Determinants of Subjective Well-Being in High and Low Income Countries: do happiness equations differ across countries?

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L'European Values Study (EVS) est une enquête réalisée au Luxembourg en 2008 auprès d'un échantillon représentatif de la population résidante composé de 1610 individus âgés de 18 ans ou plus.

Au niveau national, cette enquête fait partie du projet de recherche VALCOS (Valeurs et Cohésion sociale), cofinancé par le FNR dans le cadre du programme VIVRE. Au niveau international, elle est partie intégrante d'une enquête réalisée dans 45 pays européens qui a pour objectif d'identifier et d'expliquer en Europe les dynamiques de changements de valeurs, et d'explorer les valeurs morales et sociales qui sous-tendent les institutions sociales et politiques européennes (www.europeanvaluesstudy.eu).

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Abstract

Different theories have been advanced to explain what really makes people happy or satisfied with their life, but they are mainly focused on developed countries. Furthermore, there is still not a general agreement on whether the determinants of subjective well-being are the same or not across countries. A deeper understanding of what is really important for individuals' well-being could provide positive spill-overs in drawing new economic policies liable to improve the human lot[1].

Present work tests the cross-country comparability of the happiness equation checking for the effects of absolute income, positional and relational goods and social capital in High and Low Income Countries.

Results suggest an overall stability of the happiness equation in the two groups of countries. In particular, income is confirmed as an important correlate of subjective well-being, but at the same time it emerges as not being the only one. This holds for both poor and rich countries. Positional aspects considerably matters with stronger effects in poor countries. Proxies of relational goods are positively correlated with subjective well-being as well, although different aspects matter depending whether we are condidering poor or rich countries. Finally, social capital proxies show positive coefficients that are larger in high income countries.

[1]Easterlin (1995)

1 Introduction

An increase in the wealth of a country is generally regarded as an improvement in the quality of lives that people in that country experience. This justifies why people, public opinion, media and politicians pay a lot of attention to the performance of several economic indicators of wealth of nations. Under the common belief that a higher income may not increase individual's well-being, but that it will not reduce it for sure, the objective of economic theory and policy sharply moved its focus from a broad and complex concept of well-being to one of its determinants: income. Economic growth became the password of every economic policy and economic indexes became the main tools to account for it. Currently, people in modern societies enjoy healthier and longer lives, every demographic and sanitary index improved, schooling became widely available, computers make many jobs easier, new technologies improved communications and information sharing, journeys are safer and faster, but that's not all. More and more people declare themselves isolated and lonely; the social environment in which they live is unsafe and they fear to leave their homes; cities are polluted; people spend a lot of their daily time stuck in traffic jam closed in their cars; trust in others and honesty are declining; stress and nervous illnesses are widespread; it is more and more difficult to find a place to enjoy social relationships (unless mediated by commercial activities, i.e. big commercial centres, multi-cinema, etc.) (Putnam, 2000).

These aspects are only partially accounted for by traditional measures of well-being. This is why many scientists from different fields started questioning usual indexes. Thus, the question is whether we should give up pursuing and measuring development. The point is that development itself is a neutral concept: success in improving or not people's well-being depends on the "quality" of development, that is to say on the shape and procedures with which it comes true (Helliwell, 2008).

Therefore it is fundamental to understand when and in which way economic growth brings a higher well-being and when it works against well-being (Diener and Seligman, 2004). This point poses a different question: how to properly account for the multiple outcomes of development? Furthermore, which is the goal of development? Whenever development means well-being and a satisfactory quality of life, we need tools that can account for such dimensions. As clearly reported by Diener and Seligman (2004); Frey and Stutzer (2002b) many examples suggest that economic measures have seriously failed to provide a full account of quality of life. For example, positional goods (goods that are valuable because of the relative position of their owner that they mirror), regrettables, volunteers activity, shadow economy, externalities, housework and household production they all concern important aspects for people's well-being that are only partially accounted for by economic measures. When considering Less Developed Countries (LDCs)

limitations of economic indicators in accounting for people's well-being get even more clear. As suggested by Graham (2005a) "growth is a necessary, but not sufficient condition for poverty reduction. Other key factors - such as public investments in health; institutions that can ensure adherence to basic norms of equity and fairness; and collective investments in social insurance to protect workers from the volatility that often accompanies integration into global markets - are essentia to sustain the gains that growth and development bring about and to increase the chances that a larger number of the world's poor can eventually have happy and fulfilling lives"[2].

How can we overcome shortcomings of economic measures of well-being? A strategy can be directly asking people to evaluate the quality of their lives (Helliwell, 2008). Recent development of social sciences, and particularly of economics, allow to re-consider the term well-being and to propose new instruments to help accounting for it. This is why a growing number of economists, recently, turned their attention to the so-called subjective well-being (SWB), that is to say individual's evaluation of its own well-being.

In this context, the words "happiness" and "subjective well-being" are considered synonyms and are generally referred to as an evaluation of one's own life regarded as a whole. These kind of data revealed to be precious and reliable sources of information concerning people's well-being. Their reliability has been tested in many ways: data about SWB have been found consistent with more objective measures of well-being (heart rate, blood pressure, duration of Duchenne smile, neurological tests of brain activity) (Blanchflower and Oswald, 2008a; van Reekum et al., 2007), they show a high correlation with other proxies of SWB (Schwarz and Strack, 1999; Wanous and Hudy, 2001; Schimmack et al., 2009) and are consistent with evaluations about the respondent's happiness provided by friends, relatives or clinical experts (Schneider and Schimmack, 2009; Kahneman and Krueger, 2006; Layard, 2005).

Furthermore, these data revealed to be widely available and easy to collect being increasingly available also in Less Developed Countries (Blanchflower, 2008). Not only, but many of the so-called "happiness studies" showed that SWB data reveal interesting stories about our societies (Di Tella et al., 2001, 2003; Di Tella and MacCulloch, 2006; Kenny, 2005; Alesina et al., 2004; Clark and Oswald, 1994; Oswald, 1997; Darity and Goldsmith, 1996; Theodossiou, 1998; Winkelmann and Winkelmann, 1998; Diener et al., 2009; Van Praag and Baarsma, 2004; Frey and Stutzer, 2000, 2002b, 2007; Graham and Pettinato, 2001, 2002; Graham and Felton, 2006; Ravallion and Lokshin, 2001, 2002).

This is why media, politicians as well as the scientific community have been paying increasing attention to the SWB of individuals. Recently, the French economic commission directed by Stiglitz et al. (2009) published

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[2]Graham (2005a, p. 18)

a report in which it advices the development of indexes of well-being to supplement more common income-based measures.

One of the major criticism to the use of subjective evaluations of well-being is linked to the cross-country comparability of the concept and the determinants of happiness. Layard asks: "does the word happy mean the same thing in different languages?"[3]. Not only, but many studies assume the cross-country, cultures and economic conditions comparability of the proxies of SWB and of its determinants (Easterlin and Angelescu, 2009; Stevenson and Wolfers, 2008; Alesina et al., 2004; Blanchflower and Oswald, 2004; Bartolini et al., 2009; Blanchflower, 2008; Graham, 2005a; Graham and Pettinato, 2001). Assuming that people around the world know what makes them happy, there are no obvious reasons to assume that the determinants of SWB may be the same (Clark et al., 2005).

For what concern the first point, a body of the literature suggests that people around the world give consistent evaluations of their well-being. Using different proxies of SWB, Veenhoven (2000) shows that the ranking of happiness across countries doesn't change.

On the other side, the second point is still controversial: has the happiness equation the same structure across countries?

My research aims at contributing to the literature on the determinants of SWB across countries controlling for the role of absolute income, positional and relational goods and social capital (Helliwell, 2001, 2006; Blanchflower and Oswald, 2004; Clark and Oswald, 1994; Di Tella et al., 2003; Easterlin, 2001a; Clark et al., 2008; van Praag et al., 2003; Sarracino, 2009). The hypothesis I want to test is that, after controlling for a standard set of socio-demographic controls, income, relative income and social capital play a similar role across countries and, particularly, in low and high income countries.

This topic has been recently scrutinized by Blanchflower (2008); Di Tella and MacCulloch (2007); Kapteyn and Wansbeek (2008). Helliwell (2008); Helliwell et al. (2009) suggest that basically people around the world consider the same aspects as important for their well-being and argues that the international differences in SWB depend on different life circumstances, in particular on the availability of SC.

Recently, this topic has been revived by Layard et al. (2009) who, critizing the evidence provided by Deaton (2008) suggesting a strong relationship between average life satisfaction and log average incomes, assess that countries, whether rich or poor, don't work the same way.

Present research settles in this debate adopting World Values Survey[4] as a source of data.

Results suggest an overall stability of the happiness equation in Low and

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[3]Layard (2003, p. 17)

[4]www.worldvaluessurvey.org

High Income Countries. In particular, income is confirmed as an important correlate of SWB, but at the same time it emerges as not being the only one. This is true for both poor and rich countries. Positional aspects considerably matters with stronger effects in Low Income Countries (LICs): being among the two highest income quintiles positively correlates with happiness. Membership in voluntary organizations and time spent with different groups of people, two broadly accepted proxies of relational goods, are positively correlated with SWB as well, but with a different composition: different aspects of relational goods are relevant depending whether we are considering poor or rich countries. Finally, SC proxies show positive coefficients that are larger in high income countries.

This work is articulated in five sections: the following one deals with the reliability of SWB proxies and points out the main methodological aspects that we have to keep in mind when working with subjective data and, particularly, in LICs. The subsequent two sections first present data adopted and then show results from an OLS regression considering happiness as dependent variable and adopting proxies of positional and relational goods, social capital, wealth and socio-economic conditions as indipendent variables. In the last section, some final notes will conclude this work.

2   Methodological issues and expected results

A similar research using SWB data poses different methodological questions that need to be previously addressed.

Usually researchers are sceptical about using subjective data because they may be biased by different aspects (Helliwell, 2006):

- lack of precise definition of the question asked;

- different or changing norms;

- personality aspects and their difficult observability;

- idiosyncratic or unobserved events;

- different cultures;

- lack of natural scaling to allow cross-person comparison of terms like "happiness" or "satisfaction";

- accuracy in reporting: responses can be biased by the phrasing or the placement of questions in the survey.

