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Social Capital and Subjective Wellbeing in Europe: A New Approach on Social Capital

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Abstract This paper aims to analyze the relationship between the various dimensions of social capital and subjective wellbeing. Data used in this study come from the fourth wave of the European Social Survey and different measures of wellbeing are used to take account of both the cognitive and affective processes of individual wellbeing (i.e. life satisfaction, happiness, and subjective wellbeing). A factor analysis is performed to summarize information coming from a large set of variables into different components corresponding to each dimension of social capital (i.e. networks, norms, and trust). Among the results, we find that the impact of social capital on subjective wellbeing differ depending on the component of social capital which is under analysis. In particular, social networks, social trust and institutional trust are the components that show a higher correlation with subjective wellbeing. Furthermore, in addition to the positive effects of the individual variables, our results suggest that social capital at the aggregate level positively correlates with individual wellbeing, thus pointing to an external or environmental effect of social capital.

Keywords Social capital · Wellbeing · Networks · Norms · Trust · Factor analysis

1 Introduction

The study of happiness and subjective wellbeing has since long attracted the attention of psychologists and sociologists, but the interest on the determinants of subjective wellbeing has not reached the economic profession until recent years. This interest was partly

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motivated by the pioneering work by Easterlin (1974) and has recently given rise to a burgeoning literature, the so-called 'happiness economics' literature, which bases on individuals' self-reported data about happiness or life satisfaction.[1]

The work by Easterlin (1974) focused on the relationship between income and well-being, finding that, on average, individuals with higher levels of income tend to enjoy higher levels of subjective wellbeing. However, Easterlin also found that the levels of wellbeing do not tend to increase as a society becomes richer, a result which is generally known as the 'Easterlin paradox'. Several explanations have been proposed to solve this paradox, most of them pointing to the role of relative income through social comparisons, rising income aspirations or income adaptation.[2] Others explanations have received less attention in the literature, as it is the case of some negative outcomes that may go with economic growth and negatively affect individual wellbeing, such as a worsening of the social relationships, increasing levels of stress or deteriorating environmental conditions (Bartolini and Bonatti 2003). In spite of the lower attention paid to these factors, the work by Putnam (2000) evidenced a decline in social capital across the United States and this apparent decline motivated several studies on the role of social relationships and social capital in explaining the happiness paradox (Helliwell 2003; Helliwell and Putnam 2004; Bartolini et al. 2008; Pugno 2009). Besides, different recent studies have analyzed the cross-sectional relationship between social capital and subjective wellbeing, both at the macro and micro-levels, with results that point to a positive relationship between these two variables (Bjørnskov 2006, 2008; Sarracino 2010; Klein 2011).

The concept of social capital goes back to Bourdieu's definition, which placed the focus on the existence of "network(s) of more or less institutionalized relationships … which provides each of its members with the backing of collectively-owned capital" (Bourdieu 1986, pp. 248–249). Whereas Bourdieu focused on the existence of social networks, Coleman defined social capital in a functional way, stating that "social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: they all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure" (Coleman 1990, p. 302). In a similar vein to Bourdieu's idea of social capital, we find the definition proposed by Putnam (1993, p. 167), who sees social capital as "features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions". Later, Putnam (2000, p. 19) defines social capital as "… connections among individuals-social networks and the norms of reciprocity and trustworthiness that arise from them". From these definitions, it can be noted that social networks as well as social norms and trust are common elements that arise when defining social capital.

The diversity of variables used to proxy social capital in the empirical work responds to the multiplicity of dimensions and to the elusiveness of the concept (Durlauf 2002; Bjørnskov 2006, 2008). However, as noted by van Oorschot and Arts (2005), there is a growing consensus that empirical indicators of social capital can be grouped into three broad dimensions that in turn arise from the above definitions: (1) social networks (e.g.

[1] Although acknowledging differences between these concepts, the words happiness, life satisfaction and subjective wellbeing are often used as interchangeable in the economic literature (Frey and Stutzer 2002a). It is worth noting, however, that satisfaction with life is a component of subjective wellbeing, which in turn is generally seen as involving both cognitive and affective processes (Diener 1984; Veenhoven 1994; Diener et al. 2003).

[2] For an extensive review on different explanations to the 'Easterlin paradox', see Clark et al. (2008). A complete study on the relationship between income and subjective wellbeing can also be found in Stevenson and Wolfers (2008).

informal relationships, volunteering, organizational membership…); (2) social norms (e.g. shared norms, civic values…); and (3) social trust (e.g. generalized trust, institutional trust, interpersonal trust…). In fact, most studies on social capital tend to focus on one or another of these dimensions but rarely consider all dimensions together,[3] with measures of generalized social trust being one of the most frequently used variables in the empirical literature on social capital (Inglehart and Klingemann 2000; Uslaner 2002).

