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## How important are Personal Ties, Trust and Tolerance for Life Satisfaction in Europe?

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## How important are Personal Ties, Trust and Tolerance for Life Satisfaction in Europe?

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## ABSTRACT

Many argue that the rise in populist support in Europe and elsewhere stems from people feeling marginalised, distrustful and generally dissatisfied. Against a backdrop of populism, this paper aims to examine the relationship between social capital and life satisfaction using data on 21,000 individuals from 14 European countries obtained from the Life in Transition Survey (2016). Specifically, we test the empirical significance of a novel social capital-wellbeing conceptual framework that incorporates three key dimensions of personal social capital; (i) structural (personal ties), (ii) cognitive (trust) and (iii) tolerance. This latter aspect is the most novel addition of this research to the theoretical and empirical literature as we argue that tolerance acts as a bridging mechanism between trust and ties in affecting overall wellbeing. Using ordered probit models the paper estimates the effect of social capital on life satisfaction by using an index for aggregate personal social capital, as well as separate indices for structural social capital, cognitive social capital and tolerance. The analysis also examines the interaction effects of social capital with individual and place characteristics of respondents. Among the results we find that strong structural ties with friends and family and being a tolerant, trusting individual improves life satisfaction. Of the social capital indicators, we find that trust in institutions has the largest marginal effect on life satisfaction. Also, interaction effects indicate that social capital could be a key ingredient in overcoming income inequalities, health inequalities and spatial inequalities at the individual level. We conclude that societies that fail to invest in social capital may be more politically unstable or more susceptible to widespread intolerance, distrust and ultimately discontent.

**Keywords:** life satisfaction, social capital, ties, trust, tolerance, Europe

## 1. INTRODUCTION

Political events such as the ‘Brexit’ referendum result in favour of Britain leaving the European Union and the 2016 election of US President Trump have rocked the Western world. These types of events have been described as examples of populism sweeping across modern democracies (Inglehart and Norris, 2016; Wilson, 2017). This populist movement has been associated with a rise in nationalism, political populism, generational differences, anti-immigrant sentiment and an erosion of trust. Wilson (2016), Gidron and Hall (2017) have argued that it has arisen from the outcome of people ‘feeling’ left behind and marginalised in society, or is driven by spatial economic inequalities (Rodríguez-Pose 2018). What is clear is that social distrust, social intolerance and social isolation are put forth as repetitive reasons and hypotheses behind the rise of populism. In this context, we explore if distrusting, intolerant and more isolated people have lower levels of wellbeing. If so, then the rise of institutional and interpersonal distrust and intolerance is a serious threat to the wider European Union (EU) project. If not, then we argue that it is a temporal occurrence rather than a long run steady state which is likely to dissipate and is consequently not a threat to the long run objectives of European social, political and economic cohesion and solidarity.

Societies show strong and persistent differences with regard to their average levels of wellbeing, and it is reasonable to hypothesize that these differences cannot be attributed exclusively to individual psychological differences but may also be influenced by social capital; that is social interdependencies in communities, personal ties and trust (Diener *et al.*, 2003; Christoph and Noll, 2003). Existing evidence in this area is mixed and more research is needed to establish the impact of the different components of social capital on wellbeing if concrete policy recommendations are to be made (Inaba *et al.*, 2015). This paper aims to fill that gap by examining the link between social capital and well-being.

This paper also extends the literature by including a measure of tolerance as a component of social capital and estimates its effect on individual wellbeing. Tolerance is an important indicator of social cohesion. We estimate the culminating effect of structural social capital (networks), cognitive social capital (trust) and tolerance in working towards an aggregate personal social capital indicator and further, we examine each of their individual effects in explaining life satisfaction (a measure of individual wellbeing) across Europe.

Most of the current studies tend to focus on explaining differences between countries, but less attention has been given to the across country and within country story between social capital and life satisfaction. Some of the existing studies find significant differences with respect to life satisfaction between regions within a country (Frey and Stutzer; 2000, 2002; Rampichini and Schifini d'Andrea, 1998; Bjørnskov 2008) and recent literature has argued for a greater analysis of the role groupings, dynamics and configurations of local and national spatial environments may have in influencing a person's overall wellbeing (Ballas and Tranmer, 2012). This paper adds to that discussion by focusing on attributes of 'place' by including and controlling for country effects, urban/rural effects and for place correlated regression errors that may occur between groups of observations at the local administrative area. In all, this enables the paper to explore the importance of social capital across space whilst also controlling for unique individual and place characteristics that may explain wellbeing.

We employ an ordered probit regression technique that controls for robust clusters at the regional level. For the analysis we use almost 21,000 observations from 14 European Union countries from the 2016 Life in Transition Survey (LiTS). The paper proceeds as follows: Section 2 reviews the literature and theoretical framework underpinning this research; Section 3 outlines the data and methodology in detail; Section 4 presents the results from the analysis

and the paper concludes in Section 5 with a general discussion on the importance of the findings for policy and directions for future research.

## 2. RELEVANT LITERATURE AND THEORETICAL FRAMEWORK

### 2.1. Defining Social Capital

The concept of social capital originated in the 1980s mainly through the work of Bourdieu (1986) and Coleman (1988). Bourdieu (1986: 247) conceptualised social capital as a resource that is connected with group membership and social networks where ‘institutionalized relationships of mutual acquaintance and recognition’ develop whereas Coleman (1988) and Putnam (1995) view social capital as the value of social norms of reciprocity, social networks and mutual trust and recognition. Moreover, regions that have well-functioning economic systems and high levels of political integration are more likely to be the result of the region’s accumulation of social capital (Putnam *et al.*, 1993).

Social capital has been added to the categories of capital (physical, natural and human) in economic analysis (Serageldin, 1996) and just like other forms of capital, it can be viewed as an accumulation of assets that yield benefit (Uphoff, 1999). According to Uphoff (1999: 216) ‘social capital is an accumulation of various types of social, psychological, cultural, cognitive, institutional and related assets that increase the amount (or probability) of mutually beneficial cooperative behaviour’. It has individual benefits (Uphoff, 1999) and wider societal benefits which Coleman (1988) likened to a public good that benefits society as a whole.

Since these earlier works, a number of similar definitions have been put forth to explain the concept of social capital, but no consensus definition has been agreed. This seems to be because social capital is a multi-dimensional concept that spans a multidisciplinary body of literature

(Grootaert and van Bastelaer, 2001). The parts that constitute social capital also remain unclear (Elgar *et al.*, 2011). However, a distinction is frequently made in the literature between structural and cognitive social capital (Inaba *et al.*, 2015; Elgar *et al.*, 2011). As these interrelated components constitute a significant contribution to our theoretical framework, they are discussed in the next sub-sections.