When speaking about less developed countries, national representative surveys are rare and often with flaws. Another problem is accounting for error in reporting income, a problem that is further aggravated by policy

shocks, such as devaluations and high levels of inflation. Political and social conditions of respondent's nation/region may further bias its answers. Finally, accuracy in reporting may be a more stringent problem in such contexts (Graham, 2005b).

In general, these objections suggest the impossibility of comparing subjective data and their unreliability because they may be influenced by different aspects that can not be controlled by researchers. Nonetheless, these data have been longly and widely tested and adopted by psychologists and other social scientists who have been analyzing the sources of human satisfaction in detail for decades asking people how they feel (Powdthavee, 2007). Moreover, subjective data have been found coherent with a number of other "more objective" measures of well-being. For example psychology literature reports a well-defined correlation between happiness data and various physical measures (e.g. duration of Duchenne smile; heart rate; blood pressure); Alternatively, subjective data correlate substantially with what is assessed about the person's happiness by friends and family, by spouses or by clinical experts (Powdthavee, 2007).

Previous economic studies found that using such data in their aggregate allow to avoid many bias related to individual aspects (Di Tella et al., 2001). Infact, considering large samples across countries and over time reveals consistent patterns in the determinants of happiness, while errors result uncorrelated with the observed variables and do not systematically bias the results. Furthermore, in order to avoid the scaling problem, econometric studies have usually adopted ordered logit or probit equations and further tests showed that there are no significant differences among these methods and the traditional OLS (Blanchflower, 2008). Another aspect of the resulting equations is that they usually yield "lower R-squares than economists are used to, reflecting the extent to which emotions and other components of true well-being are driving the results, as opposed to the variables we are able to measure such as income, education and marital and employment status"[5]

Despite the probems that can arise when using such data, we have also to consider the advantages that can originate from these studies. Respondents' assessments of their own welfare can highlight factors that are not adequately captured by income measures, including real and perceived insecurity of rewards and incentives systems adapting to structural changes, the state of essential public services (educations, health, crime prevention), and norms of fairness and justice. Aspects such as poverty and inequality can be characterized by broader dimensions and dynamic elements that are not captured by such traditional income-based measures as poverty headcounts (e.g missing short term movements in and out of poverty) and Gini coeffi-

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[5]Graham C., The Economics of Happiness. Insights on globalization from a novel approach, World Economics, vol. 6, n. 3, 2005, p. 45

cients (which are static, aggregate and do not reflect distributional shifts) (Graham, 2005a).

Furthermore, whether on one side we should be careful in using such data and in drawing results, on the other, this research can reveal new aspects about human behaviour helping to improve our policy agendas for both developing and developed countries. "Growth is a necessary but not sufficient condition for poverty reduction. Other key factors [...] are essential to sustaining the development gains that globalization helps bring about."[6].

3   Data

A similar research is available thanks to the growing quantity of cross-section data about happiness coming from the World Values Survey[7] (WVS), a wide compilation of surveys collected in more than 80 countries representing more than 80% of the world's population. WVS collects information on sociocultural and political change observed on a sample of 300 to 4,000 individuals per country (Becchetti et al., 2006). In particular the WVS provides information on "individual beliefs about politics, the economy, religious, social and ethical topics, personal finances, familial and social relationships, happiness and life satisfaction"[8]. These data have been collected in four waves (1980 - 82; 1990 - 91; 1995 - 97 and 1999 - 2001) for a total of 267,870 observations. Anyway, the sample available for present study is smaller since particular information (such as relational time and information on voluntary activities) have not always been observed. Summary statistics for all the variables used in the analysis are reported in tab.3.

Data on countries in the WVS have been divided in two groups reflecting the distinction proposed by the World Bank in low income countries (LICs) and high income countries (HICs).[9] Countries belong to the first group if their gross national income (GNI) per capita is $ 875 or less ; vice versa countries with a GNI pro capita of $ 10,726 or more belong to the group of high income countries[10]. Groups are defined on the basis of the 2006 World Bank list of economies.

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[6]Graham C., The Economics of Happiness. Insights on globalization from a novel approach, World Economics, vol. 6, n. 3, 2005, p. 52

[7]http://www.worldvaluessurvey.org

[8]Bruni L. and Stanca L., Watching alone: relational goods, television and happiness, Journal of Economic Behaviour and Organization, 2008, vol. 65 (3-4), p. 6

[9]The World Bank, www.worldbank.org. Countries ranking between these two extremes are excluded from present study.

[10]LICs include Zimbabwe, Nigeria, Uganda, Tanzania, Vietnam, Kyrgyz Republic, Pakistan, India, and Bangladesh. HICs include Austria, United States, Switzerland, Sweden, Spain, Portugal, Norway, New Zealand, Netherlands, Luxembourg, Korea, Rep., Japan, Italy, Ireland, Iceland, Greece, United Kingdom, Germany, France, Finland, Denmark, Canada, Belgium, Australia, Slovenia, Singapore, Saudi Arabia, Puerto Rico, Malta, and Israel

In order to study the effects of positional and relational goods and of social capital on happiness in LICs and allow a comparison with HICs, I assume that individual happiness (Hap) depends on material well-being (Wealth), the consumption of positional (Pos) and relational (Rel) goods, the endowment of social capital (SocK) and a set of socio-economic conditions (Sec).

I am aware that in recent economic literature social capital (SC) and relational goods are regarded as synonyms and, sometimes, the second one is considered as a proxy for the first one, nonetheless in present work I opt for keeping the two concepts separately (Helliwell and Putnam, 2004; Bruni and Stanca, 2008; Durlauf, 2002; Gui and Sugden, 2005). This choice reflect the idea that these two dimensions refer to different aspects of human relationships with relational goods considering more people's behaviour, while SC refers mainly to the set of individual and shared beliefs.

Formally, for each group of countries I estimate the following relationship:

$$Hap_i = \alpha + \beta_1 \cdot Wealth_i + \beta_2 \cdot Pos_i + \beta_3 \cdot Rel_i + \beta_4 \cdot SocK_i + \beta_5 \cdot Sec_i + \mu_i \quad (1)$$

where the index i stands for the different individuals.

Happiness is measured on a scale ranging from 1 to 4 and is based on answers to the following question: *"All considered you would say that you are : 1. very happy; 2. pretty happy; 3. not too happy; 4. not at all happy?"*. Comparisons of happiness scores between low and high income countries are reported in tab.1.

happiness	Low Income Countries			High Income Countries		
	Freq.	Percent	Cum.	Freq.	Percent	Cum.
not at all	665	2.97	2.97	1,424	1.41	1.41
not too much	3,944	17.63	20.6	9,675	9.57	10.98
pretty happy	10,490	46.89	67.49	60,150	59.5	70.48
very happy	7,272	32.51	100	29,837	29.52	100
Total	22,371	100		101,086	100	

Table 1: Happiness levels in LICs and HICs.

Althought the number of observations is quite different between the two groups, these results show that people in poor countries seem on average less happy than people in rich countries: cumulative percentage of people with low average level of happiness in LICs is 20.6% while in HICs it is 10.98%. On the contrary, people declaring themselves pretty or very happy is 79.4% in LICs and 89.02% in HICs. Despite these figures, it is interesting to notice that the percentage of people declaring themselves very happy is higher in the first group of countries (32.51%) rather than in the second one (29.52%).

It is also interesting to observe happiness trends within each group of countries for different income levels. In this case "income is measured by self-reported quintiles in the national distribution of income"[11]. Using this measure of income allows comparisons across countries and individuals (Bruni and Stanca, 2008). Information about happiness and income quintile in the two groups of countries are summed up in tab. 2.

happiness	Income quintiles				
	1	2	3	4	5
not at all	36.27	36.44	17.1	8.12	2.07
not too much	29.7	39.04	20.53	8.77	1.97
pretty happy	17.51	37.77	29.3	13.11	2.32
very happy	17.42	29.77	29.88	17.68	5.24
Total	20.13	35.34	27.62	13.7	3.2

a)

happiness	Income quintiles				
	1	2	3	4	5
not at all	39.62	26.50	17.43	10.24	6.19
not too much	29.86	29.52	21.37	12.16	7.08
pretty happy	17.99	26.23	24.86	18.20	12.72
very happy	14.98	22.54	24.39	21.21	16.88
Total	18.52	25.44	24.29	18.41	13.33

b)

Table 2: Happiness levels per income quintile in a) LICs and b) HICs. The income scale ranges between 1 and 5 with the two values meaning respectively the lower and upper step.

The first table refers to LICs and shows that 17.42% of people declaring to be *very happy* belong to the first income quintile, while this percentage fall to 5.24% for people in the fifth income quintile. Similarly, the happiest people are situated between the second and the third quintile. The same trend arise looking at percentages of people declaring themselves *pretty happy*.
On the contrary, consistently with what we could expect, percentages of people declaring themselves *non at all* happy decline when going from the first to the fifth quintile. This aspect seems to suggest that in LICs unhappiness reduces with income, while this is not true for higher levels of happiness.

Considering HICs, table2 *b* shows an interesting pattern too. In fact, while percentages of people with low levels of happiness reduce with higher incomes, people declaring themselves *pretty or very* happy do not consid-

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[11]Bruni L. and Stanca L., Watching alone: relational goods, television and happiness, Journal of Economic Behaviour and Organization, 2008, vol. 65 (3-4), p. 7.

erably vary among different levels of income. Finally, similarly to what we have seen about LICs, also in HICs people reporting the highest levels of well-being are situated between the second and the third quintile.

Individual wealth is proxied by the absolute level of income. This variable is based on individual self-assessment of received income[12].

In order to consider the effects of positional goods on happiness I include two groups of variables: *relative income* (or income quintile) suggested above and *social class*. WVS allows to distinguish among four different self-assessed classes: upper, middle-upper, middle-lower and lower class. Dummy variables for each of these categories have been included holding the lower class as the omitted variable.

Aspects about relational goods are observed through two different set of variables aimed at observing two different characteristics of these goods: the *identity* of people involved and the *authenticity* of the relationship. The first aspect is given by the time spent by the respondent with specific groups of people and is based on answers to the question: "For each activity,would you say you do them every week or nearly every week; once or twice a month; only a few times a year; or not at all? Spend time with: parents or other relatives; friends; colleagues from work; people at church, mosque or synagogue; peole at sport, culture, and communal organization." Answers to this question range on a 1 to 4 point scale going from *not at all* to *every week*.

