the source of unhappiness".

Fyodor Dostoevsky

A decade after the fall of the Berlin Wall there were two important characteristics which defined Central and Eastern Europeans (CEE) vis-à-vis Western Europeans: they were a) significantly poorer and b) more miserable.

Today the majority of the inhabitants of the ten CEE member-states of the EU (EU10) remain poorer, but their income levels have converged rapidly towards those of Western Europe. Despite significant difficulties during the transition from a system of planned economy to market capitalism, in less than two decades the EU10 countries have managed, to varying degrees, to build working institutions, establish the rule of law and run relatively successful economies, achieving high growth rates.

By contrast, there is little evidence of convergence in life satisfaction. By and large, Central and Eastern Europeans remain as miserable as they were ten years after the fall of the Wall. Figure 1 shows that even though between 1999 and 2008 the GDP of EU10 grew by 400% on average, individual happiness levels remained stagnant, increasing by less than 15% in most countries. Figure 2 further suggests that the degree of life satisfaction has remained low or very low throughout the region in comparison with the EU as a whole.

This conundrum is known as the Easterlin (1974) paradox: growing national income does not necessarily translate into higher life satisfaction. However, while the Easterlin paradox has attracted considerable attention (Oswald 1997; Clark et al. 2008; Easterlin et al. 2010), it has hardly been studied in CEE, arguably the area of the world with the highest contrast between rapid economic growth and relatively stagnant levels of subjective well-being.

Insert Figures 1 and 2 around here



This paper represents a first attempt, using the latest wave of the European Values Study (EVS), to analyse why, while incomes have converged, the population of the EU10 has remained unhappy in comparison to Western Europeans. The countries analysed – Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia – share a similar recent history, institutions and have undergone equivalent processes of institutional reform through the implementation of the *Acquis Communautaire* of the EU preceding accession in 2004 and 2007.

The paper aims to establish what determines the persistence of the low levels of happiness across EU10, distinguishing whether the sources are, on the one hand, innate to the individuals of CEE or, on the other, based on macroeconomic and institutional conditions. This distinction has important policy implications. If levels of subjective well-being in EU10 are fundamentally dependent on the innate characteristics of the population, little can be done in order to reduce the happiness gap between the two halves of Europe. If, by contrast, (un)happiness in EU10 relies on the local socioeconomic and institutional context, certain policies could be employed to address the problem.

The paper is divided into five parts. Firstly, we review the existing literature on happiness, focusing on the individual, macroeconomic and institutional factors, in order to motivate the inclusion of specific variables in the empirical model. In this section we also discuss the reasons behind the limited amount of research on life satisfaction in post-transition countries. The third section presents the data, the method and the empirical model. The fourth section looks at the individual determinants of happiness in EU10, while section 5 considers the macroeconomic and institutional variables. In the conclusions, we review the results and offer some preliminary policy recommendations.

The Theory of Happiness

Differing levels of life satisfaction, subjective well-being, and happiness (thereafter to be used interchangeably) across individuals and countries can be explained by various factors. In our analysis we resort to Frey and Stutzer's (2000) tripartite distinction between individual, macroeconomic and institutional variables influencing the levels of life satisfaction. The aim

of this section is to briefly review the existing literature on the factors deemed to influence happiness, with a view to setting up the empirical model.

Individual Determinants of Happiness

Individual characteristics have traditionally been the main focus of attention in the study of happiness. Robust relationships have been established between a set of individual characteristics and life satisfaction across many countries and using multiple datasets (Blanchflower and Oswald 2011: 6). Factors such as individual income, gender, age, civil status, the number of children, employment conditions, religion, level of education, or where a person lives play a non-negligible role in the life satisfaction of individuals. According to Blanchflower and Oswald (2011: 6), happiness is "U-shaped through a person's lifespan; higher among those who are women; higher among whites, the highly educated, full-time workers, married people, and those on a high income" (Blanchflower and Oswald 2011: 6). Moreover, Blanchflower and Oswald (2011: 13) also note that "the statistical structure of wellbeing in the European nations looks almost exactly the same as in the United States" (p. 13).

Individual income is among the most studied determinants of happiness. Interestingly, the relationship of income with happiness does not conform to the Easterlin paradox. Wealthier people are, as a general rule, much happier, leading Oswald (1997: 1815) to conclude that "those who say that money cannot buy happiness, do not know where to shop". Although there has been talk that increases in income are not followed by rising happiness in the same proportion, the decreasing marginal utility of personal income to happiness is far from being robustly established.

Other factors, such as unemployment, have a strong negative influence on well-being. Winkelmann and Winkelmann (1998), for example, find that being unemployed has a significant negative impact on life satisfaction. Apart from the loss of income, unemployment carries substantial psychological costs of loss of self-esteem and social standing, and the non-pecuniary costs exceed the pecuniary costs associated with income loss (Winkelmann and Winkelmann 1998: 13).

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Age also matters for happiness. However, the relationship between age and happiness is not linear and tends to follow a U-curve. People tend to be happiest in their early twenties and subsequently see their happiness decrease until their mid-forties, recovering afterwards. This U-curve is associated with increased levels of stress and social pressure before attaining a certain social standing. "Personality traits can [however] be correlated with the variables that are correlated with age, such as income, job, a partner, good health and wealth" (Frijters and Beatton 2008: 10), making the presence of an age U-curve not a certainty.

Macroeconomic Factors

A number of macroeconomic factors have also attracted considerable attention. GDP per head is possibly the most prominent amongst these. GDP has been used for decades as an approximation to the economic concept of utility and, more recently, as a factor influencing happiness. Richer societies can afford better education, health and welfare systems, which, arguably, improve the lives of individuals.

However, as in the case of age, research on the association between a territory's GDP per capita and happiness tends to find a non-linear relationship. The Easterlin paradox posits the existence of an optimal level of GDP per capita after which happiness stops increasing as GDP grows. In developed societies, people often get caught in a 'hedonic treadmill' (Brickman and Campbell 1971) where increases in income are needed to maintain social status and 'keep up with the Joneses', rather than contribute towards a genuine increase in happiness. Given that status is a zero-sum game, happiness tends to have a transitory component: as the consumption benefit approaches zero when aggregate income rises, happiness profiles over time in developed countries tend to become flat (Clark et al. 2008: 137). Adaptive expectations may also explain the Easterlin paradox. People form their expectations for the future and, subsequently, a rise in income does not lead to the expected increase in happiness. In fact, research suggests that the only possible effect of income on happiness could be a negative one: an unexpected fall in income makes people unhappier (Burchardt 2005).

A number of other macroeconomic variables – and, especially, overall unemployment and inflation – have caught the eye of researchers working on happiness. Di Tella et al. (2001)

find that high levels of inflation and unemployment have, after GDP growth has been controlled for, a negative and significant association with happiness. Blanchflower (2007) shows that the happiness cost of unemployment is much higher than that of inflation. This may be because overall unemployment has more tangible consequences on individuals, whereas inflation tends to worry only those with the highest level of education (Blanchflower 2007).

Inequality within societies is another factor affecting happiness. The relationship between inequality and happiness seems, however, to be highly influenced by context. Societies tolerate larger levels of income inequality, as long as it is believed that these inequalities are fair and merited (Alesina et al. 2004; Alesina and la Ferrara 2005), meaning, for example, that Europeans are happier when interpersonal inequality is lower, whereas Americans do not show such a preference.

