Happiness & Freedom in a World of Heterogeneous Values

Paolo Verme

Department of Economics "S. Cognetti de Martiis"
University of Torino
and
School of Management SDA-Bocconi, Milano

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Abstract

The study provides additional evidence on the possible predictors of life satisfaction worldwide making use of a combination of data sets covering 84 countries and 1,349 regions. A very strong association between self-perceived life-satisfaction and self-perceived freedom is found controlling for personal values and social attitudes. This association survives all bivariate and multivariate tests in a cross-country, within country and over time context. The same cannot be said for all other regressors used to explain life-satisfaction including those regressors that have been found in the past to explain life-satisfaction well such as income, unemployment status, age, marital status and political orientation. Other regressors introduced by this paper to capture regional economic conditions are also found to be relevant in predicting life-satisfaction. However, the variable freedom is able alone to predict variations in life-satisfaction more than all other variables pulled together. Little is known about causality between life-satisfaction and freedom. Two first attempts to assess the direction of causality of these two variables led to unexpected results. Life-satisfaction seems to explain freedom better than freedom explains life-satisfaction and experienced freedoms such as political and economic freedoms explain life-satisfaction better than they explain self-perceived freedom.

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1 Introduction

That people are in constant quest of happiness is not a novelty of our times. Philosophers have been concerned about the search for happiness since the very origins of philosophy. Seneca in his opening statement of the *De Vita Beata* writes to his brother: "*Brother Gallio, all want to be happy, but when it comes to see clearly what makes life happy they are shadowed by obscurity*".[1]

What distinguishes modern from ancient times in this respect is that we start to have some empirical evidence about what may determine happiness. Since the 18th century and the expansion of moral philosophy into the social sciences, philosophy has lost its exclusive control over the search for happiness. And the last four decades of the 20th century have provided a stream of contributions to happiness research in several disciplines such as psychology, sociology and economics that significantly changed the way we understand happiness. We are starting to lift the "shadow of obscurity" by finding elements that seem to explain well fluctuations in self-perceived happiness.

This paper contributes to this recent tradition with a few innovations. First, we introduce the concept of self-perceived freedom of choice and control over one own life as a possible predictor of happiness. This aspect has been little researched in economics but we will see that the association between self-perceived happiness and self-perceived freedom is very strong and deserves attention. Second, we will combine factors that have been found in the past to be good predictors of life-satisfaction such as income and unemployment with other factors which are less researched such as regional economic conditions including income inequality and the quality of institutions. Third, we condition these factors to two other sets of variables which we believe have a role in explaining happiness. One group of variables is personal values such as the importance we attribute to family and friends. The second group of variables is social attitudes such as the way we perceive cheating on taxes or inequality aversion. We will see that these two sets of factors have a role in explaining life-satisfaction. Last, we take a closer look at the relation between happiness and freedom by testing for the direction of causality between these two variables. The unexpected results we find open a new chapter in the book of happiness research which may help to explain why the word freedom is so much abused in recent times.

We start with a digression on utility and happiness. There seems to be some amount of confusion in economics about the relation between these two terms and it is important to explain what we mean by happiness. We do not clear such confusion but we explain where we stand (section 2). A brief overview of recent contributions to happiness research is provided in section 3. Section 4 offers a bird's view of happiness in the world and a first insight into the bivariate relation between happiness and a set of key possible predictors. Section 5 reports results on the multivariate estimates carried out on individuals, countries, regions and over time. Section 6 turns to the direction of causality between happiness and

[1] "Vivere, Gallio frater, omnes beate volunt, sed ad pervidendum quid sit quod beatam vitam efficiat caligant;"

freedom and section 7 concludes.

2 On utility and happiness

In its original conception utility was devised as an economic jargon to describe the pleasure and happiness that individuals associate with the use of commodities. Jeremy Bentham and his disciples considered the achievement of the greatest happiness a valuable social objective the pursuit of which involved material wealth and material consumption. These ideas contributed to create an intimate relation between the words happiness and utility to an extent that the economics profession has often used the two terms interchangeably.

The difficulty with the concept of utility emerged with the search of a proper way to measure 'utils', units of pleasure or happiness which could be added up to obtain individual and collective utility. Consumer choice theory and the theory of revealed preferences provided a possible means to overcome this difficulty. Given a budget constraint, consumers choose the product mix that maximizes their own utility and this choice results in prices and quantities which can be measured. In modern microeconomics the word 'utility' is used to describe functions which are built on consumption bundles and income. But if utility equals happiness and utility is constructed solely by means of income and consumption choices, then the determinants of happiness must be income and consumption.

It is this syllogism that generated some confusion and a stream of critiques towards utility theory. For some authors such as Varian (1996): "*(...), economists have abandoned the old-fashioned view of utility as being a measure of happiness. Instead, the theory of consumer behavior has been reformulated entirely in terms of consumer preference, (...)*" (p. 54). Modern theories of social justice including Runciman theory of relative deprivation (1966) and Sen's theory of capabilities (1985) have also challenged the view that income and consumption are the sole predictors of happiness. Runciman by elaborating on the idea that individual well-being depends also from the relative (income and non income) position individuals occupy in the self-selected reference group, not just absolute income and consumption. Sen by highlighting how individual well-being depends more on capabilities and opportunities than on outcomes such as income. More recently Frey and Stutzer (2002) have outlined why and how happiness research can contribute to economics as distinct from utility research remarking how economics has been obsessed with the measurement of objective indicators of well-being such as income and neglected in large part the measurement of subjective indicators such as self-rated happiness.

The usefulness of measuring happiness in its own right with self-reported scales has been challenged on several grounds including the possible measurement errors, the true knowledge that people may have about their own feelings and the impossibility to compare feelings across people or countries. Many of these criticisms have been refuted by recent contributions to happiness research. Concerns about measurement errors have been sidelined by the finding that self-reported happiness seems to be consistent with the degree of happiness reported by friends and relatives of the person observed (Lepper 1998, Sandvik,

Diener and Seidlitz 1993). One own evaluation of happiness seems to be rather objective. Concerns about the fact that people may not know well their own feelings have been disproved by several validation studies made by psychologists and other social scientists (Fordyce 1988, Inglehart 1990, Saris and Scherpenzel 1996). The argument that happiness cannot be compared cross-country has been rejected by the recurrent finding that the elements that contribute to explain variability in happiness such as income, unemployment and health are very much the same everywhere. In the words of Easterlin (2001) "*In most people's lives everywhere the dominant concerns are making a living, family life and health, and it is these concerns that ordinarily determine how people feel (...) Thus, although each individual is free to define happiness in his or her own terms, in practice the kind of things chiefly cited as shaping happiness are for most people much the same*". (pp. 466-467). Thanks to modern surveys specifically designed to measure happiness and values cross-country such as the Eurobarometer survey, the European Values survey and the World Values Surveys cross-country comparability has also improved.

Despite the critiques on orthodox utility theory and recent advancements in happiness research, the words utility and happiness continue to be used interchangeably in economics, even by those economists who have significantly contributed to happiness research. Easterlin who pioneered research on income and happiness and who brought to the economists attention the lack of covariance between these two variables over time, in a recent article (2001) wrote: "*Throughout this article, I use the terms happiness, subjective well-being, satisfaction, utility, well-being, and welfare interchangeably* (p. 465). Alesina, Di Tella and MacCulloch (2001) who acknowledge the importance of the work of economists and psychologists on the inconsistent relation between income and happiness recently wrote: "*We measure "utility" in terms of survey answers about "happiness"* "(pp. 3-4). These authors accept the multidimensional aspect of utility and build on previous works made by economists, psychologists and sociologists but maintain that utility and happiness are in fact the same concept.

The question of whether utility is still a proxy for happiness as it was in the eyes of the 19th century moral philosophers is still unresolved. We take the view that consumer choice theory has introduced an unbridgeable gap between the concepts of utility and happiness and that happiness research cannot be assimilated to utility research. We can think of the utility function as being one of the arguments of the happiness function and consider happiness as a broader concept than utility but we find it hard to equate the two concepts. This work will study self-perceived happiness in its own right and will measure happiness with a single question on life-satisfaction.

3 Happiness and its predictors

Happiness research has made important progress in understanding the predictors of happiness. In particular the role of material well-being such as income has been the object of many studies. The evidence on this relation is mixed and varies according to whether we

consider covariances across people and countries or covariances across the life-cycle and time.

Evidence on the relation between happiness and income across people and countries seem to concord that the two variables are positively correlated. Individuals or countries with a higher income tend to be happier. Blanchflower and Oswald (2000) and Di Tella, MacCulloch and Oswald (2001) have shown that higher income individuals tend to be happier (although the effect may be small) and that marginal happiness decreases in income. Inglehart (1990) and Diener et Al. (1995) have shown that people living in richer countries are generally happier on average.

On the contrary, life-cycle and longitudinal studies do not find a strong positive association between happiness and income. For the USA, Easterlin (2001) noticed that income and happiness do not move together over the life-cycle. People tend to recall that they were worse off in the past and generally forecast that they will be better off in the future while in fact they report the same level of happiness at different times during their lifetime. Longitudinal studies indicate a null or weak relation between income and happiness over time. Easterlin (1974) was one of the first to find that the increase in GDP per capita in the United States since the 1950s had not been accompanied by an increase in self-perceived happiness. This finding was confirmed by later studies on the part of the same author (1995, 2001) and by other authors for the USA (Diener et Al. 1999) and for other countries as diverse as Japan (Veenhoven, 1993), the Philippines (Mangahas 1995), Russia (Ravallion and Lokshin 2000) and the UK (Clark and Oswald 1994).

The inconsistent relation between happiness and income over the life-cycle and in longitudinal studies is generally explained with theories of rising aspirations or expectations. Easterlin (2001) argued that as people get older and richer they increase aspirations about the future and that the gap between aspirations and realizations is rather stable constraining happiness to a flat trend. The same would occur for countries over time. People adjust quickly their expectations to changed circumstances and expectations are constantly revised to fit the relative status of individuals. Similar theories have been elaborated in the past by psychologists, sociologists and economists alike and seem to explain well why happiness does not increase consistently with income over time.

The direction of the causality between income and happiness is also unclear and very little researched. There is some convincing evidence that being happy can increase income. One review of various studies on happiness from various disciplines shows that happier people are on average more satisfied with various aspects of life, they trust more other people, tend to be more productive and socially integrated, less likely to be unemployed, learn faster, decide quicker, speak faster and more accurately, are less stressed and live longer (Veenhoven 1988). Several studies have found that happier people are more productive, perform better in interviews and are more likely to keep a job. Happier people may earn more because they are more productive. Maslow (1968) is one of the few studies that reported some evidence on the bidirectional causality of income and happiness but studies that make use of modern tests of causality are still very scarce.