Genuiness of the relationship is observed through the participation to specific voluntary organizations. Namely: church, sport, art, union, political, charitable, professional and environmental organizations. Each option is expressed as a dummy variable.

Social capital is represented by three different variables: trust, freedom of choice and control, and honesty. The first one is obtained through answers to the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" and is represented by a dummy variable.

Perceived freedom of choice and control considers the degree of individual self-determination and is measured on a 10 point scale ranging from "*none at all*" to "*a great deal*".

Honesty is based on respondent's judgement about the justifiability of cheating on taxes and is measured on a 10 point scale ranging from "*never justifiable*" to "*always justifiable*".

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[12]The absolute income level is expressed as belonging to a determined range of values expressed in local currency. When these data miss for an entire country, they have been replaced with data from World Development Indicators (http://web.worldbank.org). In this way each respondent has been assigned with the mean income value of the corresponding income range. Successively, each income measure has been deflated and translated in 2000 purchasing power parity expressed in US dollars. Finally, income measures have been turned in logarithm.

In order to consider specific individual and social aspects a set of control factors including age, gender, education, employment and marital status is included. In particular age is considered linearly and with its square; a dummy on male is introduced; education is introduced through four different dummy for each education level: illiterate, low, mid and high education corresponding to different years of school attendance. Illiterate is the omitted variable. Unemployment of respondent is accounted with a dummy variable, while marital status is controlled through four different dummies: married, divorced, widowed and single.

Whether such a large number of proxies measure the same underlying phenomenon or not can be addressed by means of correlation analysis. Tables 11 and 12 in the Appendix report correlation matrices for Low and High Income Countries, respectively. The light grey shadowed coefficients show a correlation ranging between 30% and 40%. The dark grey shadowed coefficients relate to correlation coefficients higher than 40%. Starting from this last category for which the correlation is quite high, tab.11 shows that spending time with people from religious environment is positively correlated with performing voluntary organization in religious institutions (+47%). Although the high correlation, the two proxies clearly refer to two different aspects of relational goods: while the first refers more to the quantity, the second one reflects the quality of the relationship focusing on the intrinsic motivations behind it. People participating in voluntary sport organizations are also more likely to participate in artistic voluntary organizations. In this case the correlation coefficients is about 43%. The two aspects clearly refer to different dimensions of relational goods, but still the high correlation among them suggest to be prudent in commenting results from the regression model. The correlation analysis further suggests that belonging to the lower class and being in the first income quintile are quite correlated (+42%). This kind of result is not surprising and the fact that belonging to the lower class is taken as omitted variable (i.e. it is excluded from the model) should be enough to prevent possible collinearity problems. Finally, as expected, age and age squared are correlated at 98%, nonetheless the two variables are included to capture the non linear effect of age on happiness. For what concern poor countries, the correlation analysis suggests that age is also slightly correlated with being married (+31%): the older the individual, the higher is the possibility for him/her to be married. Quite similarly, volunteering in labour unions and in professional organizations correlate at 36%, while spending time with colleagues from work is associated with spending time with people at sport (+30%).

If we consider the tab.12 in the Appendix, we notice that the picture for rich countries is not significantly different from the one for poor ones. In this case, age, age squared and being widowed are strongly correlated (98%, 40% and 44%, respectively). Similar to the case of poor countries, spending time with people from religious environment and performing voluntary organiza-

countries			LICs					HICs		
Variables	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
happiness	22371	3.089	0.783	1	4	104298	3.177	0.646	1	4
income	18848	9.453	1.610	6.3111	14.8656	51184	10.241	2.040	6.144	18.085
upper class	22537	0.028	0.165	0	1	108056	0.005	0.069	0	1
upper-middle class	22537	0.159	0.366	0	1	108056	0.068	0.251	0	1
lower-middle class	22537	0.263	0.440	0	1	108056	0.099	0.299	0	1
lower class	22537	0.185	0.389	0	1	108056	0.015	0.122	0	1
first quintile	22537	0.182	0.386	0	1	108056	0.151	0.358	0	1
second quintile	22537	0.320	0.466	0	1	108056	0.200	0.400	0	1
third quintile	22537	0.249	0.432	0	1	108056	0.193	0.395	0	1
fourth quintile	22537	0.123	0.329	0	1	108056	0.148	0.355	0	1
fifth quintile	22537	0.029	0.168	0	1	108056	0.107	0.310	0	1
time spent with: relatives	12649	3.419	0.831	1	4	10524	3.466	0.821	1	4
time spent with: friends	12574	3.287	0.855	1	4	34082	3.406	0.813	1	4
time spent with: colleagues	12254	2.765	1.223	1	4	29035	2.370	1.113	1	4
time spent with: people at church	12347	2.855	1.230	1	4	31001	1.976	1.179	1	4
time spent with: people at sport	12034	2.053	1.154	1	4	30568	2.136	1.195	1	4
voluntary organization: religious	8720	0.346	0.476	0	1	84023	0.197	0.398	0	1
voluntary organization: sport	8720	0.178	0.382	0	1	64550	0.197	0.398	0	1
voluntary organization: arts	8720	0.188	0.391	0	1	84023	0.119	0.324	0	1
voluntary organization: unions	8720	0.122	0.327	0	1	84023	0.166	0.372	0	1
voluntary organization: politics	8720	0.155	0.362	0	1	84023	0.064	0.245	0	1
voluntary organization: charity	8720	0.146	0.353	0	1	84023	0.081	0.272	0	1
voluntary organization: professional	8720	0.127	0.333	0	1	84023	0.083	0.277	0	1
honesty	21356	9.235	1.904	1	10	102351	8.517	2.331	1	10
freedom of choice	19910	6.344	2.673	1	10	101627	6.961	2.136	1	10
trust	21420	0.258	0.438	0	1	102332	0.379	0.485	0	1
illiterate	22537	0.210	0.408	0	1	108056	0.034	0.182	0	1
low school education	22537	0.217	0.412	0	1	108056	0.134	0.340	0	1
mid school education	22537	0.348	0.476	0	1	108056	0.212	0.408	0	1
high school education	22537	0.219	0.414	0	1	108056	0.124	0.329	0	1
male	22537	0.529	0.499	0	1	108056	0.471	0.499	0	1
age	22461	35.380	13.048	15	99	106682	43.277	17.215	15	100
age2	22461	1422.000	1113.554	225	9801	106682	2169.265	1641.789	225	10000
married	22537	0.643	0.479	0	1	108056	0.576	0.494	0	1
divorced	22537	0.018	0.134	0	1	108056	0.057	0.232	0	1
widowed	22537	0.031	0.173	0	1	108056	0.067	0.251	0	1
single	22537	0.277	0.447	0	1	108056	0.240	0.427	0	1
unemployed	22537	0.099	0.299	0	1	108056	0.052	0.222	0	1

Table 3: Descriptive statistics

tion in religious institutions are very strongly correlated (60%) suggesting the idea that people in both poor and rich countries, independently from the kind of activity, tend to build clusters of relationships. Something similar happens in the case of volunteering in sport associations and spending time with people in sport environments (+37%). More significantly, the analysis highlights that being happy is correlated with freedom of choice (33%). This is a peculiar aspects arising for HICs that could be driven by different aspects. It will be interesting to look deeper at this relationship after controlling for other relevant variables checking whether there effectively is a difference between the two groups of countries. Volunteering in professional associations in HICs is mainly linked with having a high level education (36%) probably reflecting the differences among high and low educated workers in the job market. It's interesting to realise that this effect didn't appear in LICs. It is impossible to explain this phenomenon at this stage, but, speculatively, this could suggest that having a different education level, strongly influence the kind of job that you can have in rich countries. The different job would affect individual decision of belonging to unions rather than professional associations. Finally, belonging to the lower class or to the upper-middle class is correlated wth being in the first (+30%) and in the fifth (+31%) quintile of the income distribution, respectively. Similarly to the LICs' case, I omit belonging to the lower class from the model using it as a reference category. Unfortunately, the problem can not be solved for the upper-middle class suggesting to be prudent in interpreting final results. Nonetheless, since the main aim of this research is to assess whether or not the determinants of SWB differ across countries, the result coming from the correlation analysis suggests that the two groups of countries show similar patterns of relationships among variables.

4 Results

I report and discuss results from an OLS model relative to equation 1. It is well documented, in fact, that the use of an OLS is equivalent to the use of an ordered logit or probit model (Ferrer-i Carbonell and Frijters, 2004; Blanchflower, 2008) and it has a strong advantage: the main aim of present work is to compare the determinants of well-being in two different contexts and OLS allows a direct comparison between regressors from different regressions[13].

Being aware of the constraints and methodological problems previously reviewed I try to measure correlations across variables rather than establishing the size and the direction of the causal effects. Nonetheless, several papers show social interactions being related with SWB (Helliwell, 2006;

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[13]please, refer to tab.10 in the appendix for a comparison of the results from an OLS, ordered logit and probit model

Bruni and Stanca, 2008; Bartolini et al., 2008; Becchetti et al., 2008). In particular, Becchetti et al. (2009) find a strong and significant relationship between social capital and SWB. Finally, in order to consider different socio-economic aspects and any possible bias represented by specific countries, years or survey waves, I include a set of socio-economic variables (Sec_i), country-specific and time-fixed effects for survey waves in each regression. For shortness these last dummies are not reported in the tables.

Table 4 shows the overall estimation results. The first aspect we have to care of is the small dimension of the sample: 6450 observations in LICs and 3475 in HICs. This constitutes an important constraint on our analysis since it reduces the significance of results. Unfortunately, the sample considerably reduces because of the wide range of variables that I'm considering at the same time. In particular, information about relational time are only available in the fourth wave, while voluntary activities aspects are not available in the first wave and social class aspects are not available in the second one. Hence, in order to overcome this problem I am successively going to consider subset of variables to confirm or less the evidence coming from the overall regression.