Institutional Factors

Of the three dimensions established by Frey and Stutzer (2000), institutions are possibly the one we know least about. This is because institutional quality is not easy to measure, let alone compare internationally. In spite of these measurement problems, most of the research on the association between institutions and happiness finds that the former play a crucial role for life satisfaction, to the extent of claiming that "the effects of good government remain as the single most important variable explaining international differences in life satisfaction [...], while international differences in per capita incomes are frequently insignificant" (Helliwell and Huang 2008: 617).

The quality of government is usually proxied by different indices of the perceived levels of corruption across countries. Most analyses (e.g. Tavits 2007) report a significant correlation between corruption and well-being, which often trumps other factors. For example, natural conditions and the environment may be better in Portugal than in Denmark, but higher levels of corruption and lower institutional quality in Portugal are crucial for the differences between the happier Danes and the less happy Portuguese (Inglehart and Klingemann 2000: 167).



However, analyses of the relationship between institutional quality and life satisfaction often fail to disentangle the effects institutional quality has on other variables affecting happiness, such as GDP per capita. Institutions will have a direct effect on economic growth and thus make any association with life satisfaction biased. Welsch (2008) has addressed this problem by running a system of equations: one of GDP and corruption on happiness and the other of corruption on happiness alone. He finds that "the direct welfare effect of corruption is much larger than the indirect effect via income" (p. 1841).

A related variable used in happiness research is the size of government and, by proxy, of the welfare state. However, the findings of government size and the welfare state on well-being tend to be inconclusive. On the one hand, some empirical research "clearly and unequivocally confirms the hypothesis that the welfare state contributes to human well-being" (Pacek and Radcliff 2008: 272; see also Di Tella et al. 2003; Kotakorpi and Laamen 2010; Rothstein 2010). Ram (2009: 489), using a very large dataset, concludes "that evidence is lacking to support the existence of a significant negative association between government expenditure and population happiness in broad cross-country contexts". Bjørnskov et al. (2007: 279), on the other hand, state that "government consumption in general reduces life satisfaction". Ott (2010) comes to a yet different observation: it is not the size that matters, but the quality of government.

A third institutional factor is government decentralisation. The main theorem of fiscal federalism, developed by Tiebout (1956), states that greater decentralisation brings policy-making closer to the people, leading to policies that better reflect local preferences. This, in turn, would translate into higher overall life satisfaction within a given constituency. Empirical research on the effect of decentralisation on happiness is, however, rather limited but tends to highlight a positive connection between both factors. Bjørnskov et al. (2008) estimate that larger local budgets lead to a significant increase in satisfaction. Research by Voigt and Blume (2009) and Díaz-Serrano and Rodríguez-Pose (2011) further confirms this positive connection.

Such findings should, however, be considered with caution. Decentralisation is linked to the quality of government, public spending, accountability and other factors that are connected to the degree of subjective well-being through different channels. Indeed, Voigt and Blume (2009) discuss several of these links and their analysis shows that no clear cut relationship

has been established yet. Hence, the effects of decentralisation on happiness should be treated carefully.

All in all, the most prominent macro-variables considered to have an impact on individual happiness are GDP per capita, overall unemployment, inflation, interpersonal inequality, institutional quality, government size, and the degree of decentralisation. Other variables such as social trust, crime rates and the like have been proposed too, however no significant conclusions have been reached. Therefore, our analysis concentrates on the seven major macroeconomic and institutional variables discussed above and applies them to the CEE countries considered.

Happiness Research in Post-Transition Countries

Happiness research in the post-communist states of the EU10 is scarce and little is known beyond the fact that life satisfaction in post-transition countries is much lower than in Western Europe (Lelkes 2005: 4). Among the few papers which deal with both micro- and macrodeterminants of happiness in CEE, Hayo (2006), Sanfey and Teksoz (2007) and Guriev and Zhuravskaya (2009) stand out. On the micro level, these studies confirm the positive effect of both higher income and education on happiness, as well as the existence of a happiness age U-curve. The micro-level results are largely consistent with previous happiness research conducted elsewhere and are taken as the starting point for our analysis.

The macro-studies on life satisfaction in CEE often reach contrasting conclusions. Easterlin (2008) observes that in the post-transition period "life satisfaction plummets and then recovers roughly following the course of the economy as indexed by real GDP…[but the] recovery falls short of that of GDP" (p.9). He further concludes that employment conditions are the main determinant of poor life satisfaction scores in post-transition countries. Other authors reach different results. Hayo (2006: 217) finds that only overall unemployment and the Human Development Index significantly influence individual happiness, whereas GDP per capita is insignificant, while, by contrast, Sanfey and Teksoz (2007) and Guriev and Zhuravskaya (2009) conclude that the most important macrodeterminant of happiness in CEE is GDP per capita. Both papers also establish that interpersonal inequality is detrimental to happiness.

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Other macrodeterminants of happiness have hardly been tested on transition economies. The only paper which has looked into the size of government and happiness in the region is Malešević Perović and Golem (2010). It finds that government spending has a non-linear association with happiness: "there is a 'useful' amount of government expenditures that positively influences happiness, and an excess/wasteful amount which affects happiness negatively" (p.19).

In short, happiness research in post-transition Europe is extremely limited and no robust conclusions can be drawn to explain happiness discrepancies across countries, as well as in relation to Western Europe. In our analysis we aim to fill this void in order to better understand why economic convergence between EU10 and Western Europe has not been matched by a similar convergence in happiness.



Data, Method and Empirical Model

In order to analyse which factors influence the persistently low levels of life satisfaction of the citizens of CEE and to discriminate whether these low levels of happiness are fundamentally the result of innate individual characteristics or of macroeconomic and institutional factors, we, following the theoretical discussion presented in the previous section, adopt the following model:

$$H_{ij} = f(X_{ij},\ Y_j,\ Z_j, \varepsilon_{ij}) \qquad (1)$$

where H_{ij} is the dependent variable – the happiness score – representing the life satisfaction level (on a scale from 1 to 10) of individual i in country j, X_{ij} is the matrix of individual characteristics discussed above (the individual 'control' variables), Y_j is the matrix of macroeconomic variables at the national level in country j, Z_j is the matrix of institutional variables, and ε_{ij} is the residual.

Data and Method

We use the latest wave (December 2010, covering the year 2008) of the EVS as our main data source and compare it to the 1999 wave. Both waves include almost identical variables, allowing for meaningful comparisons. In each wave more than 1,000 individuals have been surveyed per country, resulting in a total sample of more than 10,000 individuals for 1999 and almost 15,000 for 2008. The survey includes variables on perceptions of life, politics and society, work, religion and morale, family, national identity, and individual characteristics. Variables from each group have been selected and used as proxies for the different individual characteristics.

In order to estimate the effects of macroeconomic and institutional factors on individual life satisfaction, we need to control for as much individual variation as possible. Therefore, we decompose the X_{ij} matrix of model (1) into the main individual determinants of happiness: self-rated health, gender, age, marital status, employment status (being employed, student, retired and self-employed), educational attainment (secondary and tertiary), living in a big city and income groups (low, medium-high and high, with medium income as the reference group). All data stem from the meta-datasets of the EVS for EU10.

The choice of macroeconomic and institutional variables is also based on previous research, as discussed in Section 2. The macroeconomic variables – Y_j in model (1) – include GDP per capita in purchasing power standards with respect to EU27, and interpersonal inequality measured by Gini coefficients, both extracted from Eurostat. Unemployment and end-of-year inflation (approximated by the Consumer Price Index) are taken from the IMF Economic Outlooks.