We also know from previous studies that there are a number of individual or population specific attributes that concur to determine happiness. There is a wealth of evidence showing that unemployed people are less happy than employed people (Clark and Oswald 1994, Blanchflower 1996, Blanchflower and Oswald 1997, Winkelmann and Winkelmann 1998). Rising inflation seems to reduce happiness and the combination inflation-unemployment has been used in the past as an index of 'misery' for a society. Health status is usually found to be a major determinant of happiness and countless studies have shown that married people are happier on average. The social environment in which we live characterized by factors such as discrimination or by institutions such as good governance are also known to influence the way we feel about life. Psychological factors such as being introversive or being extroversive, depression, expectations toward the future or evaluation of the past are other elements that psychologists have shown to influence the feeling of happiness.

Another candidate which has been put forward as a possible predictor of happiness is income inequality. Historians have noted that social tensions erupt in societies undergoing rapid transformations and disequalising changes in material well-being rather than in poor or rich societies. Psychologists have highlighted the role of envy in determining happiness. Social welfare theorists have pinpointed the importance of relative rank in determining deprivation and well-being. Economists have developed the idea of inequality aversion to add the normative and cardinal dimension to the measurement of inequality itself. The idea is simple. More unequal societies are expected to generate more envy, sense of deprivation and rising expectations which, in turn, should reduce happiness.

The evidence on this relation is controversial. According to Veenhoven (1996) "*Income inequality in nations appears almost unrelated to final quality of life as measured by average happiness* (...)" (p. 34). A study by Morawetz et Al. (1977) showed how two communities in Israel with different levels of income inequality differed in average happiness, where income inequality was found to be higher, average happiness was found to be lower. A more recent study by Alesina et Al.(2001) found that income inequality has a negative effect on happiness in Europe but not in the US and that such difference may be explained by income mobility and political preferences.

One variable that may help to explain happiness and which is very little researched is self-perceived freedom. Unlike individual attributes such as income, being unemployed or married self-perceived freedom is a 'feeling' just as life-satisfaction is. It may be questionable whether a feeling may be used to explain another feeling. However, self-perceived freedom may be the outcome of experienced freedoms in various domains. Improved economic freedom such as trade liberalization and better property-rights, improved political freedoms such as political and civil liberties, improved personal freedoms such as freedom of movement, religion or expression and improved family freedoms such as freedom of marriage and divorce may all contribute to improve our feeling of freedom. In this sense, self-perceived freedom may be a proxy for a large set of experienced freedoms and other psychological factors that may affect such feeling.

One study that looked specifically at the relation between happiness and freedom

supports the view that experienced freedoms matter for happiness. Veenhoven (2000) distinguished between opportunity to choose from capability to choose and devised two measures of freedom based on these concepts. The study measured opportunity to choose in terms of economic, political and personal freedoms and the capability to choose in terms of awareness of alternatives and inclination to choose among alternatives. The author finds a positive correlation between happiness and each of the components of freedom. The overall zero-order correlation of the cumulated aspects of freedom is +0.64 and significant. The relation seems to be linear and richer nations are shown to be happier and freer as compared to poorer nations.

4 Shifting the boundaries of prediction

The search for predictors able to complement the established set of predictors and which would expand into the realm of feelings and values led us to a large data set compiled from the European and the World values surveys.[2] These surveys have been carried out since the early 1980s and question individuals worldwide on happiness, personal values, social attitudes and individual attributes. The current data set is easily accessible and contains 267,870 observations on individuals from 1,349 regions in 84 countries surveyed between 1981 and 2004 where each country has been surveyed from a minimum of one to a maximum of four times. If countries and years are combined together the data set counts 194 observations. If regions and years are combined, 1,893 observations are obtained. Therefore, the data set has the great advantage of allowing the researcher to work on individuals, regions or countries worldwide.

The full data set is used to provide a general overview of life-satisfaction in the world. A reduced sample of 104,513 observations, 71 countries and 664 regions surveyed between 1990 and 2003 is used for all parametric estimations. This restriction was dictated by the need to have the full set of observations for all regressors chosen and by the choice of selecting only those regions that had at least thirty individual observations. A reduced sample of 10 countries was also selected for the within countries regressions.

Life satisfaction is the key variable that we try to explain. The question asked is: "*All things considered, how satisfied are you with your life as a whole these days?*" Answers include a ten steps ladder where "1" is equal to 'Dissatisfied' and "10" is equal to 'Satisfied'. A set of 21 regressors was selected among the hundreds of variables available in the database. The choice was partly dictated by the need to select those variables present in

[2]Data can be freely downloaded from: http://www.jdsurvey.net. We are grateful to the Values Study Group and World Values Survey Association for creating and making accessible the EUROPEAN AND WORLD VALUES SURVEYS FOUR-WAVE INTEGRATED DATA FILE, 1981-2004, (v.20060423, 2006). Aggregate File Producers: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tilburg University, Tilburg, The Netherlands. Data Files Suppliers: Analisis Sociologicos Economicos y Politicos (ASEP) and JD Systems (JDS), Madrid, Spain/Tillburg University, Tillburg, The Netherlands/ Zentralarchiv fur Empirische Sozialforschung (ZA), Cologne, Germany:) Aggregate File Distributors: Análisis Sociológicos Económicos y Políticos (ASEP) and JD Systems (JDS), Madrid, Spain/Tillburg University, Tilburg, The Netherlands/Zentralarchiv fur Empirische Sozialforschung (ZA) Cologne, Germany.

all rounds of all surveys, partly made on the basis of the acquired knowledge we had on the predictors of life satisfaction from previous research, and partly derived by the wish to expand research to a new set of regressors.

A special focus is on the variable freedom. The questionnaire asked the following question: "*Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "none at all" and 10 means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out.*" This question evidently expresses a feeling which may be related to psychological factors such as self-esteem or to material experiences such as freedoms that people actually enjoy in their everyday life. The relation between these two sets of factors may be complex. Economic development affects psychological factors and opportunities. Self-esteem may be lower among poor and uneducated people. Economic development 'frees' people from poverty and from reduced choice sets and increases opportunities and capabilities. Self-perceived freedom is evidently an outcome of several inter-connected factors. However, we should expect that experienced freedoms such as political, economic and individual freedoms should contribute to improve self-perceived freedom and that this, in turn, should make people happier.

Two variables were selected to capture *individual economic status*. These are income and unemployment status. Income is measured as self-positioning in a ten-steps income scale where income brackets have been measured in local currency in each country. This is not self-perceived income but the positioning of individuals into income brackets. In some sense, this is a more accurate indicator than self-reported income which is known to be underreported in household surveys worldwide. That is because people are not asked to tell how much they earn but simply to say to which income brackets they belong. A categorical variable constrains the variance of the income variable as compared to a continuous variable but this is not a great shortcoming considering that the dependent variable is categorical (also based on a ten-steps ladder) and that coefficients can be estimated with an ordered logit or probit models. The unemployment status is self-reported unemployment status measured with a binary variable.

Three variables were constructed to capture *regional economic status*. Regions are the administrative or geographical regions present in each country. As economic measures we calculated the Gini coefficient, the regional employment rate and the regional rating of local institutions. The gini coefficient was calculated based on the income variable described above. This measure can be used to compare inequality across regions in an ordinal manner but will probably underestimate the true inequality level in each region because on a ten-steps ladder respondents tend to exclude extreme values and because the small samples we dispose of at the regional level will tend to represent middle income individuals better than the extremely rich or the extremely poor. The regional employment rate (employed/working age population in age 16-65) was preferred to the regional unemployment rate because of the uncertain meaning of unemployment in rural areas and

countries characterized by largely informal economies. The regional rating of local institutions was constructed to capture the quality of local institutions according to respondents. We took the average rating given by each individual to each of the following institutions: Army, press, trade unions, police, parliament, civil service, private companies and justice system. These scores were then averaged by region. The squared of this variable was also introduced in all regressions. As we will see in figure one this variable seems to be inverse U-shaped in life-satisfaction.

A set of variables measures *individual and family attributes* which are possible predictors of life-satisfaction. These are breadwinner status (dummy), sex (female), age (continuous with the addition of age squared), marriage status (dummy where '1' includes: 'married' and 'living together as married') and number of children in the family (continuous). Two other variables that are known to be relevant for life-satisfaction which are health and education could not be included. Self-perceived health has been measured in some of the rounds of the World and European values surveys but self-perceived health is not the same as health status and we did not dispose of sufficient observations to include such variable into the equations. Years of education or the education level was not present in the questionnaires. A question asked respondents at what age they finished education. This variable reduced significantly the sample and was also found to be non significant in all trials. It was therefore omitted from the final choice of regressors.

One set of variables is used as control variables for *personal values*. This includes the importance attributed by individuals to family and friends, to work relatively to leisure (importance of work/importance of leisure), to politics and to religion. These variables are not important to define economic policies but are relevant for conditioning the focus variables described above. All these variables are measured on a scale from one to four. The original variables assigned to one the value "very important" and to four the value "Not important at all". We reversed this order to make the variable increasing in life satisfaction.

Values matter to determine how much importance we give to the different attributes we have and affect in this way life-satisfaction. For example, unemployment has an impact on life-satisfaction but we should expect it to have a different impact depending on the importance that people give to work. If I give a lot of importance to work and I am unemployed I will be less happy than a person who is also unemployed but gives less importance to work. If we do not control for heterogeneity in work ethics it is difficult to measure properly the impact of unemployment on life-satisfaction. This explains why we imported 'values' in the life-satisfaction equations.

Another set of variables captures what we call *social attitudes*. One variable measures on a scale from one to ten how people think is justifiable to cheat on taxes where one corresponds to 'never' and ten to 'always'. Another variable measures the political orientation of people on a scale from one to ten where one corresponds to 'left' and ten corresponds to 'right'. A third variable measures the degree of desired income inequality on a scale from one ('Income should be made more equal') to ten ('We need larger income

differences as incentives'). We called this variable 'Desired inequality' because increasing values indicate an increased appreciation of inequality. A last variable measures whether people generally trust other people or not. This is the variable 'trust in people' and is measured with a dummy variable where one is 'Most people can be trusted' and zero is 'Can't be too careful'.

