Social Capital and Individual Happiness in Europe

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Abstract

This paper explores the relationship between social capital and happiness both in Europe as a whole, as well as in its four main geographical macro-regions – North, South, East and West – separately. We test the hypothesis of whether social capital, in its three-fold definition established by Coleman (1988) – trust, social interaction, and norms and sanctions – influences individual happiness across European countries and regions. The concept of social capital is further enriched by incorporating Putnam- (1993) and Olson- (1982) type variables on associational activity. Using ordinal logistic regression analysis on data for 48,583 individuals from 25 European countries, we reach three main findings. First, social capital matters for happiness across the three dimensions considered. Second, the main drivers of the effects of social capital on happiness appear to be informal social interaction and general social, as well as institutional trust. And third, there are significant differences in how social capital interacts with happiness across different areas of Europe, with the connection being at is weakest in the Nordic countries.

Keywords: Social Capital, Happiness, Trust, Social Interaction, Norms and Effective Sanctions, Europe

JEL codes: A13, A14, D71, I 31

1. Introduction

Two key recent developments are increasingly shaping current social science research. First, following the works of Loury (1977) and Coleman (1988), the concept of social capital has gained greater prominence. Social capital, understood as "the norms and networks facilitating collective action for mutual benefit" (Woolcock, 1998, p.155) has become a key input in social, economic and even political analyses (e.g. Putnam, 1993 and 2000; Zak and Knack, 2001).

In parallel, and following developments in psychology and medicine, social scientists, in general, and economists, in particular, have become increasingly involved in happiness research (e.g. Oswald, 1997; Frey and Stutzer, 2002; Layard, 2005). Their results show that individual happiness is shaped by: (1) micro- and macro-economic factors, such as employment, inflation and income (Easterlin, 1974, 1995; Clark and Oswald, 1994; DiTella et al., 2001; Alesina et al., 2004); (2) personal and demographic factors, such as gender, age, marital status, education and health, (e.g. Oswald, 1997; Gerdtham and Johannesson, 2001; Frey and Stutzer, 2002); and (3) institutional factors, such as the extent of political decentralization or citizens' direct political participation rights (e.g. Frey and Stutzer, 2000).

But even though both social capital and happiness have left profound impressions in the social sciences, only a limited number of studies has delved into how social capital and happiness interact. This handful of studies focuses mainly on individual countries, like the United States (e.g. Putnam, 2000), Canada (e.g. Helliwell and Barrington-Leigh, 2010; Leung et al., 2010) or Germany (e.g. Becchetti et al., 2008; Winkelmann, 2009), countries which are rather homogeneous in terms of both social capital and happiness. Only a few researchers (e.g. Helliwell and Putnam, 2004) evaluate this relationship across a wider range of countries. More importantly, the results of these studies are not uncontroversial: they strongly depend on the definition and, therefore, the indicators used to depict social capital – admittedly a rather vague and intangible notion. As a consequence of the absence of a commonly agreed definition and of the concentration on mostly individual countries, an encompassing and detailed

evaluation of how social capital affects individual happiness or life satisfaction[1] across Europe still remains to be undertaken.

The paper aims to cover this gap by linking social capital to happiness on an individual level firstly across 25 European countries and later evaluating the regional differences between the North, South, East and West of Europe. Hence, we broaden the perspective of previous studies dealing with social capital and happiness and shift the focus to an area of the world displaying a large variety of differences, rather than concentrating on relatively homogeneous countries, such as the US, as has been the norm in the past. In addition, our approach has the additional advantage of using a threefold concept of social capital with the objective of overcoming the definitional controversy which has haunted previous studies, by establishing an all-encompassing definition of the term. For this purpose, three of the main social capital theories, namely those of Coleman (1988), Putnam (1990) and Olson (1982), are incorporated and combined. We subsequently seek to resolve the question of whether and which specific aspects of social capital are significantly correlated with individual happiness across countries and regions of Europe. In order to undertake this analysis, we use the 2006 and 2008 waves of the European Social Survey (ESS) including 48,583 individuals living in 25 countries. We resort to the use of ordinal logistic regression analysis in order to estimate the general reported happiness function developed by Blanchflower and Oswald (2004), which we extend by incorporating social capital variables.

The paper is structured as follows. Section 2 introduces the term social capital and justifies the exact definition used in the analysis. It further gives an overview of previous approaches to the link between social capital and happiness in the literature. In section 3, we describe the model, methodological aspects and the data adopted for our research. Section 4 reports the results of our estimation, while Section 5 concludes.

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[1] Following the happiness economics literature, this paper uses the terms well-being, life-satisfaction and happiness as synonyms.

2. Theoretical Framework: Social Capital and Happiness

2.1 Defining Social Capital

Social capital is admittedly a rather vague and intangible concept. It has generally been described as the interaction between a number of individuals and social groups and valued as essential for economic development (Smelser and Swedberg, 1994). It is ''the idea that individuals and groups can gain resources from their connections to one another (and the type of these connections)'' (Paxton 1999, p. 89). However, despite the large number of social capital definitions and theories which have emerged over the years, it has remained difficult to accurately define and operationalise the term. No single unified generally accepted definition has emerged so far. Hence, in this paper, we seek to fill this gap by creating a comprehensive three-dimensional definition. In order to do that, we concentrate on the work of three of the more influential social capital theorists: Coleman, Putnam and Olson.

Social capital for Coleman is a resource that can be used by economic actors to enable productivity. It refers to multiple features of social organization: (1) trust and obligations, (2) information channels and (3) norms and effective sanctions. These three dimensions affect a society's efficiency by encouraging coordination and cooperation among individuals or social groups (Coleman, 1988).

The trust and obligations aspect of social capital is based on the trustworthiness of the social environment when making agreements. The confidence that other people "share your fundamental values" (Uslaner, 2002, p. 2) creates bonds between people, facilitating cooperation and efficiency. Societal structures also play an important role in shaping trust. General trust in the quality of the political, legal and institutional environment influences individual outcomes as well as social group interactions (North, 1990), thus increasing a society's overall effectiveness (Paxton, 1999; Paldam, 2001).

Information channels, such as meeting colleagues, friends or family, "constitute a form of social capital that provides information that facilitates action" (Coleman, 1988, p. S104). A frequent resort to interpersonal networks increases the speed of the diffusion of information and serves as an important knowledge resource for individuals. Furthermore, interaction tends to generate trust and cooperation.

Finally, norms and effective sanctions depict the third key form of social capital. A society with solid norms and transparent and effective sanctions reduces the incentives for criminal action. Individuals who do not feel afraid but feel safe in the surroundings they live in develop stronger ties within their community. Effective norms can "facilitate exchanges, lower transaction costs, reduce the cost of information, permit trade in the absence of contracts, encourage responsible citizenship and the collective management of resources" (Woolcock and Narayan, 2000, p.16).

Putnam (2000) has enlarged Coleman's social capital theory by focusing on the positive added value of interpersonal networks. He evaluated the effect of both formal (political, civic or work-related) and informal (interaction with family and friends) associational engagement. Putnam posits that tighter and larger personal networks bring about significant benefits to society. If individuals are members of more than one social network, their frequency of interaction increases. Parallel and overlapping interactions produce beneficial effects by reducing opportunism and strengthening cooperation. Solidarity, "public-spiritedness […] [as well as] a sense of shared responsibility for collective endeavours" (Putnam, 1993, p. 90) enhances trust. Thus, according to Putnam, a strong network of associations, no matter which form, creates positive externalities fostering trust, stability, governmental efficiency and economic growth.

Putnam's view is, however, not shared by Olson, who tends to consider social associations (e.g. labour/trade unions, professional organizations, lobby groups or political parties) as special interest groups, which are not necessarily beneficial to societies. As a consequence of their rent-seeking character, social associations may

cause negative externalities imposing social losses on the rest of society. In Olson's view, associations do not seek to increase the size of the cake, but simply endeavour to receive a "larger slice of the social pie" (Olson, 1982, p. 43) for their members at the expense of society as a whole. Eventually, interest groups' actions are likely to trigger redistribution mechanisms which transfer wealth from non-members to members causing efficiency losses, reductions in output and in the overall rate of innovation (Olson, 1982; Keefer and Knack, 1997; Knack, 2003). Olson-type interest groups tend to remain exclusive by limiting membership and excluding new entrants in order to maximize the individual member's profit. Conflicts of interest between social groups weaken the stability of the economy and limit economic growth, generating costs for the rest of society (Olson, 1982).