Besides the individuals' engagement in social networks, the public character of social capital (the Bourdieu's idea of 'collectively-owned capital') is commonly highlighted. As pointed by Becchetti et al. (2008), and unlike conventional goods, social capital can only be enjoyed jointly with other individuals because it bases, by nature, on interpersonal relationships. Although social capital is enjoyed at the individual level, higher social capital at the community level can contribute to greater individual wellbeing given that individual satisfaction coming from social networks depends not only on an individual's own engagement but on other individuals' involvement (Coleman 1990; Putnam 2000; Bjørnskov 2008), hence the interest of considering social capital at both the individual and the aggregate levels.

This paper aims to contribute to this literature by analyzing the relationship between the various dimensions of social capital and subjective wellbeing. Different measures of wellbeing will be used to take account of both the cognitive and affective processes of individual wellbeing (i.e. life satisfaction, happiness, and subjective wellbeing). A factor analysis will be used to summarize information coming from a large set of variables in order to empirically identify the different components of social capital. This would allow us to get more information from available data and to consider different dimensions of social capital which may potentially affect subjective wellbeing in different ways. Moreover, social capital will be considered at both the individual and the aggregate levels in order to analyze whether, besides the effects of individuals' engagement in social networks, aggregate social capital correlates with individual wellbeing. Our study focuses therefore on the empirical identification of the different dimensions of social capital and on analyzing the correlations between social capital (both at the individual and aggregate levels) and individual wellbeing.

With these objectives, the remaining of the paper is organized as follows: in the next section, we briefly review the literature on the determinants of subjective wellbeing, with special emphasis on the role of social capital. The third section presents the data and the different components arising from the factor analysis. The factor analysis is carried out both taking account of the three dimensions of social capital generally considered in the literature (i.e. networks, norms, and trust) and considering all variables together without establishing any a priori distinction between different dimensions. The results arising from both analyses are fairly consistent and point to the existence of different dimensions of social capital. A cluster analysis is also performed in order to identify countries with similar levels of aggregate social capital. Next, the results on the relationship between the different components of social capital and alternative measures of subjective wellbeing are presented. Finally, the paper closes with a discussion of the main results and conclusions arising from this study.

[3] Some exceptions are, among others, the works by Bjørnskov (2006, 2008), who consider three different components corresponding to social trust, social norms and associational activity in an empirical study at the macro level; or Sarracino (2010), who considers four set of proxies and distinguishes between intrinsically and extrinsically motivated group participation.

2 Empirical Literature on the Determinants of Happiness: The Role of Social Capital

Among the determinants of happiness, the empirical literature has mainly focus on individual socio-demographic characteristics, economic factors and, to a lesser extent, on social and institutional variables. Regarding individual socio-demographic characteristics, there is a broad consensus in the literature about the effects of variables such as age, marital status, health, being religious or not, or living in urban or rural areas, whereas other variables such as gender, political affiliations or the levels of education show more ambiguous results. The level of income is one the most commonly analyzed variables among the economic factors, with results that point to a positive association between income and subjective wellbeing, whereas other economic variables that has also attracted the attention of the happiness literature refers to unemployment, inflation and income inequality, among others.[4]

Looking at the social and institutional variables, the literature appears to be somewhat blurred, with a mix of variables used to proxy institutional features that go from social trust or civic participation to governance indicators and institutional norms. Most of these variables can be thought as falling in one or another dimension of social capital, with results generally pointing to a positive association between different measures of social capital and subjective wellbeing. Focusing on the evolution of social capital, Putnam (2000) analyzed a large set of data, including volunteering, membership or trust measures, and claimed that both social relationship and shared values and beliefs declined in the United States in the last decades. Other authors have confirmed this decline in social capital not only for the United States but also for most of the European countries, at least regarding social trust (Paxton 1999; Rothstein 2001; Costa and Kahn 2003; or Stolle and Hooghe 2004). Besides, different works analyzed the trends of social capital and subjective wellbeing, finding a positive relationship between these variables, mainly when social capital is measured through generalized social trust (Helliwell 2003, 2006; Helliwell and Putnam 2004; or Sarracino 2010).

Regarding cross-sectional studies, several works analyze the relationship between social capital and wellbeing at the aggregate level. Although generalized trust is one of the most used variables to proxy social capital, we find a great variety of indicators at the macro-level. Nevertheless, as Uslaner (1999) claimed, trust seems to be the most essential part of social capital. Inglehart and Klingemann (2000) find evidence of social capital, measured at the aggregate level of generalized trust, as being positively associated to national happiness. Bjørnskov (2003) take information on generalized trust and civic participation to get a measure of social capital and states that the role of social capital on wellbeing appears to be more important than income, at least in advances economies. Helliwell and Putnam (2004) measure social capital through different indicators such as the strength of family, ties to friends and neighbors, civic engagement, and trust, finding both direct and indirect effects (through their impact on health) of social capital on happiness and life satisfaction. Other authors have also considered several dimensions of social capital to study its effects on wellbeing at the aggregate level, as it is the case of Svendsen and Bjornskov (2007), who considered different indicators of governance (such as indices of freedom and of perceived corruption, civic participation and generalized trust). However,

[4] Argyle (1999) offers a comprehensive review of the effects of various individual and socio-demographic variables on subjective wellbeing. A more recent survey of the economic literature on the determinants of subjective wellbeing can be found in Dolan et al. (2008).

as Bjørnskov (2006, 2008) highlighted after considering the three main components of social capital, as measured by generalized trust, social norms and volunteering association, the effects of social capital on subjective wellbeing seem to be mainly driven by social trust.