Social attitudes are evidently important for economic policies. Governments should reflect the political orientations and the degree of desired inequality of their people and they should be concerned about behaviors such as cheating on taxes or trust. The impact of income inequality on life-satisfaction in society is likely to be affected by the degree of inequality aversion existing in society. In welfare theory, the reverse of desired inequality which is inequality aversion has a special place. It is used to attribute different weights to different parts of a distribution when we measure inequality with indexes that belong to the 'general entropy' family such as the Atkinson index of inequality. In general, inequality aversion is established by the researcher whereas the data we use provide the unique opportunity to control for this feature.

5 A world of happiness

Happiness is a complex feeling and can be found in unexpected places but in general the world ranking of happiness constructed from the database we have shows some clear patterns. Table 1A and 1B report the average value of life-satisfaction for all world areas, countries, regions and years present in the database. Northern Europe, North-America and Central America top the world areas ranking while the transitional economies of the Balcans, Trans-Caucasus and Eastern Europe are found at the bottom of this particular classification. Colombia, Puerto Rico and Denmark seem to be the places where happier people live while Ukraine, Zimbabwe and Tanzania are the places where to find unhappy people (table 1A). Countries vary their performance over the years but in general Colombia, Puerto Rico, Switzerland, Malta and Denmark are found consistently at the top of the country/year ranking. Regions within these countries are also the regions that top the region/year classification with some exceptions such as two regions from India (Haryana 2001 and Punjab 1995) which are found in the top ten regions. Fourteen among the twenty worst performing regions are found in Moldova and Ukraine with the worst four regions worldwide being all from Moldova (table 1B). It is evident that the level of economic development cannot explain alone happiness and it is equally evident that high levels of happiness can be found in places that experience turmoil such as Colombia and Northern Ireland. But overall, it is not a surprise to find that countries which have experienced prolonged stability and high levels of welfare such as countries in Northern Europe and North-America rank high in the happiness ladder whereas countries that have gone through profound societal changes and deep recessions such as the transitional economies rank low.

Figure 1 provides a first insight into what may predict life-satisfaction. The figure plots

life-satisfaction against the main variables considered (freedom, income, gini, employment rate, unemployment rate and institutional rating)[3]. The sample used is the reduced sample of 104,513 observations selected for the regressions. The dots in the figure represent the average regional values of each variable in each year and amount to a total of 892 observations. The fitted lines in the scatter plots are drawn making use of a quadratic fit as follows:

$$y^* = \alpha x_i + \beta x_i^2 \tag{1}$$

where y^* are the predicted values of life-satisfaction estimated on a vector x of variables with i =(freedom, income, gini, employment rate, unemployment rate, institutional rating). α and β are the parameters.

Life-satisfaction and freedom show a rather neat linear relation. On average, life-satisfaction scores better than freedom but the dots are remarkably grouped around the fitted line which is an almost straight line close to the 45 degrees line. We don't have any previous findings on this relation to compare our results with but it is evident that freedom is a variable that predicts life-satisfaction well.

Income is increasing in life-satisfaction with decreasing marginal returns which is what we would expect. This finding also concords with previous studies (Blanchflower and Oswald, 2000 and Di Tella, MacCulloch and Oswald, 2001). The gini coefficient does not seem to show any clear-cut relation with life-satisfaction which is consistent with Veenhoven (1996) and Alesina et Al.(2001). The employment rate has a similar fit to income with a positive slope and decreasing marginal returns. Vice-versa, the unemployment rate has a negative slope which flattens as the unemployment rate becomes very high. The two findings are consistent with most of the literature on labour market status and happiness.

The fit of the institutions rating variable is peculiar. It would seem that good institutions improve life-satisfaction up to a point when a further improvement in institutions is actually counter-productive for improving life-satisfaction. This is not intuitive as one would expect a positive slope perhaps with decreasing marginal returns and we are not aware of research on happiness that looked specifically at the institutional variables we use. In a study on Switzerland, Frey and Stutzer (2000) find that: *"Iinstitutional factors in the form of direct democracy (via initiatives and referenda) and of federal structure (local autonomy) systematically and sizeably raise self-reported individual well-being"* (p.918). However, the institutional variables they use are very different from ours and the authors do not test for a non linear fit.

6 Happiness in a heterogeneous world

The full econometric model used to explain life-satisfaction is described as follows:

[3]In this case, we substituted the unemployment rate to unemployment status given that the regional average number of unemployed is a less meaningful indicator than the regional unemployment rate.

$$y = \alpha + \phi F + \eta E + \rho R + \chi C + \psi P + \sigma S + \varepsilon \quad (2)$$

where y is life-satisfaction, F is the variable freedom, E is a vector of individual economic attributes, R is a vector of regional economic features, C is a vector of individual and family characteristics, P is a vector of personal values and S is a vector of individual social attitudes. $\alpha, \phi, \eta, \rho, \chi, \psi$ and σ are the parameters to be estimated and ε is the error term. Coefficients are estimated with ordered logit and OLS regressions with and without time and country dummies for the cross-section equations. GLS random effects and fixed effects are used to estimate marginal changes over time and across regions.

Collinearity among regressors is not large. None of the regressors is dropped by the software in any of the regression estimates reported in tables 3, 4 and 5. Table 2 reports the pairwise pearson correlation matrix for all regressors with the significance level. Coefficients are generally significant at the 10% level but very few are equal or above 0.2 (marked in bold in table 2). Outside the individual and family attributes which show some degree of correlation as one would expect the only two pairwise correlations equal or above 0.2 are the correlation between the regional gini and income (0.20) and the correlation between the importance of religion and the regional employment rate (0.31).

For all estimations we used the robust Huber-White sandwich estimator with regional clusters. Our best model explains about a third of the variance of life-satisfaction and we know from research in psychology that the error term will capture several psychological determinants of happiness and other factors which are likely to be correlated with at least some of our regressors such as the measures for personal values and social attitudes. A variable such as freedom may also be correlated with factors like political and economic freedoms which are not measured by the survey we use. This led us to relax the assumption that the regressors used and the error term are identically distributed. We also decided to drop the independence hypothesis and use the cluster option with regions. That is because the number of observations in each region can be rather small (although we constrained the sample to regions with at least thirty observations) and because we observed in the panel equations a much smaller *within* regions than *between* regions variation which may be due to the fact that interviews within regions took place in a relatively small spatial area.

In table 3 we checked the relevance of each regressor used with OLS estimates.[4] Columns one to six report the reduced models adding one at a time the vectors of variables described in [2]. Column seven reports the full model. The last column in the table reports the R squared contribution of each variable calculated as follows: $R^2Contr. = [(R^2_F - R^2_{Ri})/R^2_F] * 100$ where R^2_F = R-squared of the full model and R^2_{Ri} = R-squared of the model reduced of the variable i where i stands for each of the regressors used.

The variable freedom is by far the most relevant variable in the model. Omitting

[4] As shown in table 4, OLS and ordered logit regressions provide remarkably close results which is the reason why OLS and ordered logit estimates are used interchangibly depending on needs.

freedom from the equation reduces the R-squared by almost 60%. This is followed by income which contributes for about 6%, unemployment (2%), the regional employment rate (2%), political orientation (1.8%) and age (1.6%). The model with only freedom as a regressor increases the explanatory power by about 18% (column 2, table 3) while adding in sequence the other vectors of variables increases the R-squared only marginally: +3% for individual economic status (col. 3), +1% for regional economic status (col. 4), +1% for individual attributes (col. 5), +1% for personal values (col. 6) and less than 1% for social attitudes (col.7). All variables in all equations are significant with the exception of the variables 'female' and 'desired inequality'. The significance of the gender variable is reduced by the existing collinearity with the 'breadwinner' variable (pearson corr. coefficient=0.41, table 2) but this is not sufficient to explain the non significance of this variable's coefficient. A similar correlation coefficient is found between the number of children, age and being married but all these variables are significant in all estimates. Desired inequality does not explain life-satisfaction but if this variable is removed the coefficient and significance of the regional gini coefficient is reduced which speaks in favour of controlling for social attitudes.

Table 4 reports and compares results for ten different equations run on the full model. Columns 1-4 report the ordered logit estimates starting from the model with no time or country fixed effects and adding progressively time, country and both time and country dummies. Columns 5-8 repeat this exercise with OLS estimates. All these equations are estimated on the pooled sample of 104,513 individuals. Columns 9 and 10 report respectively the random effects and the fixed effects estimates made on the regional panel.[5] Column 11 in table 4 reports the number of significant coefficients across the ten equations and column 12 reports whether any of the significant coefficients changes sign across the ten equations.

Freedom is significant in all equations and shows the highest t or z score in table 4. The coefficients of freedom are also much larger than the coefficients of income whereas both variables are measured on a ten steps ladder. Income and being unemployed are also always significant factors with the expected signs. The regional economic variables are all significant in equations one and five but become non-significant if the time and country dummies are introduced. The time dummies are sufficient to turn the regional employment rate to non significant while the country dummies turn all regional variables to non significant. This is partly explained by the fact that the number of regions within each country is limited and the country dummies reduce the cross-regional variation within countries. Where significant, the coefficients of the regional variables are all positive with one exception. The squared of the regional institutional rating is negative when the regional institutional rating is positive and significant which would confirm the possible inverse U-shape relation between institutional rating and life-satisfaction shown in figure one.

Being married and age are, as expected, important predictors of life satisfaction. All

[5] Note that the panel is unbalanced given that for each region we can have from one to four years.

personal values variables and all social attitudes variables are also always significant with the exception of desired inequality. Individuals who give particular importance to family and friends and to religion, who tend to be right wing, who trust most people and desire more inequality tend to be happier on average. Instead, those people who give more importance to work relatively to leisure, those who give more importance to politics and those who tend to tolerate tax cheating more tend to be more unhappy. The best fit we have in table 4 shows an R-squared of 0.34 (columns 7 and 8) and the regional panel regressions (columns 9 and 10) indicate that the between regions R-squared is much larger than the within regions one.

The within country regressions presented in table 5 offer a more complex picture. As already described, we selected ten countries roughly representative of the sample of 71 countries we used in table 4 so as to compare results across a selected sample of countries. As in table 4, columns 11 a 12 report the number of equations where each variable is significant and whether the coefficients change of sign across the equations where the coefficient is significant. The only variable that 'survives' this test is freedom which is significant with a large coefficient in all equations. Income remains a very important variable but in Italy and Mexico this variable does not seem to be very relevant for life-satisfaction. In three countries (Mexico, India and Albania) age does not matter and in four countries (Japan, India, Albania and Russia) being married does not raise happiness on average. For all other variables the coefficients are not significant in at least half of the ten country equations. In some cases, such as for the regional institutional rating and for the number of children when the coefficient is significant this changes of sign in different countries. For example, the regional institutional rating has a positive effect on life-satisfaction in Mexico and a negative effect in Nigeria.