Institutional variables – Z_j in model (1) – are represented by total government expenditure, corruption, and decentralisation. Total government expenditure (expressed as percentage of GDP) is calculated using Eurostat data. Governance indicators on corruption, regulatory quality, accountability and government effectiveness are provided by the World Bank and based on Kaufmann, Kraay and Mastruzzi (2006). In order to test the robustness of results, the Corruption Perception Index by Transparency International is also employed. Finally Hooghe et al.'s (2008) regional authority index (RAI) of political decentralisation is used as a means to control for the potential impact of regional autonomy on life satisfaction. A description of all the variables is included in Appendix 1.



The individual determinants of happiness are first regressed on life satisfaction separately from the macroeconomic and institutional determinants, as a means to detect whether the persistently low levels of subjective well-being in EU10 are primarily the result of individual characteristics. The regression method used is a simple OLS estimation, complemented by an Ordered Logit analysis for robustness. Authors seem to agree that both estimation methods yield similar results (Ferrer-i-Carbonell and Frijters 2004: 653; Blanchflower and Oswald 2011: 6). The results of the regressions are reported in Tables 1 (for 1999) and 2 (for 2008). Although the OLS coefficients (Tables 1 and 2, regressions 1 to 3) cannot be directly compared to the Ordered Logit ones (Tables 1 and 2, regression 4), the coefficient signs and their significance levels are similar in both types of estimations.

Regression (1) in Tables 1 and 2 is estimated using simple and heteroskedasticity-robust (2) standard errors. The use of robust errors does not yield particularly different results in terms of coefficient significance. Regressions 3 and 4 include country fixed–effects, using Bulgaria as the country of reference. Virtually all country coefficients are significant at 1% level, which means that macroeconomic, cultural and institutional variables account for a large percentage of the variation in individual happiness. This variation is used to examine the macroeconomic and institutional variables.

The macroeconomic and institutional variables are introduced in Tables 3 (for 1999) and 4 (for 2008), where the individual determinants of happiness are included as controls, but not displayed for the sake of brevity. Tables 3 and 4 only report the OLS estimation results, with the Ordered Logit estimation included in Appendix 3. Therefore, for the purposes of this analysis, OLS coefficients, instead of marginal effects, are taken as the starting point for ease of interpretation, although the results are, by and large, similar when using both methods.

Do Individual Factors Explain the Differences in Happiness?

Tables 1 (1999) and 2 (2008) highlight that the differences in happiness between CEE, on the one hand, and Western Europe, on the other, are not determined by the innate characteristics of the CEE population. On the whole, the results of Tables 1 and 2 indicate that the factors behind the life satisfaction of the citizens of EU10 conform to what has been reported by

previous empirical studies conducted in other parts of the world. This applies for all the key individual determinants of happiness and, in particular, income, age, health, education, and employment status. Let us take each of these factors in turn.

Insert Tables 1 and 2 around here

Income

Income in the 1999 EVS was self-assessed on a scale from 0 (very poor) to 10 (very rich). This subjective measure is problematic, as it may capture a person's optimism or the relative income of her peer group, and hence the results have to be considered with a pinch of salt. In any case, in 1999 greater self-assessed personal income is significantly and positively correlated with greater happiness. No decreasing overall marginal utility is observed (the quadratic term is not significant) (Table 1, regressions 1, 2, 3 and 4).

In the 2008 wave income is measured in eight intervals. Without country effects (Table 2, regressions 1 and 2), the three lowest household income intervals (up to €6000 per annum) display significant and large negative coefficients. The rate of reduction of happiness is of 1.3, 0.6 and 0.3 points respectively for the three lowest income cohorts. However, once country dummies are introduced (Table 2, regressions 3 and 4), the effect decreases substantially, but remains largest for the poorest group. Consequently, the poorest individuals remain the unhappiest everywhere.

Once a threshold of €18,000 per annum is reached, the coefficient becomes positive and significant (Table 2, regressions 1 and 2). In the upper income echelons there is some evidence of decreasing marginal utility: individuals in the richest cohort (more than €36,000) get less satisfaction from their income than those who are just above the average. The results thus indicate that happiness is influenced, as suggested by theory, by relative more than by absolute income.

Age and the U-Curve

The presence of an age U-Curve in life satisfaction is corroborated by our analysis. The quadratic term is significant, denoting a non-linear relationship (Table 2, regressions 1 and 2). For 2008 the turning point in the age-happiness relationship occurs when people reach the

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age of 52 [in comparison to 62 for Ukrainians, 35 for the Swiss and a global average of 46 (Blanchflower and Oswald 2007)].

Health

The self-assessed health variable is not available for 1999 and takes values from 0 (very poor) to 10 (extremely good) in 2008. As in previous research, our findings demonstrate that a good health is key to happiness, displaying the most significant coefficient of all variables included in the analysis (Table 2). A one point increase in health is associated with a 0.8 point increase in happiness (the negative sign due to the reverse scale used).

However, such estimations are prone to endogeneity. People who report higher satisfaction levels might be innately more optimistic and thus more prone to declare better health. To untangle this possible source of bias, an instrumental variable (IV) regression estimation has been employed (Appendix 2). In the absence of objective measures of individual health (e.g., sick days, diet, blood pressure), we instrument the health variable by two other variables: a measure of how much the individual is concerned with sick people (on a scale from 1 to 10) and a measure of whether the individual agrees that public goods, such as healthcare, should be provided by the state. The IV estimation shows that health remains a very important determinant of happiness with an even higher coefficient of 1.3 points.

Education

Our analysis shows that education is a significant predictor of life satisfaction even after income levels have been controlled for. Tertiary education is associated with a 0.3 point increase in happiness in both periods (Table 1 and 2, all specifications). The education coefficients almost double in size once the country effects are controlled for (Table 1, regression 3 and 4).

Employment Status

The effect of unemployment is also in line with previous research. Being unemployed in EU10 affects happiness significantly and negatively, although its effect wanes with time: the unemployment coefficient is several times larger in 1999 than in 2008 (Tables 1 and 2). Long-term unemployment reduces the average levels of happiness by 0.3 points and displays a highly significant coefficient in all specifications (Table 2). Interestingly, the effect of long-term unemployment is insignificant in the 1999 regressions (Table 1).

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The self-employed, students and pensioners are consistently more satisfied with their lives (Tables 1 and 2, all specifications). Retirement, once income and health are controlled for, is associated with a 0.4 higher happiness score and follows the same logic as the U-Curve: retired people are likely to have lower expectations or be more realistic about the future and, thus, happier.

Other factors

Gender and marital status yield results consistent with past empirical evidence in both periods and all specifications. Women and married individuals display higher life satisfaction scores (Tables 1 and 2, all specifications). Marriage has a larger effect on happiness than university education and much larger than high income. The number of children is consistently insignificant in all specifications, reproducing the majority of previous studies.

The analysis also shows that people living in big cities are less happy than others, possibly due to increased levels of stress, commuting, working culture and pollution (Tables 1 and 2, regressions 1 and 2), while living in a remote area (less than 2,000 inhabitants) does not have any effect.



Macroeconomic and institutional factors

Having established that the association of individual factors with life satisfaction follows what has been found by previous studies for other parts of the world, leads us to the hypothesis that the persistently low levels of life satisfaction of the citizens of CEE are related to macroeconomic and institutional factors. We now treat these factors in turn.

