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Social capital, economic growth and well-being

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To my parents

Contents

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Chapter 1

Introduction

One of the most debated topics in contemporary economic literature, as well as in public opinion, concerns people's well-being. Economists have always been concerned about the pursuit of well-being, but lack of adequate instruments and the need for a rigorous and quantitative approach asking for objective measures pushed the economic theory to focus on income-based measures of well-being, mainly gross domestic product (GDP). Hence, the economic analysis started neglecting an important share of human well-being (Graham, 2005). If we consider our daily life experiences, we realize that a large part of what is important for our well-being are goods that we can not buy. People declare themselves isolated and lonely; the social environment in which they live is unsafe and they fear to leave their homes; cities are polluted; people spend a lot of their daily time stuck in traffic jam closed in their cars; trust in others and honesty are declining; stress and nervous illnesses are widespread; it is more and more difficult to find a place to enjoy social relationships (unless mediated by commercial activities, i.e. big commercial centres, multi-cinema, etc.). All these aspects strongly concern people's well-being, but they are only partially accounted for by GDP.

Recent development of social sciences, and particularly of economics, allowed to add further dimensions to the term well-being, its determinants and, above all, propose new instruments to help accounting for it. This is why a growing number of economists, recently, turned their attention to subjective well-being (SWB), that is to say individual's evaluation of its own well-being. Because of this shift, we could correctly state that economic theory is experiencing a revolution re-discovering happiness (or SWB) as the main goal of human life.

In this context, the words "happiness" and "subjective well-being" are considered synonyms and are generally referred to as an evaluation of one's own life regarded as a whole. These kind of data revealed to be precious and reliable sources of information concerning people's well-being. Their reliability has been tested in many ways: data about SWB have been found consistent with more objective measures of well-being (heart rate, blood pressure, duration of Duchenne smile, neu-

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rological tests of brain activity) (Blanchflower and Oswald, 2008a; Van Reekum et al., 2007), they show a high correlation with other proxies of SWB (Schwarz and Strack, 1999; Wanous and Hudy, 2001; Schimmack et al., 2009) and are consistent with evaluations about the respondent's happiness provided by friends, relatives or clinical experts (Schneider and Schimmack, 2009; Kahneman and Krueger, 2006; Layard, 2005).

Furthermore, these data revealed to be widely available and easy to collect being increasingly available also in Less Developed Countries. Not only, but many of the so-called "happiness studies" showed that SWB data reveal interesting stories about our societies. This is why media, politicians as well as the scientific community have been paying increasing attention to the SWB of individuals. Recently, the French economic commission directed by J. Stiglitz, A. Sen and J. P. Fitoussi (2009) published a report in which it advices the development of indexes of well-being to supplement more common income-based measures.

There are many fields in which happiness data have been employed. Some of these are:

- evaluating the effect of macroeconomic policies: Di Tella et al. (2001, 2003, 2006) assess the impact of inflation and unemployment on individual happiness. Kenny (1999, 2005) assesses the effects of economic growth on happiness in developed and developing contries. Alesina et al. (2004) study the relationship between inequality and happiness in Europe and U.S.A.;
- assessing the impact of non-economic aspects (such as age, gender, marital and employment status, income and education level, traits and cognitive dispositions) on well-being (Clark and Oswald, 1994; Oswald, 1997 ; Darity and Goldsmith, 1996; Theodossiou, 1998; Winkelmann and Winkelmann, 1998);
- measuring the impact of specific policies on people: airport noise, environmental pollution, commuting, parks and green spaces (Diener et al., 2009; Van Praag and Baarsma, 2004;
- studying the relationship between political institutions and SWB (Frey and Stutzer, 2000, 2002, 2007);
- understanding the way individuals in developing economies assess their own welfare and how their assessments differ from those based on traditional measures (Graham et al., 2001, 2002, 2006; Ravallion and Lokshin, 2001, 2002).

A further and growing area of interest in "happiness research studies" concerns the explanation of one of the hottest paradoxes of modern societies: after the Second World War industrialized countries experienced an unprecedented economic growth, countries grew up richer and richer, every demographic and sanitary index improved, many illnesses were defeated and schooling became widely available. Nonetheless more and more people report to be less satisfied with their lives then previously. A shocking research by Easterlin (1974) revealed that during last fifty

years national well-being in western countries, measured by gross domestic product (GDP), grew up steadily while people's SWB stagnated. This result is currently known as the "Easterlin paradox" and it suggests a substantially stable pattern of SWB over time.

The debate on such evidence has been recently revived by Stevenson and Wolfers (2008) who questioned the existence of the paradox stating that there is a positive and significant relationship between subjetive well-being and income. Unfortunately, this evidence fails to distinguish between the short and long-term relationship between SWB and income (Easterlin and Angelescu, 2009): in the short term SWB and income are related but unrelated in the long run. In other words, the Easterlin paradox has been re-formulated in terms of a lack of correlation between GDP and SWB in the long run, rather than a stagnating SWB. That is to say that, in the long term, changes in income doesn't explain the international differences in well-being. Hence, what does explain SWB trends?

The idea is that the average SWB in a country in the short term fluctuates around a long run fixed level. The main explanations of such evidence focus on two different mechanisms: adaptation and social comparisons. Adaptation theory holds that changes in people's living conditions (for example concerning their economic conditions) have a transitory effect on their well-being. However, neither rising prosperity nor severe misfortune affect happiness permanently. In the long run people adapt to their baseline level of well-being. The same holds for nations.

On the other hand, social comparison theory holds that what matters for an average individual is her/his relative position with regard to a *reference group*, a selected group of people with whom she/he compares. These people represent a benchmark for the individual and the comparison is such that, in a given country, the relative gains and losses of different individuals cancel each other out, resulting in no significant shifts, upward or downward, for the well-being of a society as a whole. Adaptation and social comparisons are well-established theories and, so far, they collected a compelling cross-sectional evidence.

The strong version of these theories states that the international differences in SWB levels must be attributed to fixed cultural differences in the meaning of happiness. In other words, low-ranking countries have always been low and will remain so. There is no space for policies to improve well-being. These theories have depressing implications with regards to the prospects for progress of humanity: no improvement in our living conditions can permanently increase our well-being. At best we should be happy because no individual or social severe misfortune can permanently depress it! Recently, this framework has changed. An increasing availability of data showed that SWB varies in the long run and it doesn't vary in the same way in every country (Stevenson and Wolfers 2008, Inglehart 2009). There are countries in which well-being increased and others in which it decreased. For example, for what concerns developed countries, well-being raised in many European countries and it reduced in USA.

The theories adopted so far to explain why SWB stagnates fail to explain this new evidence. They can accept that their effects are not complete and, for example, that they do not entirely offset the effect of economic growth, but they can not account for cross-country differences in SWB trends: if the tendency to adapt one's self to changing circumstances or to compare one's self to others is a distinctive trait of human nature, then the trends of well-being in different countries cannot exhibit opposite signs.

Hence, what does explain SWB trends and its differences across countries?

Recently, the research suggested a promising answer to this question arguing that individual's *sociability* plays a major role in determining people's well-being. But what do we mean with *sociability*? Social science studies usually refer to it as *relational goods*, that is to say intrinsic non-market relationships among individuals, or, more generally, to *social capital* (SC). I would like to stress that there is some terminological variability in the rapidly growing economic literature on the topic and, although these terms might mean different constructs, they are sometimes used interchangeably. SC is a much debated topic about which many different defintions and descriptions have been proposed. Generally, we can refer to SC as a set of social connections and shared norms and values available in a society. Some studies from the "happiness economics" research focused on the link between SC and SWB finding out a positive relationship. In particular, it seems that the *relational* quality of people experience, that is to say the quality of the relationships among people, has a predominant impact on their well-being (Helliwell and Putnam, 2004; Helliwell, 2006; Bruni and Stanca, 2008; Becchetti, Pelloni and Rossetti, 2008).