At the micro-level, much of the empirical work of the effect of social capital on subjective wellbeing has focus on interpersonal trust and on social relationships (Bruni and Stanca 2008; Becchetti et al. 2008; Klein 2011). Psychologists has since long highlighted the importance of the individuals' social dimension and the role of social relationships on subjective wellbeing (Deci and Ryan 1991; Diener et al. 1999, Kahneman et al. 1999), whereas in the economic literature the importance of social relationship has been often emphasized using the term 'relational goods' (Uhlaner 1989; Gui and Sugden 2005; Bruni and Stanca 2008). Moreover, the literature on happiness economics generally finds that, together with economic conditions, social relationship is one of the most important determinants of subjective wellbeing (Frey and Stutzer 2002b; Di Tella et al. 2003; Bruni and Stanca 2008; Becchetti et al. 2008). The public character of social relationships, interpersonal trust, or social engagement, is also generally noted (Uhlaner 1989; Gui and Sugden 2005). In this sense, and besides the individual effects of social capital, it is generally acknowledged that communities showing higher social capital tend to get better outcomes in terms of individual subjective wellbeing (Putnam 1993; Helliwell and Putnam 1995).

In sum, the empirical literature point to a positive effect of social capital on subjective wellbeing when analyzing both the evolution of these variables and the cross-sectional evidence. Furthermore, the emphasis on one or another dimension of social capital varies across studies, with generalized trust being one the most frequently used indicators and that which appears to show a greater effect on wellbeing at the aggregate level, and social relationships, interpersonal trust, and associative and volunteering membership being more relevant variables in the analysis of subjective wellbeing at the micro-level.

3 Method

In order to analyze whether social capital correlates to subjective wellbeing and whether this correlation is driven by one or another dimension of social capital, it becomes necessary to previously determine the different components of social capital. In this section, the data used in this study is presented and a factor analysis is carried out to empirically identify the different components of social capital. We also perform a cluster analysis in order to identify countries with similar levels of aggregate social capital. The results on the relationship between the different components of social capital and individual wellbeing will then be presented.

3.1 Data

Data used in this study come from the fourth wave of the European Social Survey (ESS), year 2008. This survey includes two major sections: a 'core' module (constant from round to round) and one or more 'rotating' modules which are repeated at intervals.[5] The core module covers a wide range of variables which will be used in the present study, such as those referred to individual wellbeing (which will be used as dependent variable) and to

[5] For detailed information on the ESS and on collected data, see http://www.europeansocialsurvey.org.

different social, political, demographic and economic factors (used as explanatory variables).

3.1.1 Dependent Variables

The ESS provides information on both happiness and satisfaction with life. The question asked to asses happiness in the ESS is as follows: "Taking all things together, how happy would you say you are?", with answers on a scale from zero (extremely unhappy) to ten (extremely happy). Regarding life satisfaction, the question asked is: "All things considered, how satisfied are you with your life as a whole nowadays?", with answers ranging form zero (extremely dissatisfied) to ten (extremely satisfied). Both happiness and life satisfaction data are considered as dependent variables in order to take account of the more affective and cognitive processes involved in subjective wellbeing. A general indicator for subjective wellbeing is also considered as dependent variable. Following Klein (2011), this composite indicator of subjective wellbeing is obtained by adding the scores of the happiness and life satisfaction answers for each individual, what allows us to get a comprehensive indicator that take account of both the emotional and the cognitive assessments of life simultaneously.

3.1.2 Explanatory Variables

Focusing on social capital, we find a great diversity of variables which are usually considered in the empirical literature. Given the diversity of indicators that can be used to proxy social capital and which may appear as closer to one or other dimension, a factor analysis is performed in order to empirically identify the principal components of social capital. We first distinguish the three main dimensions of social capital as usually considered in the literature (i.e. networks, trust and norms) and perform a factor analysis to identify the principal components underlying each dimension of social capital. A factor analysis is also performed taking these variables as a whole, thus considering all the social capital variables together irrespective of any a priori established dimension. This allows us to empirically determine potentially different dimensions arising from the data as a way of verifying the existence of the above dimensions of social capital and of their underlying components. Overall, these two approaches provide consistent results and point to social capital as being made up of different dimensions.

The underlying components arising from the factor analysis when each dimension of social capital is separately considered are shown in the "Appendix". Regarding the trust dimension (Table 5), the considered variables refer to different aspects of trust, such as interpersonal trust, honesty, whether people help each other, and trust in various institutions (the country's Parliament, the legal system, the police, politicians, political parties, the European Parliament or the United Nations). The results obtained from the principal component analysis show that these variables load onto two underlying components: one referred as to "institutional trust" and the other, closer to the idea of interpersonal trust, named as "social trust".