Insert Tables 3 and 4 around here

Macroeconomic factors

Easterlin Paradox Revisited

The results in Tables 3 and 4 (and Appendix 3) show that the GDP per capita of a country is a good predictor of individual happiness. In both periods considered GDP per capita remains the single most important macroeconomic determinant of individual happiness. The coefficients are positive and highly significant and show that, on average, a 10% convergence to the PPP-adjusted GDP per capita of the EU27 leads to a 0.5 and a 0.2 point increase in happiness in 1999 and 2008 respectively.

This is corroborated in Figure 3, which shows that higher happiness rates are correlated with higher GDP per capita. However, the evolution of the association between GDP per capita and happiness is not homogenous across EU10. Romanians and Balts were both much richer and significantly happier in 2008 than in 1999. Poles and Slovaks experienced the greatest catch-up in economic terms, but the growth in life satisfaction was highest in the Baltic states and Hungary. Bulgarians, despite sharing a similar starting point and GDP performance with Romanians, did, by contrast, not become any happier.

Insert Figure 3 around here

The analysis suggests that the Easterlin paradox does not apply in the present context. However, as the regression results for the two periods show, the coefficient of GDP per capita on happiness decreased by more than two times, ceteris paribus, in 2008 as compared to 1999. It could then be claimed that while GDP per head still generates happiness in EU10, its impact seems to be waning. This may signal that the threshold at which happiness stops following GDP may be approaching.

Interpersonal Inequality

We proxy interpersonal inequality by using a Gini coefficient, measuring the dispersion of income in each country. Analyses including Western European countries have tended to report significantly negative coefficients for interpersonal equality in happiness models. However, this relationship may not hold for post-transition countries due to what is known as the 'tunnel effect' (Hirschman 1981): in societies which have recently emerged from forced pseudo-equality, individuals may be more ready to accept income inequality, if it truly rewards hard work and entrepreneurship.

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At first sight, this is not the case in EU10. A descriptive analysis of the data suggests that, as in Western Europe, life satisfaction in EU10 is negatively correlated with interpersonal inequality and the coefficient grows over time. It is significantly larger in 2008 (-0.61) than in 1999 (-0.09). Yet, Figure 4 also indicates that the relationship between inequality and life satisfaction is not straightforward. While in Poland, Lithuania and Romania improvements in life satisfaction were accompanied by rises in inequality, in Estonia and Slovakia greater happiness was not achieved at the expense of greater inequality.

The negative correlation between GDP per capita and interpersonal inequality (-0.85 in 2008 and -0.35 in 1999) may bias the coefficients substantially. For example, better institutions in the richer countries of EU10 could contribute to lower inequality through more efficient redistributive policies, as well as larger budgets. The regression analysis hints that this may be the case. In 1999, once corruption levels are controlled for, inequality has a negative and significant coefficient (Table 3, regressions 3, 4, 6 and 7). However, in 2008 the Gini coefficient becomes highly significantly positive (Table 4, all specifications). This result confirms that, once GDP per head and other factors are controlled for, levels of life satisfaction in CEE are unaffected by rises in inequality. The unprecedented economic boom of the 2000s, EU membership, and a rise of a dynamic entrepreneurial class may have contributed to an increasing tolerance with rising interpersonal inequality, provided the population as a whole benefited from the effects of the economic boom. This result is consistent with the 'tunnel effect' mentioned earlier.

Insert Figure 4 around here

Unemployment and Inflation

Unemployment and inflation have often been considered as two of the most robust determinants of individual happiness, with unemployment typically having a stronger negative impact than inflation. This may not apply in CEE for several reasons, however. First, in post-transition countries low unemployment did not necessarily mean a healthy macroeconomic situation, but rather a lack of reforms in the labour market. Second, Eggers et al. (2006) find that in Russia, higher unemployment rates lead to more happiness, as people tend to revise their expectations upwards when their neighbours are suffering. Third and most importantly, the CEE labour force became highly mobile – especially after EU accession – and thus low unemployment may just be a sign of high levels of migration towards the West.

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Emigration has multiple social costs on individual and family level, which may cause a decline in overall happiness.

The findings seem to support Eggers at al.'s (2006) results that in CEE marginally greater levels of unemployment do not increase unhappiness. Both in 1999 and in 2008, when GDP levels are controlled for, the coefficients on unemployment are generally positive, though not always significant (Tables 3 and 4, regressions 1, 2, 5). The effect is, however, limited and not particularly robust. This is especially the case when institutional quality and levels of corruption in 2008 are controlled for (Table 4, regressions 2, 3, 4 and 6), meaning that national unemployment levels are not a significant determinant of life satisfaction in EU10.

Inflation follows a more familiar pattern and has a negative connection to happiness in both years considered. The effect is, nevertheless, significantly larger for 2008 (Table 4) than for 1999 (Table 3). Again, this increase in the coefficient can be considered as specific to the period and the countries analysed. High inflation in 2008 was a sign of huge economic overheating in EU10, where throughout the 2000s wages increased disproportionally in relation to productivity increases. Hence, the highly significant inflation coefficient in 2008 might capture falling consumer confidence in anticipation of the economic adjustment of the post-2008 period.



Institutional Factors

Corruption

Given the difficulties in finding good comparable institutional indicators and the fact that all EU10 countries underwent an important process of convergence in formal institutions as required by the *Acquis Communautaire*, we use corruption as our proxy for the quality of institutions. Corruption in both the public and the private sector in CEE is often viewed as the most severe 'informal' institutional problem inherited from the Soviet period. Differences in corruption among EU10 countries are noteworthy. According to World Bank and Transparency International data, while countries such as Estonia and Slovenia tend to do better than a number of Western countries, Romania, Bulgaria, and Lithuania have repeatedly lagged behind. One worrying sign is that, according to these indicators, corruption has become entrenched in EU10 countries showing no sign of abating during the decade

considered, even after EU accession. Indeed, 2004 marks a watershed: while corruption indicators experienced some aggregate decline in the region before 2004, this has hardly been the case since.

The effects of different corruption levels on life satisfaction are expected to be large and negative. The results confirm this hypothesis and show that lower corruption in both periods yields large positive effects on life satisfaction (Table 4, regression 2).[1] In 2008, a one point reduction in corruption is associated with an equivalent increase in life satisfaction. Hence, a one point improvement in corruption levels has the same happiness effect as 10% convergence towards the average GDP of the EU27 (Table 4, regression 2). In 1999 the coefficient of regression 2 is significant and negative, indicating that corruption levels have become much more detrimental to happiness over time.

In order to corroborate this result, we need to take account of the potential problem of multicollinearity between corruption and GDP per head. The richest countries in the region also have the lowest levels of corruption (correlation of -0.83 in 1999 and of -0.75 in 2008). Regressions 3 and 4 in Tables 3 and 4 exclude the GDP measure in order to overcome multicollinearity. The result is a strengthening of the coefficients both in 1999 and in 2008. For 1999, the corruption coefficient becomes significant, showing that a 10% reduction in corruption leads to an almost equivalent increase in happiness (Table 3, regression 3). The size of coefficients in 2008 also increases (from 2.3 to 3.1) (Table 4, regression 3). Both indices of corruption show similar patterns. The differences in the results for 1999 and 2008 can be explained by the shift in mentality in the decade: with growing wealth and EU-accession, people have become more aware of the problem and less tolerant of it. While in 1999, higher national income could compensate for what the country lacked in corruption control in terms of life satisfaction, in 2008 the mechanism no longer seems to work. Central and Eastern Europeans show a strong preference for less corruption towards the end of the 2000s.