#### 2.1.1. Structural Social Capital - Ties

Structural social capital relates to networks of social relations between people (Granovetter, 1973). It can include established networks and social groups, and their associated roles, rules, precedents and procedures that provide benefits to the individual as well as create positive externalities for communities as a whole. The importance of structural social capital is that it facilitates information sharing, and collective action and decision making through these established roles, social networks and other social structures supplemented by rules, procedures, and precedents. Structural social capital has been measured by the degree of participation in both formal networks (for example; business relations, community groups) and informal networks (friends/family) (Uphoff, 1999). As such, it is a relatively objective and externally observable construct and may therefore be more easily observed than other dimensions of social capital.

Granovetter (1973) refers to two different categories of structural ties in his work on employment changes. These were weak and strong ties. The strength (whether considered weak or strong) of the relationship depended on how often contact was made with a tie. Strong ties are considered to be close friends and family and weak ties are acquaintances.

### 2.1.2. Cognitive Social Capital – Trust

Cognitive social capital is associated with shared norms, values, attitudes, and beliefs that contribute to cooperation, and is therefore a more subjective and intangible concept than structural social capital (Uphoff, 1999). In a measurable sense though, cognitive social capital has been proxied by the degree to which people trust others and the institutions around them (Reid and Salmen, 2000; Pargal *et al.*, 1999). Helliwell and Putnam (2004) highlight that high levels of trust, where social networks are present, is often the mechanism through which social capital affects economic outcomes. According to Fukuyama (1995: 26) trust is the expectation that arises within a community of honest and cooperative behaviour, as a result of commonly shared norms in that community.

Therefore, trust is central to the concept of social capital and an extensive body of literature exists on the concept and measurement of trust as a component of social capital (Glaeser *et al.*, 2002; Dasgupta, 2000; Paldam, 2000). Mutual reciprocity and trust enable those in a community to more easily communicate, cooperate and to make sense of common experiences. Putnam *et al.*, (1993) and Putnam (2000) propose that trust and reciprocity lead to more efficient societies and that ‘honesty and trust lubricate the inevitable frictions of social life’ (Putnam, 2000: 135). Knack and Keefer (1997) find a significant relationship between aggregate trust and economic growth but that levels of trust and trustworthiness vary significantly across countries.

### 2.1.3. Tolerance

Tolerance is defined as respect for diversity or the ability to accept diversity (Corneo and Jeanne, 2009; Cerqueti *et al.*, 2013). It can also mean ‘openness, inclusiveness and diversity to all ethnicities, races and walks of life’ (Florida, 2002: 10). Tolerant people have diversified



values and the capacity to respect differences in others (Corneo and Jeanne, 2009). It is seen as an important feature of modern society (Corneo and Jeanne, 2009) and an important indicator of social cohesion. Higher levels of tolerance have potentially important outcomes for societies in terms of; economic growth (Jacobs, 1961), regional productivity (Ottaviano and Peri, 2005), technological and economic performance (Florida, 2002), housing values and income (Florida and Mellander, 2010), human capital and occupational skills (Florida *et al.*, 2008). More open and diverse places can lead to increased levels of innovation because they are likely to attract greater numbers of talented and creative people (Florida, 2002). Furthermore, increased tolerance leads to lower conflict, and allows for sharing, collaboration and cooperation.

There are clear links between the concept of tolerance and the structural and cognitive components of social capital. According to Inglehart (1997: 188) ‘a culture of trust and tolerance, in which extensive networks of voluntary associations emerge’ are vital for flourishing societies. At the individual level, the capacity to have high tolerance to diversity would act as a bridge (or the glue) for people to trust, engage and network with others and with institutions. Tolerance of different beliefs and cultures stem from shared norms, values and attitudes (cognitive social capital). Tolerance of diversity has been viewed as a challenge to overcome but also a source of innovation and growth (Page, 2007) and value and respect (Corneo and Jeanne, 2009).

## 2.2. Wellbeing and Social Capital

Like social capital wellbeing is also a multidimensional concept with various definitions and measurements. The understanding of wellbeing is underpinned by a diverse body of existing literature across a range of disciplines including economics, psychology and sociology (Dolan

*et al.*, 2008; Diener *et al.*, 1999; Kroll, 2011). The WHO (2012) defines it as comprising of an individual's experience of their life as well as a comparison of life circumstances with social norms and values. Subjective wellbeing refers to all of the various types of evaluations, both positive and negative, that people make of their own lives and can include evaluations of life satisfaction, work satisfaction, interest and engagement with others, and emotions such as; happiness, joy and sadness (Diener, 2006). Although various measures of subjective wellbeing exist, this paper focuses on self-reported life satisfaction which is taken to mean 'enduring satisfaction with one's life-as-a-whole' (Veenhoven, 2015).

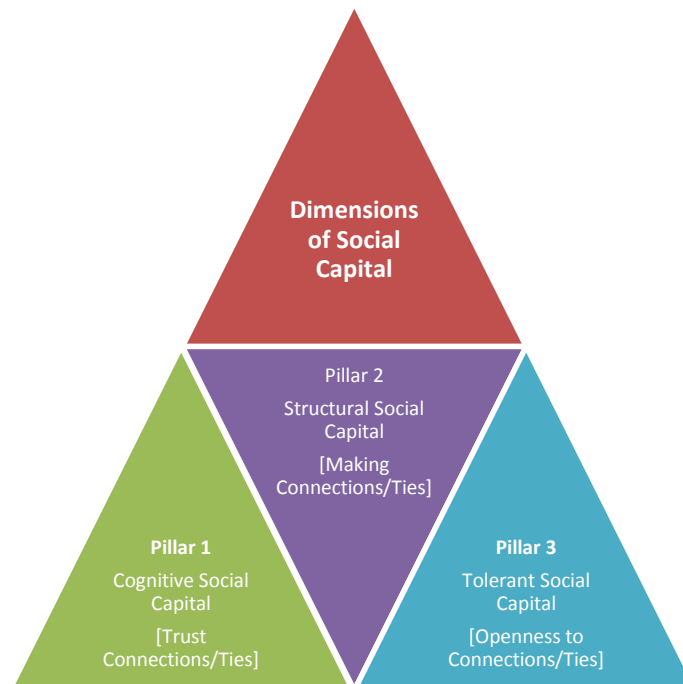
In this discourse, existing research has shown how life satisfaction is influenced by various components of social capital (Leung *et al.*, 2011). Lucas and Dyrenforth (2006) find that social relationships (measured by the time spent with others, having friends and marriage) are significant predictors of wellbeing. Other studies posit that inclusion in society and receiving social support matters for increased levels of wellbeing (Helliwell and Putnam 2004; Winkelmann 2009). The way society is organised, the extent to which citizens are encouraged to interact with each other and the degree of trust in others are considered important determinants of wellbeing (Lomas, 1998). Veenhoven (2015) suggest that social-relations (both primary ties in an individual's private life and their secondary relations in public life) explain differences in life satisfaction. Inaba *et al.*, (2015) find support for a positive effect of both structural and cognitive social capital on life satisfaction. Helliwell (2006) find that the intensity of social links in the form of higher contact with family and friends leads to higher levels of life satisfaction. Individuals levels of trust and trust in governments have been found to be positively related to life satisfaction (Helliwell and Putnam, 2004; Helliwell, 2006; Helliwell and Huang, 2008) and self-rated health (Rostila, 2007). Both Bjornskov (2003) and