Personal values and social attitudes play a non negligible role in changing the significance of the regional variables and the individual attributes. For example, when during the trials we removed from the within country equations both personal values and social attitudes (which is what most studies on happiness do) the variables breadwinner, female and married all increased their explanatory power in various countries turning from non-significant to significant. Vice-versa, the regional institutional rating became less significant turning from significant to non-significant in one country. Considering the significance of both personal values and social attitudes in table 4, the role of these variables in conditioning the predictors of life-satisfaction is relevant.

7 Happiness & Freedom

We have established with a certain degree of confidence that freedom is the best predictor of life-satisfaction among all the regressors considered. We haven't established whether freedom is really a cause of happiness or whether life-satisfaction is a cause of freedom, or both. It could also be that life-satisfaction and freedom are understood by respondents as proxies. This last hypothesis has no real ground if we look at the two questions asked given

that they ask about two very different feelings. However, life-satisfaction and freedom have in common that they are both feelings which are built on positive experiences. We are happier if we experience something positive and we feel more free and in control of our life if we are more confident in ourselves and experience more freedoms. We can't really test whether happiness and freedom are perceived as proxies by respondents. This would require a laboratory experiment and the help of psychologists. We can, however, experiment with causality tests.

Testing causality and the direction of causality is a notoriously difficult task. The more so if the variables at stake are two feelings where the bidirectional causality is very plausible. Among the possible causality tests offered by the literature we have to exclude the Granger test because we do not dispose of a sufficiently long time period. We could experiment with a Rubin control group type of evaluation but the obstacle in this case is that we do not dispose of panel data on individuals and a single difference method on cross-section data offers little insights into causality. We can construct a short panel of two time periods on regions but we would encounter several problems. Matching regions is not like matching individuals and it is difficult to use freedom or life-satisfaction which are individual feelings as a 'treatment' on regions.

We can attempt instead to use a lagged variables approach at least to try to establish whether increased freedom precedes increased life-satisfaction or, vice-versa, whether increased life-satisfaction precedes increased freedom. We organized our database into two time periods where period one is the first year available for each country and period two is the last period.[6] For most countries time one corresponds to 1990 and time two to 1999. For the remaining countries time one will be between 1990 and 1992 and time two between 1998 and 2003. Therefore, we are looking at changes over a period of major transformations in the world economy. Most of the countries listed in our database have either went through the process of transition from centrally planned to market economies or have gone through a process of economic liberalization. These are epochal changes which should be expected to have a visible impact on both life-satisfaction and freedom.

Table 6 reports the results for the life-satisfaction and freedom equations where the regressors are the respective lagged variables. Results are reported conditioned and not conditioned on all other variables considered (individual economic status, individual attributes, personal values and social attitudes). The life-satisfaction equations show that life-satisfaction in time two is positively correlated with life-satisfaction in time one and with freedom in time two but not with freedom in time one. Lagged freedom does not seem to have a significant impact on present life-satisfaction. Vice-versa, the freedom equations show that freedom in time two is positively correlated with freedom in time one and with life-satisfaction in time two and negatively correlated with life-satisfaction in time one. This is contrary to what we would have expected. Lagged life-satisfaction explains freedom better than lagged freedom explains life-satisfaction but with a negative

[6] Note that this construction reduced the sample to 32 countries and 380 regions. Units of observation in table 6 are regions.

sign.

The lagged variable approach described above provides a first insight into the direction of causality. An alternative method is to use a two-steps Instrumental Variable (IV) approach but we could not find a variable within our database that could serve this purpose. We opted therefore to seek a valid instrument elsewhere. A possible choice was to use those variables that measure political and economic freedoms. These variables are expected to improve individual freedoms which, in turn, should improve life-satisfaction. Data on political and economic freedoms are available from the freedom house web site (www.freedomhouse.org) and from the Index of Economic Freedom web site (www.heritage.org/index). We merged these two datasets with the European and World values survey database already used.

The freedom house database assigns a score to each country on a scale from 1 to 7 on political representation and civil liberties where 1 is a low score and 7 is a high score.[7] The index of economic freedom is instead an average score by country of ten different aspects of economic freedoms including business freedom (regulation), monetary freedom, property rights, fiscal freedom, trade freedom, freedom from government, investment freedom, financial freedom, freedom from corruption and labor freedom.[8] The freedom house database covers 181 countries for the period 1972-2005 whereas the index of economic

[7] The freedom house index is explained at: http://www.freedomhouse.org. Below is an extract of the explanation: "*(...) The ratings process is based on a checklist of 10 political rights questions and 15 civil liberties questions. The political rights questions are grouped into the three subcategories: Electoral Process (3 questions), Political Pluralism and Participation (4), and Functioning of Government (3). The civil liberties questions are grouped into four subcategories: Freedom of Expression and Belief (4 questions), Associational and Organizational Rights (3), Rule of Law (4), and Personal Autonomy and Individual Rights (4). Raw points are awarded to each of these questions on a scale of 0 to 4, where 0 points represents the smallest degree and 4 points the greatest degree of rights or liberties present.*"

[8] Further explanations on the index are available at: http://www.heritage.org. The ten components of economic freedom are defined as follows:

** Business freedom is the ability to create, operate, and close an enterprise quickly and easily. Burdensome, redundant regulatory rules are the most harmful barriers to business freedom.*

** Trade freedom is a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services.*

** Monetary freedom combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity. Price stability without microeconomic intervention is the ideal state for the free market.*

** Freedom from government is defined to include all government expenditures—including consumption and transfers—and state-owned enterprises. Ideally, the state will provide only true public goods, with an absolute minimum of expenditure.*

** Fiscal freedom is a measure of the burden of government from the revenue side. It includes both the tax burden in terms of the top tax rate on income (individual and corporate separately) and the overall amount of tax revenue as portion of GDP.*

** Property rights is an assessment of the ability of individuals to accumulate private property, secured by clear laws that are fully enforced by the state.*

** Investment freedom is an assessment of the free flow of capital, especially foreign capital.*

** Financial freedom is a measure of banking security as well as independence from government control. State ownership of banks and other financial institutions such as insurer and capital markets is an inefficient burden, and political favoritism has no place in a free capital market.*

** Freedom from corruption is based on quantitative data that assess the perception of corruption in the business environment, including levels of governmental legal, judicial, and administrative corruption.*

** Labor freedom is a composite measure of the ability of workers and businesses to interact without restriction by the state.*

freedom covers 163 countries over the period 1995-2007. The merged data set allowed us to work with 76 countries and 9 years for a total of 111 country/year observations. The labor freedom component of the index of economic freedom was dropped due to insufficient number of observations. We constructed instead an indicator of political freedom which averaged the political representation and civil liberties scores of the freedom house database (polfree) and an indicator of economic freedom which averaged the nine types of freedoms used by the index of economic freedom database (ecofree). This made a total of 13 possible regressors to use together with the life-satisfaction and freedom variables extracted from the European and World Values database.

In table 7 we report the pearson correlation coefficients and significance level of all the variables considered. It is evident that all correlation coefficients are rather high and significant and for this reason we should expect a certain amount of collinearity among the regressors used. Of particular interest is the correlation between life-satisfaction and freedom with all other variables. The variables that are closely related to life-satisfaction are monetary freedom, civil liberties, property rights and corruption in this order. In a slightly different order, these are the same four variables that matter for freedom. This may have been expected given the close association between life-satisfaction and freedom. What is surprising, however, is that all the political and economic freedom variables show a higher correlation with life-satisfaction than with freedom itself with the exception of the government variable.

This finding induced us to relax the unidirectional causal hypothesis that political and economic freedoms influence life-satisfaction via self-perceived freedom. Instead we tested all possible combinations of regressors on both life-satisfaction and freedom and used an IV approach to test for both directions of causality. Results are reported in table 8. Columns 1 to 4 test the aggregated variables, columns 5 and 6 test the political freedom variables, columns 7-8 test the economic freedom variables and column 9-10 test both sets of variables together. Columns 11-14 report the results of the instrumental variable two-steps estimations. In column 11 we used as instruments of the life-satisfaction equations those variables that in columns 7 and 8 were significant in the freedom equation but not in the life-satisfaction equation (government and corruption). Vice-versa, in the freedom equation of column 12 we used as instruments two variables that in columns 7 and 8 were significant in the life-satisfaction equation but not in the freedom equations (monetary and property rights).[9] These last two equations were repeated in columns 13 and 14 conditional on all other variables.

Political and economic freedoms predict life-satisfaction better than they predict self-perceived freedom. In all equations of table 8 the R-squared for the life-satisfaction equations is always larger than the R-squared for the freedom equations. In equations one to six coefficients are always larger in the life-satisfaction equations than in the freedom

[9] This method could not be used for the political freedom variables as these were equally significant in the life-satisfaction and freedom equations (columns 5 and 6). Note tht we picked two instruments for each IV equation in columns 11-14 although column 7 allowed for a third instrument (fiscal).

equations. The IV results reported in columns 11 and 12 show that life-satisfaction is a better predictor of freedom than freedom is of life-satisfaction. The only exception to these findings, which are also consistent with those reported in table 6, are the results in columns 13 and 14 where both life-satisfaction and freedom are significant when explaining each other.

8 Conclusions

The paper finds a very strong association between self-perceived life-satisfaction and self-perceived freedom. This association survives all bivariate and multivariate tests in a cross-country, within country and over time context. The same cannot be said for all other regressors used to explain life-satisfaction including those that have been found in the past to explain life-satisfaction well such as income, unemployment status, age and marital status. Other regressors introduced by this paper to depict regional economic conditions are also found to be relevant in explaining life-satisfaction although these factors are much weakened once country fixed effects are introduced. The variable freedom is able alone to explain variations in life-satisfaction more than all other variables pulled together.

Another novelty of the paper is the use of personal values and social attitudes as control factors in all equations and the finding that these factors are often significant in the life-satisfaction equations. The coefficients of these variables are generally small but they are able to influence significantly the coefficients and significance of some of the regressors. For example, we showed how the introduction of inequality aversion has an impact on the regional inequality measure.