A former analysis by Bartolini, et al. (2008), using micro data from the US General Social Survey for the past 30 years, shows that a large portion of the declining American happiness trend is explained by four forces acting in contrasting directions. The first one is the increase in per capita income, which positively affects SWB. The other three affect happiness in the opposite direction: American well-being is reduced by three forces: 1) the increase in income of other fellow Americans. The reason is social comparisons, which destroy approximately 2/3 of the positive impact that the increase in ones family income has on the average American; 2) a similar impact is produced by the erosion of relational goods. Many indicators suggest that the American society experienced an increase in solitude, in comunicative difficulties, in apprehension, in loneliness, in distrust, in familiar instability, in generational cleavages, in civic engagement, in participation in social networks and a reduction in solidarity and honesty; 3) the decrease in the confidence in institutions, a further component of SC, accounts for a further reduction of American SWB.

The overall result of these four forces for American SWB is negative. That is to say that observed variation in American happiness, between 1975 and 2004, is almost entirely predicted by three negative impacts more than off-setting the positive impact of the increasing income on SWB. These results explain almost all the variation in American happiness, in the sense that the unexplained residual is small enough

to allow a limited role to other explanations for the decline in happiness.

The role of relational goods for happiness is quite large. Results suggest that if SC had stayed constant at its 1975 level, American SWB would have increased. Hence, a large part of the explanation for the reduction in American well-being is linked to the fact that people became richer in material goods, but poorer in *sociability*.

Unfortunately, the analysis of the relationship between *sociability* and SWB is still in its infancy. Much of it still relies on cross-sectional data and doesn't account for unmeasured individual characteristics. Because of the quality of data, it is hard to test at the same time the role of different determinants, including SC, of SWB across countries. A further problem is represented by the causality between SC and SWB. Because of the nature of the two variables, it is hard to clearly state which is the causality nexus between them, given the currently available "tool box". Nonetheless, recent analyses suggest that the link between at least some forms of social connections and SWB is causal (Stiglitz et al., 2009; Becchetti et al., 2009). A further problem is represented by the scarcity of information about the trends of SC. This topic has been widely studied for USA, but we don't know much about what happened to SC trends in other countries (Adam, 2008; Morales, 2004).

In the light of the above observations, present research is intended to concur to the explanation of what determines long term changes in well-being across countries. The hypothesis I want to test is whether SC is a major predictor of well-being. My aim is to contribute to the debate on the role of SC in explaining international SWB trends overcoming some of the limitations of the literature on SC in "happiness economics".

Solving this puzzle is fundamental for understanding on which goals we should focus our policy efforts to raise well-being. Indeed, being persuaded that economic growth was the most plausible way to improve human condition, we built a whole economic, social and cultural order focused on material well-being. Though, it is now clear that changes in income don't affect the long term changes in well-being across countries (Easterlin and Angelescu, 2009). Hence, if changes in income don't explain international differences in well-being, where else should we focus our attention?

This question calls for an urgent re-definition of the economic policy agenda. Subjective evaluations of well-being proved to be a reliable and powerful instrument to account for people's well-being. Now, it is time to discover what is important for it. Whether *sociability* should be confirmed as an important explanatory factor, economic policies should take in account their effects on SC if their final goal is the improvement in well-being. Specific policies could be enacted to preserve or enhance SC and the way many existing institutions are working should be reconsidered in the light of the new role of SC. On the other side, we now know also that, thanks to the "happiness economics", it is possible to monitor and to evaluate the outcomes of our policies in a very efficient way. Of course, these are only hypothesis and there is still a lot of work to do before thinking about such implications, but these are the

new frontiers that this literature is unvealing and to which I wish to contribute.

Using micro and macro data from different data-sets, present analysis tries to answer above-mentioned questions in four steps by: 1. checking whether the determinants of SWB change across countries; 2. testing whether international trends of SC and SWB are consistent; 3. analysing the role of SC as a predictor of SWB trend on a micro-level analysis and 4. checking whether SC variations predict long-term SWB changes in nations.

This work is structured as following: the next chapter is titled *"Determinants of subjective well-being in high and low income countries: do happiness equations differ across countries?"* and deals with the first above-mentioned aspect. Different theories have been advanced to explain what really makes people happy or satisfied with their life, but they are mainly focused on developed countries. This is mainly due to the fact that for richer countries there are longer and reliable data-sets allowing such researches. Nonetheless, data on individual perceptions became more and more available also for Less Developed Countries. Recently, this debate has been revived by Layard (2009) who, criticizing Deaton's conclusion that only income matters to happiness, contend the assumption of a unique "happiness equation". Such topic has been longly debated in literature and still there is not an agreed conclusion although the vast majority of the studies suggest that people have similar preferences.

One of the best data-sets to deal with this question is the World Values Survey (WVS)[1] that now collects informations on individual perceptions for a great number of countries from all over the world. This makes WVS a precious instrument to perform a cross-country comparison on the determinants of well-being. In particular, I will test whether the determinants of well-being proposed so far in the literature have the same role in different economic contexts. In other words, I am asking whether income, positional and relational goods and SC play a different role for SWB in rich and poor countries.

Answering this question is very important for at least two reasons: 1) studying international differences in SWB implicitly assumes that people have similar happiness equations across countries, but on this point economic literature still didn't find any agreement; 2) testing the role of different determinants of SWB in low income countries can have notable effects on these economies. For example, it may allow a better evaluation of the effects of development policies and, above all, it can be useful to identify new and more socially and environmentally sustainable development policies.

The third chapter, titled *"Social capital and subjective well-being trends: comparing 11 western European countries"*, deals with the evidence that the trend of SWB in western countries is different from the American one. During last decades, western European countries experienced either a growing or stable SWB trend (Stevenson

[1] <www.worldvaluessurvey.org> .

and Wolfers, 2008). At the same time, the declining trend of American well-being has been found consistent with the declining trend of the American SC (Putnam, 2000 and Bartolini et al., 2009). Hence, my question is: "how is SC performing in western European countries?" My aim is, first, to test whether SC erosion is a general trend of modern societies or if it is rather a characteristic feature of the American one. In answering this question I also contribute to the literature on SC defining the trends of 4 groups of proxies of SC. In fact, information on the trends of SC for other non-USA countries are scarce and fragmentary and only few authors payed attention to it. Secondly, I test whether SC trends are consistent with SWB trends. I adopt micro data on eleven western European countries from WVS between 1981 and 2000. Using four different sets of proxies of SC, I find evidence of a probable relationship between SC and happiness: the sign of the variation across time of the two trends is compatible in ten out of eleven countries. This result supports the hypothesis that the cross-countries differences in SC trends play a major role in explaining the international differences in SWB trends.

The analysis on the determinants of SWB and, in particular, on the role of SC to explain the overall variation of SWB is the subject of the fourth chapter. It is titled *"Predicting the life satisfaction of Germans: the role of sociability, comparisons and adaptation"* and it presents an analysis on Germany using micro-data from the German Socio-Economic Panel[2]. In particular, I aim at quantifying the importance of income growth, adaptation, social comparison and SC for SWB trends.

The GSOEP is one of the main sources of evidence on the relevance of adaptation and social comparisons (e.g. Ferrer-I-Carbonell, 2005; Vendrik and Wojtiers, 2007; Layard et al. 2009; see also Clark et al. 2008, and references therein). Moreover, the GSOEP is rich in SC data and indeed it has been used to show the importance of this data for well-being (Becchetti et al. 2008; Becchetti et al. 2009). It is, therefore, an ideal database for providing a test of the predictive potential of the four main forces that affect the trend of SWB.