As for the networks dimension (Table 6), eight different variables have been considered as proxies of social networks (how often people meet up with friends and family, having close friends, participating in social activities), virtual networks (personal use of internet), formal networks (working in a political party or action group, taking part in some other organization or association, being member of a political party) and the existence of a support network (possibility of borrowing money when necessary). Once the factor

analysis has been carried out,[6] these variables load onto two components, named as "social networks" (also comprising virtual and support networks) and "formal networks".

The norms dimension of social capital is usually seen as arising from various forms of social and political engagement, so the analyzed variables refer to individuals engagement in activities such as signing petitions, attending public demonstrations, showing or wearing badges with slogans, contacting politicians or taking part in boycotts (Table 7). The principal component analysis shows that all these variables load onto a single component, which is named as "political-civic engagement".

When these sets of variables are globally considered, irrespective of any a priori established dimension, the results show that the analyzed variables load onto five underlying components and tend to confirm the existence of different dimensions of social capital (see Table 1). These components are closely related to those mentioned above and only two variables appear to load onto a different component compared to the analysis made separately for each dimension of social capital. This is the case of 'working in some organization or association', which seems to be more related to civic and social engagement than to formal networks, and 'contacting politicians', which now load onto the political networks whereas in the previous analysis by dimensions it was assumed to be related to the norms dimension through political engagement. We therefore end up this analysis with "institutional trust", "social trust", "civic-social engagement", "political networks" and "social networks" as principal components of social capital.

Besides individual social capital, a cluster analysis is performed to identify groups of countries with similar levels of social capital. The effects of social capital at the country level are introduced into the analysis in order to analyze whether, apart from effects of individual social capital, aggregate social capital has an effect on individual wellbeing, thus pointing to social capital as generating externalities on subjective wellbeing. Three clusters of countries are obtained depending on their social capital: countries with high social capital (Belgium, Denmark, Finland, France, Germany, Ireland, Netherlands, Norway, United Kingdom, Sweden, and Switzerland); countries with medium social capital (Cyprus, Estonia, Greece, Romania, Slovakia, Slovenia, Spain, and Turkey); and countries with low social capital (Bulgaria, Czech Republic, Croatia, Hungary, Israel, Latvia, Poland, Portugal, Russia, and Ukraine).

Together with the above measures of social capital, different economic and socio-demographic variables usually pointed in the literature as possible determinants of subjective wellbeing are also considered. In particular, control variables introduced in this study refer to income (which is classified into three categories corresponding to low-, middle- and high-income groups), age (and its square), gender, subjective health, highest level of education, marital status, political orientation, religiosity, and place of residence.[7] Table 2 summarizes these explanatory variables together with those used to measure social capital.

[6] Prior to this analysis, a categorical principal component analysis has been performed given the ordinal and nominal nature of the variables. We then follow the procedure shown in this paper with the transformed variables coming from this preliminary analysis. This procedure is also adopted for the social norms dimension and for the global analysis presented henceforth.

[7] The statistical summary of the variables used in this study is provided in the "Appendix".

Table 1 Factor loading matrix for the joint analysis

Rotated component matrix					
KMO = 0.847	Component				
	Institutional trust	Social trust	Civic-social engagement	Political networks	Social networks
Trust in politicians	0.843				
Trust in political parties	0.828				
Trust in country's parliament	0.823				
Trust in the legal system	0.775				
Trust in the European Parliament	0.748				
Trust in the United Nations	0.717				
Trust in the police	0.704				
Most people would try to be fair		0.822			
People mostly try to be helpful		0.795			
Most people can be trusted		0.793			
Signing petitions			0.716		
Taking part in boycotts			0.674		
Taking part in public demonstrations			0.579		
Wearing or displaying campaign badge/sticker			0.497		
Working in some organization or association			0.455		
Working in political party or action group				0.795	
Member of political party				0.791	
Contacting politicians or government officials				0.488	
How often socially meet with friends, relatives or colleagues					0.729
Take part in social activities compared to others of same age					0.697
Anyone to discuss intimate matters with					0.520
Personal use of internet					0.498
Borrow money to make ends meet, difficult or easy					0.359
Variance percentage	19.36	9.54	8.83	7.85	7.75

3.2 Procedure

Given the ordinal nature of the dependent variable, ordered logit models are estimated. The empirical analysis bases on the following equation:

$$WB_i = \alpha + \sum_n \beta_n X_{n,i} + \sum_m \delta_m SC_{m,i} + \varepsilon_i \quad (1)$$

where i refers to the individual, WB is a measure of individual wellbeing, X_n is a set of control variables, such as income and other socio-demographic and individual characteristics, SC_n refers to different explanatory variables as regards social capital, β_n and δ_m are the parameters to be estimated, and ε is a random term.