Despite these findings, little is known about causality between life-satisfaction and freedom. Two first attempts to assess the direction of causality of these two variables led to unexpected results. Life-satisfaction seems to explain freedom better than freedom explains life-satisfaction. Intuitively, we expected self-perceived freedom to capture a large set of psychological and experienced freedoms which, in turn, we expected to have a positive impact on life-satisfaction. Our results show instead that experienced freedoms such as political and economic freedoms explain life-satisfaction better than they explain self-perceived freedom.

These results open a relatively new chapter in the book of happiness research. Freedom is a ubiquitous and much abused word in modern times. Politicians and marketing specialists alike make large use of the term freedom. George W. Bush uses the word freedom very frequently in his speeches dressing with the freedom jacket otherwise unpopular political choices. Silvio Berlusconi named his centre-right coalition in Italy the "House of Freedoms" to lift the spirits of his electorate. Television advertisements associate the idea of freedom to several products such as automobiles and mobile phones suggesting that buying these products sets you free. The word 'freedom' sells well and is evidently perceived as a positive concept that inspires people. Long before this paper was written, psychologists, politicians and marketing specialists understood the importance of evok-

ing freedom to steer happiness in people. This paper has provided some first empirical evidence on this relation worldwide.

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Table 1A - World Ranking of Life-satisfaction (World Areas and Countries)

			1st Quartile			2nd Quartile			3rd Quartile			4th Quartile		
Rank	**World Area**	**Mean**	**Rank**	**Country**	**Mean**	**Rank**	**Country**	**Mean**	**Rank**	**Country**	**Mean**	**Rank**	**Country**	**Mean**
1	Northern Europe	7.78	1	colombia	8.31	22	el salvador	7.50	43	greece	6.67	64	estonia	5.64
2	North-America	7.75	2	puerto rico	8.25	23	brazil	7.28	44	slovenia	6.66	65	bosnia and herzegovina	5.61
3	Central America	7.74	3	denmark	8.21	24	saudi arabia	7.28	45	taiwan	6.56	66	jordan	5.60
4	Oceania	7.70	4	switzerland	8.20	25	chile	7.24	46	japan	6.55	67	macedonia	5.40
5	South-America	7.38	5	malta	8.16	26	singapore	7.24	47	viet nam	6.52	68	lithuania	5.40
6	Southern Europe	7.04	6	iceland	8.04	27	germany west	7.22	48	kyrgyzstan	6.48	69	azerbaijan	5.39
7	Central Europe	6.90	7	ireland	7.96	28	uruguay	7.13	49	poland	6.44	70	egypt	5.36
8	China and Taiwan	6.82	8	austria	7.95	29	dominican republic	7.13	50	croatia	6.41	71	romania	5.30
9	East-Asia	6.59	9	northern ireland	7.91	30	venezuela	7.12	51	peru	6.41	72	latvia	5.25
10	Central Asia	6.48	10	canada	7.85	31	germany	7.11	52	iran	6.38	73	iraq	5.23
11	South-Asia	6.18	11	sweden	7.85	32	italy	7.09	53	south africa	6.36	74	bulgaria	5.06
12	Sub-Saharian Africa	6.11	12	luxembourg	7.81	33	argentina	7.08	54	slovakia	6.27	75	albania	4.97
13	Middle-East	5.94	13	finland	7.79	34	portugal	7.05	55	hungary	6.26	76	pakistan	4.85
14	North-Africa	5.66	14	netherlands	7.78	35	israel	7.03	56	india	6.16	77	russian federation	4.80
15	Balcans	5.55	15	norway	7.74	36	indonesia	6.96	57	republic of korea	6.14	78	belarus	4.75
16	Trans-caucasus	5.03	16	new zealand	7.70	37	spain	6.93	58	bangladesh	6.09	79	georgia	4.68
17	Eastern Europe	4.89	17	australia	7.70	38	china	6.88	59	morocco	6.06	80	armenia	4.32
			18	united states	7.67	39	france	6.85	60	turkey	5.87	81	moldova	4.14
			19	mexico	7.67	40	czech republic	6.75	61	algeria	5.67	82	ukraine	4.14
			20	great britain	7.51	41	philippines	6.75	62	uganda	5.65	83	zimbabwe	3.95
			21	belgium	7.50	42	nigeria	6.70	63	serbia and montenegro	5.64	84	tanzania	3.87

Note: 267,870 observations; 1349 regions; 84 countries; 20 years

Table 1B - World Ranking of Life-satisfaction (Countries/Years/Regions)

1st Quartile		2nd Quartile		3rd Quartile		4th Quartile		Top/Bottom regions	
Country/year	**Score**	**Country/year**	**Score**	**Country/year**	**Score**	**Country/year**	**Score**	**Country/year/region**	**Score**
puerto rico2001	8.49	australia1995	7.58	**south africa1990**	6.72	romania1993	5.88		
colombia1998	8.42	great britain1998	7.58	venezuela1996	6.72	hungary1998	5.86	**Top 20 regions (min. 30 obs.)**	
switzerland1989	8.36	great britain1981	7.56	**france1981**	6.71	hungary1999	5.80		
malta1991	8.28	chile1990	7.55	**india1990**	6.70	bangladesh2002	5.78	india2001 haryana	9.48
denmark1999	8.24	**mexico1996**	7.54	republic of korea1990	6.69	bosnia and herz.2001	5.77	switzerland1996 bern	8.74
denmark1981	8.22	venezuela2000	7.52	croatia1999	6.68	latvia1990	5.70	denmark1981 fyns amt	8.73
malta1999	8.21	el salvador1999	7.50	greece1999	6.67	macedonia1998	5.70	puerto rico2001 sur	8.68
ireland1999	8.20	great britain1990	7.49	philippines2001	6.65	algeria2002	5.67	puerto rico2001 centro	8.67
colombia1997	8.19	belgium1999	7.43	**italy1981**	6.65	serbia and mont.1996	5.66	denmark1981 Århus amt	8.66
denmark1990	8.16	germany1999	7.42	poland1989	6.64	uganda2001	5.65	colombia1998 central	8.62
mexico2000	8.14	**mexico1990**	7.41	spain1995	6.61	serbia and mont.2001	5.63	switzerland1996 aargau	8.62
puerto rico1995	8.10	great britain1999	7.40	**japan1995**	6.61	turkey2001	5.62	india1995 punjab	8.58
iceland1984	8.06	belgium1981	7.38	**nigeria1995**	6.59	jordan2001	5.60	switzerland1996 thurgau	8.57
iceland1999	8.05	brazil1991	7.37	spain1981	6.59	belarus1990	5.52	puerto rico2001 montana	8.56
austria1999	8.03	**italy1990**	7.30	**nigeria1990**	6.59	bulgaria1999	5.50	denmark1990 ringkøbing amt	8.55
switzerland1996	8.02	argentina1999	7.30	**japan1981**	6.58	bosnia and herz.1998	5.46	argentina1984 rosario	8.53
iceland1990	8.02	china1990	7.29	taiwan	6.56	azerbaijan1997	5.39	denmark1999 vestsjællands amt	8.50
sweden1982	8.01	saudi arabia2003	7.28	poland1990	6.53	**russian federation1990**	5.37	puerto rico2001 oeste	8.49
northern ireland1999	8.00	argentina1991	7.25	**india1995**	6.53	egypt2000	5.36	colombia1998 atlántica	8.48
sweden1990	7.97	singapore2002	7.24	china2001	6.53	republic of korea1982	5.33	denmark1999 Århus amt	8.47
malta1983	7.95	slovenia1999	7.23	japan1990	6.53	latvia1999	5.27	iceland1999 area around keflavik airp	8.47
australia1981	7.89	germany west1981	7.22	viet nam2001	6.52	romania1999	5.23	denmark1999 frederiksborg amt	8.46
norway1982	7.89	**italy1999**	7.17	**japan2000**	6.48	iraq2004	5.23	denmark1990 frederiksborg amt	8.44
canada1990	7.89	brazil1997	7.15	kyrgyzstan2003	6.48	lithuania1999	5.20		
northern ireland1990	7.88	spain1990	7.15	slovenia1995	6.46	**albania2002**	5.17	**Bottom 20 regions (min. 30 obs.)**	
ireland1990	7.88	uruguay1996	7.13	peru2001	6.44	**india2001**	5.14		
austria1990	7.87	dominican republic1996	7.13	poland1997	6.42	macedonia2001	5.12	moldova1996 sorokskij	1.82
finland2000	7.87	chile2000	7.12	bangladesh1996	6.41	bulgaria1990	5.03	moldova1996 strashenskij	2.02
netherlands1999	7.85	spain1999	7.09	turkey1990	6.41	estonia1996	5.00	moldova1996 floreshtskij	2.60
canada2000	7.85	portugal1990	7.07	czech republic1998	6.39	lithuania1997	4.99	moldova1996md: orgeevskij	2.63
ireland1981	7.82	czech republic1999	7.06	iran	6.38	latvia1996	4.90	turkey2001 sanliurfa (southeast)	2.85
canada1982	7.82	portugal1999	7.04	czech republic1990	6.36	romania1998	4.86	ukraine1996 rivnå oblast	3.04
luxembourg1999	7.81	israel2001	7.03	peru1996	6.36	pakistan2001	4.85	ukraine1996 dnipropetrovsk oblast	3.09
finland1996	7.78	germany1990	7.02	**south africa2001**	6.31	belarus2000	4.81	ukraine1996 cherkasy oblast	3.24
sweden1996	7.77	**france1999**	7.01	slovenia1992	6.29	**albania1998**	4.77	macedonia2001 kumanovski	3.31
netherlands1990	7.77	spain2000	6.98	republic of korea2001	6.21	georgia1996	4.68	ukraine1996 odessa oblast	3.37
united states1990	7.73	indonesia2001	6.96	poland1999	6.20	bulgaria1997	4.66	ukraine1996 luhansk oblast	3.42
netherlands1981	7.73	germany1997	6.93	croatia1996	6.18	**russian federation1999**	4.65	moldova1996 ungenskij	3.45
new zealand1998	7.70	hungary1982	6.93	turkey1996	6.18	ukraine1999	4.56	zimbabwe2001 masvingo	3.46
norway1990	7.68	argentina1995	6.93	slovakia1990	6.15	moldova2002	4.56	ukraine1996 kherson oblast	3.51
finland1990	7.68	chile1996	6.92	**south africa1996**	6.08	**russian federation1995**	4.45	ukraine1996 kyiv city	3.51
united states1995	7.67	**nigeria2000**	6.87	slovakia1998	6.07	belarus1996	4.35	ukraine1996 poltava oblast	3.54
united states1999	7.66	philippines1996	6.84	morocco2001	6.06	armenia1997	4.32	armenia1997 ghegharkunic marz	3.57
northern ireland1981	7.66	czech republic1991	6.83	slovakia1999	6.03	ukraine1996	3.95	ukraine1996 crimea	3.59
united states1982	7.66	china1995	6.83	hungary1991	6.03	zimbabwe2001	3.95	zimbabwe2001 bulawayo	3.59
norway1996	7.66	slovakia1991	6.81	lithuania1990	6.01	tanzaniaf2001	3.87	armenia1997 tavush marz	3.63
sweden1999	7.64	**france1990**	6.78	estonia1990	6.00	moldova1996	3.73		
belgium1990	7.60	argentina1984	6.77	estonia1999	5.93				