4.1 Socio-economic aspects

Let's start analyzing socio-economic variables which are quite coherent with what found in previous empirical research. Male and age coefficients are negative and significant in both groups of countries. Educational dummies show that moving from illiterate to a low education level has a positive effect on well-being in both groups of countries. This effect holds positive for middle level education in LICs and is not significant in remaining cases. Results on marital status highlight an interesting and coherent pattern as well. In fact being married positevely affects happiness in both HICs and LICs, but in this last case the coefficients turn out to be not significant. Similarly, being divorced or widowed with respect to single has a negative and strong coefficient in both groups of countries, althought coefficients are not significant in HICs. Finally, unemployed has a mixed effect. In order to look in more detail at these determinants, let's consider tab.5 that expressly focuses on socio-economic determinants[14]. In this case a bigger sample is available: 22301 observations in LICs and 103932 in HICs. Overall, I confirm previous results: a higher education is positively correlated with SWB in both groups of countries with higher coefficients for LICs; the effects of gender and age are unchanged as well as coefficients for marital status: being married positively affects happiness in both LICs and HICs with stronger effects in rich countries, while being divorced or widowed has a stronger

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[14]This regression, similarly to all the others, contains socio-economic control variables, country-specific and time-fixed effects dummies to control for any systematic variability.

Independent variables	LICs		HICs	
income	0.0108	[0.67]	0.0569	[1.35]
upper class	0.298***	[4.45]	0.207*	[1.86]
upper-middle class	0.193***	[6.70]	0.0638**	[2.42]
lower-middle class	0.112***	[5.14]	0.000759	[0.03]
first quintile	-0.0829***	[-2.59]	0.106*	[1.70]
second quintile	-0.0682***	[-2.93]	0.0389	[1.18]
fourth quintile	0.0190	[0.57]	0.00832	[0.25]
fifth quintile	-0.0264	[-0.29]	-0.0446	[-0.87]
time spent with: relatives	-0.000582	[-0.05]	0.0378***	[3.20]
time spent with: friends	0.0105	[0.88]	0.0194	[1.25]
time spent with: colleagues	0.0339***	[4.05]	0.0347***	[3.60]
time spent with: people at church	0.0360***	[3.79]	0.0488***	[4.64]
time spent with: people at sport	0.00809	[0.90]	0.0165*	[1.75]
voluntary organization: religious	-0.0229	[-0.96]	-0.0158	[-0.57]
voluntary organization: sport	-0.0493*	[-1.91]	-0.00445	[-0.18]
voluntary organization: arts	0.00818	[0.33]	-0.000366	[-0.01]
voluntary organization: unions	-0.0309	[-1.10]	0.0488	[1.63]
voluntary organization: politics	0.0539**	[2.09]	-0.0674*	[-1.88]
voluntary organization: charity	0.0391	[1.52]	0.0253	[0.83]
voluntary organization: professional	0.0476*	[1.82]	-0.0417	[-1.49]
honesty	0.0200***	[4.44]	0.00824*	[1.69]
freedom of choice	0.0339***	[9.75]	0.0835***	[14.13]
trust	0.0272	[1.19]	0.0860***	[4.36]
low school education	0.0586*	[1.84]	0.0993**	[2.05]
mid school education	0.0627**	[1.96]	0.0496	[0.99]
high school education	-0.00247	[-0.07]	0.0661	[1.26]
male	-0.0575***	[-2.98]	-0.0330*	[-1.65]
age	-0.0112***	[-3.02]	-0.00813**	[-2.31]
age2	0.000111***	[2.70]	0.0000740**	[2.03]
married	0.0118	[0.48]	0.151***	[5.68]
divorced	-0.192***	[-3.35]	-0.0404	[-1.07]
widowed	-0.205***	[-3.45]	-0.0577	[-1.15]
unemployed	0.0233	[0.83]	-0.0732*	[-1.94]
Observations	6450		3475	
R2	0.168		0.198	
F	33.29		22.03	
root MSE	0.696		0.546	

Note: OLS estimates. Dependent variable: happiness. T-stat in parentheses.
Regressors also include individual country dummies, year dummies and
time dummies for survey waves (1990–1991, 1995–1997, 1999–2001).
Data source: World Values Survey 1 – 4 (Inglehart, 2000, 2004)

Table 4: Overall estimation results

negative correlation in LICs. Finally, being unemployed reveals negative and significant coefficients with a 5 time stronger effect in HICs.

Independent variables	LICs		HICs	
low school education	0.153***	[9.17]	0.0187*	[1.73]
mid school education	0.219***	[14.51]	0.0602***	[5.79]
high school education	0.249***	[14.98]	0.0799***	[7.34]
male	-0.0582***	[-5.65]	-0.0329***	[-8.54]
age	-0.0145***	[-6.44]	-0.0155***	[-21.12]
age2	0.000140***	[5.52]	0.000133***	[17.56]
married	0.0388***	[2.74]	0.195***	[35.53]
divorced	-0.205***	[-4.82]	-0.122***	[-11.89]
widowed	-0.233***	[-6.60]	-0.129***	[-11.81]
unemployed	-0.0434**	[-2.33]	-0.201***	[-20.61]
Observations	22301		103932	
R2	0.115		0.110	
F	137.7		221.8	
root MSE	0.736		0.609	

Note: OLS estimates. Dependent variable: happiness. T-stat in parentheses.
Regressors also include individual country dummies, year dummies and
time dummies for survey waves (1990–1991, 1995–1997, 1999–2001).
Data source: World Values Survey 1 – 4 (Inglehart, 2000, 2004)

Table 5: OLS regressions with socio-economic variables

4.2 Wealth aspects

In this case I am considering the effects of absolute income on individual well-being. Coefficients of absolute income in the two groups of countries are positive, but they are not significant. Turning to tab.6 allows to look at these data more specifically[15]. Previous result is confirmed: absolute income coefficients are both positive and significant. As we could expect, a higher income has a stronger effect in LICs rather than in HICs. This outcome is also consistent with previous findings from literature, even if, to the best of my knowledge, there are only a few works based on the WVS considering absolute income (Becchetti et al., 2006).

4.3 Positional goods and happiness

In order to test the hypothesis that positional goods play an important role in explaining differences in SWB across countries, I consider two proxies of these goods:

1. relative income: based on the income class of the respondent and recoded in quintiles.

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[15]Results about socio-economic conditions and other control variables are omitted for brevity.

Independent variables	LICs		HICs	
income	0.102***	[9.89]	0.0100***	[4.60]
low school education	0.113***	[6.18]	0.0736***	[4.26]
mid school education	0.161***	[9.63]	0.109***	[6.32]
high school education	0.154***	[8.02]	0.117***	[6.52]
male	-0.0372***	[-3.34]	-0.0244***	[-4.34]
age	-0.0144***	[-6.02]	-0.0139***	[-13.11]
age2	0.000132***	[4.93]	0.000116***	[10.74]
married	0.0388**	[2.56]	0.188***	[23.54]
divorced	-0.204***	[-4.44]	-0.126***	[-8.56]
widowed	-0.202***	[-5.27]	-0.138***	[-9.10]
unemployed	-0.0392*	[-1.91]	-0.228***	[-16.23]
Observations	18675		49505	
R2	0.128		0.108	
F	121.8		162.6	
root MSE	0.727		0.614	

Note: OLS estimates. Dependent variable: happiness. T-stat in parentheses.
Regressors also include individual country dummies, year dummies and
time dummies for survey waves (1990–1991, 1995–1997, 1999–2001).
Data source: World Values Survey 1 – 4 (Inglehart, 2000, 2004)

Table 6: OLS regressions with proxies on wealth

2. social class: measured on self-assessment from the respondent. Three
classes are considered: upper, middle-upper and middle-lower, while
the lower class is held as a reference.

Results about social class show that going from the lowest to the highest class
increasingly affects happiness in both developing and developed countries.
In particular, belonging to the upper class in LICs has almost a three time
larger effect on well-being than being in the middle-lower class. These results
are statistically significant and seem to suggest that happiness of people is
considerably affected by the splitting of society in social classes. Looking
at the first column of tab.7, coefficients still suggest that moving from the
lowest social class to the highest has increasing positive effects on well-being,
with stronger effects in LICs. The second column of tab.7 shows results for
relative income that are not significant for HICs in tab.4. Coefficients are
significant and negative for low levels of relative income and positive for the
two higher levels in both groups of countries. Once more, coefficients reveal
a stronger effect on SWB in LICs. Finally, the third column of tab.7 reports
data from a regression with both groups of variables at the same time which
basically confirm previous results: moving from the lowest to the highest
social class in both groups of countries has a positive effect which is stronger
for LICs. At the same time, belonging to the upper class has a very similar
effect on well-being in rich and poor countries. Results on relative income
are confirmed as well. In particular, belonging to the highest quintile has a

Independent variables	LICs		HICs		LICs		HICs		LICs		HICs	
upper class	0.320***	[11.40]	0.272***	[9.03]					0.250***	[8.30]	0.241***	[7.99]
upper-middle class	0.249***	[16.26]	0.141***	[15.55]					0.208***	[12.61]	0.119***	[12.91]
lower-middle class	0.157***	[12.06]	0.0557***	[6.88]					0.141***	[10.71]	0.0494***	[6.11]
first quintile					-0.128***	[-7.86]	-0.0993***	[-14.95]	-0.0886***	[-5.38]	-0.0943***	[-14.19]
second quintile					-0.0501***	[-4.04]	-0.0400***	[-7.53]	-0.0264**	[-2.11]	-0.0380***	[-7.15]
fourth quintile					0.0963***	[6.06]	0.0290***	[5.09]	0.0565***	[3.44]	0.0250***	[4.39]
fifth quintile					0.194***	[6.57]	0.0530***	[8.30]	0.131***	[4.21]	0.0410***	[6.38]
low school education	0.112***	[6.68]	0.0179*	[1.66]	0.133***	[7.97]	0.0169	[1.57]	0.105***	[6.24]	0.0160	[1.49]
mid school education	0.149***	[9.57]	0.0511***	[4.95]	0.177***	[11.48]	0.0484***	[4.67]	0.132***	[8.38]	0.0417***	[4.03]
high school education	0.144***	[8.13]	0.0549***	[5.03]	0.178***	[10.13]	0.0544***	[4.98]	0.115***	[6.34]	0.0359***	[3.28]
male	-0.0527***	[-5.14]	-0.0325***	[-8.47]	-0.0497***	[-4.84]	-0.0367***	[-9.54]	-0.0484***	[-4.72]	-0.0360***	[-9.36]
age	-0.0142***	[-6.35]	-0.0153***	[-20.83]	-0.0147***	[-6.55]	-0.0165***	[-22.37]	-0.0143***	[-6.44]	-0.0162***	[-21.97]
age2	0.000132***	[5.22]	0.000131***	[17.28]	0.000138***	[5.47]	0.000148***	[19.47]	0.000132***	[5.24]	0.000145***	[19.02]
married	0.0406***	[2.88]	0.194***	[35.33]	0.0426***	[3.02]	0.184***	[33.32]	0.0426***	[3.03]	0.183***	[33.33]
divorced	-0.188***	[-4.43]	-0.120***	[-11.66]	-0.189***	[-4.45]	-0.108***	[-10.49]	-0.180***	[-4.23]	-0.107***	[-10.42]
widowed	-0.216***	[-6.17]	-0.129***	[-11.85]	-0.216***	[-6.14]	-0.118***	[-10.84]	-0.208***	[-5.94]	-0.119***	[-10.92]
unemployed	-0.0398**	[-2.15]	-0.197***	[-20.16]	-0.0401**	[-2.16]	-0.182***	[-18.64]	-0.0380**	[-2.06]	-0.180***	[-18.44]
Observations	22301		103932		22301		103932		22301		103932	
R2	0.128		0.113		0.123		0.114		0.131		0.116	
F	138.8		215.6		127.4		215.0		124.1		208.0	
root MSE	0.731		0.608		0.733		0.608		0.730		0.607	