A further important aspect of the GSOEP is its panel nature allowing to control for individual fixed effects and for adaptation, two aspects that cross-sectional data prevent to account for. In this way, my analysis overcomes some of the constraints imposed by cross-sectional data on the analysis of the relationship between SC and SWB and reveals that German SWB trend, during last fifteen years, is largely predicted by changing in income, SC, adaptation and social comparisons.

The next-to-last chapter, titled *"Sociability predicts happiness in nations: some world-wide evidence"*, extends previous micro findings on the role of SC for SWB to a macro dimension. My aim is to test whether the predicting power of SC holds also in a macro framework. In so doing, I document that the trends of SC are a strong predictor of the long-term trends of SWB in the set of all developed and develop-

[2] <www.diw.de/en/soep> .

ing countries provided with long run time series about SC. Data are drawn from WVS and refer to the period from 1981 to 2007. SC is proxied by *individual membership in groups or associations* that accounts for participation in social networks and civic engagement. I adopt the same bivariate methodology employed to study the relationship between SWB and income (Stevenson and Wolfers, 2008; Easterlin and Angelescu, 2009). Results are impressive: the same methodology bringing to the conclusion that in the long run SWB is unrelated with income, documents that well-being is strongly related with SC in developed countries, developing countries and all countries together. Moreover, I provide several robustness checks of Easterlin and Angelescu's analysis, confirming their results.

The last chapter will summarize the main findings of my research.

Chapter 2

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

1 Introduction

Recent developments of social sciences suggest that in many western countries the economic development of last fifty years had disappointing effects on individuals' well-being (Easterlin, 1974). What is currently known as the "Easterlin paradox" shows that after the Second World War western countries, and in particular United States, experienced a steady GDP growth suggesting an improvement of well-being. Unfortunately, at the same time, the perceived well-being of individuals (the subjective well-being) stagnated. This point is well summarized by the chart in fig. 2.1.

The chart shows the evolution in time of GDP and subjective well-being (SWB) in USA along the last fifty years. Between 1946 and 1956 the two lines have been increasing at the same rate, but starting from the early '60s something started going wrong and the two curves started departing from each other: the GDP has been increasing, while the percentage of people declaring to be very happy stayed constant or, even, reduced.

Currently, the Easterlin paradox has been redefined in the light of a more striking evidence suggesting that in the long run economic and happiness growth are unrelated (Easterlin and Angelescu, 2009). Such evidence is striking, in particular in the light of the benefits brought about by economic growth: healthier and longer lives, useful technologies, possibilities of travels and easier and faster contacts among people across the world.

However, the increasing body of literature on the topic suggests that something went wrong and what was expected to increase SWB turned out to be, at best, uncorrelated with it (Blanchflower and Oswald, 2004; Di Tella and MacCulloch, 2008; Easterlin, 2001a; Frey and Stutzer, 2002b). Therefore, a new question arises: what is important for individuals' well-being?

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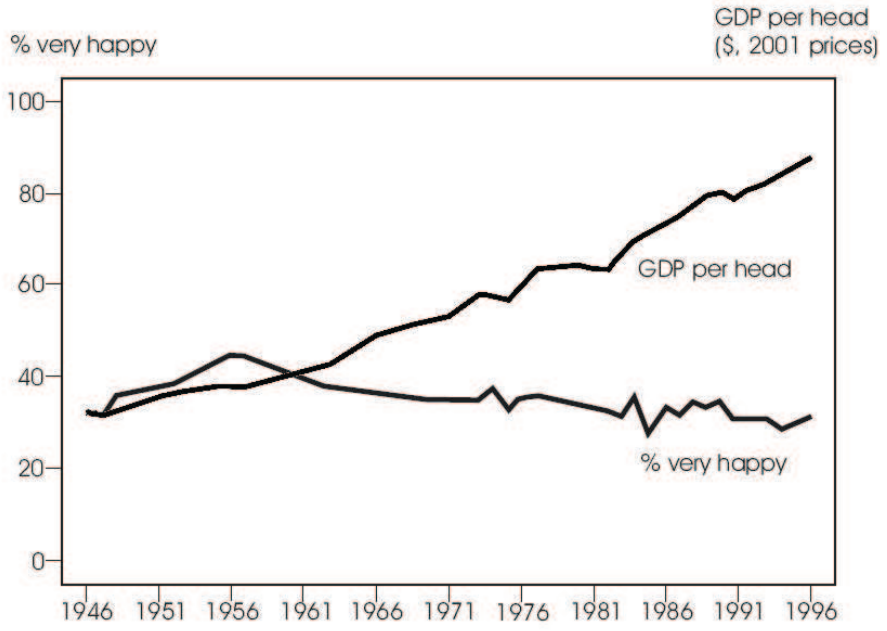


Figure 2.1: Income and happiness in the USA
Source: R. Layard, Happiness: has social science a clue?, Lionel Robbins Memorial Lectures 2002/3, London School of Economics, 3, 4, 5 March 2003, p. 16

Given the cross-country nature of the question posed by the Easterlin paradox, data coming from different countries are the main enquiring tool used so far (Easterlin and Angelescu, 2009; Stevenson and Wolfers, 2008; Alesina et al., 2004; Blanchflower and Oswald, 2004; Blanchflower, 2008; Graham, 2005a; Graham and Pettinato, 2001). Unfortunately, this aspect is, at the same time, a vulnerable point for this body of research: all these studies assume the cross-country, cultures and economic conditions comparability of the proxies of SWB and of its determinants. Assuming that people around the world know what makes them happy, there are no obvious reasons to assume that the determinants of SWB may be the same (Clark et al., 2005).

Present work aims at contributing to this literature focusing on the determinants of SWB in low and high income countries. It, first, investigates the determinants of SWB controlling for the role of absolute income, positional and relational goods and social capital. In so doing, it considers at the same time the role of those variables that so far proved to be promising in explaining the Easterlin paradox (Helliwell, 2001, 2006; Blanchflower and Oswald, 2004; Clark and Oswald, 1994; Di Tella et al., 2003; Easterlin, 2001a; Clark et al., 2008; van Praag et al., 2003). Subsequently, it assesses whether the structure of the happiness equation has the same form in poor and rich countries. This topic has been recently scrutinized by Blanchflower (2008); Di Tella and MacCulloch (2007); Kapteyn and Wansbeek (2008). Helliwell

(2008) suggests that basically people around the world consider the same aspects as important for their well-being and argues that the international differences in SWB depend on different life circumstances, in particular on the availability of social capital. Observing two groups of people in 105 countries, Helliwell et al. (2009) study the impact of multiple factors on SWB distinguishing between people having enough money for adequate food or not. Their main findings are: 1. the importance of income is slightly lower for poorer people; 2. female report higher well-being in the richer group; benefits for well-being from marriage are less and negative consequences of separations, divorce and widowhood are greater for the poorer group; 4. the poorer are also much less likely to report having family or friends they can count on in times of troubles (Helliwell et al., 2009).

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

Present research settles in this debate exploring the determinants of SWB in different economic settings checking for any differences between low and high income countries.

A similar research is available thanks to the growing quantity of cross-section data about happiness coming from the "World Values Survey", a large database with more than 250000 observations coming from 82 countries from all over the world and representing more than 85% of world's population[1].

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

2 Theoretical approaches

Several theories, coming from different disciplinary frameworks, have been proposed in order to explain the happiness paradox. *Set-point theory* is one of the main psychological theories proposed so-far. it suggests that an increase in income may

[1] <www.worldvaluessurvey.org> .

produce only temporary changes in well-being: after a while it will revert to its previous level (Bruni L., 2006). Hence, in the long-run, this theory predicts a constant SWB, while in the short run any external shock is going to be reabsorbed and SWB is going to get back to its long run level. This mechanism is possible since its underlying hypothesis is that happiness depends on individual personality traits: people are "genetically" disposed to certain levels of happiness (Pugno M., 2005). This aspect implies that nothing can be done in order to make people happier. At the same time, this theory has been criticized since further research suggests that personality traits explain only a part of the whole variance of SWB and adaptation to the previous well-being level occurs only slowly and incompletely.