In our paper, we refer to social capital as a combination of above theories. The definition used involves the three dimensions proposed by Coleman: trust; information channels; norms and sanctions. In our trust dimension, we follow Paxton (1999), who proposed to use trust as a two dimensional category, namely trust in society as a whole and trust in institutions. We further subdivide information channels into Putnam-type informal, as well as formal associational activity yielding positive externalities (informally meeting with friends, relatives, colleagues, but also participating in associations such as churches, voluntary work,..) and potentially negative externality creating Olson-type associations and special interest groups, such as political parties, professional organizations or trade unions.

2.2 The Interaction of Social Capital and Happiness

The potential linkages between social capital and happiness have attracted significantly less attention than the analysis of the macro-, micro-economic or individual factors. Some researchers have found a large positive influence of social capital on general life satisfaction at an individual level through many different channels and in various forms (e.g. Putnam, 2000, using US data; Helliwell and Barrington-Leigh, 2010, for Canada, Leung et al., 2010, for Canada). They refer to social capital as one of the "most robust correlates of subjective well-being" (Helliwell and

Putnam, 2004, p.1437) and further as "more important than economic differences when explaining life satisfaction differences" (Helliwell and Barrington-Leigh, 2010, p.15). Other scholars, by contrast, point that social capital only has an indirect influence on happiness, while focusing primarily on its relationship with health, wealth or economic growth. Helliwell and Putnam (2004), for example, identify a strongly positive effect on physical health which, in turn, increases individually reported life satisfaction. Zak and Knack (2001) consider it a driving force behind increasing economic growth rates and Rodrik (1998) rated social capital as an instrument allowing to better absorb external shocks. Helliwell and Barrington-Leigh (2010) and Winkelmann (2009) have identified it as a predictor of well-being using Canadian and German micro-data respectively. However, the literature using cross-country aggregated data yields results which are far from consistent. On the one hand, Bjørnskov (2003) emphasizes a strong and robust relationship between social capital and happiness. He finds that, especially in northern European countries, high levels of social capital lead to economic growth, stability and greater well-being. Similar results are found by Helliwell and Putnam (2004) when evaluating a worldwide dataset and by Helliwell et al. (2009), who report that social context variables explain 73.4% of cross-country variation in subjective well-being. On the other hand, Ram (2010) finds only a fragile connection between social capital and happiness, if at all.

There are, however, important issues with social capital research which need to be considered when evaluating the literature on its relationship with happiness. Recent research has tended to criticise the robustness of social capital research on the basis that it is generally unclear, often confounds variables with transmission channels or that it only becomes relevant once the country being analysed has reached a certain income threshold (Bjørnskov, 2008). It is, however, the very vagueness of the definition of social capital which has been the target of the greatest criticism in happiness research. The lack of consensus in the definition of social capital and, consequently, the lack of consistency in the use of proxies in empirical analysis, has created a variety of different results. While some variables, such as general trust are proxied quite consistently using the question "*Do you think most people can be trusted?*",

other variables such as social interaction are more arbitrarily proxied by variables ranging from parents' availability (Pichler, 2006) to the frequency of talking to neighbours (Powdthavee, 2009). This laxness in the definition has undermined the capacity of happiness researchers to establish clear links between well-being and social capital. Secondly, empirical studies analysing this link have tended to concentrate on specific aspects of social capital, rather than on its whole spectrum. Therefore, the resulting interaction between social capital and happiness seems to always depend on the proxies, control variables and dimensions included. In this respect, while some studies only focus on one-dimensional social capital indices such as trust (e.g. Helliwell, 2006), others incorporate two of the above-mentioned aspects, such as for example trust and information channels (e.g. Bjørnskov, 2008). Among the rare studies which incorporate a large number of social capital aspects, we find Helliwell and Barrington-Leigh (2010), who consider information channels, trust and feeling of belonging, and Leung et al. (2010), whose study uses the conceptual definition of Coleman. Hence, most importantly, the resulting link between social capital and happiness depends in all likelihood on those dimensions, proxies or control variables not included, which may transfer their influence to the dimensions accounted for.

One of the most commonly examined aspects of social capital has been trust. Studies linking trust to subjective well-being tend to reveal a positive impact of both general and institutional trust on happiness (e.g. Helliwell and Putnam, 2004; Helliwell, 2006; Bjørnskov, 2008). Community-level or social trust as defined by Coleman displays a highly significant positive effect on happiness. "Sharing a sufficiently high degree of social trust at the level of society […], allows people to interact with fellow citizens whom they do not know and consequently do not know anything about, making for a safer, more predictable, easier and therefore also […] a happier life" (Bjørnskov, 2008, p. 55). These results have proved robust both for individuals, as well as for cross-regional analyses in the US (e.g. Bjørnskov, 2008). Trust has been equally found to be associated with significantly higher well-being levels across countries using worldwide data (e.g. Helliwell and Wang, 2011). An increase in subjective well-being associated to trust was estimated to be equivalent to an increase in household income of about two-

thirds (Helliwell and Wang, 2011) Bjørnskov (2006) even argues that social trust is the only form of social capital influencing well-being.

Institutional trust has equally been found to positively affect individual happiness in Europe (e.g. Frey and Stutzer, 2002; Hudson, 2006). Institutional trust still remains highly significant even when accounting for other dimensions of social capital – namely information channels and norms and sanctions – as indicated by Leung et al. (2010) using Canadian data. "In short, feeling able to trust others – both those among whom one lives and works and those in authority – is strongly associated with higher subjective well-being" (Helliwell and Putnam, 2004, p. 1442).

As far as Putnam-type informal social activity is concerned, interaction with family, friends and colleagues by and large is considered to lead to a greater social embeddedness of the individual and to a strong feeling of belonging and integration in society. Most studies confirm this hypothesis. Pichler (2006) for example illustrates social networks as leading individuals to "find their position in society" (Pichler, 2006, p. 423). Consequently, informal interaction channels in the form of strong social networks tend to be highly positively correlated with subjective well-being (e.g. Lelkes, 2006; Powdthavee, 2009, Helliwell and Barrington-Leigh, 2010). Some studies that compare income and social connection effects on life satisfaction find similar if not stronger interdependencies between Putnam-type informal activities and happiness (Helliwell et al., 2009). Powdthavee (2009) even states that increasing the frequency of social contacts increases life satisfaction proportionally. However, other studies such as Bjørnskov (2008) consider this relationship as not robust. He finds no significance whatsoever for informal sociability on happiness in his cross-sectional analysis for the United States.

Formal social interaction is not as clearly associated to happiness. Olson-type associational activities, such as being a member of a professional interest group, have been shown to be negatively correlated with happiness, according to the few studies which have taken such variables into consideration (e.g. Pichler, 2006; Leung et al.,

2010). Leung et al. (2010), for example, find that only political engagement is significant among variables in this category.

By contrast, Putnam-type community engagement has been associated with rises in well-being. Putnam (2000) estimates the effect of associational activities on happiness in the US to be equivalent to a 100% increase in income or four additional years of education. Studies for Europe show that the greater the involvement in non-political and non-economic organizations or clubs by an individual, the higher the general level of life satisfaction (Pichler, 2006). Helliwell (2003) and Helliwell and Putnam (2004) come to similar conclusions for the US: club membership displays a positive influence on happiness at aggregate level. On an individual level, however, the correlation is shown not to be significant. Bjørnskov goes even further by indicating that "associational activity only creates trust among members but this trust does not extend to outsiders" (Bjørnskov, 2006, p. 23). According to this statement, Putnam's idea of associational activity yielding a positive feedback on other social capital dimensions would be proven wrong. Consequently, all organizational engagement may be considered as creating Olson-type negative externalities. As far as voluntary activities are concerned, no significant relationship can be detected in the literature (e.g. Haller and Hadler, 2006).