Ram (2010) find that social capital matters more than income for individual life satisfaction in advanced societies.

Regional analyses have focused on individual countries, for example; the United States (Putnam, 2000), Germany (Winklemann, 2009), Japan (Inaba *et al.*, 2015) and these countries tend to be fairly homogenous with respect to social capital and wellbeing. A notable exception is Helliwell and Putnam (2004) who explore the relationship between wellbeing and social capital in a number of countries. They measure social capital by family relationships, neighbourhood connections, religious and community networks to which they find a positive relationship with wellbeing. Also, Rostila (2007) examines the relationship between social capital and health in EU welfare states, using measures of individual trust in their analyses. They find a positive correlation between trust and health and that welfare regime type is important in explaining the variation in self-rated health between countries (Rostila, 2007).

The link between wellbeing and levels of tolerance has been less explored in the existing literature especially at regional level, although Inglehart *et al.*, (2008) find that more tolerant societies reported higher levels of aggregate wellbeing. They find that freedom of choice, gender equality, and increased tolerance were linked to a considerable rise in overall world happiness. From a theoretical standpoint we suggest that tolerance to diversity acts as a bridging mechanism between structural and cognitive social capital as it facilitates engagement and networking between individuals and with institutions, and also enhances greater levels of trust. This current paper aims to investigate the relationship between these three dimensions of social capital (structural, cognitive, tolerance outlined in Figure 1 below) and wellbeing in Europe.

**Figure 1. Dimensions of Social Capital**



**Source: Authors' own**

In all, we test four hypotheses:

**H1: Personal social capital positively influences individual wellbeing.**

**H2: Personal structural social capital positively influences individual wellbeing.**

**H3: Personal cognitive social capital positively influences individual wellbeing.**

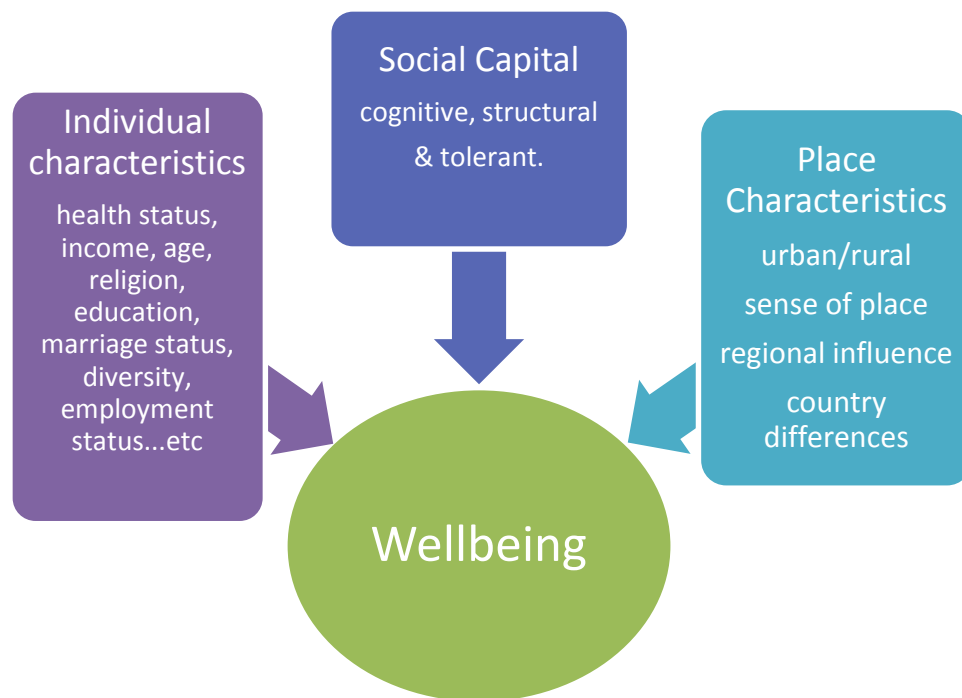
**H4: Personal tolerant social capital positively influences individual wellbeing**

A large body of existing work confirms that individual determinants are also important in explaining life satisfaction levels (see Dolan *et al.*, 2008). Research suggests that personal and socio-economic factors such as personality, income, age, gender, employment, marital status, and education are significant predictors of individual life satisfaction (Frey and Stutzer, 2000; Helliwell, 2003; Helliwell and Putnam, 2004). Previous studies (Oswald, 1997, Gerdtham and Johannesson, 2001; Frey and Stutzer, 2002) have confirmed a number of key findings with respect to the correlates of life satisfaction. Women tend to report higher life satisfaction as do both the young and the old compared to those in middle-age. However, Schnepf (2010) looked

at gender differences in wellbeing in Transition countries and found that women report significantly lower levels of well-being compared to men. Higher levels of income and education lead to higher levels of life satisfaction, *ceteris paribus*. The unemployed and those in poorer health report lower life satisfaction. Transition countries are placed lower on the life satisfaction rankings. Macroeconomic factors such as unemployment, income and inflation have also been found to affect wellbeing (Easterlin, 1974, 1995; Clark and Oswald, 1994; Di Tella *et al.*, 2001). Vast differences in life satisfaction across European regions exist and both national and regional level variations in wellbeing have been investigated in the existing literature. Frey and Stutzer (2000, 2002), Helliwell (2006), Bjornskov (2008) for example find significant differences between regions within countries. Research has also investigated the impact of community characteristics on wellbeing (Farrell *et al.*, 2004). However, Ballas and Tranmar (2012), highlight that there has actually been very little research on individual wellbeing from a regional science or local area perspective.