In order to better articulate set-point theory, it is sometimes presented jointly with the so-called *adaptation theory* proposed by Tibor Scitovsky (Bruni L., 2006). This author explains the adaptation mechanism distinguishing between *creative* and *comfortable* goods stating that happiness rises when people experiences *new* goods. However, after a while the effect of novelty disappears and is replaced by a *comfort* effect which brings to boredom: in this way happiness goes back to its previous level (Bianchi M., 2004). From Scitovsky's point of view, happiness can only be increased by creativeness which allows to experience novelty and is opposed to boredom. This theory is exciting but in general enjoying novelty will ask for even new experiences in order to avoid boredom and this process doesn't seem indefinitely available even when, like in Scitovsky's idea, creativeness is expressed through immaterial, intellectual activities. The integration between set-point and adaptation theories allows to explain short-term variations in happiness and its long-term steadiness suggesting that there is no space for public policy in order to ameliorate SWB since it depends essentially on individual characteristics.

Similarly to Scitovsky, Easterlin tries to explain the paradox focusing on the opposition between *aspirations* and *achievements*: an improvement in material conditions cause people asking for continuous and even more intense pleasures in order to keep the same satisfaction level (Bruni L., 2006). For that reason, this theory is sometimes indicated as *satisfaction treadmill* theory. The engine of such continuous overcoming of present conditions is based on the difference between what people can achieve and their aspirations: when I obtain a particular good (for example a car) my well-being increases, but, after a while, my aspirations about that good and related ones adapt to the new present conditions and I will look forward in order to satisfy my new demand (in this example a newer, safer, more powerful car). In this case, even if my objective well-being improves, my SWB stays constant because of this process of continuous aspirations changing (Bruni L., 2002).

All theories presented here are based on the idea of rationality failure in which no external factor is able to exert a permanent influence on happiness, but no explanation of why rationality fails is proposed. Furthermore they suggest that individual interest in money should decline over time because of its negative impact on happiness, but this is not the case for our societies. Finally there is a growing agreement

on the idea that SWB strongly depends on domains other than income and material concerns which are less exposed to the "treadmill" mechanism (Easterlin R., 2004).

2.1 The positional goods approach

One of the main economic theory advanced to explain the paradox is based on the idea of *positional goods*: our well-being depends significantly on our level of consumption relative to the consumption of people with whom we usually interact (Bartolini S., 2007). These kind of goods are socially scarce in the sense that if these were available for all people then they would lose their value. From this point of view, the absolute level of well-being loses importance: my individual well-being may stay constant because the level of consumption of people in my reference group increased more than mine. A key aspect of this theory is that the choices of others affect my personal well-being just like a negative externality. Such theory originates from the pioneering works of Veblen and Duesenberry and has been further developed by Robert Frank[2] (who speaks about relative income) and Fred Hirsch[3] who introduces the concept of *positional goods*. From Frank's point of view, individual happiness depends on relative income, that is to say the difference between the income level of a subject *i* and those of people close to him (in a hypothetical society with only two people, subject *j*); summarizing: $H = f(Y_i - Y_j)$ where H represents individual well-being and Y is the income of the two subjects (Bruni L., 2002). In this framework even when income levels grow up, happiness remains unchanged if the difference between the two incomes stays constant. An interesting implication is that even if subject *i*'s absolute income increases, its SWB may decrease if subject *j*'s absolute income growth is higher. Hirsch (1991) further develops this approach arguing that if people is interested in their relative position in society, then there is a growing incentive to compete in order to overcome the others in the social ladder. This *positional* competition[4] asks for an increasing effort and a continuous absorption of resources useful to face others rivalry. In this continuous run people need more and more goods which are not useful per se, but are only instruments to overcome others and to show the relative position of their owner. Such a process will include a growing number of goods coming from spheres other than simply economics and will involve a continuous waste of resources.

This theory offers a good explanation to different social phenoma such as the increasing demand for goods and the continuous research for higher income. An important characteristic of this model is that it implies a coordination failure rather than a hypothesis of limited rationality of subjects typical of the previously reviewed models (Bartolini S., 2007). In fact, if people would be aware of the results of their

[2] Frank R., Luxury Fever, Free Press, New York, 1999.
[3] Hirsch P., I limiti sociali allo Sviluppo, Bompiani, Milano, 1991.
[4] Hirsch F., 1991.

choices, probably they would not enacted them. Finally, a key feature of this theory is that it assumes an idea of society characterized by competition, rivalry and envy in which time has a growing importance: the quest for even higher positions in the social ladder, causing a higher rivalry, make time a scarce good (Hirsch F., 1991). Hence, people will tend to optimise it reducing all those time consuming activities that are not useful for their competition. In particular, time dedicated to social relationships will be sacrified since genuine human relationships need an active commitment by both involved subjects, while social ladder climbing is time consuming. This blasting of sociality will have two consequences: from the first point of view, reducing sociality will induce a further consumption of marketable goods to replace the scarce and time-expensive human relationships; from the second point of view, the scarcity of social relationships will induce an under-investment in *relational* goods. Uhlaner (1989) defines relational goods those goods that "can only be 'possessed' by mutual agreement that they exist, after appropriate joint actions have been taken by a person and non-arbitrary others"[5]. "Relational goods cannot be produced, consumed, or acquired by a single individual, because they depend on the interaction with others and are enjoyed only if shared with others"[6].

2.2 The relational goods approach

Currently, a number of scientists from different disciplines, in particular from economics, are paying attention to the importance of these goods for human well-being because of their growing scarcity.

Relational goods are human relationships in which the relationship itself is the grounding aspect. They have been alternatively defined as local public goods, relation-specific, obtained by "encounters" in which "identity", "attitude" and "motivations" of people involved are essential elements of the production of the relational good and of its value. (Bruni L., 2002). Consequently, relational goods are also *fragile* since they are exposed to unobserved behaviours of two different subjects sharing reciprocity.

SWB (F) depends positively on the level of income (Y) and of relational goods (R) available to people and deliberately ignores other important aspect of well-being (e.g. health): $F = f(Y, R)$. Such expression highlights that it is important to focus on income and its growth since it directly affects happiness. This is true unless income indirectly hurts relational goods and, consequently, SWB. In fact, the engagement to increase income can produce negative effects on the quality and quantity of relationships so that the overall effect of an increase in income on happiness may be

[5] Uhlaner C.J., Relational goods and participation: incorporating sociability into a theory of rational action, Public Choice, 1989, vol. 62, p. 254.

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

negative. In this way, relational goods offer an alternative explanation to the Easterlin paradox in which the quest for higher income is the engine of a progressive usury of relational goods which are fundamental for SWB (Pugno M., 2005).

An interesting feature of this theory is that it does not assume a negative nature of human beings (Bartolini S., 2007). At the same time it shows mechanisms of rationality failure: why do people choose to pursue higher income and to waste social relationships? The first explanation can be proposed analyzing Scitovsky's theory about comfort and creativity goods: in this framework relational goods belong to the set of creativity goods. The problem is that in *modern economies* creativity goods are scarcely accessible or very expensive and for this reason people tend to invest more in comfort goods which are cheaper and appear to be good substitutes for creativity ones. A further explanation related to Scitovsky's theory focuses on the idea of "addiction": comfort goods cause dependency and people is induced to consume more comfort goods in order to keep their pleasure constant. Another justification is based on the idea of "fragility" of relational goods: since they do not depend solely on subjective will, but on a biunique relationship, they are considered more risky than other economic goods and people will be reluctant to textitinvest in them (Bruni L., 2006). Finally, the under-investment in relational goods could be explained in terms of "positional competition" eroding sociality.