Religious activities, another form of Putnam-type associational activities (Putnam, 2000), yield more consistent results. The religious social capital is often proxied by the frequency of church attendance. Here, results coherently display a positive relationship between attendance and well-being (e.g. Helliwell and Putnam, 2004; Hayo, 2004). Helliwell and Putnam (2004, p. 1441) associate such church attendance with creating "community level social capital" and therefore increased happiness. In addition, their findings support Putnam's and Coleman's argumentation of feedback effects among the different social capital dimensions. Community level social capital created by frequent church attendance fosters trust among the individuals, leading to further increases in social capital and, consequently, in well-being. Admittedly, there have been critical voices questioning if in the end, it is not participation and therefore

social interaction, but the pure fact of believing that influences well-being (e.g. Pollner, 1989).

Very little can be found in the happiness literature concerning the third key dimension of social capital suggested by Coleman (1988) – the rather vague notion of norms and sanctions which create an image of the general trustworthiness, cultural habits, morals and norms of a society. It is presumably its abstract nature which hinders researchers from addressing this dimension. Leung et al. (2010, p. 6) have used four proxies: *"feeling safe to walk alone after dark, feeling safe to be home alone after dark, trusting someone living close by to return a lost wallet, and trusting a stranger to return a lost wallet"*. However, this group of variables was found to be only marginally significant. The only variable showing significance was the feeling of safety when walking alone in the dark. Counter intuitively, it displayed a negative influence on happiness. Helliwell and Barrington-Leigh (2010) have also incorporated variables of sense of belonging to a community, province or country and, as Leung et al. (2010), also resort to the returned wallet experiment. They find these variables to be highly significant and positively correlated with individual life satisfaction.

To sum up, social capital in the literature has been generally connected to higher levels of happiness, even though most indicators yield ambiguous results. Due to the lack of a uniform definition, proxies and indicators of social capital vary largely across studies. The research has proven to be inconclusive in identifying which dimensions of social capital have the greatest influence on subjective well-being and rarely all three of Coleman's dimensions of social capital have been incorporated in analyses leading to incomplete conclusions. Another shortcoming of existing literature is that the majority of the recent work focuses on the United States and Canada, two countries that are quite homogeneous across their regions in terms of both social capital and happiness (Putnam, 2000).However, both social capital and happiness differ largely across countries, as can be seen in the European case. According to Oswald (1997), in the North of Europe more than half of the citizens display very high subjective well-being scores, while in the South, the proportion is one-tenth. Similar results are found for

social capital. While Scandinavians display very high levels of social capital endowment in all three dimensions, eastern European countries display very low social capital scores. Low levels of trust in both mankind and institutions are common in southern Europe and significantly lower than in western and northern Europe (van Oorschot et al., 2006). Due to these constrast in social capital endowment, its connection with happiness may differ considerably between Europe and the US.

3. Empirical Model and Data

3.1. Empirical Model

The aim of the paper is to establish whether there is a connection between the three sets of social capital indicators identified by Coleman and the level of individual happiness across the whole of Europe – as well as across four different European macro-regions – while controlling for individual characteristics and macroeconomic variables. Our empirical model extends Blanchflower and Oswald's (2004) approach and their assumption of the existence of a generalized reported well-being function which adopts the following form:

$$r_i = h_i(u_i(macroeconomic_i, sociodemographic_i, sc_i)) + e_i \text{ (1)}$$

in which r stands for the declared score of happiness of the individual i in the survey. The function $u(.)$ denotes the individual's true well-being function and is non-observable other than to the respondent; $h(.)$ is a continuous non-differentiable function establishing the link between true and reported happiness; *macroeconomic* displays a vector of macroeconomic factors; *sociodemographic* is a selection of socio-demographic and personal factors; *sc* represents the set of social capital variables and *e* is the error term.

If the true well-being of the individual $u(.)$ rises, $h(.)$ increases in steps. The values of $h(.)$ respond to the following rule $h^* = 0$ if $h < c_0$, $h^* = 1$ if $c_0 < h < c_1$, $h^* = 2$ if $c_1 < h < c_2$, $h^* = 3$ if $c_2 < h < c_3$, ..., $h^* = 10$ if $c_9 < h$, for some cut-off values c_0 to c_9 (see Blanchflower

and Oswald, 2004). In their happiness function, Blanchflower and Oswald assume the true well-being function *u(.)* to be increasing and concave in income and *sc*.

In accordance with the theoretical discussion, the social capital functional form used in the analysis can be depicted by:

$$sc_i = sc_i(trust_i(itrust_i, gtrust_i), ic_i(putn_i, olso_i), norm_i) \quad (2)$$

where *sc_i* is the social capital of the individual *i*. It is directly influenced by three factors: *trust_i*, which depicts the individual's trust; *ic_i*, which stands for social interaction of the individual; and *norm_i*, indicating social norms and sanctions as reported by the individual. *trust_i* is in turn divided into *itrust_i*, the individual's trust in institutions and *gtrust_i*, the individual's general trust in mankind, while *ic_i* is divided into informal and formal Putnam-type social activities (*putn_i*) and Olson-type special interest group engagement (*olso_i*).

The empirical analysis uses an ordered logistic regression (ologit)[2] which captures the structure of our assumed generalized reported happiness function *r.* This estimation method controls for the limitations of the dependent variable and makes the results easily interpretable. By using ologit, true utility becomes the latent variable *happy**, while the "subjectivity of responses can be thought of as being swept into the error term" (Blanchflower and Oswald, 2004, p.1362). *happy** is treated as ordinal under the assumption that the levels of happiness have a natural order (low to high) with the intervals between adjacent levels remaining unknown.

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[2] We opted for an ordered logistic regression model because of its ability to capture the structure of our assumed generalized reported happiness function, as suggested by Blanchflower and Oswald (2004). An ordered logistic regression (ologit) can be seen as an extension to the logistic regression model. While the latter evaluates binary dependent variables, ologit models take into account dependent variables with more than two response categories ordered in a logical sequence i.e. from very unhappy to very happy. An alternative method would have been to run the regressions using ordinary least squares (OLS). We have conducted such analysis and, when OLS is used, neither the coefficients, nor the significance levels of both the control variables and the variables of social capital in question vary much with respect to the ologit analysis. This is in line with what is predicted by Ferrer-i-Carbonell and Frijters (2004). The OLS results of the analysis can be made available upon request.

Therefore, in accordance with the theoretical generalized reported happiness function, our empirical strategy is based on the following linear equation:

$$happy_i^* = f(macroeconomic, sociodemographic, sc) + \varepsilon_i \quad (3)$$

Where $happy_i^*$ is the altered continuous outcome corresponding to the reported happiness score of the individual, ranging from 0 to 10. The vector *macroeconomic* depicts the set of time specific variables aggregated at national level which previous research has found to significantly influence individual happiness. *sociodemographic* refers to the group of individual socio-demographic characteristics of the interviewee. *sc* refers to the vector including the different social capital variable sets *trust* (*itrust* and *gtrust*), *ic* (*putn* and *olso*) and *norm*. The list of all variables used in each category and vector is provided in Annex 1.

3.2. Data

In order to measure the interaction between social capital and happiness across European countries, we employ data from the European Social Survey (ESS), third (2006) and fourth (2008) waves. The data were collected over the years 2005 to 2008 in 32 (mostly) European countries. Both rounds contain micro data for almost 100,000 individuals. The data were gathered in face-to-face interviews conducted in the native language of the interviewee.