Consequently, our theoretical model incorporates the need to account for social capital indicators, individual characteristics and place-specific characteristics as outlined in Figure 2 below.

**Figure 2. Determinants of Wellbeing**



**Source: Authors' own**

By investigating this theoretical framework, we contribute to the empirical literature by identifying if tolerance is an important component of social capital and secondly, by exploring a more comprehensive theoretical model that incorporates both individual and place effects. We now proceed to the empirical contribution of the paper, where the data and methods used to explore our theoretical model and to test our hypotheses (1-4) are outlined.

### 3. DATA AND METHODOLOGY

The data used in this study stems from the Life in Transition Survey (LiTS) III<sup>1</sup>. The LiTS III asks respondents their views on issues such as democracy, the role of the state and their prospects for the future. It also contains detailed data on the household and individual

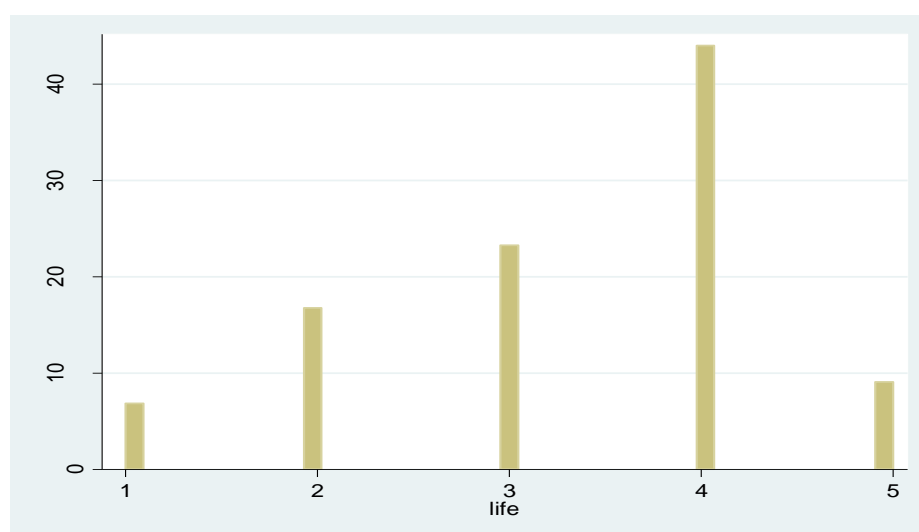
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<sup>1</sup> This dataset was chosen over the European Social Survey (ESS) because it includes questions that could be used as proxies for tolerance. In the opinion of the authors the ESS does not contain questions that could viably capture personal tolerance as well as the neighbour questions asked in the LiTS.

characteristics of respondents (See Table 1 in Appendix for variable descriptions). The data was collected in 2016 and it polled 51,000 households in over 34 countries. It consists of data from advanced and transition economies. To reduce country and institutional heterogeneity, we only include the European Union countries: Germany, Slovenia, Slovakia, Romania, Poland, Lithuania, Latvia, Italy, Hungary, Greece, Estonia, Czech Republic, Cyprus and Croatia. The sample of households from each country was approximately 1,500, collected by stratified random sampling techniques, representing a combined sample size of 20,889 for the analysis.

Self-reported levels of life satisfaction are widely used in the wellbeing discourse as indicators to measure subjective wellbeing (Kahneman and Krueger, 2006) and have been found to be valid and reliable measures (Helliwell and Putnam, 2004; Stiglitz *et al.*, 2009). Our dependent variable is measured by the principal household respondent's judgement of their life satisfaction. Specifically, the question asked, 'all things considered, I am satisfied with my life now'. The responses ranged from strongly disagree to strongly agree. The distribution of this variable is visually presented in Figure 3.

**Figure 3: Distribution of Life Satisfaction 'all things considered I am satisfied with my life now'**



**Source: LiTS (2016)**

The variable is on a Likert scale ranging in values from 1-5 (strongly disagree – strongly agree). 9 per cent of the total sample strongly agreed with the statement and 44 per cent of the sample agreed with the statement. The average life satisfaction across the sample countries was 3.12.

To test our four hypotheses, we construct six social capital indicators; two cognitive social capital indices; two structural social capital indices; a tolerance index; and an aggregate social capital index. All indices were constructed from detailed questions that related to social capital in the survey. The list of all social capital indicators and their corresponding mean and standard deviations used to construct the six indices are outlined in Table 2. The formula outlined in equation (1) below is used to construct each index:

$$\text{Index}_i = \left( \frac{\text{Aggregate of Indicators (0,1)}}{\text{Total No of Indicators}} \right) * 100 \quad (1)$$

The index is equal to 100 if the respondent scores a 1 in all indicators, 0 if they receive a zero in all and then various values will exist between 0 and 100 for each indicator, depending on how many dummy indicators were used to construct each index. This varied across indices. The aggregate index is compiled from adding all the individual social capital indicators and dividing by the number of social indicators (which in this case is 5)<sup>2</sup>. So, this measure is composed of equal weighting across all social capital individual indicators. The choice of which questions to use for the tolerance index (immigrants, foreigners, different race, and homosexuals) was based on the tolerance indices of Florida (2002). The cognitive social capital