Note: OLS estimates. Dependent variable: happiness. T-stat in parentheses. Regressors also include individual country dummies, year dummies and time dummies for survey waves (1990–1991, 1995–1997, 1999–2001).
Data source: World Values Survey 1 − 4 (Inglehart, 2000, 2004)

Table 7: OLS regressions with proxies on positional goods

positive effect in both groups of countries and stronger for LICs.

A first partial conclusion suggests that in both groups of countries happiness is strongly influenced by positional aspects. In particular, SWB in LICs seems more affected by positional concerns than in HICs.

4.4 Relational goods and happiness

The idea that interpersonal relationships are important in human happiness has been widely tested so far. In this case, following Bruni and Stanca (2008) I test this hypothesis using two different groups of proxies for relational goods reflecting two particular aspects:

1. the identity of subjects involved in the relationship;

2. the authenticity of the relationship.

The first aspect is actually proxied by the time the respondent declares to spend with specific groups of people; the second characteristic is considered through a set of dummy variables about the participation in specific voluntary organization. Results presented in tab.4 show that in LICs happiness is positively influenced by spending time with colleagues from work or people from church, mosque etc. Considering coefficients about participation in voluntary organizations, participating in charitable or political organizations strongly and significantly affects SWB followed by participation in professional organizations althought this time score is not significant.

Results in LICs are quite different compared with those in HICs. In fact time spent with people from religious environments affects SWB more than in LICs followed by time spent with people from recreational environments and colleagues. Another interesting aspect is that time spent with relatives or friends shows positive coefficients, while these proxies have negative and non significant coefficients in LICs. Unfortunately, variables about participation in voluntary organizations have non significant coefficients with the only exception of participation in politics that has a negative impact on well-being. In order to allow an indicative comparison among the two groups of countries let's consider the second column of tab.8 reporting OLS regression results about participation in voluntary organizations. In this case we can notice that SWB in HICs is positively affected by participation in religious and charitable organizations followed by sport and artistic voluntary organizations, while participating in political organizations has a negative (but non significant) coefficient. This profile is quite in contrast with what emerges for LICs where the most important effect comes from participating in politics, charitable and professional organizations.

In that case, the dimension of the coefficients is almost the same in the two groups of countries, but the set of the determinants of well-being

Independent variables	LICs	HICs	LICs	HICs	LICs	HICs
time spent with: relatives	0.0295*** [3.33]	0.0394*** [4.80]			0.0162 [1.50]	0.0369*** [4.37]
time spent with: friends	0.0228** [2.44]	0.0412*** [4.65]			0.0186* [1.68]	0.0471*** [5.15]
time spent with: colleagues	0.0111* [1.69]	0.0181*** [3.07]			0.0215*** [2.81]	0.0198*** [3.26]
time spent with: people at church	0.0345*** [4.97]	0.0491*** [8.97]			0.0482*** [5.52]	0.0488*** [7.14]
time spent with: people at sport	0.0251*** [3.83]	0.0141** [2.43]			0.0179** [2.15]	0.0207*** [3.21]
voluntary organization: religious			0.0334* [1.69]	0.0754*** [10.97]	-0.0145 [-0.66]	0.0124 [0.69]
voluntary organization: sport			-0.0466** [-2.00]	0.0476*** [7.55]	-0.0485** [-1.99]	0.0119 [0.71]
voluntary organization: arts			0.0196 [0.88]	0.0201*** [2.61]	0.0196 [0.85]	-0.00501 [-0.28]
voluntary organization: unions			-0.0585** [-2.29]	-0.00911 [-1.25]	-0.0658** [-2.47]	0.0188 [0.77]
voluntary organization: politics			0.0942*** [4.04]	-0.00566 [-0.54]	0.0688*** [2.79]	-0.0499* [-1.65]
voluntary organization: charity			0.0639*** [2.74]	0.0283*** [2.95]	0.0537** [2.21]	0.0171 [0.78]
voluntary organization: professional			0.0439* [1.82]	0.0148 [1.60]	0.0453* [1.79]	-0.0157 [-0.72]
low school education	0.106*** [4.75]	0.0629** [2.01]	0.137*** [5.17]	0.0546*** [3.62]	0.115*** [4.00]	0.0808** [2.55]
middle school education	0.173*** [8.37]	0.0704** [2.31]	0.197*** [7.84]	0.0903*** [6.10]	0.180*** [6.53]	0.0844*** [2.70]
high school education	0.176*** [7.62]	0.111*** [3.46]	0.197*** [7.01]	0.103*** [6.52]	0.172*** [5.66]	0.125*** [3.75]
male	-0.0721*** [-4.90]	-0.0673*** [-5.38]	-0.0232 [-1.41]	-0.0337*** [-6.57]	-0.0638*** [-3.54]	-0.0614*** [-4.65]
age	-0.0103*** [-3.43]	-0.0107*** [-4.66]	-0.0104*** [-3.22]	-0.0166*** [-17.00]	-0.0121*** [-3.47]	-0.00898*** [-3.72]
age2	0.0000894*** [2.65]	0.0000965*** [3.96]	0.0000984*** [2.75]	0.000143*** [14.26]	0.000121*** [3.10]	0.0000802*** [3.17]
married	0.0266 [1.45]	0.195*** [11.11]	0.0232 [1.07]	0.195*** [26.76]	0.0244 [1.06]	0.212*** [11.40]
divorced	-0.193*** [-3.75]	-0.0430 [-1.42]	-0.208*** [-4.11]	-0.120*** [-9.04]	-0.189*** [-3.50]	-0.0538* [-1.71]
widowed	-0.224*** [-4.72]	-0.0319 [-0.83]	-0.243*** [-4.90]	-0.133*** [-9.42]	-0.249*** [-4.66]	-0.0154 [-0.40]
unemployed	-0.0377 [-1.64]	-0.0918*** [-3.19]	-0.00796 [-0.32]	-0.210*** [-15.78]	-0.00778 [-0.30]	-0.101*** [-3.38]
Observations	11405	9555	8612	62122	7765	8341
R2	0.170	0.110	0.135	0.121	0.138	0.128
F	103.1	55.29	60.00	174.2	45.94	44.18
root MSE	0.701	0.582	0.714	0.616	0.715	0.569

Note: OLS estimates. Dependent variable: happiness. T-stat in parentheses. Regressors also include individual country dummies, year dummies and time dummies for survey waves (1990–1991, 1995–1997, 1999–2001).

Data source: World Values Survey 1 − 4 (Inglehart, 2000, 2004)

Table 8: OLS regressions on participation in voluntary organizations

changes: happiness in LICs seems more affected by participation in organizations useful to achieve other objectives, that is to say those organizations in which the authenticity of the relationship is not fundemental.

4.5 Social Capital and happiness

Finally, I consider effects of social capital on SWB. Variables considered are:

- honesty;

- freedom of choice and control;

- trust.

Results from tab.4 suggest that all these variables have a positive impact on SWB in both rich and poor countries althought coefficient for trust in LICs is not significant. In general, it seems that social capital has a stronger effect on well-being in HICs. These results are further observed in tab.9 showing that honesty has broadly a similar positive effects on happiness in both groups of countries. Trust and freedom of choice and control have

Independent variables	LICs		HICs	
honesty	0.0139***	[4.54]	0.00827***	[9.17]
freedom of choice	0.0359***	[16.19]	0.0644***	[59.32]
trust	0.0377***	[2.95]	0.0736***	[17.77]
low school education	0.114***	[6.03]	0.0143	[1.22]
mid school education	0.159***	[9.25]	0.0363***	[3.19]
high school education	0.184***	[9.84]	0.0372***	[3.14]
male	-0.0762***	[-6.87]	-0.0356***	[-8.90]
age	-0.0151***	[-6.19]	-0.0151***	[-19.71]
age2	0.000145***	[5.24]	0.000133***	[16.84]
married	0.0395***	[2.61]	0.194***	[34.18]
divorced	-0.209***	[-4.74]	-0.110***	[-10.61]
widowed	-0.230***	[-5.98]	-0.132***	[-11.77]
unemployed	-0.0386**	[-1.99]	-0.161***	[-16.14]
Observations	18778		90323	
R2	0.133		0.159	
F	121.8		283.5	
root MSE	0.726		0.588	

Note: OLS estimates. Dependent variable: happiness. T-stat in parentheses.
Regressors also include individual country dummies, year dummies and
time dummies for survey waves (1990–1991, 1995–1997, 1999–2001).
Data source: World Values Survey 1 – 4 (Inglehart, 2000, 2004)

Table 9: Social capital and happiness in LICs and HICs

both a positive effect in LICs: in both cases, a one unit increase in the independent variable implies on average a 3.5% increase in happiness. In

HICs freedom of choice and trust have positive and larger coefficients than in LICs with effects ranging between 6.5% and 7%. This evidence suggests that social capital aspects are more important in rich rather than in poor countries probably reflecting different social capital endowments. Hence, this result is coherent with what emerges from other studies showing a steady social capital decline in developed countries(Blanchflower and Oswald, 2004; Bartolini et al., 2008).