Given data availability issues, our analysis covers 25 countries[3] and a total of 48,583 individuals. Both waves were pooled in order to maximise observations and minimise the distorting effects of the crisis, beginning in 2007, on individual well-being. Reflecting data availability, some countries in the dataset are represented with observations from both ESS waves, others only from one. Annex 2 presents the ESS

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[3] Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, United Kingdom, Greece, Hungary, Ireland, Latvia, the Netherlands, Poland, Portugal, Romania, Sweden, Slovenia and Slovakia. Russia, Turkey, Norway, Ukraine and Israel (the non-EU members) were dropped from the dataset because of problems in comparability of some of the control variables. Complete datasets for Lithuania, Luxemburg, Italy and Malta were not available.

subset used, indicating the number of observations per country in each round. Due to the cross-sectional nature of the survey data, we are unable to deal with the potential problems of adaptation over time (the so called hedonic treadmill) and of reverse causality[4] previously mentioned in the happiness and social capital literature (e.g. Helliwell and Putnam, 2004). Therefore, we are precluded from performing a causal analysis and just assess the interdependencies between the different social capital dimensions and subjective well-being.

The dependent variable *happy* is based on answers to the question *"Taking all things together, how happy would you say you are?"* (ESS4, 2008). The respondents were shown a card with an 11-point scale where only the two most distant points were articulated (00-extremely unhappy and 10-extremely happy). The answers are ordinal and limited. Despite the crisis, the ESS found Europeans to be reasonably happy with an average score of 7.4 out of 10 possible points.

As our explanatory variables of interest, the analysis concentrates on measures of social capital, portraying all three dimensions indicated by Coleman and extended by Putnam and Olson – (1) trust (2) social interaction (3) norms and sanctions. Each aspect is proxied by indicators referring to questions from the ESS (see Annex 1).

In accordance with previous social capital literature, we distinguish between social (interpersonal) and institutional trust (e.g. Coleman, 1988; Paxton, 1999). Following, Almond and Verba (1963), social trust is operationalised using the question *"Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?"* (ESS4, 2008).

Institutional trust variables are extracted from the following ESS questions: *"Please tell me [...] how much you personally trust each of the institutions […] your country's parliament, […] the legal system […] and the police […]"* and *"Please say what you think overall about the*

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[4] The reverse causality issue, as explained by Helliwell and Putnam (2004), refers to the possible two-way linkage between happiness and other factors. While one could assume that, say, healthier people are happier than others, one could also argue the opposite, that happier people generally are healthier than unhappy ones.

state of education in [respondent's country] nowadays? [...] Please say what you think overall about the state of health services in [respondent's country] nowadays" (ESS4, 2008)*.* The answers to the group of trust variables were classified on a 0 to 10 Likert-scale, similar to that used for individual happiness. All such latent explanatory variables taking on specific values on a scale from 1 to a certain number have been slightly altered to make them usable in the regression analysis. Questions similar to the ones mentioned above create problems for the interpretation of the final results, as the intervals between the numeric values of the variables are not interpretable. For this reason, the variables were transformed into dummies using the cluster option, dividing all possible answers ranging from 0 to 10 into two groups using the within group mean as a criterion for allocation to one of the groups.[5] Even though the transformation of a latent variable into a dummy causes a loss of information, the cluster option reduces this loss significantly by minimizing the within group variance.

Multicollinearity problems were detected between the variables trust in the legal system, trust in the parliament and the police. As trust in the legal system explains 80% of the common underlying trust factor, it was chosen together with the satisfaction in the education and the health system, as our proxies for institutional trust.

For the measurement of the second social capital dimension, social informal interaction, dichotomous variables indicating the frequency of meeting with colleagues, family and friends are introduced. They are created by recoding the possible answers to the frequency question of meeting with friends, colleagues or family.

Associations are divided into two groups: Putnam-type and Olson-type. In order to capture Putnam-type formal associational activities, measurements of voluntary activities and religious activities are included in the regression. Voluntary activity

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[5] A similar method was used by Alesina, et al. (2004). Instead of using the cluster option, they arbitrarily divided the answers ranging from 1 to 10 into two groups. This method proved to be unsatisfactory for the purpose of our analysis, since the various answers ranging from 1 to 10 are not equally distributed among the observations.

participation is transformed into a dichotomous variable, while religious participation is proxied by the frequency of church attendance, as suggested by Helliwell and Putnam (2004), ranging from 'never' to 'every day'. Olson-type interest group participation is accounted for by including the variables indicating political participation (such as work for a political party, contact with a politician, participation in a legal demonstration, displayed campaign badge), membership of a trade union, and work for a professional organization. Following the method used for the Putnam-type variables, these indicators are transformed into dichotomous variables.

Social norms, the third of Coleman's dimensions of social capital, are captured by the answers to the question "*How safe do you - or would you - feel walking alone in this area after dark?*" (ESS4, 2008). According to Coleman's definition of this third social capital category, this variable evaluates if individuals who feel safe in the area they live in, develop stronger ties within their community and also display a higher level of happiness. Following existing social capital literature (i.e. Leung et al., 2010), further norms and sanctions variables are included, such as "*Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?*", "*How often, if at all, do you worry about your home being burgled?*" and "*How often, if at all, do you worry about becoming a victim of violent crime?*" (ESS3, 2006). All these questions hint at the underlying factors Coleman (1988) considers within his theory: encouraging responsible citizenship, ensuring effective collective management of resources and creating an environment to foster stability, safety and social ties. These indicators were also transformed into dichotomous variables using the cluster option.

Multicollinearity checks of the data found – with the exception of the already mentioned case of *trust* – no evidence of multicollinearity among independent variables. In addition and in contrast with Bjørnskov (2006), the principal components analysis demonstrates no clear tendency to identify specific underlying distinct components. The largest component explains only 11 % of total variation and its composition does not reveal a clear pattern. These data characteristics for the

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European sample are in accordance with the findings of Bartolini et al. (2008) for the United States.

Following the great majority of existing happiness economic studies, we control for a large number of macroeconomic and individual socio-demographic variables. We use the log of GDP per capita, inflation, unemployment and income inequality (gini coefficients) as macroeconomic country- and time-specific control variables (Eurostat, 2011). Gender, age, education, health, employment status, marital status, geographical location, political orientation and personal income (ESS3, 2006; ESS4, 2008) are our socio-demographic individual variables. In parts of the analysis we have also included a variable called *income comparison* corresponding to the question *"How important is it for you to compare your income with other people's incomes?"* (ESS3, 2006), in order to control for the effects of the positional treadmill often referred to in the literature (e.g. Frank, 1985; Cooper et al., 2001), This question was only asked in the third wave of the ESS and therefore does not refer to the whole sample. A list with definitions and descriptive statistics of the control variables is provided in Annex 1.

4. Estimation Results

4.1. Effects of economic and demographic factors on happiness

In order to test whether our results conform to previous happiness analyses, we begin our evaluation with an ordered logistic regression analysis containing only the macroeconomic variables and the individual characteristics of the respondent. The results largely reproduce those of previous research in the area of happiness economics. Table 1 presents the coefficients and the standard errors of this analysis. The results underline that money truly buys happiness in Europe, both on an aggregate as well as on an individual level (e.g. Diener et al., 1995).

Table 1. Ologit Regression – Macroeconomic and Socio-demographic Determinants of Happiness in Europe (depVar: *happy*)

	Coefficients	Standard errors
Macroeconomic variables		
lgdpcap	4.458***	(0.366)
lgdpcap²	-0.212***	(0.0186)
inflation	-0.0454***	(0.00424)
unemployment rate	-0.0385***	(0.00372)
inequality	-0.0275***	(0.00258)
Socio-demographic individual variables		
gender	-0.202***	(0.0165)
age	-0.0731***	(0.00295)
age²	0.000762***	(2.91e-05)
primary edu	0.414***	(0.131)
secondary edu	0.626***	(0.127)
tertiary edu	0.665***	(0.128)
very good health	1.185***	(0.0259)
good health	0.604***	(0.0210)
bad health	-0.715***	(0.0384)
very bad health	-1.566***	(0.0889)
unemployed	-0.569***	(0.0377)
married	0.573***	(0.0247)
couple	0.341***	(0.0542)
separated	-0.323***	(0.0739)
divorced	-0.00885	(0.0362)
widowed	-0.187***	(0.0415)
big city	-0.274***	(0.0366)
suburb	-0.244***	(0.0383)
town	-0.223***	(0.0344)
village	-0.203***	(0.0346)
political orientation	0.159***	(0.0171)
income1	-0.206***	(0.0297)
income2	-0.115***	(0.0232)
income4	0.155***	(0.0229)
income5	0.318***	(0.0272)
Observations	48,583	
Loglikelihood	-88343.403	
LR chi2	10097.30	
Prob> chi2	0.0000	

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

Base categories: no education, fair health, single, countryside and income3

Both the log of GDP and the income variables prove to be highly significant, although the relationship is non-linear, as indicated by the diminishing returns to increasing income (see also Easterlin 1974, 2001; Clark and Oswald, 1996; Helliwell, 2001; Blanchflower and Oswald 2004).