Positional and relational theories offer two possible interpretations of the Easterlin paradox that are particularly convincing. First of all they are quite related and it seems that there could be an interaction between them. Hence, their implications fit quite well particular aspects of contemporaneous society such as the quest for higher income, an even scarcer leisure time, the erosion of social relationships and the growing number of marketable goods and of their relevance in society.

These theories are currently focusing mainly on rich countries, while fewer is known about poorer ones. Nonetheless there are reasons to expect that positional competition and relational goods play an important role also in poorer economies (Bruni L., 2006). For that reason analyzing the effects of these goods in poor countries could shed further light on SWB helping to better understand what people really desire.

2.3 Negative externalities growth models

Bartolini et al.(2002; 2003a; 2003b) tryed to solve the happiness paradox proposing an economic growth model which is compatible with the evidence provided by Easterlin. The starting point of this theory is that SWB is largely influenced by particular goods (named *free goods*) which are not produced by the market. On the contrary, they are *freely* provided by the social and natural environment. Examples of *free goods* are the natural inputs provided by the environment and freely employed in productive processes: water, sun, land, air are some possible examples. Hence, *free goods* are identified as those goods which are renewable or unrestrictedly available

to everybody. Among these goods, we comprise also social elements such as social shared values; social norms silently ruling the behaviour of people in a group; trust, honesty and, generally, all those elements which are freely produced by social relationships and usually called SC.

Much of the literature on SC highlights the role played by trust and social networks in ameliorating exchanges and cooperation among different agents and in reducing transaction costs. Societies with high endowments of SC need less investments in intermediate goods to protect from possible opportunistic behaviours. Similarly, in such societies it is easier to trust in others even if you do not know your counterpart. In this way new exchanges and relationships are fostered.

From this point of view *negative externalities growth* (NEG) model is based on the idea that economic growth produces negative externalities reducing the ability of the environment to provide such important goods. People react to the reduction in SC raising their *defensive expenditures* asking for *replacing goods* that are no more freely offered by the environment, but provided by the market. Hence, negative externalities force individuals to look at *private goods* rather than *free goods* to avoid a reduction in their SWB. In this sense negative externalities foster economic growth: asking for expensive goods provided by the market, individuals indirectly support economic growth.

Therefore, a higher economic growth engender new negative externalities eroding *free goods*. Hence, economic growth is feeded by a self-augmentative process. But why does the growth process produce negative externalities? Related literature basically identifies the *spread of capitalistic values* as the cause of such phenomena: market economy is based on competition and individual success causing a strong propensity to materialism. These circumstances push people towards a higher isolation encouraging the erosion of social ties and the declining of shared values and social norms. As a result, people react to such a reduction under-investing in trust, honesty, reciprocity and looking more and more at their economic substitutes.

Concluding, the NEG approach suggests an economic growth process that is feeded by the reaction of individuals to negative externalities produced by the economic process as well. Hence, on one side market goods are essential for replacing wasted free goods, while on the other people develop an excessive proneness to market goods. Consequently, individuals raise their amount of hours worked in order to increase their income and enlarge the number of private goods they can buy. The outcome is well known: SC decreases, free goods are substituted by private goods and GDP increases.

3 Methodological issues and expected results

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

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

- lack of precise definition of the question asked;
- different or changing norms;
- personality aspects and their difficult observability;
- idiosyncratic or unobserved events;
- different cultures;
- lack of natural scaling to allow cross-person comparison of terms like "happiness" or "satisfaction";
- accuracy in reporting: responses can be biased by the phrasing or the placement of questions in the survey.

When speaking about less developed countries, national representative surveys are rare and often with flaws. Another problem is accounting for error in reporting income, a problem that is further aggravated by policy shocks, such as devaluations and high levels of inflation. Political and social conditions of respondent's nation/region may further bias its answers. Finally, accuracy in reporting may be a more stringent problem in such contexts (Graham C., 2005).

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

Previous economic studies found that using such data in their aggregate allow to avoid many bias related to individual aspects (Di tella et al., 2001). Infact, considering large samples across countries and over time reveals consistent patterns in the determinants of happiness, while errors result uncorrelated with the observed variables and do not systematically bias the results. Furthermore, in order to avoid the scaling problem, econometric studies have usually adopted ordered logit or probit equations and further tests showed that there are no significant differences among these methods and the traditional OLS. Another aspect of the resulting equations is

that they usually yield "lower R-squares than economists are used to, reflecting the extent to which emotions and other components of true well-being are driving the results, as opposed to the variables we are able to measure such as income, education and marital and employment status"[7]

Despite the probems that can arise when using such data, we have also to consider the advantages that can originate from these studies. Respondents' assessments of their own welfare can highlight factors that are not adequately captured by income measures, including real and perceived insecurity of rewards and incentives systems adapting to structural changes, the state of essential public services (educations, health, crime prevention), and norms of fairness and justice. Aspects such as poverty and inequality can be characterized by broader dimensions and dynamic elements that are not captured by such traditional income-based measures as poverty headcounts (e.g missing short term movements in and out of poverty) and Gini coefficients (which are static, aggregate and do not reflect distributional shifts) (Graham C., 2005).

Furthermore, whether on one side we should be careful in using such data and in drawing results, on the other, this research can reveal new aspects about human behaviour helping to improve our policy agendas for both developing and developed countries. "Growth is a necessary but not sufficient condition for poverty reduction. Other key factors [...] are essential to sustaining the development gains that globalization helps bring about."[8].

4 Data

The World Values Survey[9] (WVS) is a wide compilation of surveys collected in more than 80 countries representing more than 80% of the world's population. WVS collects informations on sociocultural and political change observed on a randomly selected sample of 300 to 4,000 individuals per country (Becchetti L. et al., 2006). In particular the WVS provides informations on "individual beliefs about politics, the economy, religious, social and ethical topics, personal finances, familial and social relationships, happiness and life satisfaction"[10]. These data have been collected in four waves (1980 - 82; 1990 - 91; 1995 - 97 and 1999 - 2001) for a total of 267,870 observations. Anyway, the sample available for present study is smaller since particular informations (such as relational time and informations on voluntary activities)

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

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

[9] <www.worldvaluessurvey.org> .

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

have not always been observed. Summary statistics for all the variables used in the analysis are reported in tab.2.1.

Data on countries in the WVS have been divided in two groups reflecting the distinction proposed by the World Bank in low income countries (LICs) and high income countries (HICs).[11] Countries belong to the first group if their gross national income (GNI) per capita is $ 875 or less ; vice versa countries with a GNI pro capita of $ 10,726 or more belong to the group of high income countries[12]. Groups are defined on the basis of the 2006 World Bank list of economies.

In order to study the effects of positional and relational goods and of SC on happiness in LICs and allow a comparison with HICs, I assume that individual happiness (Hap) depends on material well-being (Wealth), the consumption of positional (Pos) and relational (Rel) goods, the endowment of SC (SocK) and a set of socio-economic conditions (Sec). Formally, for each group of countries I estimate the following relationship:

$$Hap_i = \alpha + \beta_1 \cdot Wealth_i + \beta_2 \cdot Pos_i + \beta_3 \cdot Rel_i + \beta_4 \cdot SocK_i + \beta_5 \cdot Sec_i + \mu_i \quad (2.1)$$

where the index *i* stands for the different individuals.

Happiness is measured on a scale ranging from 1 to 4 and is based on answers to the following question: *"All considered you would say that you are : 1. very happy; 2. pretty happy; 3. not too happy; 4. not at all happy?"*. Comparisons of happiness scores between low and high income countries are reported in tab.2.2.

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

It is also interesting to observe happiness trends within each group of countries for different income levels. In this case "income is measured by self-reported quintiles in the national distribution of income"[13]. Using this measure of income

[11] The World Bank, <www.worldbank.org> .

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

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

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

Table 2.1: Descriptive statistics

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

Table 2.2: Happiness levels in LICs and HICs.

allows comparisons across countries and individuals (Bruni L., Stanca L., 2006). Informations about happiness and income quintile in the two groups of countries are summed up in tab. 2.3.