5   Conclusions

The aim of this research was to find out the effects of positional and relational goods on SWB in low income countries testing whether people in poor and rich countries have similar preferences for SWB.

Present results are relevant for happiness economics since they enlarge our knowledge focusing on low income countries and revealing similar preferences for well-being in LICs and HICs. Nonetheless, we should be prudent in drawing conclusions since results need further research.

My analysis suggests that socio-economic aspects such as age, gender, being unemployed, education and marital status, generally have the same effects in both groups of countries even if the magnitude may be different: for example the effect of being married has a stronger effects in HICs, while having a higher education seems much more important in poor rather than in rich countries. Income is confirmed as a significant determinant of SWB in both groups of countries. In this case I have to stress that the coefficient is higher for LICs probably showing that in this context a higher income significantly improves the possibilities to satisfy more basic needs. Anyway, present analysis shows that, by focusing only on income and related indicators as proxies of well-being, we miss a significant part of the whole story. For that reason it is important to complement more traditional measures of well-being with the new contributions coming from happiness economics.

Moving towards positional, relational and social capital aspects we find out an interesting and intriguing pattern.

To start with, it seems that positional aspects matter also in low income countries since being in the upper class positively affects happiness while the two lower classes show smaller impacts on well-being. This result is confirmed also in the case of rich countries. Still from a comparative point of view, it is quite clear that positional aspects have stronger impacts in LICs since coefficients in this case are sistematically larger than in HICs.

Data on relative income are more straightforward: belonging to the first two income quintiles negatively affects SWB in both LICs and HICs, while being among the two highest income quintiles positively affects happiness. In this case the magnitude of coefficients is larger for the two extremes of the scale and smaller for the two intermediate steps. In particular, coefficients about

low income countries confirm that poor countries are subjected to positional competition too. Anyway this result should be considered only a starting point rather than a conclusion since the nature of this competition in the two contexts has to be further investigated. For example, social class aspects suggesting that being in the lowest classes negatively affects well-being in both groups of countries may hide different aspects: following Inglehart's idea people in more developed economies are experiencing a cultural shift from what he defines *modernization* to *post-modernization* in which individual and social values are changing.[16] This transformation would imply that people in rich economies are experiencing negative effects of positional competition. Hence, they are adjusting their preferences on the basis of new arising social values. On the contrary, people in poor countries have only recently entered the "modernization"[17] phase and they still have not experienced negative effects of positional competition. The difference in the two cases is that in the first case we are observing the last phases of a process which, on the contrary, is just starting in low income countries.

Coefficients related to variables about relational goods generally show that these goods are important in both groups of countries. In this case single components differ. In fact it seems that in low income countries SWB is much more influenced by time spent with colleagues from work and with people from religious environments while participation in charity, political and professional voluntary organizations has the largest effect on happiness. Differently, in rich countries people pays much more attention to time spent with people from religious and recreational environments or with colleagues. Considering voluntary organizations, happiness is more affected by religious and charitable organizations.

These aspects still reveal a different composition between countries. In fact, involvement in political or professional voluntary organizations, that is to say activities implying a joint effort for a common cause, are significantly related to SWB in poor countries rather than rich ones. Happiness in high income countries, instead, seems much more influenced by participation in activities in which intrinsic motivation plays a prominent role (Bruni and Stanca, 2008).

Finally, social capital aspects have all positive impacts on happiness even if single coefficients are higher for rich countries. In particular it seems that happiness in HICs is largely influenced by the individual freedom of choice and control on one's own life and by trust in others. These aspects too pose an intriguing question. What can explain these differences? A former hypothesis that I could suggest is related to the idea of *scarcity*. That is to say that these strong preferences for social capital aspects reflect

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[16]R. Inglehart, La Societ Postmoderna. Mutamento, ideologie e valori in 43 paesi, Editori Riuniti, Roma, 1998

[17]R. Inglehart and C. Welzel, Modernization, cultural change, and democracy. The human development sequence., Cambridge University Press, 2005

the low endowments of such capital in rich economies[18]. In this case, a good becoming scarcer acquire a higher value and more desirability. On the contrary, low income countries are supposed to have a larger relative endowment of social capital. This could explain why people do not perceive its relative scarcity and then their well-being is less influenced by social capital aspects. In this case the difference in social capital endowments in the two contexts could be explained in terms of positional competition eroding social relationships and, consequently, social capital.

Concluding, this research tried to shed new light on particular aspects concerning SWB in low income countries. Results show a complex pattern which asks for further investigation as well as the small dimension of the sample resulting from regressions needs further commitments to enlarge and explore it. Hopefully, when a new wave of surveys will be available, we will have the possibility to further test our hypothesis and results. So far a tentative conclusion suggests that the patterns of the determinants of SWB in rich and poor countries are similar. In other words, we can assume the existence of a unique happiness equation.

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[18]R. Putnam, Social Capital Measurement and Consequences, Isuma, vol. 2, n. 1, Spring 2001

6 Appendix: tables

	OLS		Ordered Logit		Ordered Probit	
	LICs	HICs	LICs	HICs	LICs	HICs
income	0.0108 [0.67]	0.0569 [1.35]	0.0205 [0.45]	0.170 [1.05]	0.0223 [0.90]	0.119 [1.32]
upper class	0.298*** [4.45]	0.207* [1.86]	0.859*** [4.49]	0.950** [2.00]	0.493*** [4.31]	0.454* [1.71]
upper-middle class	0.193*** [6.70]	0.0638** [2.42]	0.554*** [6.64]	0.263*** [2.58]	0.310*** [6.48]	0.145** [2.48]
lower-middle class	0.112*** [5.14]	0.000759 [0.03]	0.300*** [4.90]	0.00410 [0.05]	0.172*** [4.90]	0.000429 [0.01]
first quintile	-0.0829*** [-2.59]	0.106* [1.70]	-0.197** [-2.19]	0.350 [1.47]	-0.121** [-2.37]	0.222 [1.64]
second quintile	-0.0682*** [-2.93]	0.0389 [1.18]	-0.192*** [-2.94]	0.139 [1.11]	-0.106*** [-2.81]	0.0773 [1.08]
fourth quintile	0.0190 [0.57]	0.00832 [0.25]	0.0651 [0.67]	0.0313 [0.24]	0.0324 [0.57]	0.0123 [0.17]
fifth quintile	-0.0264 [-0.29]	-0.0446 [-0.87]	-0.0416 [-0.16]	-0.147 [-0.74]	-0.0528 [-0.35]	-0.0933 [-0.83]
time spent with: relatives	-0.000582 [-0.05]	0.0378*** [3.20]	0.00112 [0.03]	0.141*** [3.17]	-0.000440 [-0.02]	0.0805*** [3.19]
time spent with: friends	0.0105 [0.88]	0.0194 [1.25]	0.0202 [0.61]	0.0685 [1.17]	0.0162 [0.86]	0.0380 [1.17]
time spent with: colleagues	0.0339*** [4.05]	0.0347*** [3.60]	0.0918*** [3.98]	0.131*** [3.56]	0.0547*** [4.14]	0.0750*** [3.54]
time spent with: people at church	0.0360*** [3.79]	0.0488*** [4.64]	0.106*** [4.03]	0.188*** [4.61]	0.0581*** [3.88]	0.109*** [4.73]
time spent with: people at sport	0.00809 [0.90]	0.0165* [1.75]	0.0315 [1.24]	0.0697* [1.93]	0.0154 [1.05]	0.0381* [1.82]
voluntary organization: religious	-0.0229 [-0.96]	-0.0158 [-0.57]	-0.0899 [-1.32]	-0.0509 [-0.47]	-0.0485 [-1.24]	-0.0299 [-0.49]
voluntary organization: sport	-0.0493* [-1.91]	-0.00445 [-0.18]	-0.151** [-2.02]	-0.0145 [-0.16]	-0.0767* [-1.78]	-0.0107 [-0.20]
voluntary organization: arts	0.00818 [0.33]	-0.000366 [-0.01]	0.0139 [0.20]	-0.0153 [-0.16]	0.0145 [0.35]	-0.00414 [-0.08]
voluntary organization: unions	-0.0309 [-1.10]	0.0488 [1.63]	-0.103 [-1.27]	0.196* [1.67]	-0.0554 [-1.18]	0.114* [1.70]
voluntary organization: politics	0.0539** [2.09]	-0.0674* [-1.88]	0.188** [2.50]	-0.235* [-1.76]	0.0971** [2.22]	-0.150* [-1.93]
voluntary organization: charity	0.0391 [1.52]	0.0253 [0.83]	0.133* [1.79]	0.0765 [0.64]	0.0673 [1.54]	0.0607 [0.89]
voluntary organization: professional	0.0476* [1.82]	-0.0417 [-1.49]	0.137* [1.84]	-0.159 [-1.49]	0.0767* [1.73]	-0.0882 [-1.42]
honesty	0.0200*** [4.44]	0.00824* [1.69]	0.0555*** [4.44]	0.0256 [1.38]	0.0320*** [4.53]	0.0188* [1.80]
freedom of choice	0.0339*** [9.75]	0.0835*** [14.13]	0.0952*** [9.50]	0.324*** [13.62]	0.0538*** [9.47]	0.176*** [13.93]
trust	0.0272 [1.19]	0.0860*** [4.36]	0.0872 [1.34]	0.330*** [4.34]	0.0426 [1.16]	0.193*** [4.39]
low school education	0.0586* [1.84]	0.0993** [2.05]	0.150* [1.69]	0.312* [1.73]	0.0856* [1.72]	0.190* [1.92]
mid school education	0.0627** [1.96]	0.0496 [0.99]	0.152* [1.71]	0.112 [0.60]	0.0878* [1.76]	0.0745 [0.73]
high school education	-0.00247 [-0.07]	0.0661 [1.26]	-0.0550 [-0.55]	0.147 [0.75]	-0.0265 [-0.47]	0.110 [1.02]
male	-0.0575*** [-2.98]	-0.0330* [-1.65]	-0.174*** [-3.19]	-0.117 [-1.54]	-0.0999*** [-3.18]	-0.0669 [-1.52]
age	-0.0112*** [-3.02]	-0.00813** [-2.31]	-0.0343*** [-3.23]	-0.0305** [-2.28]	-0.0185*** [-3.04]	-0.0176** [-2.28]
age2	0.000111*** [2.70]	0.0000740** [2.03]	0.000354*** [2.99]	0.000279** [2.02]	0.000187*** [2.76]	0.000157** [1.98]
married	0.0118 [0.48]	0.151*** [5.68]	0.0189 [0.27]	0.574*** [5.67]	0.0181 [0.45]	0.332*** [5.73]
divorced	-0.192*** [-3.35]	-0.0404 [-1.07]	-0.513*** [-3.27]	-0.149 [-1.06]	-0.294*** [-3.31]	-0.0772 [-0.97]
widowed	-0.205*** [-3.45]	-0.0577 [-1.15]	-0.559*** [-3.51]	-0.195 [-1.06]	-0.321*** [-3.58]	-0.0931 [-0.88]
unemployed	0.0233 [0.83]	-0.0732* [-1.94]	0.0820 [1.04]	-0.272* [-1.88]	0.0388 [0.86]	-0.155* [-1.96]
Observations	6450	3475	6450	3475	6450	3475
R2	0.168	0.198				
F	33.29	22.03				
Root MSE	0.696	0.546				
Pseudo R2			0.084	0.119	0.083	0.12
Wald Chi2			1005.0	599.0	1011.9	637.9
Log pseudolikelihood	-6796.5	-2811.3	-6538.8	-2732.3	-6549.4	-2730.7