Also consistent with previous happiness research, both *inflation* (e.g. DiTella et al., 2001) and *inequality* display a negative and highly significant correlation with individual happiness. Unemployment also has a negative and highly significant association with subjective well-being (see also Clark and Oswald, 1994; Oswald, 1997), indicating that "unemployment brings unhappiness above and beyond the personal costs of falling unemployed" (Alesina et al., 2004, p. 2021).

All the individual characteristics are also in accordance with previous research (e.g. Oswald, 1997; Frey and Stutzer, 2002; Alesina et al., 2004). Women seem to be happier than men (*gender* is negative and significant) and *age* displays the significant u-shaped relationship with respect to subjective well-being (e.g. Blanchflower and Oswald, 2004). The young and the old tend to be happier and, in contrast with the findings of Gerdtham and Johanesson (2001) and Helliwell (2003), higher education is linked to significantly higher subjective well-being levels, compared to the reference group of no education, even after controlling for income and health. This result reproduces those reported for eastern European countries (Hayo and Seifert, 2003; Rodríguez-Pose and Maslauskaite, 2012). Furthermore, married individuals and those in couples tend to be significantly happier than those in our base group, *single* (e.g. Frey and Stutzer, 2002; Helliwell, 2003). Separated, widowed or divorced people report lower happiness scores, although the variable *divorced* is shown not to be significant.

Health is strongly positively related to subjective well-being in Europe (Gerdtham and Johannesson, 1997) and the geographical location of individuals matters (Hudson, 2006): happiness tends to be lower in densely populated areas, once other factors are controlled for.

Lastly, and consistent with psychological research (e.g. Napier and Jost, 2008), political orientation is shown to be significant for self-reported happiness levels of individuals, as indicated by the coefficient of *political orientation*. Conservative voters generally seem to be happier than more left-wing voters.

4.2. Effects of social capital on subjective well-being in Europe as a whole

Turning to our main variables of interest, we evaluate each dimension of social capital in turn for Europe as a whole. This strategy is used to check the robustness of the coefficients using different definitions of social capital. All of the following regressions are run including the above mentioned macroeconomic and socio-demographic control variables whose coefficients prove to be robust in all cases to the introduction of social capital variables. This implies that social capital serves purely as an addition rather than as a substitute for other determinants of happiness. For the sake of simplicity Table 2 only reports the variables of interest, namely the social capital dimensions.[6] Moreover, the marginal effects of reporting a happiness score[7] between 8 and 10 are displayed, in order to illustrate the probability of being very happy depending on the underlying social capital categories. Regression 1 reproduces the regression in Table 1 and serves as our baseline for comparison.

In regression 2, the first set of social capital variables – general and institutional trust – is added. All the coefficients of these four dummy variables are highly significant and positive, indicating their relevance for the determination of perceived happiness. In addition, trust in mankind and in the legal system display the biggest marginal effects of all the variables in the multiple regressions. The probability of trusting individuals to report that they are very happy is between 120% to 140% larger compared to those not trusting, ceteris paribus. These findings support the view that trust constitutes one of the most decisive social capital factors influencing self-reported happiness (e.g. Bjørnskov, 2006, 2008).

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[6] The full results, including the macroeconomic and socio-demographic variables, can be provided upon request.

[7] The 11 happiness categories were divided as follows: 0,1,2, very unhappy, 3,4,5, fairly happy, 6,7, happy, 8,9,10 very happy. Very happy was chosen to include the three scores 8,9 and 10 to properly reflect the diversity of European countries when referring to the marginal effects. If only 9,10 were chosen, only the Nordic countries would have been taken into consideration.

Table 2: The interaction between the different dimension of social capital and happiness

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6) Final	Marginal effects (score 8-10)
Macroeconomic	Yes	yes	Yes	Yes	yes	Yes	yes
Sociodemographic	Yes	yes	Yes	Yes	yes	Yes	yes
General Social and Institutional Trust							
trust people		0.372***				0.251***	1.209***
		(0.0177)				(0.0185)	(0.0819)
trust legal system		0.225***				0.191***	1.445***
		(0.0179)				(0.0181)	(0.0838)
satisfaction health system		0.300***				0.283***	0.0843
		(0.0185)				(0.0187)	(0.0532)
Satisfaction education system		0.327***				0.292***	0.0744**
		(0.0187)				(0.0189)	(0.0292)
Information Channels Putnam-type							
less than once			0.511***			0.496***	0.314***
			(0.0806)			(0.0810)	(0.0220)
once a month			0.816***			0.785***	0.229***
			(0.0795)			(0.0800)	(0.0213)
several times a month			1.057***			0.981***	0.315***
			(0.0771)			(0.0775)	(0.0219)
once a week			1.109***			1.015***	0.317***
			(0.0772)			(0.0776)	(0.0218)
several times a week			1.315***			1.195***	0.486***
			(0.0765)			(0.0771)	(0.0860)
everyday			1.539***			1.443***	0.769***
			(0.0780)			(0.0785)	(0.0851)
voluntary work			0.0449**			-0.00144	0.982***
			(0.0186)			(0.0197)	(0.0824)
church attendance			0.0503***			0.0485***	1.035***
			(0.00586)			(0.00592)	(0.0826)
Information Channels Olson-type							
work political party				-0.0521		-0.0505	0.0871**
				(0.0430)		(0.0432)	(0.0405)
contacted politician				0.0798***		0.0684***	-0.125***
				(0.0236)		(0.0238)	(0.0409)
Worn campaign badge				0.148***		0.0889***	0.0913***
				(0.0320)		(0.0321)	(0.0307)
participation demonstration				-0.104***		-0.109***	0.0164
				(0.0339)		(0.0341)	(0.0239)
member trade union				0.159***		0.138***	0.0526***
				(0.0181)		(0.0182)	(0.00699)
work for professional association				0.167***		0.0280	0.163***
				(0.0232)		(0.0243)	(0.0217)
Norms and Sanctions							
feeling of safety					0.213***	0.129***	0.143***
					(0.0220)	(0.0222)	(0.0253)
people fair					0.495***	0.288***	0.311***
					(0.0199)	(0.0210)	(0.0235)
worry about home					-0.0619***	-0.0458**	-0.0486**
					(0.0199)	(0.0201)	(0.0237)
worry becoming victim					-0.196***	-0.171***	-0.208***
					(0.0234)	(0.0236)	(0.0272)
Observations	48,583	48,583	48,583	48,237	48,583	48,237	48,237
Loglikelihood	-88343.403	-87343.695	-87712.94	-87561.189	-87770.769	-87847.971	-
Pseudo R2	0.0541	0.0648	0.0608	0.0548	0.0546	0.0594	-
LR chi2	10097.30	12096.71	11358.22	10146.84	10133.89	11088.16	-
Prob > Chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Putnam-type informal and formal interaction channels without a political or economic purpose are taken into account in regression 3. As was found in previous research (e.g. Lelkes 2006; Powdthavee, 2009), the positive and significant coefficients indicate that informal social contact, as well as formal engagement in Putnam-type associational activities increase individual well-being. The coefficients of Putnam-type association variables are, however, significantly smaller than those of informal interaction variables which have some of the strongest marginal effects on happiness of the variables considered. Seeing one's friends everyday increases the probability of being very happy by 77%. Participating in church activities also significantly affects happiness in a positive way, either as a result of the spiritual support provided by having a religious belief or by the social networks established within a religious community (e.g. Helliwell and Putnam, 2004). Church attendance seems to constitute an important source of subjective well-being. People participating in religious services have a 103% higher chance of being very happy, ceteris paribus, than those not attending. In contrast to previous research, however, voluntary activities, although only significant at a 5% level, also produce a positive impact (Haller and Hadler, 2006), when solely Putnam-type informal and formal social interaction is considered in the analysis. Voluntarily active individuals have a 98% larger probability of reporting a perceived happiness score of 8 to 10. The 'warm glow' (Mayo and Tinsley, 2009) experienced when helping others seems to reflect on the individual providing the help. Finally, the informal social interaction variables display the largest coefficients with regard to all the other dimensions of social capital. Hence, and in contrast to Bjørnskov (2008), information channels matter a great deal for perceived life satisfaction in our analysis. In fact, when comparing coefficients, they even seem to matter more than general and institutional trust.