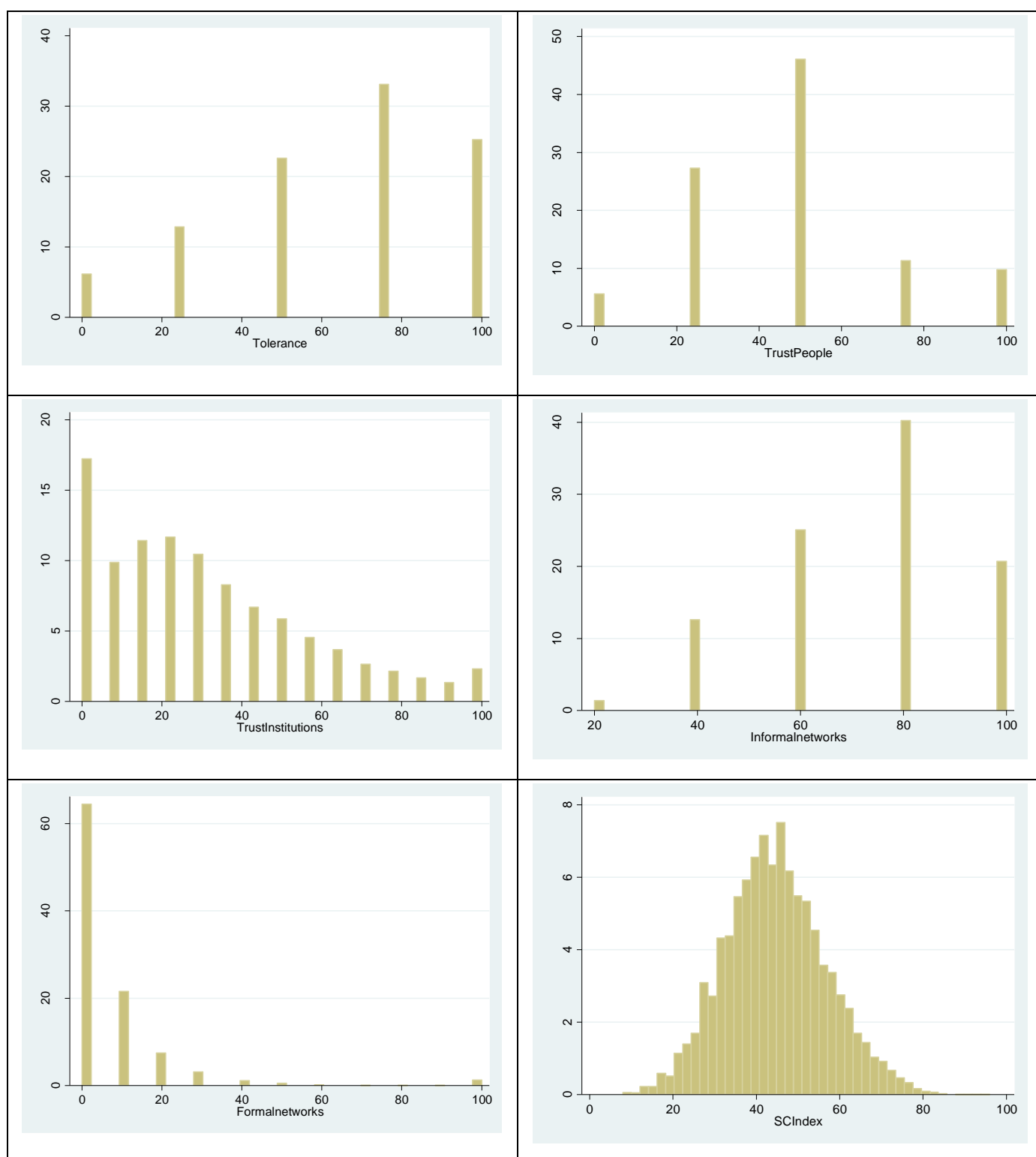
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<sup>2</sup> A sensitivity index was also compiled to identify if the measurement of the index produced a different result. In the sensitivity index, an aggregate of all individual social capital indicators (as outlined by all questions in Table 2) were added together and divided by the number of questions. This also produced a positive and significant coefficient.



indices were measured using trust proxies relating to (i) trust in institutions and (ii) trust in people. The structural social capital were split into what Granovetter (1973) would refer to as strong ties and weak ties. For example, the measure of strong ties may relate to how often the respondent meets family and friends. The weak ties may relate to acquaintances like being a member of a group in the community.

**Figure 4: Histograms of the Social Capital indicators**



**Source: LiTS (2016)**

The distribution of all indices are displayed in Figure 4. Figure 4 also presents the social capital index distribution. This is the aggregate of all indices divided by the number of indices (5). The

average social capital score was 45 and the lowest and highest index recorded by a respondent was 8 and 96, respectively. Descriptive statistics in Table 2 indicate those individuals that are better educated, married and not belonging to an ethnic minority or are living in the area for less than 10 years, recorded higher social capital scores.

Following the construction of the indices, the first model to be specified and employed in the paper is outlined in equation (2). This model specifically examines the relationship between social capital and wellbeing. The equation is specified as:

$$O_i^* = \alpha + \beta' SC_i + \beta' Z_i + u_i, \quad (2)$$

Where,  $O_i^*$ , is a scale from 1-5 of life satisfaction and  $SC_i$ , is the index measure of social capital.  $Z_i$  is a vector of control variables<sup>3</sup>.  $u_i$  is the residual term in our model. Definitions and descriptive statistics of all control variables are presented in Table 3.

An ordered probit model is used to test our first hypothesis that  $\beta' SC_i > 0$ . Here, we are interested in identifying the cumulative effect of all the different social capital indicators on an individual's life satisfaction (dependent variable  $O_i^*$ ). An ordered model serves as an appropriate technique whenever survey responses are ordinal as distinct from binary or continuous<sup>4</sup>. As explained earlier, the dependent variable accounts for the extent of agreement with a view. It is thus measured on a Likert scale of five possible options, from 1-5 (low to high

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<sup>3</sup> The model is weighted and a sensitivity analysis was completed with a different continuous Log of income indicator. It is not reported as there were missing values with this variable. The results of income were robust. The model controls for country dummies and current sectoral occupation but these are not reported in the tables. A correlation matrix of our variables indicates that there are no multicollinearity concerns present in our data. This table is not reported but can be obtained from the authors.

<sup>4</sup> For more on the ordered probit technique please see <https://www.stata.com/manuals13/semexample35g.pdf>

life satisfaction). The ordered probit model has been used in life satisfaction papers previously (Clark *et al.*, 2001).

Existing studies find significant differences with respect to life satisfaction between regions within a country (Frey and Stutzer; 2000, 2002; Rampichini and Schifini d'Andrea, 1998; Bjørnskov 2008). Since the study employs a large cross-country and cross-regional dataset, the standard errors could be uncorrelated across national borders but may be correlated within regional clusters due to spatial dependence across observations. If the model fails to account for within-cluster error correlation, the standard errors may be misleading resulting in incorrect hypothesis testing. As a result, it is prudent from a methodology perspective to control for robust clusters at the regional level. Probability weights are also used in the model. The problems of endogeneity and reverse causality have also been identified as possible methodological concerns in the empirical literature examining the link between social capital and wellbeing and particularly with cross-sectional data (Helliwell and Putnam 2004). The theoretical and empirical literature has predominantly taken the view that the causal relationship goes from social capital to subjective wellbeing. In this paper, we also take this view<sup>5</sup>.

$$O_i^* = \alpha + \beta' SCIndices_i + \beta' Z_i + u_i, \quad (3)$$

A second model, as specified above, is employed to estimate if the individual indices of social capital (cognitive, structural or tolerance) are significant in explaining a respondent's wellbeing. We expect  $\beta' SCIndices_i > 0$  but the significance and the marginal effect of each indicator may differ. The control variables employed in this model are the same as those employed in equation (2). The results of model (2) and (3) are presented in the next section.