Government Spending

The analysis suggests that in the EU10 greater government expenditure (measured as a percentage of national GDP) is associated with lower happiness. The result is robust and remains significant and negative in all different specifications (Tables 3 and 4). There is, however, no evidence of the significant quadratic relationship observed by Malešević Perović



and Golem (2010) (regressions not reported for the sake of brevity). Against expectations, when corruption levels are controlled for (Tables 3 and 4, regression 3), the size of government coefficients become larger. This implies that Central and Eastern Europeans tolerate larger governments better when the system is more corrupt. Populations may feel that the injustice created by corrupted institutions can only be compensated for by even larger public spending. This, in turn, may create a situation whereby politicians avoid fighting corruption in order to be able to expand/maintain public employment and spending. Such vicious circle may explain why the institutional quality in the region has not increased over the past decade.

Another interesting observation is that even if big governments affect people's happiness in a negative way, separate elements of government spending on healthcare, pensions and unemployment benefits do not reproduce the same negative pattern. In 1999, all three kinds of spending are positively and significantly associated with happiness, once corruption is controlled for (Table 3, regressions 6 and 7). In 2008 the panorama is slightly more complex. Health spending has a positive and significant coefficient and the association becomes larger once corruption is included in the equation (Table 4, regressions 5, 6, 7). Pension and unemployment spending are not significant.

Decentralisation

Following the idea that decentralisation may have an influence on the overall happiness of the population (Bjørnskov et al. 2008; Voigt and Blume 2009; and Díaz-Serrano and Rodríguez-Pose 2011), we introduce Hooghe et al.'s (2008) regional authority index (RAI) as a proxy for the level of decentralisation of each country in the analysis. In our analysis the RAI index is only introduced for 2008, as in the late 1990s the large majority of countries included in the sample were highly centralised (Dabla-Norris 2006; Rodríguez-Pose and Krøijer 2009). In fact, in 1998 only Hungary and Romania had moderate scores in the RAI Index (with 9 and 11 points respectively), whereas the average of the remaining eight countries was equal to 1 (meaning, de facto, no decentralisation). By the late 2000s the EU10 countries (especially Poland, Czech Republic and Slovakia) had become more decentralised with an average score of 4.6 for the EU10.

In contrast to previous studies, which have found a strong negative association between decentralisation and economic performance in CEE (Rodríguez-Pose and Krøijer 2009),

decentralisation seems to be a wellbeing enhancing reform in the EU10. The regression results indicate that greater levels of political decentralisation are associated with a greater degree of life satisfaction (Table 4). In all specifications, the coefficient for RAI is positive and significant. These results reinforce the view that citizens increase their level of satisfaction when they perceive they have a greater influence and say over day-to-day policy decisions (Díaz-Serrano and Rodríguez-pose 2011).

Conclusions and Policy Implications

One of the most interesting conundra in the post-transition economies in CEE has been that, while many of these countries have experienced rapid economic growth and strong convergence towards the EU average, their inhabitants have remained relatively unhappy, in particular in comparison with their peers in Western Europe. In this paper we set out to address this conundrum by looking at whether the persistently low levels of happiness of CEE citizens are mainly the result of some innate characteristics of the population or of inadequate macroeconomic and institutional conditions.

The results of the analysis squarely discard the idea of ingrained personal differences. Central Eastern Europeans are not innately different from their counterparts in the Western world. Individual factors contributing to the level of life satisfaction correspond perfectly to those found by similar research applied to other countries. In EU10 people tend to be happier when they are healthy, earn more, are better educated, married and employed. Life satisfaction is lower among males, big-city dwellers and people in their 40s. Moreover, these results do not change over time. There is, therefore, no reason to assume that Central Eastern Europeans are unhappier by nature.

If that is not the case, the explanation may lie in macroeconomic and institutional factors, implying that policy intervention in these areas may bear some fruit in improving satisfaction with life. The results for the macroeconomic factors indicate that these also tend to follow similar patterns to those found in previous research. Our research has found some evidence of the Easterlin paradox at play in EU10. Greater economic growth is still generating improvements in citizen's happiness, but this relationship is already reaching a tilting point. Citizens in CEE are quite tolerant of higher levels of interpersonal inequality, especially in

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2008, while unemployment and, to a lesser extent, inflation do not shown strong associations with happiness. As these economies are still dynamic, open and volatile, the influence of macroeconomic factors on happiness varies substantially over time and cross-section analysis does not provide any robust conclusions. In short, macroeconomic factors, while important, do not seem to be at the root of the problem of low life satisfaction in the region.

Institutional factors, by contrast, hold many of the keys behind the persistent low levels of life satisfaction in EU10. Corruption, in particular, is a fundamental source of unhappiness and the persistently high corruption of most of the countries in the area has led to a substantial decline in life satisfaction during the period considered. The fact that corruption levels remained roughly the same throughout a period of rapid economic growth only made matters worse. Our analysis shows that lower levels of corruption would have not only boosted GDP growth even further, but would have also improved happiness levels substantially. The policy implication is quite straightforward. Unless governments in the region start tackling corruption seriously, their populations will remain unhappy. By contrast, decentralisation in many countries in EU10 is becoming a non-negligible source of improvements in life satisfaction.

The persistently low levels of happiness of citizens in CEE are likely to remain a crucial challenge in years to come. Our research has provided an initial step in trying to understand what the sources of this problem are and how it could be addressed. The good news is that the sources do not seem to be intrinsic to CEE populations and that, as a consequence, the implementation of adequate policies may yield important improvements in the overall life satisfaction of citizens. However, further macroeconomic improvements are likely to result in limited life satisfaction benefits. The positive impact of further growth on happiness is likely to peter out relatively quickly and it is uncertain whether lower or greater interpersonal inequality or changes in inflation and unemployment rates will make a difference. Hence, policies aimed at addressing life satisfaction in post-transition countries have to be aimed at improving institutional conditions, in general, and tackling pervasive corruption, in particular. However, our evidence shows that these challenges will have to be dealt by smaller and less centralised governments and possibly by governments which are closer to the people.

Endnotes

1. The coefficient is positive because the WB Corruption index has been scaled from 0 to 10 for easier interpretation, with 0 meaning no corruption and 10 representing the highest value in the scale.