Regression 4 includes the Olson-type group membership variables. The results show either positive or negative effects of associational activity depending on the degree of personal involvement of the individual. Starting with political engagement, the insignificant coefficients denote that party membership does not seem to matter for individual happiness. The negative sign of the coefficient could even hint at an

apparent frustration of individuals actively taking part in the political process. Similarly, taking part in demonstrations also has a negative but significant connection with happiness. It requires active involvement from the side of the individual and is rarely crowned with success. It may also be the case that individuals directly participating in political issues become more aware of the extent of the country's or global problems, resulting in greater unhappiness.

People who do not get directly involved in politics seem to be happier. Participating in the political process only remotely or less stringently, such as indicating political preferences by wearing badges, being a member of a trade union or professional organisation or contacting politicians, is positively linked to individual happiness. The coefficients of membership of trade unions or professional organisations are all significant and positive. Membership of a professional organisation even displays a 16% higher probability of being very happy compared to non-members. These results contrast with the results of Bartolini et al. (2008) for the US, which show a negative link between Olson-type associations and happiness. This may be because in some European countries, as in the case of Germany for example, being a member of a union or a professional association comes with significant advantages. Better insurance-deals, lower interest payments at certain credit institutes or simply the reputation of participating, even if only passively, increases peoples' life satisfaction. In addition, when fighting for higher wages, trade unions or professional organisations constitute such large groups that they gain significant bargaining power representing the individual and ensuring pay even during strikes.

We include the last dimension of social capital – norms and effective sanctions – in the fifth regression. All coefficients show a high level of significance and their directions are quite intuitive. The feeling of belonging and safety in the neighbourhood where one lives in is positively connected to happiness, while worries about the house being burgled or becoming victim of a violent crime significantly lowers self-reported happiness scores. Whereas individuals feeling safe alone outside in the dark in their neighbourhood display a 14% higher probability of reporting a happiness level of 8 to

10 than those with a greater sense of fear, for those who worry becoming a victim of violent crime, this probability declines by 20% compared to individuals with no such worries. Norms and sanctions may as well be interpreted as "the strength of internal enforcement of behaviour" (Bjørnskov, 2006, p. 32). The stronger it is, the happier people feel, and the less they worry about their belongings and their safety. This result appears to be more logical than the counterintuitive result of Leung et al. (2010) who found all variables to be insignificant except for the feeling of safety. However, the latter was found to associate with individual happiness in a negative way.

Regression 6 includes all the social capital and control variables. The previous results stand. Not only do the coefficients of the macroeconomic and individual variables remain relatively unchanged, but also all three social capital dimensions analysed continue to be highly significant, with coefficients almost unaltered from those reported above.

The full model therefore largely validates the findings of the previous five regressions. It can thus be claimed that social capital in all its three key dimensions constitutes an important factor for the self-perceived happiness scores of individuals across Europe as a whole. The largest effects are, however, related to trust and Putnam-type informal social interaction, with the latter showing even larger coefficients than trust. The reason for this relationship could be the high feedback effect which informal social interaction creates on both the other dimensions, possibly capturing their positive impact on individual happiness. Informal networks generate trust which results in "virtuous circles […], because it is profitable for newcomers to act trustingly and trustworthily when they enter a region with trusting and trustworthy inhabitants. The norms of reciprocity and trustworthiness are reinforced by networks that control and sanction them" (den Butter and Mosch, 2004, p. 8). Institutional trust and social trust are highest in communities displaying a large number of informal networks, which also could be the reason for their high marginal effects (Helliwell and Putnam, 2004). Therefore, when evaluating the effect of social capital on happiness in Europe, trust

and informal social interaction contribute the lion's share of the connection between social capital and subjective happiness.

The robustness of the association between the different social capital variables and subjective well-being is not affected by the introduction of income comparisons among individuals, also known as the positional treadmill. Including an *income comparison* variable does not alter the coefficients or the significance for any of the social capital variables in any way.[8]

4.3. Effects of social capital on subjective well-being across European regions

Happiness and social capital are bound to vary across an area as big as Europe. The diversity of peoples, cultures, traditions, and social institutions are likely to affect the interaction between social capital and happiness in different ways across the continent. As highlighted by Oswald (1997), while more than half the population in northern Europe reports very high happiness levels, only one tenth does so in the South. Similar differences are evident when considering social capital. Van Oorschot et al. (2006) find the highest degree of social capital in Scandinavia and the lowest in eastern Europe. In order to assess whether these marked geographical differences affect the connection between social capital and happiness in different parts of Europe, we perform the same analysis of the previous section for four large geographical areas of Europe. This division includes the North, the South, the East, and the West of Europe. The North is represented by Finland, Denmark and Sweden. Cyprus, Spain, Greece and Portugal form the southern group; Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Poland, Romania, Slovenia and Slovakia are included in the East, while Austria, Belgium, Germany, France, United Kingdom, Ireland and the Netherlands represent the West. Of the 48,237 individuals surveyed in the complete sample, 11,398 live in the East, 9,343 in the North, 6,026 in the South, and 21,470 in the West. The analysis, once again, follows model (3). Table 3 presents the coefficients

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[8] Given that the income comparison variable was only available for one wave of the ESS, for the sake of brevity, these results are not displayed in the paper. However, they can be made available upon request.

and standard errors of the regression results. We then evaluate each dimension of social capital in turn.

Table 3: The interaction between the different dimension of social capital and happiness in the four main geographical macro-regions of Europe