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<sup>5</sup> Following an instrumental approach to solve for endogeneity by identifying a potential instrument is complicated due to the composition of our social capital index. It is also further complicated by the fact that causality can be difficult to identify with cross-sectional data.

#### 4. RESULTS

The results of the first ordered probit model (equation 2) are displayed in Table 5. It is clear that the cumulative social capital index matters, and we can accept our first hypothesis that personal social capital has a positive and significant effect on life satisfaction. A second model (equation 3) was estimated to identify if some social capital indicators matter for life satisfaction more than others. The results of this model are presented in Table 6<sup>6</sup>. Respondents that meet with family and friends regularly (informal network index) and have trust in family and neighbours have higher levels of life satisfaction. This suggests that indicators on strong ties or bonds are important for life satisfaction. This is not surprising as friends and family can provide companionship, intimacy, support and reciprocity.

Conversely, the strength of weak ties is found to be unimportant, where the formal network index was insignificant. Here, it's clear that being a member of a social group is not a key determinant of wellbeing<sup>7</sup>. Perhaps, the importance of weak ties may be more important for business and entrepreneurial capacity and hence the importance of weak ties may enter the equation of wellbeing in an indirect way through income and/or job-type. It is clear from the results that income and being an employer is a key determinant of life satisfaction. In summary, we can accept our second hypothesis that structural social capital is important for life satisfaction except our analysis produced a caveat that strong ties are more important than weak ties when it comes to direct effects on life satisfaction.

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<sup>6</sup> The second model has the exact same estimation technique and controls as the first model employed. Only the results of the social capital indicators are presented.

<sup>7</sup> As a specification test, a further model was estimated that broke down the structural social capital by dummy variables of being in a community group or not. All indicators were insignificant except for being a member of a sports group.

We now turn our attention to the cognitive social capital predictors. Both the cognitive social capital predictors we employ in this study are found to be significant and have a positive effect on wellbeing. In particular, the institutions trust index has the largest marginal effect<sup>8</sup> (of all social capital indices) on life satisfaction. The promotion and building of trustworthy institutions is indeed a necessary pillar for improving societal wellbeing. We can also accept our third hypothesis that cognitive social capital matters for life satisfaction.

Our final hypothesis focused on the relationship between tolerance and life satisfaction. We argued in the theoretical section that tolerance would act as an important bridge to maximise the return of cognitive and structural social capital. In terms of its individual effect, we also find this indicator to be significant where more tolerant people are more likely to have higher levels of life satisfaction. We conclude that being tolerant to diverse people enables more social interaction and an openness of trust at a personal level, which is crucial for building on personal social capital and enabling it to have a positive impact on personal wellbeing.

Further analysis examined interaction effects between the social capital indices and some individual and environment effects. The results of this analysis are presented in Table 7. The results identified that those individuals that have higher personal social capital in urban areas have lower life satisfaction than individuals with higher personal social capital in rural areas. In addition, the urban dummy variable became significant in this model. This suggests that having good personal social capital is particularly important for individuals in rural areas, which enables them to overcome the beneficial location return that urbanity status offers for life satisfaction. Furthermore, the social capital and health status interaction was also significant. Poorer health status results in lower levels of life satisfaction. But the interaction

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<sup>8</sup> The results of the marginal effects are available in the online appendix.

effect suggests that high personal social capital can enable individuals to overcome some of the losses they experience with poorer health status by the gains they receive from personal social capital. Hence, personal social capital has direct and indirect effects on life satisfaction.

In all, social capital matters, but it is also important to note that many individual characteristics are also significant. For instance, the common finding in the literature of a non-linear relationship between age and life satisfaction was also found in this study. Income and being unemployed have strong marginal effects and are key predictors of having lower life satisfaction. But interestingly, our interaction results (Table 7) indicate individuals that have higher levels of social capital and high income are actually less likely to have higher wellbeing relative to individuals with higher social capital and lower incomes. This result suggests that having higher social capital levels can help eliminate the income gap problem when it comes to life satisfaction. Also, health status, whether an individual votes or not, religious background, gender, being married and having a third level qualification matters for explaining life satisfaction. Interestingly, being a non-ethnic minority is likely to decrease your life satisfaction. As evident in Table 5, they also report a lower personal social capital status relative to the ethnic majority. However, the interaction effect (Table 7) between diversity and social capital does not indicate that this issue is reflective of their social capital status. Perhaps, the reason behind their lower life satisfaction is primarily being driven by their personal, individual and economic characteristics.

## 5. DISCUSSION AND CONCLUSIONS

Wellbeing is a multidimensional concept and beyond individual characteristics, much of the environmental aspects driving personal wellbeing are elusive. It is reasonable to hypothesise that personal trust and tolerance around groupings, dynamics and configurations of local to

national social environments may influence a person's overall wellbeing. The objective of this paper was to test the empirical significance of a novel social capital conceptual framework on life satisfaction.

Whilst we found that much of life satisfaction is attributable to individual characteristics such as health status, income, age, education and employment status, it is also clear that investment in personal social capital will pay dividends in life satisfaction improvements. For individuals, building strong structural ties with friends and family and being a tolerant individual has a positive and significant effect on wellbeing. The study also identifies that the ladder to higher levels of wellbeing is multifaceted and complex. For instance, having high personal social capital can help overcome the effects that poorer levels of personal health status and lower incomes have on life satisfaction levels. Rural dwellers with greater levels of personal social capital have higher life satisfaction returns than their urban counterparts. The interaction effects indicate that social capital could be a key ingredient in overcoming income inequalities, health inequalities and spatial inequalities at the individual level.

These findings, and the culminating fact that the trust in institutions indicator has the largest marginal effect amongst our social capital indicators, builds a strong rationale for why governments should invest in building social capital. Individuals in society that engage with others, are open, tolerant and trusting of one-another and the institutions that shape their environment, are more satisfied with life. The call for government intervention in social capital investment is certainly not new, for instance Glaeser (2001: 37) argued that the rationale for government intervention is strong considering 'the combination of positive externalities and complementarity leads to strong gains from co-ordinating investment'. Further, it is clear from our results that the distribution of social capital across individuals varies considerably from one



person to another. This indicates that there may be some societal barriers to accessing social capital or at least it is poorly distributed across society.