Note: Dependent variable: happiness. T-stat in parentheses. Regressors also include individual country dummies, year dummies and time dummies for survey waves (1990–1991, 1995–1997, 1999–2001). Data source: World Values Survey 1 – 4 (Inglehart, 2000, 2004)

Table 10: OLS, Ordered logit and ordered probit regression models showing the similarity of the coefficients and of their significance.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	1.00																																					
2	0.17	1.00																																				
3	0.03	-0.06	1.00																																			
4	0.06	-0.19	-0.06	1.00																																		
5	0.00	-0.19	-0.10	-0.32	1.00																																	
6	-0.17	0.07	-0.07	-0.23	-0.35	1.00																																
7	-0.05	0.05	-0.03	-0.16	-0.13	0.42	1.00																															
8	-0.08	-0.19	-0.04	-0.14	0.11	-0.02	-0.42	1.00																														
9	0.09	0.14	0.00	0.12	0.05	-0.26	-0.33	-0.53	1.00																													
10	0.06	0.05	0.02	0.27	-0.08	-0.13	-0.15	-0.24	-0.19	1.00																												
11	0.01	0.01	0.25	0.05	-0.04	-0.04	-0.06	-0.09	-0.07	-0.03	1.00																											
12	0.01	-0.09	-0.01	0.02	0.06	-0.06	-0.09	-0.02	-0.08	0.02	0.01	1.00																										
13	0.01	-0.05	0.00	0.02	0.01	0.06	0.09	-0.02	-0.01	0.02	0.02	0.15	1.00																									
14	0.12	0.11	0.00	-0.03	0.01	-0.04	0.04	-0.03	-0.15	0.00	0.00	0.05	0.25	1.00																								
15	0.04	0.05	-0.01	-0.02	0.04	0.12	0.13	0.02	0.04	0.02	0.03	0.03	0.19	0.24	1.00																							
16	0.11	0.14	-0.01	0.04	0.01	0.13	0.02	-0.08	0.01	0.07	0.04	0.06	0.23	0.30	0.28	1.00																						
17	-0.02	0.08	0.00	-0.04	0.03	0.13	0.12	-0.02	-0.11	0.02	0.04	-0.03	0.13	0.12	0.47	0.20	1.00																					
18	0.04	0.03	0.00	0.01	0.05	-0.06	0.00	-0.03	0.00	0.05	0.02	0.05	0.11	0.13	0.11	0.29	0.43	1.00																				
19	0.05	-0.01	0.01	0.05	0.07	-0.09	-0.03	-0.06	0.04	0.06	0.05	0.03	0.08	0.12	0.08	0.21	0.23	0.29	1.00																			
20	0.05	-0.01	-0.02	0.00	0.02	-0.08	-0.04	0.01	0.04	0.00	0.02	0.02	0.03	0.15	0.07	0.13	0.26	0.26	0.24	1.00																		
21	0.09	0.09	-0.02	-0.01	0.05	-0.04	0.01	-0.08	0.04	0.05	0.02	0.07	0.07	0.10	0.17	0.20	0.19	0.20	0.27	0.26	1.00																	
22	0.08	0.12	0.00	0.00	-0.01	-0.04	0.01	-0.08	0.04	0.07	0.01	0.03	0.00	0.07	0.16	0.17	0.18	0.24	0.29	0.24	0.21	1.00																
23	0.07	0.06	-0.03	0.05	0.03	-0.06	-0.07	0.00	0.05	0.07	0.04	0.03	0.04	0.16	0.08	0.17	0.29	0.29	0.23	0.36	0.23	0.19	1.00															
24	0.05	0.06	-0.03	0.00	0.00	-0.05	-0.05	0.00	0.03	0.03	0.00	-0.06	-0.06	0.00	-0.04	-0.04	0.03	-0.06	-0.04	-0.05	0.05	0.01	0.00	1.00														
25	0.18	0.12	0.09	0.07	-0.01	-0.12	-0.06	-0.06	0.00	0.09	0.02	0.01	0.04	0.03	0.05	0.05	-0.03	0.02	0.01	-0.05	0.02	0.01	0.00	-0.01	1.00													
26	0.02	0.02	0.00	-0.02	-0.02	-0.04	-0.06	0.00	-0.04	-0.02	-0.03	0.08	-0.06	0.03	-0.03	-0.03	-0.15	-0.08	-0.07	-0.03	0.00	-0.04	-0.09	0.00	-0.01	1.00												
27	-0.11	-0.10	-0.01	-0.13	-0.07	0.24	0.21	0.01	-0.14	-0.09	-0.03	-0.01	-0.08	-0.04	-0.11	-0.02	-0.02	-0.11	-0.10	-0.06	-0.06	-0.04	-0.09	0.00	-0.13	0.11	1.00											
28	0.04	0.18	-0.01	-0.11	0.00	0.10	0.12	0.01	-0.06	-0.03	-0.03	0.00	-0.02	-0.01	0.01	-0.04	0.09	-0.03	-0.04	-0.02	-0.01	0.06	0.02	-0.01	0.03	-0.02	-0.27	1.00										
29	0.03	0.03	-0.03	0.00	0.03	-0.11	-0.11	0.05	-0.02	0.00	0.02	0.00	0.04	-0.05	0.03	0.01	0.04	0.02	0.02	0.02	-0.01	-0.03	0.10	0.05	0.03	0.01	-0.34	-0.46	1.00									
30	0.02	-0.15	0.09	0.24	0.06	-0.20	-0.21	0.05	0.17	0.03	0.00	0.01	0.05	-0.06	0.05	-0.04	0.08	0.12	-0.10	0.06	0.01	0.02	-0.02	0.04	0.04	0.00	-0.22	-0.30	-0.37	1.00								
31	0.00	-0.01	0.00	0.00	0.02	-0.02	-0.02	0.01	-0.01	0.02	0.01	0.10	0.15	0.22	0.20	0.17	0.07	0.06	0.04	0.16	0.05	0.07	0.09	0.00	0.01	0.09	-0.09	-0.06	0.09	0.06	1.00							
32	0.00	0.00	0.00	-0.04	0.00	-0.02	-0.03	0.01	0.01	0.02	0.00	-0.13	-0.17	0.03	-0.04	-0.04	-0.04	-0.10	0.04	0.05	0.07	0.00	-0.01	0.05	0.00	0.08	0.22	0.01	-0.12	-0.07	0.06	1.00						
33	0.00	0.09	0.00	-0.01	0.03	-0.02	-0.02	-0.01	0.01	0.02	-0.01	-0.12	-0.16	0.01	-0.08	-0.01	-0.01	-0.09	-0.08	0.02	0.02	-0.01	0.02	0.09	0.01	0.10	0.12	0.05	-0.11	-0.08	-0.07	0.98	1.00					
34	-0.04	-0.06	-0.01	0.01	-0.05	0.05	0.08	0.03	-0.04	-0.03	-0.01	-0.04	-0.12	0.07	0.00	0.00	-0.02	-0.08	-0.02	0.03	-0.02	-0.03	-0.03	-0.02	-0.03	0.00	0.00	0.02	-0.08	-0.07	-0.08	0.31	0.24	1.00				
35	-0.04	0.01	0.01	0.01	0.01	0.03	0.04	-0.01	-0.02	-0.04	-0.01	-0.03	-0.02	-0.02	0.00	-0.04	-0.01	-0.02	-0.05	-0.03	-0.02	-0.03	0.00	-0.03	-0.04	0.06	0.00	-0.01	0.00	-0.01	-0.08	0.01	0.00	-0.27	1.00			
36	-0.07	0.01	0.01	-0.05	0.01	-0.02	0.00	-0.03	0.02	-0.04	0.02	-0.04	-0.02	-0.05	-0.04	-0.02	0.02	0.00	-0.05	-0.03	-0.04	-0.02	0.00	-0.08	-0.04	-0.09	-0.17	-0.07	-0.03	0.11	-0.12	0.19	0.20	-0.28	-0.04	1.00		
37	0.02	0.02	0.02	0.05	0.01	-0.02	0.00	-0.03	0.02	0.01	0.02	0.11	0.16	0.02	0.11	0.11	0.18	0.12	0.12	0.11	-0.01	-0.03	0.00	0.03	0.03	-0.09	-0.17	-0.07	0.10	0.11	0.08	0.08	-0.45	-0.72	-0.09	-0.10	1.00	
38	-0.01	-0.01	-0.01	-0.02	0.01	-0.03	0.11	-0.02	-0.04	-0.06	0.02	0.06	0.07	-0.10	0.02	0.02	0.04	0.02	-0.01	-0.04	-0.02	-0.02	-0.07	-0.02	-0.03	-0.05	-0.03	0.04	0.02	-0.04	0.06	0.06	-0.18	-0.24	0.05	0.00	0.26	1