Note: 267,870 observations; 1349 regions; 84 countries; 20 years (194 country/years). In bold, countries and years selected for the within countries equations

Figure 1 - Life-satisfaction and its Predictors

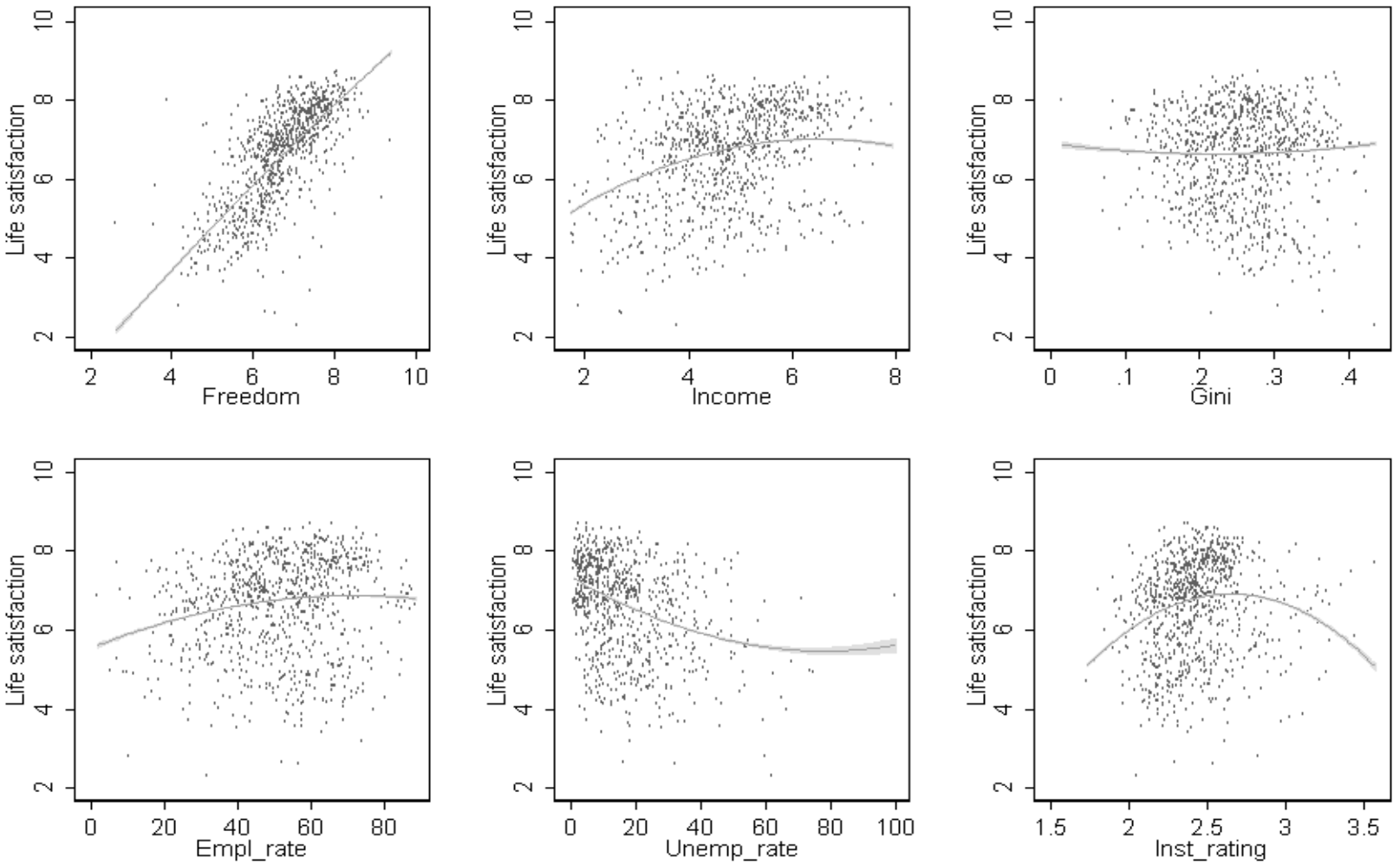

Table 2 - Regressors Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	freedom	1.00																		
2	scale of incomes	0.11	1.00																	
		0.00	**Ind. Econ. Stat.**																	
3	unemployed	-0.04	-0.12	1.00																
		0.00	0.00																	
4	regional inequality (gini)	0.02	**-0.20**	0.02	1.00															
		0.00	0.00	0.00	**Regional Econ. Status**															
5	regional employment rate	0.03	0.14	-0.08	0.03	1.00														
		0.00	0.00	0.00	0.00															
6	regional institutional rating	0.03	0.01	0.01	-0.07	-0.18	1.00													
		0.00	0.00	0.00	0.00	0.00														
7	breadwinner	0.00	-0.08	-0.17	0.04	0.13	0.00	1.00												
		0.17	0.00	0.00	0.00	0.00	0.31													
8	female	-0.03	-0.05	-0.03	0.01	0.02	-0.03	**-0.41**	1.00											
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	**Individual Attributes**											
9	age	-0.05	-0.10	-0.14	0.02	0.16	-0.06	**0.28**	-0.01	1.00										
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03											
10	married	-0.03	0.12	-0.11	-0.04	0.03	0.03	0.04	-0.05	0.16	1.00									
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00										
11	number of children	-0.01	-0.07	-0.08	0.00	-0.06	0.09	0.11	0.04	**0.40**	**0.41**	1.00								
		0.00	0.00	0.00	0.92	0.00	0.00	0.00	0.00	0.00	0.00									
12	importance of family and friends	0.07	0.09	-0.02	-0.03	-0.03	0.05	-0.02	0.03	-0.02	0.01	-0.01	1.00							
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02								
13	importance of work/leisure	-0.05	-0.07	0.03	-0.02	-0.14	0.06	0.01	-0.03	-0.01	0.04	0.07	-0.17	1.00						
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	**Personal Values**						
14	importance of politics	0.04	0.06	-0.02	-0.01	0.01	0.10	0.06	-0.08	0.04	0.02	0.01	0.15	-0.06	1.00					
		0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00						
15	importance of religion	0.03	-0.13	0.03	-0.01	**-0.31**	0.18	-0.11	0.10	0.02	0.00	0.15	0.12	0.07	0.10	1.00				
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00	0.00					
16	justified to cheat on taxes	-0.03	0.02	0.02	0.04	0.07	-0.09	0.02	-0.05	-0.11	-0.05	-0.08	-0.05	-0.03	-0.05	-0.14	1.00			
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
17	political orientation L->R	0.09	0.02	-0.02	-0.04	-0.07	0.09	-0.02	-0.01	0.02	0.02	0.05	0.02	0.02	0.05	0.15	-0.03	1.00		
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**Social Attitudes**		
18	desired inequality	0.08	0.11	-0.03	-0.03	0.02	0.01	0.00	-0.03	-0.05	0.01	-0.03	0.01	0.01	0.04	0.01	0.01	0.13	1.00	
		0.00	0.00	0.00	0.00	0.00	0.02	0.23	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00		
19	trust in people	0.05	0.11	-0.05	-0.05	0.12	0.07	0.04	-0.01	0.04	0.02	0.00	0.07	-0.06	0.07	-0.07	-0.01	-0.02	-0.01	1.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

Significance level under coefficients

Table 3 - The Role of the Predictors of Life-satisfaction

		1	2	3	4	5	6	7	R2 Contr.
	freedom		0.443	0.423	0.418	0.418	0.411	0.403	59.7
			(47.24)**	(45.32)**	(45.23)**	(46.21)**	(45.44)**	(45.51)**	
Indiv. Econ. Status	scale of incomes			0.136	0.132	0.133	0.132	0.128	5.9
				(14.35)**	(17.02)**	(15.65)**	(16.10)**	(15.39)**	
	unemployed			-0.703	-0.662	-0.672	-0.668	-0.647	2.0
				(15.19)**	(14.45)**	(15.52)**	(15.59)**	(15.43)**	
Reg. Econ. Status	regional inequality (gini)				1.15	1.22	1.244	1.429	0.5
					(2.32)*	(2.49)*	(2.59)**	(3.01)**	
	regional employment rate				0.009	0.011	0.012	0.012	2.0
					(3.76)**	(4.24)**	(4.77)**	(4.63)**	
	regional institutional rating				6.809	6.954	5.824	6.263	0.9
					(3.85)**	(3.94)**	(3.27)**	(3.58)**	
	regional institutional rating^2				-1.238	-1.273	-1.057	-1.167	0.8
					(3.57)**	(3.67)**	(3.02)**	(3.39)**	
Indiv. Attrib.	breadwinner					-0.149	-0.132	-0.127	0.2
						(3.13)**	(2.95)**	(2.91)**	
	female					0.046	0.01	0.006	0.0
						-1.78	-0.35	-0.21	
	age					-0.063	-0.06	-0.061	1.6
						(14.58)**	(13.83)**	(14.25)**	
	age2					0.001	0.001	0.001	1.6
						(14.69)**	(13.95)**	(14.04)**	
	married					0.258	0.262	0.258	0.7
						(9.68)**	(10.09)**	(9.97)**	
	number of children					0.038	0.031	0.03	0.1
						(3.45)**	(2.97)**	(2.98)**	
Pers. Values	importance of family and friends						0.243	0.224	0.6
							(6.66)**	(6.23)**	
	importance of work/leisure						-0.174	-0.172	0.6
							(7.84)**	(7.99)**	
	importance of politics						-0.044	-0.057	0.2
							(3.34)**	(4.39)**	
	importance of religion						0.112	0.092	0.5
							(6.21)**	(5.18)**	
Soc. Attit.	justified to cheat on taxes							-0.037	0.5
								(5.99)**	
	political orientation L->R							0.073	1.8
								(9.87)**	
	desired inequality							-0.007	0.0
								-1.19	
	trust in people							0.278	1.0
								(10.48)**	
	Constant	6.678	3.664	3.204	-6.669	-5.78	-5.29	-5.8	
		(115.45)**	(44.40)**	(35.59)**	(3.06)**	(2.64)**	(2.40)*	(2.68)**	
	R-squared	0	0.18	0.21	0.22	0.23	0.24	0.24	0.24