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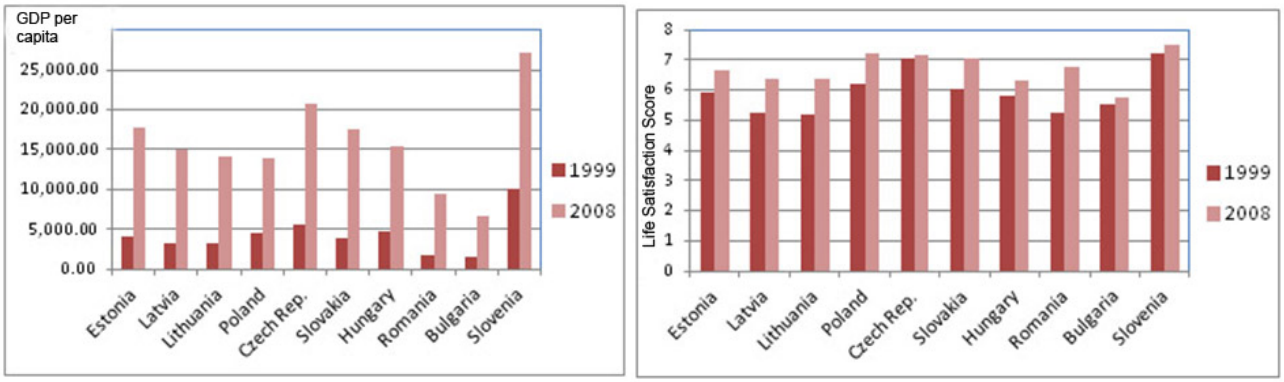
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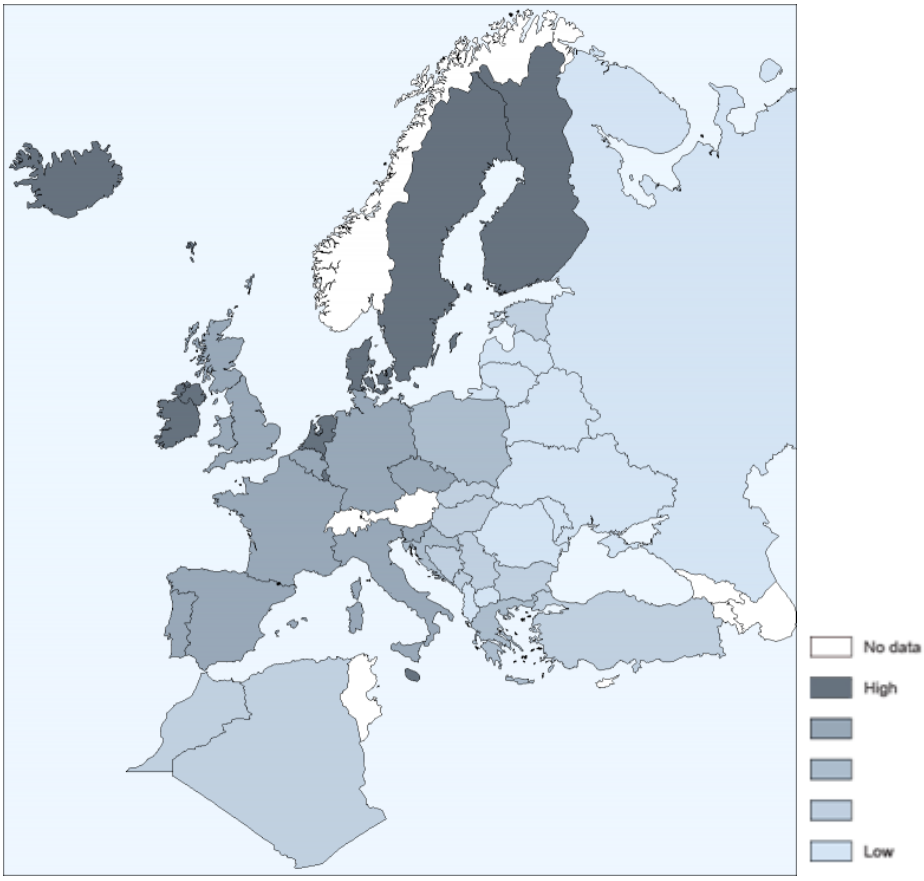
Figure 1. GDP per capita and Life Satisfaction in CEE in 1999 and 2008



Source: Own elaboration using EVS and Eurostat data.



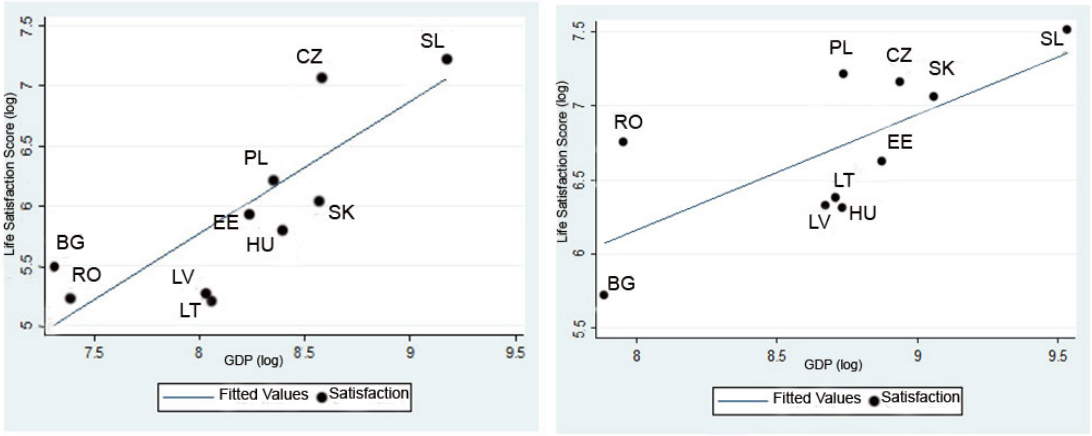
Figure 2. Life Satisfaction in Europe, 2008



Source: European Values Study. http://www.atlasofeuropeanvalues.eu

Figure 3. Life satisfaction and per capita GDP in 1999 and 2008 (x-axis: Log of GDP per capita; y-axis: log of life satisfaction)

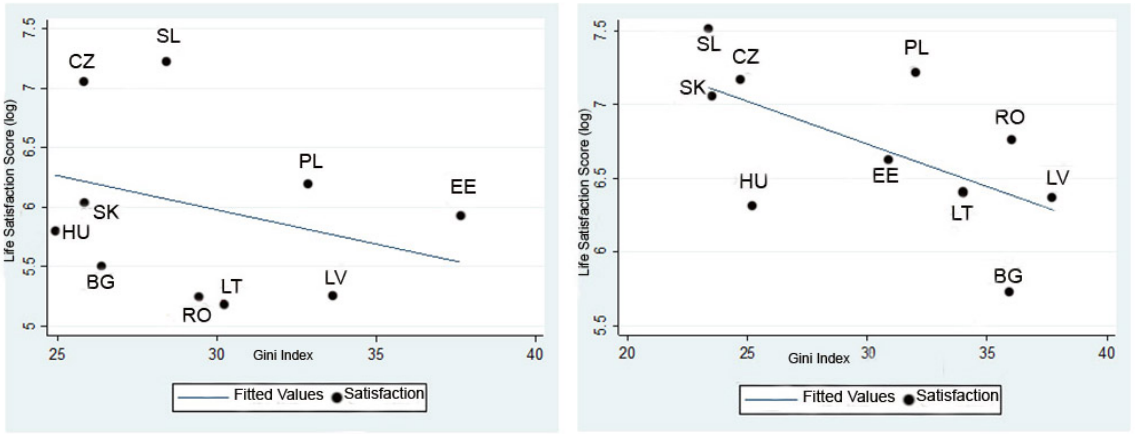
1999 **2008**



Source: Own elaboration using EVS and World Bank data.

Figure 4. Relationship between interpersonal equality (y-axis) and life satisfaction (x-axis) in EU10. 1999-2008.

1999 **2008**



Source: Own elaboration using EVS data.