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

a)

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

b)

Table 2.3: Happiness levels per income quintile in a) LICs and b) HICs

The first table refers to LICs and shows that 17.42% of people in the first income quintile declares themselves as *very happy*, while this percentage fall to 5.24% for people in the fifth income quintile. Similarly, the happiest people are situated between the second and the third quintile. The same trend arise looking at percentages of people declaring themselves *pretty happy*.
On the contrary, consistently with what we could expect, percentages of people declaring themselves *non at all* happy decline when going from the first to the fifth quintile. This aspect seems to suggest that in LICs unhappiness reduces with income,

while this is not true about higher levels of happiness.

Considering HICs, table2.3 *b* shows an interesting pattern too. In fact, while percentages of people with low levels of happiness reduce with higher incomes, people declaring themselves *pretty or very* happy do not considerably vary among different levels of income. Finally, similarly to what we have seen about LICs, also in HICs the happiest people are situated between the second and the third quintile.

Individual wealth is proxied by the absolute level of income. This variable is based on individual self-assessment of received income[14].

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

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

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

Perceived freedom of choice and control considers the degree of individual self-determination and is measured on a 10 point scale ranging from "none at all" to "a great deal". Honesty is based on respondent's judgement about the justifiability of cheating on taxes and is measured on a 10 point scale ranging from "never justifiable" to "always justifiable".

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

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

Whether such a large number of proxies measure the same underlying phenomenon or not can be addressed by means of correlation analysis. Tables 2.11 and 2.12 in the Appendix report correlation matrices for Low and High Income Countries, respectively. The light grey shadowed coefficients show a correlation ranging between 30% and 40%. The dark grey shadowed coefficients relate to correlation coefficients higher than 40%. Starting from this last category for which the correlation is quite high, tab.2.11 shows that spending time with people from religious environment is positively correlated with performing voluntary organization in religious institutions (+47%). Although the high correlation, the two proxies clearly refer to two different aspects of relational goods: while the first refers more to the quantity, the second one reflects the quality of the relationship focusing on the intrinsic motivations behind it. People participating in voluntary sport organizations are also more likely to participate in artistic voluntary organizations. In this case the correlation coefficients is about 43%. The two aspects clearly refer to different dimensions of relational goods, but still the high correlation among them suggest to be prudent in commenting results from the regression model. The correlation analysis further suggests that belonging to the lower class and being in the first income quintile are quite correlated (+42%). This kind of result is not surprising and the fact that belonging to the lower class is taken as omitted variable (i.e. it is excluded from the model) should be enough to prevent possible collinearity problems. Finally, as expected, age and age squared are correlated at 98%, nonetheless the two variables are included to capture the non linear effect of age on happiness. For what concern poor countries, the correlation analysis suggests that age is also slightly correlated with being married (+31%): the older the individual, the higher is the possibility for him/her to be married. Quite similarly, volunteering in labour unions and in professional organizations correlate at 36%, while spending time with colleagues from work is associated with spending time with people at sport (+30%).

If we consider the tab.2.12 in the Appendix, we notice that the picture for rich countries is not significantly different from the one for poor ones. In this case, age, age squared and being widowed are strongly correlated (98%, 40% and 44%, respectively). Similar to the case of poor countries, spending time with people from religious environment and performing voluntary organization in religious institutions are very strongly correlated (60%) suggesting the idea that people in both poor and rich countries, independently from the kind of activity, tend to build clusters of re-

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

5 Results

I report and discuss results from an OLS model relative to equation 2.1. It is well documented, in fact, that the use of an OLS is equivalent to the use of an ordered logit or probit model (Ferrer-i-Carbonell and Frijters, 2004) and it has a strong advantage: the main aim of present work is to compare the determinants of well-being in two different contexts and OLS allows a direct comparison between regressors from various regressions[15].

Being aware of the constraints and methodological problems previously reviewed I try to measure correlations across variables rather than establishing the size and the direction of the causal effects. Nonetheless, several papers show social interactions being related with SWB (Helliwell, 2006; Bruni and Stanca, 2008; Bartolini et al., 2008; Becchetti L. et al., 2008). In particular, Becchetti et al. (2009) find a strong and significant relationship between SC and SWB. Finally, in order to consider different socio-economic aspects and any possible bias represented by spe-

[15] refer to tab.2.10 in the appendix for a comparison of the results from an OLS, ordered logit and probit model.

cific countries, years or survey waves, I include a set of socio-economic variables (Sec_i), country-specific and time-fixed effects for survey waves in each regression. For shortness these last dummies are not reported in the tables. Table 2.4 shows the overall estimation results. The first aspect I have to care of is the small dimension of the sample: 6450 observations in LICs and 3475 in HICs. This constitutes an important constraint on our analysis since it reduces the significance of results. Unfortunately, the sample considerably reduces because of the wide range of variables that I'm considering at the same time. In particular, informations about relational time are only available in the fourth wave, while voluntary activities aspects are not available in the first wave and social class aspects are not available in the second one. Hence, in order to overcome this problem I am successively going to consider subset of variables to confirm or less the evidence coming from the overall regression.

5.1 Socio-economic aspects

Let's start analyzing socio-economic variables which are quite coherent with what found in previous empirical research. Male and age coefficients are negative and significant in both groups of countries. Educational dummies show that moving from illiterate to a low education level has a positive effect on well-being in both groups of countries. This effect holds positive for middle level education in LICs and is not significant in remaining cases. Results on marital status highlight an interesting and coherent pattern as well. In fact being married positevely affects happiness in both HICs and LICs, but in this last case the coefficients turn out to be not significant. Similarly, being divorced or widowed with respect to single has a negative and strong coefficient in both groups of countries, althought coefficients are not significant in HICs. Finally, unemployed has a mixed effect. In order to look in more detail at these determinants, let's consider tab.2.5 that expressly focuses on socio-economic determinants[16]. In this case a bigger sample is available: 22301 observations in LICs and 103932 in HICs. Overall, I confirm previous results: a higher education increasingly improves SWB in both groups of countries; the effects of gender and age are unchanged as well as coefficients of marital status. In particular, being married positively affects happiness in both LICs and HICs with stronger effects in rich countries. Finally being unemployed reveals negative and significant coefficients with a 5 time stronger effect in HICs.

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

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

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

Table 2.4: Overall estimation results

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

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

Table 2.5: OLS regressions with socio-economic variables

5.2 Wealth aspects

In this case I am considering the effects of absolute income on individual well-being. Coefficients of absolute income in the two groups of countries are positive, but they are not significant. Turning to tab.2.6 allows to look at these data more specifically. Previous result is confirmed: absolute income coefficients are both positive and significant. As I could expect, a higher income has a stronger effect in LICs rather than in HICs. This outcome is also consistent with previous findings from literature, even if, to the best of my knowledge, there are only a few works based on the WVS considering absolute income (Becchetti et al., 2006).

5.3 Positional goods and happiness

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

1. relative income: based on the income class of the respondent and recoded in quintiles.
2. social class: measured on self-assessment from the respondent. Three classes are considered: upper, middle-upper and middle-lower, while the lower class is held as a reference.

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

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

Table 2.6: OLS regressions with proxies on wealth

Results about social class show that going from the lowest to the highest class increasingly affects happiness in both developing and developed countries. In particular, belonging to the upper class in LICs has almost a three time larger effect on well-being than being in the middle-lower class. These results are statistically significant and seem to suggest that happiness of people is considerably affected by the splitting of society in social classes. Looking at the first column of tab.2.7, coefficients still suggest that moving from the lowest social class to the highest has increasing positive effects on well-being, with stronger effects in LICs. The second column of tab.2.7 shows results for relative income that are not significant for HICs in tab.2.4. Coefficients are significant and negative for low levels of relative income and positive for the two higher levels in both groups of countries.