Note: OLS regressions. Observations=104, 513; Regions=664; Countries=71; Years=14. (**) Significant at the 1% level; (*) Significant at the 5% level. Robust t-stats below coefficients

Table 4 - Life-satisfaction (Total Sample Regressions)

		1	2	3	4	5	6	7	8	9	10	11	12
	units	**Individuals**	**Individuals**	**Individuals**	**Individuals**	**Individuals**	**Individuals**	**Individuals**	**Individuals**	**Regions**	**Regions**		
	model	**ologit**	**ologit with time**	**ologit with country**	**ologit with time and country**	**OLS**	**OLS with time**	**OLS with country**	**OLS with time and country**	**GLS random effects**	**Fixed effects (within)**	**# sign. eqs.**	**Change sign if sign.**
Indiv. Econ. Status	freedom	0.391	0.387	0.35	0.35	0.403	0.393	0.337	0.336	0.338	0.333		
		(41.29)**	(41.22)**	(40.04)**	(40.11)**	(45.51)**	(46.10)**	(45.20)**	(45.34)**	(46.39)**	(45.62)**	10	no
	scale of incomes	0.095	0.095	0.092	0.091	0.128	0.125	0.116	0.114	0.116	0.114		
		(13.50)**	(15.95)**	(16.54)**	(16.60)**	(15.39)**	(17.39)**	(17.85)**	(17.91)**	(18.17)**	(17.55)**	10	no
	unemployed	-0.494	-0.423	-0.391	-0.379	-0.647	-0.553	-0.48	-0.468	-0.479	-0.469		
		(14.11)**	(13.01)**	(11.73)**	(11.50)**	(15.43)**	(14.38)**	(12.94)**	(12.76)**	(13.33)**	(12.98)**	10	no
Reg. Econ. Status	regional inequality (gini)	1.323	1.693	0.038	0.156	1.429	1.948	0.067	0.174	1.192	1.589		
		(3.46)**	(4.56)**	-0.12	-0.44	(3.01)**	(4.32)**	-0.18	-0.43	(2.32)*	(2.56)*	6	no
	regional employment rate	0.009	0.003	0.003	0	0.012	0.004	0.003	0	0.007	0.004		
		(4.40)**	-1.3	-1.76	-0.06	(4.63)**	-1.59	-1.84	-0.05	(3.30)**	-1.15	3	no
	regional institutional rating	5.571	4.072	-1.022	-0.294	6.263	4.358	-0.975	-0.109	1.827	-0.246		
		(3.97)**	(3.11)**	-0.92	-0.26	(3.58)**	(2.74)**	-0.79	-0.09	-0.94	-0.08	4	no
	regional institutional rating^2	-1.054	-0.764	0.245	0.094	-1.167	-0.802	0.239	0.058	-0.377	-0.033		
		(3.81)**	(2.96)**	-1.07	-0.41	(3.39)**	(2.56)*	-0.95	-0.23	-0.93	-0.05	4	no
Indiv. Attrib.	breadwinner	-0.122	-0.113	-0.034	-0.029	-0.127	-0.115	-0.022	-0.017	-0.022	-0.022		
		(3.31)**	(4.09)**	(2.12)*	-1.8	(2.91)**	(3.61)**	-1.2	-0.93	-1.28	-1.26	6	no
	female	0.008	0.008	0.058	0.058	0.006	0.008	0.057	0.057	0.058	0.056		
		-0.36	-0.46	(4.31)**	(4.28)**	-0.21	-0.38	(3.59)**	(3.58)**	(3.65)**	(3.59)**	6	no
	age	-0.051	-0.049	-0.055	-0.055	-0.061	-0.058	-0.063	-0.063	-0.062	-0.062		
		(13.52)**	(15.42)**	(20.20)**	(20.33)**	(14.25)**	(16.11)**	(20.72)**	(20.83)**	(20.91)**	(20.95)**	10	no
	age2	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001		
		(13.44)**	(15.14)**	(20.31)**	(20.46)**	(14.04)**	(15.79)**	(20.59)**	(20.72)**	(20.75)**	(20.71)**	10	no
	married	0.219	0.234	0.336	0.341	0.258	0.274	0.377	0.382	0.364	0.371		
		(10.09)**	(11.35)**	(18.31)**	(18.63)**	(9.97)**	(11.46)**	(18.97)**	(19.30)**	(18.44)**	(18.78)**	10	no
	number of children	0.029	0.032	0.005	0.005	0.03	0.033	0.001	0.001	0.002	0.001		
		(3.43)**	(4.07)**	-0.86	-0.9	(2.98)**	(3.58)**	-0.19	-0.22	-0.31	-0.24	4	no
Pers. Values	importance of family and friends	0.188	0.203	0.214	0.223	0.224	0.236	0.24	0.249	0.242	0.24		
		(6.44)**	(7.44)**	(11.32)**	(12.05)**	(6.23)**	(7.31)**	(11.30)**	(11.99)**	(11.73)**	(11.69)**	10	no
	importance of work/leisure	-0.132	-0.117	-0.043	-0.048	-0.172	-0.15	-0.067	-0.071	-0.07	-0.061		
		(7.43)**	(7.10)**	(2.59)**	(2.92)**	(7.99)**	(7.81)**	(3.52)**	(3.75)**	(3.95)**	(3.45)**	10	no
	importance of politics	-0.047	-0.045	-0.039	-0.04	-0.057	-0.05	-0.041	-0.042	-0.042	-0.04		
		(4.44)**	(4.62)**	(4.48)**	(4.64)**	(4.39)**	(4.29)**	(4.32)**	(4.47)**	(4.43)**	(4.22)**	10	no
	importance of religion	0.09	0.113	0.098	0.098	0.092	0.117	0.101	0.101	0.095	0.098		
		(6.28)**	(8.78)**	(11.33)**	(11.55)**	(5.18)**	(7.49)**	(10.17)**	(10.30)**	(9.82)**	(10.13)**	10	no
Soc. Attit.	justified to cheat on taxes	-0.031	-0.032	-0.028	-0.028	-0.037	-0.036	-0.028	-0.028	-0.03	-0.029		
		(6.08)**	(6.92)**	(7.47)**	(7.35)**	(5.99)**	(6.59)**	(6.93)**	(6.75)**	(7.53)**	(7.11)**	10	no
	political orientation L->R	0.064	0.071	0.055	0.055	0.073	0.079	0.056	0.056	0.055	0.054		
		(10.28)**	(12.10)**	(11.42)**	(11.33)**	(9.87)**	(11.47)**	(10.42)**	(10.36)**	(11.28)**	(11.06)**	10	no
	desired inequality	-0.007	-0.006	0.016	0.015	-0.007	-0.005	0.02	0.019	0.018	0.021		
		-1.51	-1.51	(4.96)**	(4.56)**	-1.19	-1.04	(5.50)**	(5.08)**	(5.42)**	(6.15)**	6	no
	trust in people	0.202	0.157	0.161	0.157	0.278	0.214	0.196	0.192	0.213	0.204		
		(9.12)**	(8.06)**	(8.95)**	(8.94)**	(10.48)**	(9.31)**	(9.64)**	(9.70)**	(10.98)**	(10.53)**	10	no
	Constant					-5.8	-2.73	3.308	2.848	0.594	3.748		
						(2.68)**	-1.38	(2.15)*	-1.83	-0.26	-1.09		
	Pseudo R-squared	0.07	0.08	0.1	0.1								
	R-squared					0.24	0.27	0.34	0.34				
	within									0.18	0.18		
	between									0.56	0.51		
	overall									0.24	0.23		

Observations=104, 513; Regions=664; Countries=71; Years=14. (**) Significant at the 1% level; (*) Significant at the 5% level. Robust t-stats or z-stats below coefficients

Table 5 - Life-satisfaction (Within Country Regressions)