Table 1. OLS and Ordered Logit Estimation of Individual Determinants of Happiness in 1999

Dependent variable Life Satisfaction	(1) OLS	(2) OLS (robustified)	(3) OLS (country controls)	(4) Ordered Logit
Income	0.195***	0.195***	0.218***	0.155***
	(0.04)	(0.04)	(0.04)	(0.03)
Income^2	-0.005	-0.005	-0.006	-0.003
	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.202***	0.202***	0.185***	0.145***
	(0.05)	(0.05)	(0.05)	(0.04)
Age	-0.111***	-0.111***	-0.111***	-0.087***
	(0.01)	(0.01)	(0.01)	(0.01)
Age^2	0.001***	0.001***	0.001***	0.001***
	(0.00)	(0.00)	(0.00)	(0.00)
Married	0.515***	0.515***	0.522***	0.415***
	(0.06)	(0.06)	(0.06)	(0.04)
No.of Children	-0.109	-0.109	-0.139	-0.104
	(0.08)	(0.08)	(0.08)	(0.06)
Unemployed	-0.734***	-0.734***	-0.459***	-0.341***
	(0.07)	(0.08)	(0.07)	(0.06)
Retired	0.536***	0.536***	0.373***	0.292***
	(0.10)	(0.11)	(0.10)	(0.07)
Student	0.936***	0.936***	0.683***	0.522***
	(0.15)	(0.13)	(0.13)	(0.11)
Self-Employed	0.341**	0.341**	0.208	0.151
	(0.13)	(0.12)	(0.12)	(0.09)
LT Unemployment	0.153	0.153	0.014	0.018
	(0.18)	(0.18)	(0.18)	(0.13)
Secondary Education	-0.042	-0.042	0.177**	0.139**
	(0.06)	(0.06)	(0.06)	(0.04)
Tertiary Education	0.344***	0.344***	0.628***	0.487***
	(0.08)	(0.08)	(0.07)	(0.06)
Big City	-0.209*	-0.209*	-0.087	-0.072
	(0.08)	(0.08)	(0.08)	(0.06)
Remote Area	0.012	0.012	0.061	0.045
	(0.05)	(0.05)	(0.05)	(0.04)
Country Controls	No	No	Yes***	Yes***
constant	7.530***	7.530***	6.621***	
	(0.24)	(0.24)	(0.25)	
R^2	0.077	0.077	0.156	
dfres	10204	10204	10195	
BIC	46965.4	46965.4	46134.0	43914.3

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Table 2. OLS and Ordered Logit Estimation of Individual Determinants of Happiness in 2008

Dependent variable	(1)	(2)	(3)	(4)
Life Satisfaction	OLS	OLS (robustified)	OLS (country controls)	Ordered Logit
Health	-0.867***	-0.867***	-0.845***	-0.764***
	(0.02)	(0.02)	(0.02)	(0.02)
< €1800/year	-1.285***	-1.285***	-0.712***	-0.657***
	(0.08)	(0.10)	(0.11)	(0.08)
< €3600/year	-0.583***	-0.583***	-0.214**	-0.197**
	(0.06)	(0.07)	(0.07)	(0.06)
< €6000/year	-0.303***	-0.303***	-0.045	-0.061
	(0.06)	(0.06)	(0.06)	(0.05)
< €12000/year	-0.042	-0.042	0.111*	0.066
	(0.05)	(0.05)	(0.05)	(0.04)
< €18000/year	0.156*	0.156*	0.191**	0.175**
	(0.07)	(0.06)	(0.06)	(0.06)
< €24000/year	0.362***	0.362***	0.316***	0.246**
	(0.10)	(0.08)	(0.08)	(0.08)
< €30000/year	0.368**	0.368***	0.266*	0.177
	(0.13)	(0.11)	(0.11)	(0.11)
< €36000/year	0.354	0.354*	0.219	0.117
	(0.20)	(0.15)	(0.15)	(0.16)
Female	0.255***	0.255***	0.243***	0.210***
	(0.04)	(0.04)	(0.03)	(0.03)
Age	-0.027***	-0.027***	-0.034***	-0.031***
	(0.01)	(0.01)	(0.01)	(0.01)
Age^2	0.000***	0.000***	0.000***	0.000***
	(0.00)	(0.00)	(0.00)	(0.00)
Married	0.361***	0.361***	0.411***	0.345***
	(0.04)	(0.04)	(0.04)	(0.04)
No. of Children	0.001	0.001	-0.008	-0.008
	(0.02)	(0.02)	(0.02)	(0.01)
Unemployed	-0.112*	-0.112*	-0.173**	-0.093*
	(0.05)	(0.05)	(0.05)	(0.05)
Retired	0.451***	0.451***	0.406***	0.315***
	(0.07)	(0.08)	(0.08)	(0.06)
Student	0.377***	0.377***	0.408***	0.312***
	(0.09)	(0.09)	(0.09)	(0.08)
Self-Employed	0.253**	0.253**	0.266***	0.265***
	(0.09)	(0.08)	(0.08)	(0.07)
LT Unemployment	-0.290***	-0.290***	-0.259***	-0.230***
	(0.05)	(0.05)	(0.05)	(0.04)
Secondary Education	0.138**	0.138**	0.151**	0.118**
	(0.04)	(0.05)	(0.05)	(0.04)
Tertiary Education	0.239***	0.239***	0.350***	0.276***

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	(0.06)	(0.06)	(0.06)	(0.05)
Big City	-0.315***	-0.315***	-0.141*	-0.123*
	(0.06)	(0.05)	(0.06)	(0.05)
Remote Area	0.122**	0.122**	0.057	0.061
	(0.04)	(0.04)	(0.04)	(0.03)
Country controls	No	No	Yes***	Yes***
constant	9.144***	9.144***	8.387***	
	(0.16)	(0.16)	(0.17)	
R^2	0.197	0.197	0.217	
dfres	14771	14771	14762	
BIC	63678.5	63678.5	63377.1	59920.1

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Table 3. OLS Estimation of the Macro-Equations of Happiness in 1999.

Dependent variable Life Satisfaction	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP per capita	0.048***	0.050***			0.057***		
	(0.00)	(0.00)			(0.00)		
Interpersonal inequality	0.001	0.010	-0.101***	-0.026*	0.024***	-0.036***	-0.020**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Inflation	0.001	-0.001	0.006	-0.028***	0.015*	-0.028***	-0.053***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)
Unemployment	0.015	0.005	0.033*	-0.088***	0.024	-0.057***	-0.099***
	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Gov.Expenditure	-0.051***	-0.043**	-0.076***	0.030*			
	(0.01)	(0.01)	(0.01)	(0.01)			
Corruption WB		-0.087	0.907***			0.483***	
		(0.11)	(0.08)			(0.07)	
Corruption TI				0.194***			0.237***
				(0.06)			(0.05)
Health Benefits					-0.025**	0.048***	0.026**
					(0.01)	(0.01)	(0.01)
Pension Benefits					-0.002	0.044***	0.027***
					(0.01)	(0.01)	(0.01)
Unemp. Benefits					-0.042	0.183***	0.241***
					(0.03)	(0.02)	(0.02)
Individual controls	yes	yes	yes	yes	yes	yes	yes
constant	6.996***	6.884***	8.029***	7.249***	4.401***	2.632**	5.637***
	(0.54)	(0.57)	(0.56)	(0.58)	(0.68)	(0.91)	(0.73)
R^2	0.148	0.148	0.133	0.122	0.149	0.137	0.135
dfres	10199	10198	10199	10199	10197	10197	10197
BIC	46197.7	46206.3	46372.5	46498.5	46201.6	46345.1	46370.7

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Table 4. OLS Estimation of the Macro-Equations of Happiness in 2008.