Table 2 Explanatory variables description

Economic and socio-demographic factors	
Variable	Description
Total net income of household	Low (1), Medium (2), High (3)
Age (and age squared)	
Gender	Male (1), Female (2)
Subjective general health	Very bad (1), Bad (2), Fair (3), Good (4), Very good (5)
Highest level of education	Less than lower secondary education (ISCED 0, 1), (1), Lower secondary education completed (ISCED 2), (2), Upper secondary education completed (ISCED 3), (3), Post-secondary non-tertiary education completed (ISCED 4), (4), Tertiary education completed (ISCED 5, 6), (5)
Marital status	Married (1), Separated or divorced (2), Widowed (3), Never married (4)
Political scale	Left (1), Center (2), Right (3)
Religious scale	Low (1), Medium (2), High (3)
Place of residence	A big city (1), Suburbs of big city (2), Town or small city (3), Country village (4), Farm or home in countryside (5)

Social capital	
Dimensions of social capital	Variable
Trust	Institutional trust
	Social trust
Networks	Social networks
	Formal networks
Norms	Civic-political engagement

Global social capital	Variable
Trust and networks and norms	Institutional trust
	Social trust
	Social networks
	Political networks
	Civic-social engagement

Country social capital	Description
Cluster values country group	Low social capital (1), Medium social capital (2), High social capital (3)

Several specifications of this equation are estimated in order to consider both different measures of individual wellbeing and different components of social capital (by dimensions and globally considered). In particular, variables taken as the dependent variable refers to happiness, life satisfaction and subjective wellbeing.[8]

[8] It is noteworthy that problems of endogeneity and reversed causality may be present in works based on cross-sectional survey data (for some methodological cautions in this literature see, for example, Helliwell and Putnam 2004). Although this can be the case regarding variables such as subjective health or social capital, different studies suggest that the causal relationship goes from these variables to subjective

4 Results

Table 3 offers the results of the analysis made starting from the different dimensions of social capital. The principal components obtained for each dimension of social capital are introduced, in addition to other control variables (e.g. economic and socio-demographic factors), as explanatory variables of happiness (column 1), life satisfaction (column 2) and subjective wellbeing (column 3). Table 4 shows the estimates when the social capital is globally considered, thus introducing as explanatory variables the principal components obtained when all social capital variables are jointly considered without specifying any a priori dimension. Here again the results are presented for the happiness, life satisfaction and subjective wellbeing variables (columns 1–3, respectively).

All the control variables show the expected sign and are significantly correlated with subjective wellbeing, thus obtaining consistent results with those found in the previous literature. As regards social capital, the obtained results suggest that social capital has a positive influence on subjective wellbeing, with a positive and significant correlation between most components of social capital and subjective wellbeing irrespective of whether the analysis is run by dimensions of social capital or considering social capital as a whole. In particular, social networks and the trust components (both institutional and social trust) tend to be highly correlated with happiness, life satisfaction and subjective well-being. Measures of social capital at the aggregate level also appear to be significantly correlated with individual wellbeing.

5 Discussion

The results obtained for the economic and socio-demographic variables are in accordance with those found in the previous empirical literature (see, for example, Dolan et al. 2008). Income is positively correlated with subjective wellbeing, with higher levels of income going with higher probabilities of being happy and enjoying greater satisfaction with life once other variables are controlled for. Subjective wellbeing shows a U-shaped relationship with age; it is positively correlated with levels of subjective health; and women tend to report higher levels of wellbeing. As for other socio-demographic characteristics, we find that the political orientation, being or not a religious person and the marital status are significantly correlated with individual wellbeing, with people who declare themselves as being right-wing, as being religious, and those who are married appearing to be more likely to be happy and to enjoy greater satisfaction with life. The education level seems to show a negative correlation with subjective wellbeing, at least when other variables are control for, but this relationship is non significant for most of the considered levels of education. And looking at the place of residence, the results show that, other things being equal, living in a small town or in the countryside goes with greater subjective wellbeing than living in a big city. Although some estimates may vary depending on whether the dependent variable refers to happiness, life satisfaction, or subjective wellbeing, it is noteworthy that these results remain relatively stable

Footnote 8 continued
wellbeing (Graham 2008; Dolan et al. 2008). In any case, it should be noted that our focus is on correlations with subjective wellbeing and not on causality.