		1	2	3	4	5	6	7	8	9	10	11	12
		USA	**Japan**	**France**	**Italy**	**Mexico**	**South-Africa**	**Nigeria**	**India**	**Albania**	**Russia**	**# signif. coeff**	**Change sign if sign.**
	freedom	0.381	0.318	0.353	0.303	0.37	0.418	0.273	0.329	0.277	0.286		
		(25.38)**	(12.35)**	(11.99)**	(20.68)**	(5.94)**	(10.01)**	(10.09)**	(8.16)**	(32.57)**	(12.17)**	10	no
Indiv. Econ. Status	scale of incomes	0.066	0.115	0.079	0.025	0.064	0.193	0.227	0.148	0.342	0.115		
		(6.18)**	(6.06)**	(8.36)**	-1.37	-1.93	(5.64)**	(6.43)**	(3.79)**	(9.97)**	(4.90)**	8	no
	unemployed	-0.276	-0.612	-1.306	-0.822	0.137	-0.68	-0.188	-0.335	-0.349	-0.494		
		-2.01	-1.23	(8.12)**	(4.75)**	-0.51	(5.20)**	-1.29	-1.55	(4.11)*	(3.55)**	5	no
Reg. Econ. Status	regional inequality (gini)	1.77	0.271	0.196	-0.642	0.473	1.168	0.906	4.183	0.827	-1.389		
		-1.67	-0.23	-0.11	-0.8	-0.7	-1.12	-0.76	(2.76)*	-0.29	-0.8	1	no
	regional employment rate	0.003	0.012	-0.016	0.003	0.004	0.011	-0.014	0.012	-0.016	0.007		
		-0.35	-2.4	(2.92)*	-0.77	-0.47	-1.36	-1.82	-1.76	-1.6	-0.66	1	no
	regional institutional rating	8.411	0.726	31.791	-35.737	26.991	10.976	-6.104	-3.926	-46.841	4.976		
		-0.4	-0.02	-1	-1.76	(5.83)**	-0.48	(2.21)*	-0.63	-3.15	-0.18	2	yes
	regional institutional rating^2	-1.748	-0.173	-6.776	7.822	-6.314	-2.048	1.311	0.768	10.32	-0.97		
		-0.42	-0.02	-1.01	-1.75	(6.07)**	-0.48	(2.52)*	-0.63	(3.29)*	-0.16	3	yes
Indiv. Attrib.	breadwinner	0.038	0.237	0.109	-0.128	-0.144	-0.022	-0.338	0.067	0.01	-0.111		
		-0.77	-1.63	-0.94	-1.36	-1.09	-0.42	(5.13)**	-0.26	-0.05	-1.79	1	no
	female	-0.005	0.421	-0.022	-0.181	0.118	0.086	0.116	0.092	0.04	-0.244		
		-0.07	(4.18)*	-0.14	-2.03	-1.65	-1.43	-1.33	-0.62	-0.33	-2.13	1	no
	age	-0.04	-0.091	-0.077	-0.066	-0.035	-0.087	-0.031	-0.018	-0.008	-0.079		
		(4.64)**	(6.96)**	(5.83)**	(3.49)**	-1.43	(7.94)**	(2.28)*	-0.99	-0.63	(3.74)**	7	no
	age2	0	0.001	0.001	0.001	0	0.001	0	0	0	0.001		
		(5.27)**	(7.17)**	(6.61)**	(4.09)**	-1.48	(7.67)**	(3.22)**	-0.87	-0.37	(3.12)**	7	no
	married	0.548	0.339	0.406	0.907	0.452	0.442	0.304	0.134	0.197	0.222		
		(6.23)**	-2.52	(2.55)*	(7.74)**	(5.82)**	(5.54)**	(2.96)**	-1.09	-2.85	-1.69	6	no
	number of children	0.042	-0.017	0.04	-0.107	-0.029	-0.013	-0.062	-0.028	-0.059	-0.067		
		(2.86)*	-0.31	-0.82	(2.91)*	-1.89	-0.59	(2.87)*	-0.81	-1.19	-0.68	3	yes
Pers. Values	importance of family and friends	0.269	0.274	0.419	0.334	0.136	0.117	0.243	0.075	0.203	0.232		
		(3.29)**	(2.78)*	-2.08	(2.78)*	-1.6	-1.1	(2.20)*	-0.4	-0.74	-2.05	4	no
	importance of work/leisure	-0.181	-0.105	-0.124	-0.116	-0.094	-0.147	-0.071	0.171	0.003	-0.047		
		(3.00)*	-2.36	-1.74	-0.98	-1.51	(3.43)**	-0.92	-1.63	-0.02	-0.64	2	no
	importance of politics	0.013	0.089	-0.015	-0.153	-0.101	-0.096	-0.042	0.004	-0.007	-0.062		
		-0.34	-2.22	-0.35	(2.91)*	-2.18	-2.09	-1.19	-0.07	-0.14	-0.94	1	no
	importance of religion	0.077	-0.05	-0.036	0.173	0.083	0.233	0.432	0.177	0.024	0.018		
		-1.62	-1.07	-1.05	(3.65)**	-1.59	(9.29)**	(4.59)**	(3.54)**	-0.73	-0.21	4	no
Soc. Attit.	justified to cheat on taxes	-0.057	-0.04	-0.033	-0.023	-0.053	-0.048	0.014	-0.034	0.034	-0.004		
		(3.55)**	-0.92	-1.79	-0.87	-2.59	(2.30)*	-0.44	-0.62	-1.52	-0.27	2	no
	political orientation L->R	0.062	0.125	0.034	-0.014	0.031	0.009	0.077	0.157	-0.027	0.046		
		(2.96)*	(12.90)**	-1.19	-0.66	-1.22	-0.34	(3.67)**	(6.39)**	-2.33	-1.64	4	no
	desired inequality	0.026	0.055	0.003	0.012	0.035	0.046	0.018	0.036	-0.027	0.064		
		(2.77)*	-2.34	-0.15	-0.51	-2.65	(2.85)*	-1.59	-1.54	-0.8	(3.54)**	3	no
	trust in people	0.2	0.115	0.173	0.299	-0.167	0.2	-0.092	0.165	0.112	0.293		
		(2.92)*	-2.41	-1.99	(3.59)**	-1.53	(2.31)*	-1.28	-1.16	-0.76	-1.88	3	no
	Constant	-7.524	1.64	-32.092	45.696	-24.506	-12.267	8.315	5.276	54.746	-3.111		
		-0.28	-0.04	-0.84	-2	(4.63)**	-0.39	(2.55)*	-0.65	-2.91	-0.1	2	yes
	Observations	3581	1699	1688	2011	3312	4888	3813	3443	1608	2273		
	R-squared	0.26	0.22	0.25	0.18	0.2	0.32	0.18	0.22	0.25	0.19		

(**) Significant at the 1% level; (*) Significant at the 5% level. Robust t-stats below coefficients

Table 6 - Direction of Causality (Lagged Variables Test)

	Life-satisfaction time 2		Freedom time 2	
	Non-conditional	**Conditional**	**Non-conditional**	**Conditional**
Life-satisfaction time 1	0.603 (17.60)**	0.358 (9.82)**	-0.255 (6.13)**	-0.225 (5.42)**
Life-satisfaction time 2			0.597 (15.81)**	0.734 (18.02)**
Freedom time 1	-0.086 -1.79	0.072 -1.59	0.343 (8.19)**	0.147 (3.13)**
Freedom time 2	0.669 (15.81)**	0.67 (18.02)**		

Table 7 - Correlation Matrix

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	**mlifesat**	1.00														
2	**mfreedom**	0.77	1.00													
		0.00														
3	**polciv**	**-0.51**	**-0.32**	1.00												
		0.00	0.00													
4	**ecofree**	**0.51**	**0.41**	-0.60	1.00											
		0.00	0.00	0.00												
5	**polrep**	**-0.46**	**-0.28**	0.98	-0.56	1.00										
		0.00	0.00	0.00	0.00											
6	**civlib**	**-0.55**	**-0.35**	0.98	-0.62	0.92	1.00									
		0.00	0.00	0.00	0.00	0.00										
7	**regulation**	**0.33**	**0.20**	-0.51	0.78	-0.49	-0.52	1.00								
		0.00	0.04	0.00	0.00	0.00	0.00									
8	**trade**	**0.11**	**0.07**	-0.38	0.63	-0.37	-0.38	0.42	1.00							
		0.24	0.46	0.00	0.00	0.00	0.00	0.00								
9	**fiscal**	**-0.18**	**-0.03**	-0.02	0.41	-0.01	-0.03	0.19	0.29	1.00						
		0.05	0.74	0.37	0.00	0.55	0.23	0.00	0.00							
10	**gov_t**	**-0.05**	**0.10**	0.22	0.13	0.23	0.20	-0.07	-0.04	0.44	1.00					
		0.58	0.30	0.00	0.00	0.00	0.00	0.00	0.05	0.00						
11	**monetary**	**0.57**	**0.44**	-0.32	0.66	-0.28	-0.36	0.42	0.31	0.31	0.13	1.00				
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					
12	**investment**	**0.35**	**0.27**	-0.59	0.76	-0.57	-0.59	0.52	0.47	0.17	-0.04	0.38	1.00			
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00				
13	**financial**	**0.33**	**0.21**	-0.58	0.80	-0.54	-0.60	0.59	0.46	0.22	-0.01	0.44	0.68	1.00		
		0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00			
14	**property rights**	**0.54**	**0.36**	-0.63	0.82	-0.60	-0.63	0.69	0.47	0.07	-0.21	0.41	0.65	0.64	1.00	
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
15	**corruption**	**0.53**	**0.41**	-0.53	0.77	-0.50	-0.54	0.66	0.44	0.03	-0.26	0.43	0.53	0.58	0.82	1.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00	0.00	

Table 8 - Direction of Causality (IV Test)

Model	1 OLS	2 OLS	3 OLS	4 OLS	5 OLS	6 OLS	7 OLS	8 OLS	9 OLS	10 OLS	11 OLS-IV	12 OLS-IV	13 OLS-IV	14 OLS-IV
Dep. Var.	**Lifesat**	**Freedom**	**Lifesat**	**Freedom**	**Lifesat**	**Freedom**	**Lifesat**	**Freedom**	**Lifesat**	**Freedom**	**Lifesat**	**Freedom**	**Lifesat**	**Freedom**
mlifesat												0.389 (3.23)**		0.363 (2.75)**
mfreedom											0.409 -0.95		0.798 (2.65)**	
polfree	-0.303 (5.21)**	-0.156 (3.75)**												
ecofree			0.047 (6.19)**	0.025 (4.65)**										
civlib					-0.508 (3.25)**	-0.317 (2.84)**			-0.138 -0.9	-0.148 -1.23			-0.019 -0.17	-0.098 -1.12
polrep					0.147 -1.11	0.123 -1.3			0.035 -0.28	0.03 -0.31			0.01 -0.13	0.022 -0.32
regulation							-0.008 -1	-0.008 -1.23	-0.007 -0.81	-0.006 -0.98			-0.002 -0.31	-0.005 -1.2
trade							-0.011 -1.47	-0.008 -1.36	-0.01 -1.43	-0.008 -1.34			-0.004 -0.9	-0.004 -0.82
fiscal							-0.018 (2.14)*	-0.005 -0.81	-0.015 -1.71	-0.002 -0.28			-0.013 (2.64)**	0.003 -0.66
investment							0.005 -0.64	0.004 -0.61	0.003 -0.34	0.001 -0.16			0.002 -0.36	0 0
financial							-0.003 -0.48	-0.001 -0.12	-0.004 -0.53	-0.001 -0.21			-0.003 -0.61	0 -0.05
government							0.007 -1.56	0.009 (2.46)*	0.007 -1.61	0.009 (2.56)*		0.006 (2.90)**		0.007 (2.37)*
corruption							0.008 -1.33	0.01 (2.07)*	0.006 -0.99	0.008 -1.62		0.004 -1.22		0.005 -1.33
monetary							0.014 (3.59)**	0.006 -1.87	0.014 (3.57)**	0.006 -1.88	0.013 (2.51)*		0.01 (2.68)**	
property rights							0.019 (2.49)*	0.007 -1.06	0.017 (2.12)*	0.004 -0.62	0.015 (3.45)**		0.014 (2.83)**	
Constant	7.264 (37.64)**	7.084 (51.34)**	3.645 (8.00)**	5.147 (15.65)**	7.552 (33.37)**	7.278 (44.86)**	5.885 (9.82)**	5.993 (12.62)**	6.258 (9.41)**	6.424 (12.32)**	1.995 -0.82	3.591 (5.88)**	1.131 -0.58	4.135 (4.33)**
Observations	111	111	111	111	111	111	111	111	111	111	111	111	111	111
R-squared	0.2	0.11	0.26	0.17	0.24	0.15	0.49	0.3	0.5	0.33	0.65	0.65	0.78	0.66