Dependent variable Life Satisfaction	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP per capita	0.029***	0.022***			0.059***		
	(0.00)	(0.00)			(0.01)		
Interpersonal inequality	0.065***	0.056***	0.011*	0.022***	0.073***	0.080***	0.072***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Inflation	-0.034***	-0.028***	-0.030***	-0.035***	0.028*	-0.050***	-0.049***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Unemployment	0.028*	0.007	-0.027*	-0.009	0.269***	0.001	0.026
	(0.01)	(0.01)	(0.01)	(0.01)	(0.04)	(0.02)	(0.02)
Decentralisation	0.023**	0.041***	0.019*	0.025**	0.151***	0.037**	0.040**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Gov. Expenditure	-0.025***	-0.041***	-0.045***	-0.041***			
	(0.01)	(0.01)	(0.01)	(0.01)			
Corruption WB		0.230***	0.313***			0.284***	
		(0.05)	(0.05)			(0.05)	
Corruption TI				0.257***			0.211***
				(0.04)			(0.04)
Health Benefits					0.124***	0.063***	0.060***
					(0.02)	(0.02)	(0.02)
Pension Benefits					0.078***	-0.019	-0.009
					(0.02)	(0.01)	(0.01)
Unemp. Benefits					-0.478***	0.065	0.027
					(0.08)	(0.05)	(0.05)
Individual controls	yes	yes	yes	yes	yes	yes	yes
constant	10.222***	9.475***	12.453***	13.025***	-8.169**	9.627***	9.891***
	(0.81)	(0.84)	(0.57)	(0.52)	(2.96)	(1.45)	(1.45)
R^2	0.212	0.213	0.212	0.212	0.213	0.212	0.212
dfres	14765	14764	14765	14765	14763	14763	14763
BIC	63449.5	63435.8	63453.5	63450.7	63443.1	63472.5	63477.3

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Appendix 1. List of Variables

Variable	Definition	Source
Dependent variable		
Life Satisfaction	self-reported life satisfaction (scale 1 to 10)	EVS
Personal controls		
Health	self-assessed health status (scale 1 to 10)	EVS
Female	1 for female, 0 otherwise	EVS
Age	age of respondent	EVS
Married	1 for married/registered partnership, 0 otherwise	EVS
Children	number of children in the family	EVS
Self-Employed	1 respondent self-employed, 0 otherwise	EVS
Student	1 respondent student, 0 otherwise	EVS
Retired	1 respondent retired, 0 otherwise	EVS
Big-City	respondent lives in a city (more than 500,000 inhabitants)	EVS
Remote Area	respondent lives in an area (less than 2,000 inhabitants)	EVS
Tertiary Education	1 university education or equivalent, 0 otherwise	EVS
Secondary Education	1 secondary education or equivalent, 0 otherwise	EVS
Unemployed	1 if respondent unemployed at the time of surveying, 0 otherwise	EVS
LT Unemployment	1 if respondent experienced unemployment longer than 3 months in the past two years, 0 otherwise	EVS
Less1800-Less60000	dummy variables for annual household income in euros. Intervals: less than €1800; €1800 to €3600; €3600 to €6000; €6000 to €12000; €12000 to €18000; €18000 to €24000; €24000 to €30000; €30000 to €36000; €36000 to €60000; €60000 and more (reference)	EVS
Low Income	1 if annual income less than €3600, 0 otherwise	EVS
High Income	1 if annual income more than €24000, 0 otherwise	EVS
Medium-High Income	1 if annual income between €12000 and €24000, 0 otherwise	EVS
Income	Self-assessed income from 0 (poor) to 10 (very rich)	EVS
Macroeconomic variables		
GDP per capita	GDP per capita in PPS with respect to EU27	Eurostat
Interpersonal inequality	Gini Coefficient	Eurostat
Inflation	Consumer Price Index	Eurostat
Unemployment	End of year unemployment level	Eurostat
Institutional variables		
Gov. Expenditure	Total government expenditure as % of GDP	Eurostat
Corruption WB	Corruption Control Indicator from the World Bank Governance Indicators (0 poor corruption control, 10 total corruption control)	World Bank
Corruption TI	Transparency International Corruption Perception Index (0.1 'very clean' to 9.6 'very corrupt')	Transparency International
Health Benefits	Health Benefits as % of total government spending	Eurostat
Pension Benefits	Pension benefits as % of total government spending	Eurostat
Unempl. Benefits	Unemployment benefits as % of total government spending	Eurostat
Decentralisation	Regional authority index	Hooghe et al (2008)

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Appendix 2. Output of the IV Regression for health (other individual control variables not reported, but included in the specification)

1. First Stage TSLS

First-stage regression summary statistics

Variable	R-sq.	Adjusted R-sq.	Partial R-sq.	F(2,10935)	Prob > F
health	0.3207	0.3188	0.0034	18.5998	0.0000

2. Second Stage TSLS

satisfaction	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
health	-1.32792	.4312242	-3.08	0.002	-2.173103	-.4827358

3. Post-estimation Testing

Tests of overidentifying restrictions:

Sargan (score) chi2(1) = .62189 (p = 0.4303)
Basmann chi2(1) = .620111 (p = 0.4310)

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Appendix 3a. Ordered Logit Estimation of the Macro-Equations of Happiness in 1999

Dependent variable Life Satisfaction	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4	(5) Model 5	(6) Model 6	(7) Model 7
GDP per capita	0.037***	0.038***			0.044***		
	(0.00)	(0.00)			(0.00)		
Interpersonal inequality	0.002	0.007	-0.078***	-0.018*	0.021***	-0.027***	-0.013*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Inflation	0.000	-0.001	0.004	-0.022***	0.010*	-0.021***	-0.041***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Unemployment	0.010	0.005	0.027*	-0.071***	0.016	-0.043***	-0.078***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Gov.Expenditure	-0.039***	-0.035**	-0.062***	0.022*			
	(0.01)	(0.01)	(0.01)	(0.01)			
Corruption WB		-0.046	0.697***			0.381***	
		(0.08)	(0.06)			(0.05)	
Corruption TI				0.126**			0.173***
				(0.04)			(0.04)
Health Benefits					-0.016*	0.040***	0.022***
					(0.01)	(0.01)	(0.01)
Pension Benefits					0.002	0.037***	0.023***
					(0.01)	(0.01)	(0.01)
Unemp. Benefits					-0.024	0.143***	0.187***
					(0.02)	(0.02)	(0.02)
Individual controls	yes	yes	yes	yes	yes	yes	yes
BIC	43939.3	43938.4	43931.5	43978.0	43907.9	43909.3	43913.4

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Appendix 3b. Ordered Logit Estimation of the Macro-Equations of Happiness in 2008

Dependent variable Life Satisfaction	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GDP per capita	0.022***	0.017***			0.046***		
	(0.00)	(0.00)			(0.01)		
Interpersonal Inequality	0.047***	0.041***	0.006	0.014**	0.060***	0.061***	0.055***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Inflation	-0.028***	-0.022***	-0.024***	-0.029***	0.020*	-0.040***	-0.039***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)
Unemployment	0.012	-0.004	-0.030**	-0.016	0.207***	-0.001	0.016
	(0.01)	(0.01)	(0.01)	(0.01)	(0.03)	(0.02)	(0.02)
Decentralisation	0.021**	0.037***	0.018**	0.022**	0.124***	0.032**	0.033**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Gov. Expenditure	-0.024***	-0.037***	-0.039***	-0.036***			
	(0.00)	(0.01)	(0.01)	(0.01)			
Corruption WB		0.177***	0.234***			0.199***	
		(0.04)	(0.04)			(0.04)	
Corruprion TI				0.189***			0.144***
				(0.03)			(0.03)
Health Benefits					0.102***	0.052***	0.050***
					(0.02)	(0.01)	(0.01)
Pension Benefits					0.057***	-0.016	-0.009
					(0.01)	(0.01)	(0.01)
Unemp. Benefits					-0.384***	0.036	0.010
					(0.07)	(0.04)	(0.04)
Individual controls	yes	yes	yes	yes	yes	yes	yes
BIC	60012.7	60003.5	60017.0	60016.7	60016.1	60045.4	60049.8

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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