Table 3 Dimensions of social capital and individual wellbeing

	Dependent variable		
	Happiness	Life satisfaction	Subjective well being
Income level (Medium)	0.1693***	0.1656***	0.1869***
Income level (High)	0.3470***	0.3856***	0.4109***
Age	−0.0467***	−0.0438***	−0.0488***
Age squared	0.0005***	0.0006***	0.0006***
Female	0.1888***	0.1402***	0.1721***
Health (Bad)	0.5692***	0.5590***	0.6437***
Health (Fair)	1.0699***	1.1574***	1.2380***
Health (Good)	1.5646***	1.6482***	1.7752***
Health (Very good)	2.0776***	2.1405***	2.3095***
Lower secondary (ISCED 2)	−0.0343	−0.0140	−0.0268
Upper secondary (ISCED 3)	−0.0143	0.0568	0.0422
Post-secondary non tertiary (ISCED 4)	−0.0870	−0.1515**	−0.1286
Tertiary education (ISCED 5–6)	−0.1569***	−0.1425***	−0.1841**
Separated or divorced	−0.5025***	−0.3591***	−0.4647***
Widowed	−0.6246***	−0.3665***	−0.5224***
Never married	−0.4785***	−0.3121***	−0.4214***
Political (Center)	−0.0547	0.0837**	0.0338
Political (Right)	0.2416***	0.4928***	0.4183***
Religious (Medium)	−0.0306	−0.0527**	−0.0459
Religious (High)	0.2897***	0.2879***	0.3043***
Place (Suburbs of big city)	0.0930**	0.0553	0.0784**
Place (Town or small city)	0.1417***	0.1255***	0.1501***
Place (Country village)	0.1514***	0.1904***	0.1286***
Place (Farm. countryside)	0.2059***	0.2283***	0.1481***
Country group (Medium social capital)	−0.0194	0.1945***	0.0903***
Country group (High social capital)	0.2912***	0.2942***	0.3179***
Social capital (by dimensions)			
Trust			
Institutional trust (PCA)	0.2581***	0.3862***	0.3679***
Social trust (PCA)	0.4030***	0.4712***	0.4907***
Norms			
Civic-political engag. (PCA)	−0.0221**	−0.0388***	−0.0305**
Networks			
Social networks (PCA)	0.4449***	0.4311***	0.4751***
Formal networks (PCA)	0.0183	0.0269**	0.0238*
Pseudo R^2	0.0794	0.0836	0.0752
Number of observations	27,975	28,042	27,947

*** Significance 1 %; ** Significance 5 %; * Significance 10 %

regardless of the choice of the dependent variable. Moreover, the results for these control variables are qualitatively similar irrespective of whether social capital is thought as starting from different dimensions or is globally considered.

Table 4 Global social capital and individual wellbeing

	Dependent variable		
	Happiness	Life satisfaction	Subjective well being
Income level (Medium)	0.1724***	0.1691***	0.1896***
Income level (High)	0.3527***	0.3918***	0.4164***
Age	−0.0435***	−0.0440***	−0.0485***
Age squared	0.0005***	0.0006***	0.0006***
Female	0.1771***	0.1239***	0.1568***
Health (Bad)	0.5688***	0.5609***	0.6483***
Health (Fair)	1.0656***	1.1606***	1.2411***
Health (Good)	1.5603***	1.6554***	1.7805***
Health (Very good)	2.0716***	2.1473***	2.3139***
Lower secondary (ISCED 2)	−0.0387	−0.0222	−0.0350
Upper secondary (ISCED 3)	−0.0145	0.0537	0.0390
Post-secondary non tertiary (ISCED 4)	−0.0846	−0.1567**	−0.1315
Tertiary education (ISCED 5, 6)	−0.1507**	−0.1423***	−0.1465**
Separated or divorced	−0.5070***	−0.3609***	−0.4682***
Widowed	−0.6216***	−0.3656***	−0.5200***
Never married	−0.4830***	−0.3164***	−0.4265***
Political (Center)	−0.0508	0.0892	0.0385
Political (Right)	0.2503***	0.5046***	0.4291***
Religious (Medium)	−0.0334	−0.0540*	−0.0478
Religious (High)	0.2916***	0.2939***	0.3087***
Place (Suburbs of big city)	0.0889**	0.0509	0.0734
Place (Town or small city)	0.1358***	0.1199***	0.1433***
Place (Country village)	0.1421***	0.1840***	0.1805***
Place (Farm. countryside)	0.1958***	0.2189***	0.2213***
Country group (Medium social capital)	0.0036	0.2167***	0.1152***
Country group (High social capital)	0.3212***	0.3095***	0.3396***
Social capital (global)			
Institutional trust (Global PCA)	0.3150***	0.4471***	0.4343***
Social trust (Global PCA)	0.4422***	0.5119***	0.5337***
Civic-social engagement. (Global PCA)	0.0933***	0.1057***	0.1144***
Political networks (Global PCA)	0.0108	0.0064	0.0089
Social networks (Global PCA)	0.4825***	0.4547***	0.5093***
Pseudo R^2	0.0795	0.0831	0.0749
Number of observations	27,975	28,042	27,947

*** Significance 1 %, ** Significance 5 %, * Significance 10 %

Focusing on the social capital variables, the results suggest that social capital positively correlates with subjective wellbeing, this being so both when social capital variables are derived from the principal component analysis by dimensions and when it is globally considered. Nevertheless, different aspects of social capital seem to be associated with individual wellbeing in different ways. When the analysis is done starting from the

different dimensions of social capital, the trust dimension appears as positive and significantly associated with subjective wellbeing, with this result holding for both the institutional and the social trust components. The network dimension is also positively correlated with subjective wellbeing, with social networks being the relevant component driven this results. On the contrary, the formal networks component shows lower correlations and levels of significance, being not significantly associated with happiness and appearing as less significant than the social networks component when the focus is placed in more cognitive aspects of wellbeing such as life satisfaction. As regards the last dimension, the civic-political engagement seems to be negatively associated with subjective wellbeing, with this result extending both to happiness and, in particular, to life satisfaction.