VARIABLES	NORTH	SOUTH	EAST	WEST	TOTAL
Macroeconomic	*yes*	*yes*	*yes*	*yes*	*yes*
Sociodemographic	*yes*	*yes*	*yes*	*yes*	*yes*
General Social and Institutional					
trust people	0.248***	0.113**	0.213***	0.231***	0.251***
	(0.0472)	(0.0536)	(0.0390)	(0.0270)	(0.0185)
trust legal system	0.193***	0.149***	0.234***	0.168***	0.191***
	(0.0487)	(0.0509)	(0.0391)	(0.0261)	(0.0181)
satisfaction health system	0.280***	0.189***	0.416***	0.287***	0.283***
	(0.0446)	(0.0554)	(0.0415)	(0.0284)	(0.0187)
Satisfaction education system	0.0210	0.254***	0.295***	0.212***	0.292***
	(0.0580)	(0.0544)	(0.0377)	(0.0279)	(0.0189)
Information Channels Putnam-type					
less than once	0.0726	0.615***	0.838***	0.139	0.496***
	(0.479)	(0.202)	(0.127)	(0.130)	(0.0810)
once a month	0.320	0.944***	1.025***	0.535***	0.785***
	(0.474)	(0.201)	(0.128)	(0.126)	(0.0800)
several times a month	0.530	0.927***	1.280***	0.742***	0.981***
	(0.470)	(0.191)	(0.125)	(0.122)	(0.0775)
once a week	0.522	1.063***	1.285***	0.742***	1.015***
	(0.470)	(0.191)	(0.127)	(0.121)	(0.0776)
several times a week	0.751	1.346***	1.438***	0.961***	1.195***
	(0.469)	(0.190)	(0.126)	(0.121)	(0.0771)
everyday	1.002**	1.614***	1.749***	1.222***	1.443***
	(0.471)	(0.191)	(0.132)	(0.123)	(0.0785)
voluntary work	0.0243	0.0983	0.0340	0.0274	-0.00144
	(0.0463)	(0.0610)	(0.0473)	(0.0292)	(0.0197)
church attendance	0.0416**	0.0345**	0.0614***	0.0372***	0.0485***
	(0.0179)	(0.0170)	(0.0123)	(0.00901)	(0.00592)
Information Channels Olson-type					
work political party	-0.000238	0.154	-0.0273	-0.0757	-0.0505
	(0.0933)	(0.126)	(0.103)	(0.0636)	(0.0432)
contacted politician	0.0122	-0.0134	0.146***	0.0532	0.0684***
	(0.0521)	(0.0764)	(0.0557)	(0.0341)	(0.0238)
worn campaign badge	0.00647	0.163	0.148	0.0855*	0.0889***
	(0.0561)	(0.103)	(0.0935)	(0.0497)	(0.0321)
participation demonstration	-0.0811	-0.117	-0.253***	-0.107**	-0.109***
	(0.0904)	(0.0807)	(0.0927)	(0.0488)	(0.0341)
member trade union	0.0745	0.0664	0.0336	0.0750***	0.138***
	(0.0534)	(0.0604)	(0.0404)	(0.0266)	(0.0182)
work for professional association	-0.0332	-0.322***	-0.0244	0.119***	0.0280
	(0.0460)	(0.0921)	(0.0795)	(0.0346)	(0.0243)
Norms and Sanctions					
feeling of safety	-0.00727	0.268***	0.247***	0.0425	0.129***
	(0.0642)	(0.0613)	(0.0421)	(0.0332)	(0.0222)
people fair	0.352***	0.170***	0.264***	0.241***	0.288***
	(0.0710)	(0.0529)	(0.0370)	(0.0330)	(0.0210)
worry about home	-0.0478	0.107*	-0.114**	-0.0270	-0.0458**
	(0.0469)	(0.0593)	(0.0463)	(0.0288)	(0.0201)
worry becoming victim	-0.0234	-0.103	-0.131**	-0.237***	-0.171***
	(0.0572)	(0.0659)	(0.0554)	(0.0339)	(0.0236)
Observations	9.343	6.026	11.398	21.47	48.237
Log likelihood	-14420.834	-10810.217	-22015.094	-37630.153	-85914.89
Pseudo R2	0.0631	0.0741	0.0731	0.0564	0.0725
LR Chi2 (52)	1941.09	1729.66	3470.24	4494.98	13439.44
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000

The coefficients of the trust variables exhibit very high significance levels and the expected positive signs across all four regions. Institutional as well as general trust in mankind seems to favour subjective happiness across all regions of Europe. However, the trust variables are the only ones whose association with happiness is relatively homogenous across all macro-regions of Europe. All other social capital dimensions display important regional differences.

Putnam-type informal interaction variables are positively and significantly connected to life satisfaction in the East, West and South, while in the North of Europe they barely matter at all. Only the variable indicating meeting with friends on a daily basis enhances individual well-being in Scandinavian countries.

Formal Putnam-type information channels, represented in our regression by the variables for church attendance and voluntary work, display the same results across all four regions in our dataset. As in the outcomes for the dataset as a whole, voluntary work is insignificant while church attendance largely enhances individual wellbeing.

The analysis of Olson-type special interest groups displays strong contrasts by region. In the North, individual participation in politics or special interest groups (both remotely, as well as directly) does not play any role in individual happiness. None of the included variables are significant. By contrast, in the South and East, Olson-type information channels seem to affect individual reported happiness to a certain degree. It is, however, the strong connection between these variables and happiness in western Europe which drive the results for the whole sample. Direct individual commitment in politics, proxied by working for a political party, is not associated with higher happiness levels. Remote participation in the political process, represented by contacting a politician, wearing a campaign badge, or taking part in a lawful demonstration, is significant both in the East and West. Direct communication with a politician in the East, as well as wearing a badge in the West are positively linked to happiness. By contrast, demonstrating is connected to significantly lower happiness levels in both regions. Membership of a union and work for a professional association

positively link with happiness for individuals living only in the West of Europe. Both variables are insignificant for the North and East. Work in professional associations is the only Olson-type variable significantly linked to individual happiness in the southern countries. However, and in contrast to the West, the coefficient is negative.

Similar to Olson-type formal information channels, norms and sanctions, the third dimension of social capital evaluated, reveal quite diverging results across European macro-regions. The two extreme cases are the East and the North. While in eastern Europe, all four variables taken into account display high levels of significance including the expected signs, in northern Europe, only the feeling that most people try to be fair is positive and significant. In the South and West respectively, three and two out of the four norms and sanction variables are significantly associated with individually reported happiness levels. In this category, the eastern and the southern countries seem to drive the results retrieved when evaluating the dataset as a whole.

In brief, social capital as a three-dimensional concept has distinct connections to individual well-being across different areas of Europe. With the exception of institutional and general trust, which is highly significant and happiness enhancing across all regions, the connection of the other social capital dimensions with individual happiness varies according to the European region in question. In the East and South, the link between social capital and individual happiness is mainly driven by informal information channels and norms and sanctions, while in the West informal, as well as Olson-type formal information channels matter most. In the North, only trust seems to play a role in determining individual levels of happiness. All other dimensions barely matter (if at all). This result is surprising as many studies have highlighted the large amount of social capital amassed in northern countries (Bjørnskov, 2003; van Oorschot et al., 2006). However, it may precisely be the widespread nature of social capital across individuals in Scandinavia which undermines the potential influence it may have on individual happiness.

5. Conclusion

Even though social capital research has flourished over the last decades, often its practical value has remained limited due to definitional controversies. Its broad and intangible character has led to extensive "overuse and imprecision […][which] have rendered it prone to vague interpretation and indiscriminate application" (van Oorschot and Gelissen, 2006, p.150). It comes, therefore, as no surprise that the studies trying to establish a link between happiness and social capital have greatly differed in the concept of social capital employed and, consequently, in outcomes. Without clear valid empirical results, "policy advice based on social capital research risks becoming so broad that it borders on the trivial" (Bjørnskov, 2006, p.36).

This paper has aimed to address these issues by offering a broader and more encompassing definition of social capital and a different geographical scope relative to previous research. Using the works of Coleman, Putnam and Olson, we have provided and operationalised a more encompassing definition of social capital, dividing the concept into its three dimensions (1) trust (2) social interaction in the form of networks and associations, and (3) norms and effective sanctions. This has allowed for a more accurate evaluation of the relationship between social capital and happiness across Europe. Furthermore, the analysis has clarified which dimensions, if any, largely drive the results. We have used the European Social Survey data of 2006 and 2008 to answer these questions.

The results of our regression analysis clearly prove the presence of a positive and robust connection between social capital and individual happiness across European countries. All three dimensions of social capital considered reach high significance levels, even after controlling for individual characteristics and macroeconomic factors. Therefore, no dimension can be left out without risking biased results due to omitted variables. The main social capital drivers on happiness appear to be informal social interaction and trust. Associational activity of any form and norms and effective sanctions only display relatively minor links to the perceived happiness levels of individuals.

When evaluating the interdependencies between social capital dimensions and happiness across the four large European macro-regions, we find a marked diversity in the results. While some aspects of social capital matter across all regions, others prove to be completely irrelevant, especially in northern countries, while highly significant in others. It seems as if the local culture, social institutions, traditions, and customs drive the strength of social capital linkages to happiness in different parts of Europe.