People with greater levels of distrust, intolerance and fewer ties are less satisfied with life. The conundrum remains in a world of scarce resources whether it would be wise to offset government interventions that target 'harder' determinants like individual income and employment benefits vis-à-vis interventions that target 'softer' determinants like social capital. This is a difficult question to answer as it relies on knowing an unknown counterfactual. But do governments want to take the risk of not investing in social capital? Since societal capital plays a significant role in shaping institutional change, policymakers need to remain vigilant to the potential effects it may have in influencing long run prosperity. Societies that make weak investments in social capital may be more politically unstable or more susceptible to intolerant, distrusting and discontented societies leading to a rise in populist movements that could further erode trust, tolerance and ties in societies.

But overall, it is unlikely that individuals would self-select into a poor social capital state (choosing to be intolerant, distrusting and isolated) as it would negatively impact their personal wellbeing. Consequently, the European social, political and economic cohesion and solidarity agenda appears safe as the long run steady state of Europe should be a majority 'state of world' where individuals are more tolerant, trusting and integrated because this inherent state determines individual life satisfaction. The caveat of this conclusion is that it rests on the assumption that causality runs from social capital to life satisfaction. Future research needs to focus on unlocking this long term concern in the social capital-wellbeing literature (Helliwell and Putnam, 2004; Portela *et al.*, 2013).

## DECLARATIONS

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## APPENDIX

**Table 1: Variable Descriptions**

Variable	Description
Life satisfaction	‘All things considered, I am satisfied with my life now’ [Likert scale 1-5: Strongly disagree, disagree, neither disagree or agree, agree, strongly agree]
Social capital index	Index of different measures (See Table 2) in three distinct areas of social capital: tolerant social capital, cognitive social capital and structural social capital
Health status	Assessment of current health [Likert scale 1-5: very good, good, medium, bad, very bad]
Votes	=1 if respondent voted in the most recent local, parliamentary and presidential elections, 0 otherwise.
Income	=1 if respondent is easily meeting unexpected expenses equivalent to domestic poverty threshold, 0 otherwise.
Employer-type occupation	=1 if the respondent is an employer, 0 otherwise
Wage Employee-type occupation	=1 if the respondent is a wage employee, 0 otherwise
Not in Employment	Reference category
Unemployment benefit	=1 if the respondent is receiving unemployment state benefit, 0 otherwise
Diverse Background	=1 if the respondent is not in the main ethnic group of the country, or otherwise
Urban Location	=1 if the respondent lives in an urban location, 0 otherwise
Male	=1 if the respondent is male, 0 otherwise
Log of Age	Age of the Respondent in Log form
Log of Age <sup>squared</sup>	Age of the Respondent in Log form and squared
Married	=1 if the respondent is married, 0 otherwise
Third level education	=1 if the respondent is third level education, 0 otherwise
Second level education	=1 if the respondent is second level education, 0 otherwise
Primary level Education	Reference category
Time at Place	=1 if respondent is living in that area for more than 10 years, 0 otherwise
Buddhist	=1 if the respondent is Buddhist, 0 otherwise
Jewish	=1 if the respondent is Jewish, 0 otherwise
Christian	=1 if the respondent is Christian, 0 otherwise
Muslim	=1 if the respondent is Muslim, 0 otherwise
Other Religion	=1 if the respondent of other religion, 0 otherwise
No Religion	Reference category
Country	Country dummies were included with Germany as the reference category

**Table 2: Variable Descriptions and summary statistics of Indicators used in Social Capital Indices**

Variable	Description	Mean	Std. Dev.
<b>Tolerance Index</b>			
Tolerance: neighbours mentioned that the respondent does not want - different race	=1 if tolerant, 0 otherwise	0.868	0.338
Tolerance: neighbours mentioned that the respondent does not want - immigrants/foreign workers	=1 if tolerant, 0 otherwise	0.708	0.455
Tolerance: neighbours mentioned that the respondent does not want - homosexuals	=1 if tolerant, 0 otherwise	0.621	0.485
Tolerance: Do you think immigrants are a burden on society?	=1 if Yes, 0 otherwise	0.386	0.486
<b>Trust Institutions Index</b>			
Trust - the presidency	=1 if the respondent has some or complete trust in the presidency, 0 otherwise	0.365	0.481
Trust - the government	=1 if the respondent has some or complete trust in the government, 0 otherwise	0.212	0.409
Trust - the regional government	=1 if the respondent has some or complete trust in the regional government, 0 otherwise	0.223	0.416
Trust - the local government	=1 if the respondent has some or complete trust in the local government, 0 otherwise	0.372	0.483
Trust - the parliament	=1 if the respondent has some or complete trust in the parliament, 0 otherwise	0.170	0.375
Trust - the courts	=1 if the respondent has some or complete trust in the courts, 0 otherwise	0.300	0.458
Trust - political parties	=1 if the respondent has some or complete trust in political parties, 0 otherwise	0.102	0.303
Trust - the armed forces	=1 if the respondent has some or complete trust in the armed forces, 0 otherwise	0.585	0.493
Trust - the police	=1 if the respondent has some or complete trust in the police, 0 otherwise	0.555	0.497
Trust - banks and the financial system	=1 if the respondent has some or complete trust in banks and the financial system, 0 otherwise	0.308	0.462
Trust - foreign investors	=1 if the respondent has some or complete trust in foreign investors, 0 otherwise	0.181	0.385
Trust - non-governmental organisations	=1 if the respondent has some or complete trust in non-governmental organisations, 0 otherwise	0.257	0.437
Trust- trade unions	=1 if the respondent has some or complete trust in trade unions, 0 otherwise	0.238	0.426
Trust -religious institutions	=1 if the respondent has some or complete trust in religious institutions, 0 otherwise	0.361	0.480
<b>Trust People Index</b>			
Trust - family	=1 if the respondent has some or complete trust in family living with them, 0 otherwise	0.838	0.368
Trust - neighbourhood	=1 if the respondent has some or complete trust in their neighbourhood, 0 otherwise	0.717	0.451
Trust - people you meet for the first time	=1 if the respondent has some or complete trust in the people they meet for the first time, 0 otherwise	0.220	0.415
Trust - foreigners	=1 if the respondent has some or complete trust in foreigners, 0 otherwise	0.148	0.356
<b>Formal Networks Index</b>			