Once more, coefficients reveal a stronger effect on SWB in LICs. Finally, the third column of tab.2.7 reports data from a regression with both groups of variables at the same time which basically confirm previous results: moving from the lowest to the highest social class in both groups of countries has a positive effect which is stronger for LICs. At the same time, belonging to the upper class has a very similar effect on well-being in rich and poor countries. Results on relative income are confirmed as well. In particular, belonging to the highest quintile has a positive effect in both groups of countries and stronger for LICs. A first partial conclusion suggests that in both groups of countries happiness is strongly influenced by positional aspects. In particular, SWB in LICs seems more affected by positional concerns than

Table 2.7: OLS regressions with proxies on positional goods

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

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

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

in HICs.

5.4 Relational goods and happiness

The idea that interpersonal relationships are important in human happiness has been widely tested so far. In this case, following Bruni and Stanca (2006) I test this hypothesis using two different groups of proxies for relational goods reflecting two particular aspects:

1. the identity of subjects involved in the relationship;
2. the authenticity of the relationship.

The first aspect is actually proxied by the time the respondent declares to spend with specific groups of people; the second characteristic is considered through a set of dummy variables about the participation in specific voluntary organization. Results presented in tab.2.4 show that in LICs happiness is positively influenced by spending time with colleagues from work or people from church, mosque etc. Considering coefficients about participation in voluntary organizations, participating in charitable or political organizations strongly and significantly affects SWB followed by participation in professional organizations althought this time score is not significant.

Results in LICs are quite different compared with those in HICs. In fact time spent with people from religious environments affects SWB more than in LICs followed by time spent with people from recreational environments and colleagues. Another interesting aspect is that time spent with relatives or friends shows positive coefficients, while these proxies have negative and non significant coefficients in LICs. Unfortunately, variables about participation in voluntary organizations have non significant coefficients with the only exception of participation in politics that has a negative impact on well-being. In order to allow an indicative comparison among the two groups of countries let's consider the second column of tab.2.8 reporting OLS regression results about participation in voluntary organizations. In this case I can notice that SWB in HICs is positively affected by participation in religious and charitable organizations followed by sport and artistic voluntary organizations, while participating in political organizations has a negative (but non significant) coefficient. This profile is quite in contrast with what emerges for LICs where the most important effect comes from participating in politics, charitable and professional organizations.

In that case, the dimension of the coefficients is almost the same in the two groups of countries, but the set of the determinants of well-being changes: happiness in LICs seems more affected by participation in organizations useful to achieve other objectives, that is to say those organizations in which the authenticity of the relationship is not fundemental.

Table 2.8: OLS regressions on participation in voluntary organizations

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

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

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

5.5 Social capital and happiness

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

- honesty;
- freedom of choice and control;
- trust.

Results from tab.2.4 suggest that all these variables have a positive impact on SWB in both rich and poor countries althought coefficient for trust in LICs is not significant. In general, it seems that SC has a stronger effect on well-being in HICs. These results are further observed in tab.2.9 showing that honesty has broadly a similar positive effects on happiness in both groups of countries. Trust and freedom of choice and

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

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

Table 2.9: Social capital and happiness in LICs and HICs

control have both a positive effect in LICs: in both cases, a one unit increase in the independent variable implies on average a 3.5% increase in happiness. In HICs freedom of choice and trust have positive and larger coefficients than in LICs with effects ranging between 6.5% and 7%. This evidence suggests that SC aspects are more important in rich rather than in poor countries probably reflecting different SC endowments. Hence, this result is coherent with what emerges from other studies showing a steady SC decline in developed countries(Blanchflower, Oswald, 2004; Bartolini, Bilancini, Pugno, 2007).

6 Conclusions

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

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

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

Moving towards positional, relational and SC aspects I find out an interesting and intriguing pattern.

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

Data on relative income are more straightforward: belonging to the first two income quintiles negatively affects SWB in both LICs and HICs, while being among the two highest income quintiles positively affects happiness. In this case the magnitude of coefficients is larger for the two extremes of the scale and smaller for the two intermediate steps. In particular, coefficients about low income countries confirm that poor countries are subjected to positional competition too. Anyway this result should be considered only a starting point rather than a conclusion since the nature of this competition in the two contexts has to be further investigated. For example, social class aspects suggesting that being in the lowest classes negatively affects well-being in both groups of countries may hide different aspects: following Inglehart's idea people in more developed economies are experiencing a cultural shift from what he defines *modernization* to *post-modernization* in which individual

and social values are changing.[17] This transformation would imply that people in rich economies are experiencing negative effects of positional competition. Hence, they are adjusting their preferences on the basis of new arising social values. On the contrary, people in poor countries have only recently entered the "modernization"[18] phase and they still have not experienced negative effects of positional competition. The difference in the two cases is that in the first case we are observing the last phases of a process which, on the contrary, is just starting in low income countries.

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

These aspects still reveal a different composition between countries. In fact, involvement in political or professional voluntary organizations, that is to say activities implying a joint effort for a common causenot at al, are significantly related to SWB in poor countries rather than rich ones. Happiness in high income countries, instead, seems much more influenced by participation in activities in which intrinsic motivation plays a prominent role (Bruni and Stanca, 2006).

Finally, SC aspects have all positive impacts on happiness even if single coefficients are higher for rich countries. In particular it seems that happiness in HICs is largely influenced by the individual freedom of choice and control on one's own life and by trust in others. These aspects too pose an intriguing question. What can explain these differences? A former hypothesis that I could suggest is related to the idea of *scarcity*. That is to say that these strong preferences for SC aspects reflect the low endowments of such capital in rich economies[19]. In this case, a good becoming scarcer acquire a higher value and more desirability. On the contrary, low income countries are supposed to have a larger relative endowment of SC. This could explain why people do not perceive its relative scarcity and then their well-being is less influenced by SC aspects. In this case the difference in SC endowments in the two contexts could be explained in terms of positional competition eroding social relationships and, consequently, SC.

Concluding, this research tried to shed new light on particular aspects concern-

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

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

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

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

Appendix: Tables

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

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

Table 2.10: OLS, Ordered logit and ordered probit regression models showing the similarity of the coefficients and of their significance

Francesco Sarracino, *Social capital, economic growth and well-being*, ISBN 978-88-6655-277-2 (online)

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

1 = happiness
2 = income
3 = upper class
4 = upper-middle class
5 = lower-middle class
6 = lower class
7 = first quintile
8 = second quintile
9 = third quintile
10 = fourth quintile
11 = fifth quintile
12 = time spent with: relatives
13 = time spent with: friends
14 = time spent with: colleagues
15 = time spent with: people at church
16 = time spent with: people at sport
17 = voluntary organization: religious
18 = voluntary organization: sport
19 = voluntary organization: arts
20 = voluntary organization: unions
21 = voluntary organization: politics
22 = voluntary organization: charity
23 = voluntary organization: professional
24 = honesty
25 = freedom of choice
26 = trust
27 = illiterate
28 = low school education
29 = mid school education
30 = high school education
31 = male
32 = age
33 = age2
34 = married
35 = divorced
36 = widowed
37 = single
38 = unemployed
Light grey shaded:
Correlation between 0.3 and 0.4
Heavy grey shaded :
Correlation higher than 0.4

Table 2.11: Correlation matrix - Low Income Countries

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

1 = happiness
2 = income
3 = upper class
4 = upper-middle class
5 = lower-middle class
6 = lower class
7 = first quintile
8 = second quintile
9 = third quintile
10 = fourth quintile
11 = fifth quintile
12 = time spent with: relatives
13 = time spent with: friends
14 = time spent with: colleagues
15 = time spent with: people at church
16 = time spent with: people at sport
17 = voluntary organization: religious
18 = voluntary organization: sport
19 = voluntary organization: arts
20 = voluntary organization: unions
21 = voluntary organization: politics
22 = voluntary organization: charity
23 = voluntary organization: professional
24 = honesty
25 = freedom of choice
26 = trust
27 = illiterate
28 = low school education
29 = mid school education
30 = high school education
31 = male
32 = age
33 = age2
34 = married
35 = divorced
36 = widowed
37 = single
38 = unemployed
Light grey shaded:
Correlation between 0.3 and 0.4
Heavy grey shaded :
Correlation higher than 0.4