Similar results are found for the social capital variables when the analysis is done without considering any a priori dimension of social capital. The results for the institutional and social trust components and for social networks do not significantly vary when social capital is globally considered (and the positive correlations of these components with subjective wellbeing tend to be even higher in this last case). Some differences are however found as regard the political networks and civic-social engagement components. No significant association with subjective wellbeing is found for political networks whereas the civic-social engagement component turns out to be positive and significantly correlated with individual wellbeing. As mentioned when analyzing the data on social capital, the difference between the formal networks component (obtained when different dimensions of social capital are considered) and the political networks component bases on two variables: 'working in some organization or association', which load onto the civic-social component when social capital is globally considered (and not on formal networks), and 'contacting politicians or government officials', which now load onto the political networks component. The difference in the results for these two components seems therefore to rely on political networks or engagement, with activities related to social and civic engagement, but not involving political aspects, being beneficial for subjective wellbeing. As regards political engagement, it could be that greater political dissatisfaction leads to greater political activity as well as to lower life satisfaction, whereas higher levels of social group membership contribute to greater happiness.[9] This result also suggests that the effects of networks and engagement could be different depending on their nature and probably on the motivations of the individuals given that not all associations are alike (Stolle and Rochon 1998). In this sense, Sarracino (2010) highlights that whereas Putnam (1993) views social networks as a source of general trust and social ties, other authors such as Olson (1982) point to the existence of groups and networks extrinsically motivated (i.e. networks acting for instrumental reasons). Gui and Stanca (2010) also note that social engagement can generate both intrinsic and instrumental benefits, and some works point to intrinsically motivated relationships and to informal social groups as being more related to subjective wellbeing (Bjørnskov 2008; Sarracino 2010).[10] Our results tend to support these views, with social networks and civic and social engagement being positive and significantly associated with subjective wellbeing whereas political involvement seems to show a more ambiguous effect.

Finally, as regards aggregate social capital, it is found that individuals in countries with a medium level of social capital tend to declare higher life satisfaction and greater

[9] We thank an anonimous referee for discussion on this point.

[10] Although not focusing on social relationships, previous empirical works also point to differences in subjective wellbeing depending on whether the individuals are intrinsically or extrinsically motivated (see, for example, Rojas 2007; or Salinas-Jiménez et al. 2010).

subjective wellbeing than those living in low social capital countries, and that individuals living in countries with high social capital are the most likely to be happier and more satisfied with life and, consequently, to enjoy greater subjective wellbeing. These results point to an environmental effect of social capital and suggest that, besides the benefits of social capital at the individual level, social capital at the country level is significantly associated with individual wellbeing. Social capital seems therefore to generate positive externalities in terms of subjective wellbeing, with both individual and aggregate measures of social capital being relevant variables in the study of subjective wellbeing.

6 Conclusions

Beyond the economic and socio-demographic variables usually considered as determinants of subjective wellbeing, the focus of this paper was placed on the role of social capital. Previous work on the relationship between social capital and subjective wellbeing usually consider few variables to proxy social capital and adopt either an individual or an aggregate perspective. In this study we aimed to go deeper into the study of this relationship. To this end, a large set of variables related to different aspects or dimensions of social capital has been taken into account and a principal component analysis has been carried out to empirically identify different dimensions of social capital. The study bases on data at the individual level, but the aggregate level has also been considered by grouping countries with different levels of social capital in order to analyze whether, besides the effects of individuals' engagement in social networks, aggregate social capital correlates with individual wellbeing. Furthermore, different measures of individual wellbeing have been considered to take account of both cognitive and affective aspects of wellbeing.

The obtained results are consistent across different specifications, both when different measures of subjective wellbeing are considered and when the social capital components are identified in alternative ways (either assuming different a priori dimensions or not). Social capital variables were first grouped into three different dimensions of social capital (i.e. 'trust', 'networks' and 'norms') and a factorial analysis was run to determine the principal components underlying each dimension of social capital. Additionally, the social capital variables were globally considered without distinguishing any a priori dimension of social capital. The factorial analysis when the social capital variables were jointly taken provided similar results, pointing to different facets of social capital which can be generally grouped into the above three dimensions. Nevertheless, some dimensions appear to embrace different components, as is the case of the trust dimension, where we can differentiate between 'institutional trust' and 'social trust', or the networks dimension, which includes 'social networks' and 'political networks'.

This empirically based distinction between different components of social capital is relevant in order to asses how each of these components relates to subjective wellbeing and whether the effects of social capital on subjective wellbeing are driven by one or another dimension of social capital. In this sense, our results suggest that the impact of social capital on subjective wellbeing may differ depending on the component of social capital which is under analysis. In particular, social networks, social trust and institutional trust are the components that show a higher correlation with subjective wellbeing. Little differences are found regarding the effects of social trust and institutional trust, even if social trust seems to be somewhat more correlated to subjective wellbeing. Regarding networks, it is found that participating in social networks has an effect on subjective wellbeing similar to

that of social trust. However, other forms of networks participation seem to have smaller or no effects on individual wellbeing. Thus, formal networks only show little effects on life satisfaction (but not on happiness) whereas participating in political networks seems to have no significant effect on any aspect of subjective wellbeing. This result suggest that different groups or networks might influence subjective wellbeing in different ways, with social networks driving the positive effects on subjective wellbeing whereas more formal or political networks seem to show little (if any) influence.