1 = happiness
2 = income
3 = upper class
4 = upper-middle class
5 = lower-middle class
6 = lower class
7 = first quintile
8 = second quintile
9 = third quintile
10 = fourth quintile
11 = fifth quintile
12 = time spent with: relatives
13 = time spent with: friends
14 = time spent with: colleagues
15 = time spent with: people at church
16 = time spent with: people at sport
17 = voluntary organization: religious
18 = voluntary organization: sport
19 = voluntary organization: arts
20 = voluntary organization: unions
21 = voluntary organization: politics
22 = voluntary organization: charity
23 = voluntary organization: professional
24 = honesty
25 = freedom of choice
26 = trust
27 = illiterate
28 = low school education
29 = mid school education
30 = high school education
31 = male
32 = age
33 = age2
34 = married
35 = divorced
36 = widowed
37 = single
38 = unemployed

Light grey shaded: Correlation between 0.3 and 0.4
Heavy grey shaded: Correlation higher than 0.4

Table 11: Correlation matrix - Low Income Countries

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	1.00																																					
2	-0.16	1.00																																				
3	0.03	0.04	1.00																																			
4	0.10	0.02	-0.07	1.00																																		
5	-0.03	0.01	-0.07	-0.43	1.00																																	
6	-0.06	-0.14	-0.02	-0.13	-0.14	1.00																																
7	-0.03	-0.42	-0.05	-0.17	-0.04	-0.04	1.00																															
8	-0.05	0.01	-0.01	-0.21	0.05	0.30	-0.28	1.00																														
9	-0.03	0.20	-0.03	-0.01	0.09	-0.04	-0.25	-0.36	1.00																													
10	0.08	0.06	-0.03	0.16	-0.01	-0.09	-0.21	-0.29	-0.26	1.00																												
11	0.06	0.13	0.11	0.31	-0.13	-0.06	-0.17	-0.24	-0.22	-0.18	1.00																											
12	0.09	0.09	0.00	0.00	-0.03	-0.02	-0.05	-0.02	0.04	0.02	-0.01	1.00																										
13	0.10	-0.05	0.02	0.08	-0.06	-0.03	-0.05	-0.04	0.05	0.07	0.02	0.12	1.00																									
14	0.10	0.08	0.06	0.10	-0.01	-0.08	-0.14	-0.07	0.06	0.01	0.09	0.10	0.27	1.00																								
15	0.13	-0.06	0.02	0.04	-0.04	-0.02	0.06	0.00	-0.03	0.01	0.07	0.08	0.20	0.08	1.00																							
16	0.14	-0.13	0.04	0.12	-0.01	-0.05	-0.04	-0.11	0.01	0.07	0.10	0.07	0.20	0.24	0.19	1.00																						
17	0.12	-0.22	0.00	0.08	-0.01	-0.03	0.00	-0.07	-0.02	0.05	0.06	0.04	0.06	0.03	0.60	0.19	1.00																					
18	0.07	-0.10	0.07	0.15	-0.03	-0.04	-0.10	-0.11	-0.01	0.09	0.17	0.04	0.12	0.10	-0.01	0.37	0.12	1.00																				
19	0.07	-0.10	0.01	0.15	-0.02	-0.03	-0.08	-0.10	-0.03	0.11	0.13	0.01	0.09	0.12	0.09	0.22	0.20	0.23	1.00																			
20	0.05	-0.08	0.00	0.04	0.00	-0.06	-0.10	-0.06	-0.01	0.08	0.08	0.00	0.00	0.05	-0.04	0.05	0.03	0.10	0.07	1.00																		
21	0.02	-0.08	0.02	0.09	0.00	-0.04	-0.05	-0.09	-0.01	0.09	0.08	-0.01	0.04	0.10	0.10	0.11	0.20	0.10	0.18	0.08	1.00																	
22	0.05	-0.15	0.01	0.03	-0.01	0.02	0.07	-0.01	-0.03	-0.04	0.02	0.02	0.04	0.02	0.13	0.17	0.16	0.04	0.13	0.02	0.10	1.00																
23	0.05	-0.08	0.02	0.19	0.02	-0.08	-0.13	-0.06	-0.03	-0.13	-0.24	-0.05	0.07	0.14	0.05	0.15	0.17	0.18	0.29	0.14	0.26	0.11	1.00															
24	0.05	-0.02	-0.02	-0.02	0.02	-0.01	0.01	0.02	-0.01	0.01	-0.04	-0.01	-0.03	-0.06	0.13	-0.01	-0.02	-0.05	0.01	-0.03	0.01	0.01	0.02	1.00														
25	0.33	-0.19	-0.01	0.09	-0.02	-0.06	-0.05	-0.04	-0.02	0.08	0.04	0.06	0.11	0.07	0.07	0.12	0.11	0.09	0.10	0.03	0.09	0.03	0.10	-0.01	1.00													
26	0.11	0.02	0.02	0.09	-0.03	-0.06	-0.09	-0.08	0.02	0.08	0.09	0.02	0.12	0.08	0.05	0.09	0.07	0.06	0.07	0.02	0.08	0.03	0.13	0.03	0.07	1.00												
27	-0.12	0.21	0.00	-0.11	-0.04	0.06	0.10	-0.04	-0.04	-0.08	-0.08	-0.03	-0.09	-0.14	0.04	-0.16	-0.11	-0.13	-0.12	-0.07	-0.07	-0.05	-0.11	0.03	-0.11	-0.06	1.00											
28	-0.07	0.07	0.00	-0.14	0.07	0.06	0.10	0.01	-0.01	-0.13	-0.12	0.05	-0.08	-0.07	0.01	-0.10	-0.08	-0.12	-0.15	-0.11	-0.07	-0.03	-0.19	0.03	-0.07	-0.10	-0.06	1.00										
29	0.01	-0.14	-0.03	-0.07	0.05	0.03	-0.01	0.03	0.02	0.00	-0.05	0.04	0.03	0.01	-0.08	0.02	-0.03	0.03	0.03	-0.07	0.03	-0.02	-0.12	-0.03	0.01	0.17	-0.21	-0.43	1.00									
30	0.07	-0.03	0.02	0.26	-0.01	-0.10	-0.14	-0.18	0.00	0.16	0.22	-0.07	0.10	0.13	0.06	0.15	0.16	0.15	0.29	0.22	0.07	0.03	0.36	0.03	0.11	0.17	-0.18	-0.39	-0.52	1.00								
31	-0.04	0.11	0.05	0.03	-0.04	-0.05	-0.11	0.09	0.02	0.02	0.06	-0.06	0.04	-0.13	-0.13	0.04	-0.09	0.11	-0.04	0.05	-0.09	0.07	-0.10	0.00	-0.04	0.03	0.00	0.01	-0.04	-0.04	1.00							
32	-0.03	-0.03	-0.03	-0.02	0.00	-0.01	0.13	-0.07	-0.07	-0.09	-0.07	-0.09	-0.17	-0.28	0.20	-0.08	-0.12	-0.16	-0.12	-0.02	0.11	-0.09	0.12	-0.10	-0.04	0.04	0.26	0.12	-0.15	-0.04	-0.02	1.00						
33	-0.02	-0.03	-0.02	0.07	-0.01	-0.01	0.15	0.10	-0.08	-0.10	-0.08	-0.07	-0.15	-0.28	0.19	-0.08	-0.04	-0.04	-0.12	-0.04	0.05	0.11	-0.04	0.12	-0.04	0.03	0.27	0.13	-0.10	-0.01	0.98	0.23	1.00					
34	0.13	0.17	-0.03	0.07	-0.01	0.04	-0.23	-0.02	0.03	0.12	0.11	-0.01	-0.13	-0.08	0.13	-0.01	-0.01	-0.01	-0.02	0.02	0.05	-0.03	0.03	0.10	0.01	0.05	0.04	0.05	-0.06	-0.01	0.02	0.04	0.18	1.00				
35	-0.07	-0.16	-0.02	-0.05	-0.02	0.06	0.12	0.01	0.03	-0.07	-0.09	-0.06	0.03	-0.01	0.00	0.00	0.00	-0.07	-0.05	-0.06	0.02	0.06	-0.06	-0.01	-0.01	0.04	-0.03	0.07	0.02	0.02	-0.06	0.04	0.01	-0.35	1.00			
36	-0.06	-0.08	-0.01	-0.03	0.00	0.06	0.24	0.03	-0.09	-0.10	-0.07	0.00	-0.08	0.09	-0.13	-0.03	-0.03	0.03	0.06	0.00	0.05	0.05	-0.03	-0.08	0.00	-0.04	0.18	0.07	-0.10	-0.10	-0.14	0.40	0.44	-0.28	-0.09	1.00		
37	-0.07	-0.02	0.04	0.00	0.00	0.07	0.07	-0.01	-0.01	-0.04	-0.02	0.05	0.18	0.16	-0.13	0.03	-0.09	-0.09	0.00	0.06	-0.03	-0.03	-0.01	0.00	0.00	-0.02	0.18	-0.05	0.04	0.06	0.11	-0.44	-0.38	-0.56	-0.19	-0.15	1.00	
38	-0.07	-0.07	-0.01	-0.06	0.00	0.08	0.13	0.04	-0.05	-0.05	-0.08	-0.03	-0.02	-0.04	-0.05	-0.04	-0.07	-0.03	-0.03	-0.03	-0.05	0.00	-0.09	-0.06	-0.06	-0.01	-0.01	0.07	0.07	0.02	-0.02	-0.11	-0.11	-0.11	0.04	-0.03	0.08	1.00

1 = happiness
2 = income
3 = upper class
4 = upper-middle class
5 = lower-middle class
6 = lower class
7 = first quintile
8 = second quintile
9 = third quintile
10 = fourth quintile
11 = fifth quintile
12 = time spent with: relatives
13 = time spent with: friends
14 = time spent with: colleagues
15 = time spent with: people at church
16 = time spent with: people at sport
17 = voluntary organization: religious
18 = voluntary organization: sport
19 = voluntary organization: arts
20 = voluntary organization: unions
21 = voluntary organization: politics

22 = voluntary organization: charity
23 = voluntary organization: professional
24 = honesty
25 = freedom of choice
26 = trust
27 = illiterate
28 = low school education
29 = mid school education
30 = high school education
31 = male
32 = age
33 = age2
34 = married
35 = divorced
36 = widowed
37 = single
38 = unemployed

Light grey shaded:
Correlation between 0.3 and 0.4
Heavy grey shaded:
Correlation higher than 0.4

Table 12: Correlation matrix - High Income Countries

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