As a word of caution, it has to be borne in mind that the causal relation between social capital and happiness is not entirely beyond doubt when using individual cross-sectional survey data. Reverse causality, as well as adaption effects cannot fully be ruled out. Consequently, social capital is mainly relevant as a "mean to an end, rather than an end in itself" (Parissaki and Humphrey, 2005, p. 89). Assuming a clear direction of causality, social capital could be used as a tool to increase the happiness levels of individuals and therefore of nations. European decision-makers thus need to explore how public policies can serve social-capital formation rather than its destruction and to bring social capital more firmly into the welfare policy agenda. With regard to our results, efforts may need to be aimed at encouraging mainly informal social interaction, interpersonal trustworthiness and trust in the institutional system. When designing policy instruments, policy-makers can take advantage of the high interaction between the categories of social capital. Fostering informal social interaction leads to increasing participation in associations and vice versa. In addition, the social interaction effect is tightly connected to the trust aspect. The more individuals interact with each other, the greater the chance of fostering generalized trust. As Putnam (1993) explained, social interaction allows trust to become transitive and spread. Furthermore, the greater the generalized trust displayed by individuals, the greater the likelihood for deeply-rooted norms to develop. Only if European policies are targeted at increasing this social interaction and ameliorating or restoring a 'climate of trust' (Helliwell, 2001, p.56) towards institutions and each other, people will be able to use their social capital efficiently and reach a higher level of individual happiness.

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Annex I: Variables

Variable Type		Variable	Description	Range	Stand. Dev	Mean	Coding
Control Variable	*Macroeconomic*	Lgdpcap	log of GDP per capita	8.1 - 11.3	.5788706	1.010.462	-
		lgdpcap^2	log of GDP per capita squared	66.1 - 128.3	1.135.264	1.024.384	-
		Inflation	inflation rate of respective country	1.3 -15.3	232.473	3.422.532	-
		unemployment rate	unemployment rate of respective country	3.1 - 13.9	239.543	7.049.566	-
		inequality	gini coefficient (= income inequality)	23.4 - 37.7	3.874.474	2.900.267	-
Control Variable	*Socio-demographic*	*Gender*	gender of respondent	0-1	.4998242	.4865488	male = 1, female = 0
		Age	age of respondent	15 - 90	1.755.349	4.745.001	-
		age^2	age of respondent squared	225 - 8100	1.743.515	2.559.622	-
		no edu	no education	0-1	.0663642	.0044237	yes = 1, no = 0
		primary edu	primary Education	0-1	.230372	.0562323	yes = 1, no = 0
		secondary edu	secondary Education	0-1	.498551	.4618946	yes = 1, no = 0
		tertiary edu	tertiary Education	0-1	.4994964	.4774495	yes = 1, no = 0
		very good health	very good health	0-1	.4159439	.2225217	yes = 1, no = 0
		good health	good health	0-1	.4978669	.4538085	yes = 1, no = 0
		fair health	fair health	0-1	.4354426	.2542488	yes = 1, no = 0
		bad health	bad health	0-1	.2349899	.0586601	yes = 1, no = 0
		very bad health	very bad health	0-1	.103176	.0107609	yes = 1, no = 0
		unemployed	respondent unemployed	0-1	.2261212	.0540513	yes = 1, no = 0
		Married	marital status: married	0-1	.4987874	.5348751	yes = 1, no = 0
		couple	marital status: couple	0-1	.1531499	.0240319	yes = 1, no = 0
		separated	marital status: separated	0-1	.1171141	.0139089	yes = 1, no = 0
		Divorced	marital status: divorced	0-1	.2742934	.0819514	yes = 1, no = 0
		Widowed	marital status: widowed	0-1	.2666153	.0770133	yes = 1, no = 0
		Single	marital status: single	0-1	.4411016	.264557	yes = 1, no = 0
		big city	domicile: big city	0-1	.3969727	.1960002	yes = 1, no = 0
		Suburb	domicile: suburb of a big city	0-1	.334481	.1283486	yes = 1, no = 0
		Town	domicile: town	0-1	.4652893	.3169417	yes = 1, no = 0
		Village	domicile: village	0-1	.4541886	.290914	yes = 1, no = 0
		country side	domicile: countryside	0-1	.2513973	.0677956	yes = 1, no = 0
		political orientation	political orientation of the respondent	0-1	.4759817	.290914	right = 1, left = 0
		income 1	household's total net income, all sources: 1st quantile	0-1	.3267789	.1215588	yes = 1, no = 0
		income 2	household's income: 2nd quintile	0-1	.407013	.2095799	yes = 1, no = 0
		income 3	household's income: 3rd quintile	0-1	.3977898	.1970701	yes = 1, no = 0
		income 4	household's income: 4th quintile	0-1	.4095151	.2131188	yes = 1, no = 0
		income 5	household's income: 5th quintile	0-1	.3360518	.1297683	yes = 1, no = 0
		Income comparison	Importance of comparing the own income with other people's	1-6	1.828237	2.280028	1= not important 6= very important

Annex I: Variables

Variable Type		Variable	Description	Range	Stand. Dev	Mean	Coding
Social Capital: Trust	Social trust	*trust people*	Most people can be trusted in dealing with people	0-1	.4979426	.4546315	yes = 1, no = 0
	institutional trust	*trust legal system*	Trust in the legal system	0-1	.4995074	.4776964	trust = 1, no trust = 0
		satisfaction health system	Satisfaction with the health system	0-1	.4999977	.5027365	satisfied =1, unsatisfied = 0
		satisfaction education system	Satisfaction with the education system	0-1	.4845722	.6232665	satisfied =1, unsatisfied = 0
Social Capital: Information channels	Putnam-type (in)formal social interaction	*never meet*	Meet socially with friends, relatives or work colleagues: never	0-1	.1171995	.0139295	yes = 1, no = 0
		less than once	Meet socially: less than once a month	0-1	.2565956	.0708613	yes = 1, no = 0
		once a month	Meet socially: once a month	0-1	.2835378	.0881651	yes = 1, no = 0
		several times a month	Meet socially: several times a month	0-1	.3924775	.1902185	yes = 1, no = 0
		once a week	Meet socially: once a week	0-1	.3897904	.1868442	yes = 1, no = 0
		several times a week	Meet socially: several times a week	0-1	.453685	.2898235	yes = 1, no = 0
		everyday	Meet socially: everyday	0-1	.3667563	.160158	yes = 1, no = 0
		voluntary work	Participation in voluntary work	0-1	.4519313	.2860788	yes = 1, no = 0
		church attendance	Frequency of church attendance	1-7	2.527.015	1.508.663	1=never 2=less often 3=only on special holy days 4=at least once a month 5=once a week 6=more than once a week 7=everyday
	Olson-type formal social interaction	*work political party*	Work in a political party or action group	0-1	.2043219	.0436521	yes = 1, no = 0
		contacted politician	Contacted a politician	0-1	.3693793	.1630108	yes = 1, no = 0
		worn campaign badge	Worn or displayed a campaign badge/sticker	0-1	.2727716	.0809568	yes = 1, no = 0
		participation demonstration	Participation in a lawful demonstration	0-1	.2515144	.0678637	yes = 1, no = 0
		member trade union	Member of a trade union or similar organization	0-1	.4988599	.4661783	yes = 1, no = 0
		work for professional association	Member in a professional association or organization	0-1	.378035	.1727501	yes = 1, no = 0
Social Capital: Norms and Sanctions		*feeling of safety*	Feeling of safety when walking alone outside after dark	0-1	.4171462	.7756677	yes = 1, no = 0
		people fair	Most people try to take advantage of you/try to be fair	0-1	.4318647	.7519855	yes = 1, no = 0
		worry about home	How often worry about your home being burgled	0-1	.4570253	.2971894	worry = 1 not worry =0
		worry becoming victim	How often worry about becoming a victim of violent crime	0-1	.3952611	.193778	worry = 1 not worry =0

Annex II Number of observations by country and round

Country	ESS 2006	ESS 2008
Austria	2 405	-
Belgium	1 798	1 760
Bulgaria	1 400	2 230
Cyprus	995	-
Czech Republic	-	2 018
Germany	2 916	2 751
Denmark	1 505	1 610
Estonia	1 517	1 661
Spain	1 876	2 576
Finland	1 896	2 195
France	1 986	2 073
United Kingdom	2 394	2 352
Greece	-	2 072
Hungary	1 518	1 544
Ireland	1 800	1 764
Latvia	-	1 980
Netherlands	1 889	1 778
Poland	1 721	1 619
Portugal	2 222	2 367
Romania	-	2 146
Sweden	1 927	1 830
Slovenia	1 476	1 286
Slovakia	1 766	-

Source: European Social Survey 2006 and 2008.

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