The role of social capital at the country level was also assessed by considering various groups of countries with different levels of social capital. The results from this analysis suggest that, in addition to the positive effects of the individual variables, social capital at the aggregate level positively correlates with individual wellbeing, thus pointing to an external or environmental effect of social capital.

In sum, our results tend to confirm a positive correlation between social capital and subjective wellbeing, but the results vary depending on the component of social capital under analysis. Social capital, both at the individual and country levels, appears as positively related to happiness, life satisfaction and subjective wellbeing, with this correlation been mainly driven by trust and participating in social networks, which appear to be the more relevant components of social capital as regards subjective wellbeing. As a final remark, we should note that the analysis made focused on correlations and not on causality. The use of panel data information and the analysis of causal relationships appear hence as an important path for future research.

Appendix: Complete Results of the Principal Component Analysis

See Tables 5, 6, 7, 8.

Table 5 Factor loading matrix for the 'trust' dimension

Rotated component matrix		
KMO = 0.85	Component	
	Institutional trust	Social trust
Trust in country's parliament	0.818	
Trust in politicians	0.817	
Trust in political parties	0.801	
Trust in the legal system	0.787	
Trust in the European Parliament	0.744	
Trust in the United Nations	0.719	
Trust in the police	0.718	
Most people would try to be fair		0.845
Most people can be trusted		0.843
People mostly try to be helpful		0.804
Variance percentage	42.75	23.05

Table 6 Factor loading matrix for the 'networks' dimension

Rotated component matrix		
KMO = 0.646	Component	
	Social networks	Formal networks
Take part in social activities compared to others of same age	0.627	
Personal use of internet	0.632	
How often socially meet with friends, relatives or colleagues	0.660	
Anyone to discuss intimate and personal matters with	0.503	
Borrow money to make ends meet, difficult or easy	0.510	
Working in political party or action group		0.834
Working in some organization or association		0.794
Member of political party		0.488
Variance percentage	23.13	19.90

Table 7 Factor loading matrix for the 'norms' dimension

Component matrix	
KMO = 0.715	Component Political-civic engagement
Signing petitions	0.719
Taking part in public demonstrations	0.617
Wearing or displaying campaign badge/sticker	0.633
Taking part in boycotts	0.617
Contacting politicians or government officials	0.505
Variance percentage	38.70

Table 8 Descriptive statistics

	Mean	SD	Min	Max
Dependent variables				
Happiness	6.949	2.132	0	10
Life Satisfaction	6.558	2.441	0	10
Subjective well being	13.524	4.213	0	20
*Explanatory variable*s				
Total net incomeof household				
Low (1)	0.441	0.496	0	1
Medium (2)	0.300	0.458	0	1
High (3)	0.259	0.438	0	1
Age	47.537	18.504	15	123
Gender				
Male (1)	0.455	0.498	0	1
Female (2)	0.545	0.498	0	1

Table 8 continued

	Mean	SD	Min	Max
Subjective general health				
Very bad (1)	0.017	0.131	0	1
Bad (2)	0.082	0.274	0	1
Fair (3)	0.280	0.449	0	1
Good (4)	0.405	0.491	0	1
Verygood (5)	0.216	0.412	0	1
Highest level of education				
Less than lower secondary education (ISCED 0, 1) (1)	0.141	0.348	0	1
Lower secondary education completed (ISCED 2) (2)	0.190	0.392	0	1
Upper secondary education completed (ISCED 3) (3)	0.373	0.484	0	1
Post-secondary non-tertiary education completed (ISCED 4) (4)	0.024	0.154	0	1
Tertiary education completed (ISCED 5, 6) (5)	0.271	0.445	0	1
Marital status				
Married (1)	0.545	0.498	0	1
Separated or divorced (2)	0.094	0.292	0	1
Widowed (3)	0.106	0.308	0	1
Never married (4)	0.254	0.435	0	1
Political scale				
Left (1)	0.114	0.318	0	1
Center (2)	0.719	0.449	0	1
Right (3)	0.166	0.373	0	1
Religious scale				
Low (1)	0.255	0.436	0	1
Medium (2)	0.525	0.499	0	1
High (3)	0.221	0.415	0	1
Place of residence				
A big city (1)	0.264	0.441	0	1
Suburbs of big city (2)	0.097	0.295	0	1
Town or small city (3)	0.289	0.453	0	1
Country village (4)	0.300	0.458	0	1
Farm or home in countryside (5)	0.050	0.219	0	1
Country group				
Low social capital (1)	0.354	0.478	0	1
Medium social capital (2)	0.268	0.443	0	1
High social capital (3)	0.379	0.485	0	1

The mean of the dummy variables shows the proportion of individuals for which those variables take value 1

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