Member - sports and recreational organisations and associations	=1 if the respondent is a member of a sports and recreational organisations and association, 0 otherwise	0.121	0.326
Member - art, music or educational organisations	=1 if the respondent is a member of an art, music or educational organisations, 0 otherwise	0.061	0.240
Member - labour union	=1 if the respondent is a member of a labour union, 0 otherwise	0.057	0.232
Member - environmental organisations	=1 if the respondent is a member of an environmental organisations, 0 otherwise	0.032	0.177
Member - professional organisations	=1 if the respondent is a member of a professional organisation, 0 otherwise	0.053	0.223
Member - humanitarian or charitable organisations	=1 if the respondent is a member of the humanitarian or charitable organisation, 0 otherwise	0.054	0.225
Member - youth association	=1 if the respondent is a member of a youth association, 0 otherwise	0.027	0.163
Member - women's groups	= 1 if the respondent is a member of a women's group, 0 otherwise	0.033	0.179
Member - farming cooperative's	=1 if the respondent is a member of a farming cooperative, 0 otherwise	0.028	0.164
<b>Informal Networks Index</b>			
Meeting Friends and Family	= Meeting Friends and Family – How often do you meet friends and family from outside the household? (never [score of 20], less than once a month [score of 40], once or twice a month [score of 60], once or twice a week [score of 80], on most days [score of 100])	0.732	0.197



**Table 3: Summary Statistics of other Independent Variables**

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Life satisfaction	3.317	1.071	1	5
Social capital index	44.606	12.130	8	96
Health status	2.467	0.930	1	5
Votes	0.668	0.471	0	1
Income	0.255	0.436	0	1
Employer-type occupation	0.054	0.226	0	1
Wage Employee-type occupation	0.502	0.500	0	1
Not in Employment	0.512	0.499	0	1
Employment benefit	0.049	0.217	0	1
Diverse Background	0.048	0.214	0	1
Urban Location	0.575	0.494	0	1
Male	0.439	0.496	0	1
Log of Age	3.882	0.381	2.890	4.554
Log of Age <sup>squared</sup>	15.217	2.881	8.354	20.738
Married	0.503	0.500	0	1
Third level education	0.225	0.417	0	1
Second level education	0.642	0.480	0	1
Time at Place	0.884	0.321	0	1
Buddhist	0.001	0.035	0	1
Jewish	0.001	0.024	0	1
Christian	0.798	0.402	0	1
Muslim	0.005	0.073	0	1
Other Religion	0.026	0.159	0	1
No Religion	0.162	0.360	0	1

**Table 4: Mean Values of the Social Capital Index by Selected Variables**

<b>Variable</b>	<b>Dummy Value</b>	<b>Social Capital Index (Mean)</b>
Diverse Background	if =1	42.01
	if=0	44.73
Urban Location	if=1	44.34
	if=0	44.96
Third level education	if=1	47.68
	if=0	43.71
Married	if=1	45.31
	if=0	43.88
Time at Place	if=1	43.68
	if=0	45.31

**Table 5: Ordered Probit Results of Model One (Social Capital Index Indicator Only)**

<b>Life satisfaction</b>	<b>Coefficient</b>	<b>St. Error</b>	<b>Z stat</b>	<b>P-Value</b>	<b>95% confidence interval</b>	
Social capital index	0.016	0.001	13.340	0.000	0.014	0.019
Health status	-0.231	0.018	-12.710	0.000	-0.266	-0.195
Votes	0.104	0.029	3.530	0.000	0.046	0.161
Income	0.553	0.035	15.600	0.000	0.484	0.623
Employer-type occupation	0.063	0.043	1.470	0.141	-0.021	0.147
Wage Employee-type occupation	-0.079	0.026	-3.090	0.002	-0.129	-0.029
Unemployment benefit recipient	-0.384	0.057	-6.780	0.000	-0.495	-0.273
Diverse Background	-0.134	0.041	-3.280	0.001	-0.214	-0.054
Urban Location	0.009	0.033	0.260	0.794	-0.055	0.073
Male	-0.094	0.025	-3.810	0.000	-0.143	-0.046
Log of Age	-4.822	0.651	-7.400	0.000	-6.099	-3.546
Log of Age <sup>squared</sup>	0.649	0.089	7.320	0.000	0.476	0.823
Married	0.146	0.023	6.230	0.000	0.100	0.192
Third level education	0.140	0.047	2.980	0.003	0.048	0.232
Second level education	0.041	0.040	1.020	0.307	-0.037	0.119
Time at Place	-0.007	0.027	-0.270	0.786	-0.061	0.046
Buddhist	-0.042	0.169	-0.250	0.802	-0.373	0.288
Jewish	0.578	0.153	3.780	0.000	0.279	0.878
Christian	0.091	0.033	2.710	0.007	0.025	0.156
Muslim	0.093	0.112	0.830	0.406	-0.126	0.311
Other Religion	0.090	0.067	1.340	0.181	-0.042	0.222

**Table 6: Ordered Probit Results of Model Two**

<b>Variable</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
Informal Networks	0.003	0.001	5.550	0.000	0.002	0.005
Formal Networks	0.000	0.001	-0.030	0.974	-0.003	0.002
Trust - People	0.003	0.001	4.400	0.000	0.001	0.004
Trust - Institutions	0.007	0.001	10.410	0.000	0.006	0.009
Tolerance	0.001	0.001	1.830	0.067	0.000	0.002

**Table 7: Ordered Probit Results of Model One with Interaction Effects**

<b>Variable</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>z</b>	<b>P&gt;z</b>	<b>[95% Conf. Interval]</b>	
Social Capital*Diversity	- 0.0000576	0.003297	-0.02	0.986	- 0.0065186	0.006404
Social Capital*Gender	0.002287	0.001684	1.36	0.175	- 0.0010143	0.005588
Social Capital*Urban	- 0.0044958	0.002299	-1.96	0.051	-0.009002	1.05E-05
Social Capital*Married	0.0020566	0.00179	1.15	0.251	- 0.0014514	0.005565
Social Capital*Time at Place	0.0030147	0.002126	1.42	0.156	-0.001152	0.007181
Social Capital*Health Status	0.0019972	0.001066	1.87	0.061	- 0.0000924	0.004087
Social Capital*Third Level	- 0.0012844	0.002601	-0.49	0.621	- 0.0063814	0.003813
Social Capital*Income	- 0.0056046	0.002794	-2.01	0.045	-0.011081	-0.00013
Social Capital*Unemployment	0.0003999	0.004385	0.09	0.927	- 0.0081945	0.008994