Table 2.12: Correlation matrix - High Income Countries

Chapter 3

Social Capital and Subjective Well-Being trends: comparing 11 western European countries

1 Introduction

Discovering whether social capital (SC) endowments in modern societies have been subjected or not to a process of gradual erosion is one of the most debated topics in recent economic literature. This new stream of research has been inaugurated by Putnam's pioneering studies about SC trends in the United States. Considering numerous proxies of SC, Putnam (2000) argues that during last thirty years USA experienced a decline in social relationships and in its system of shared values and beliefs. From this point, much of the literature on SC tries to find evidence to support or to contend this statement. For a comprehensive review of such literature see Stall and Hooghe (2004). Putnam's finding has been carefully scrutinised by Paxton (1999), Robinson and Jackson (2001), Costa and Kahn (2003), and Bartolini, Bilancini and Pugno (2008), while Ladd (1996) criticised this evidence. "On balance, social capital has been confirmed as declining in the US, although not so dramatically as Putnam claimed."[1]

All these studies are focused on the USA since similar research asks for a generous data-base and the US General Social Survey (GSS) offers a long lasting temporal data-series. Consequently, we don't have much informations about what happened in other countries in the same period. For that reason the first question I would like to give an answer is: how is doing Europe? is SC declining? is such erosion a general trend of western societies or is it a characteristic feature of the American one?

To my knowledge only a few authors payed attention to this aspect since only a few data-sets are useful to establish a clear long-term pattern. In 2001 OECD[2]

[1] S. Bartolini, E. Bilancini, M. Pugno, Did the decline in social capital decrease American happiness? A relational explanation of the happiness paradox, Università degli Studi di Siena - Quaderni del Dipartimento di Economia Politica, n.540, Agosto 2008, Siena.

[2] OECD, The Well-being of Nations. The role if human and social capital, Centre for Educational

Francesco Sarracino, *Social capital, economic growth and well-being*, ISBN 978-88-6655-277-2 (online)

dedicated to this topic a publication in which, beyond others, dealt with the theme of trends in five European countries: United Kingdom, Netherlands, Sweden, France and Germany. The report assesses that in general SC declined, in particular in United Kingdom, while remaining countries show a more mixed pattern.

Another general perspective is offered by Andrew Leigh (2003)[3]. Contributing to an entry on "Trends in social capital" he identifies three common patterns of declining trust, political participation and organizational activity across industrialized countries in the period between 1980 and 1990. Among the five reviewed European countries (Britain, France, Germany, Spain and Sweden) only the Scandinavian one seems to have a positive trend even if civic engagement is declining. Further studies have been conducted by Norris (2002), Delhey and Newton (2005) but these studies focused on particular indexes of SC or only on generalised trust and were based on old data from the WVS. A deeper analysis was conducted by Morales (2004) on trends and levels of associational participation in Europe. Looking at trends between 1980 and 2002 from the WVS and the European social survey (ESS) she concludes that it is not possible to state whether a clear increase or decrease in general levels of membership exists. Anyway, her analysis is merely descriptive and, even if she focuses on a broad set of countries, her conclusions don't account for other aspects, such as socio-demographic variables, that can affect SC trends. Finally, a more recent article by Frane Adam (2008) observes trends of generalized trust and membership in voluntary organizations using data from WVS in the period 1980 - 2000. The author finds evidence of a non eroding SC in Europe even if he warns about signs of decline as well as improvement. He states that decline in trust in individuals is quite visible, while associational involvement shows a more complex but on average positive trend.

Adam's work is, to my knowledge, the most up-to-date and complete research on European trends of SC. Anyway, it suffers some limitations. First of all it is based on mean variations between the starting and ending period. This is quite comprehensible since the second aim of the author was to test the reliability of the WVS vis-a-vis other data-bases (i.e. ESS), but in general this approach does not allow to check for other factors; secondly the author adopts only some of the available proxies of SC, namely generalized trust, membership in voluntary organizations and unpaid voluntary work; finally, Adam focuses on a large number of European countries including transition countries: this is an interesting point, but misses to account for different economic realities (developed and transition countries) preventing a more detailed knowledge of what happened to SC during last twenty years.

Research and Innovation, Paris, 2001.

[3] A. Leigh, Entry on "Trends in Social Capital", prepared for Karen Christensen and David Levinson (eds) (2003) *Encyclopedia of Community: from the village to the virtual world"* Thousand Oaks, CA: Sage.

To overcome these limitations, my research considers four different set of proxies of SC controlling for time and socio-demographic aspects in eleven different western European countries. Data are drawn from the WVS, a data-set composed of four waves between 1980 and 2000. In so doing, I am able to investigate trends on a twenty years period.

The second question I would like to answer is whether SC trends can help to explain subjective well-being (SWB) trends. In a pioneering work Easterlin (1974) discovered that, using cross-section data, on average richer people are also happier than poorer ones; but a life-cycle analysis on the same sample shows that during time income grew up while happiness stayed constant. Such a puzzle is actually known as the "Easterlin paradox". Starting from this point an even more consistent part of the economic literature flourished trying to solve the problem. Many different theories coming from manifold scientific fields have been advanced so far, but until now they failed to fully explain the paradox[4]. Recently, Stevenson and Wolfers (2008) revive the debate challenging the existence of the paradox. Considering Europe and Japan they argue that societies get happier as they become richer. That is to say that "money can buy happiness". Unfortunately, at the same time they state that "the failure of happiness to rise in the United States remains a puzzling outlier."[5]. In this way the Easterlin paradox remains unsolved and also its non existence is not demonstrated.

There is a need to further look into the "black box" of the American case. From this point of view, some recent contributions by Helliwell (2003, 2006) propose SC as an important aspect for SWB arguing that money can not explain the whole variation in people well-being. To my knowledge, the paper tackling most succesfully with the challenge settled by Helliwell is Bartolini, Bilancini and Pugno (2008)[6] which argues that SC, and in particular relational goods, is important for SWB. They do not deny the importance of income for happiness, but using data from the American GSS between 1975 and 2004 they find out that U.S. SWB is largely explained by four forces acting in different directions: 1) income growth; 2) decreasing relational goods; 3) decreasing confidence in institutions; 4) social comparisons. These four groups of variables allow to explain quite the whole variation in SWB. In other words, the three authors suggests that American happiness did not grow up together with economic growth because the positive effect of income growth was counterbalanced by the declining availability of SC which negatively affects SWB. In this way they provide a convincing and powerful explanation of the Easterlin paradox giving SC a new role: a higher income increases happiness as long as it does not undermine SC. Whenever

[4] for a review of the main theories advanced so far please refer to section 2 in chapter 2.

[5] B. Stevenson and J. Wolfers, Economic growth and subjective well-being: reassessing the Easterlin paradox, IZA DP n. 3654, August 2008, p. 16.

[6] S. Bartolini, E. Bilancini, M. Pugno, Did the decline in social capital decrease American happiness? A relational explanation of the happiness paradox, Università degli Studi di Siena - Quaderni del Dipartimento di Economia Politica, n. 540, Agosto 2008, Siena.

this hypothesis would be corroborated by further research, policy agendas will have to consider also the effects of economic policy on the preservation and the provision of social capital. Hence, SC can become an important aspect of future development policies.

The theory proposed by Bartolini et al. (2008) can help to explain what happened in U.S.A. A few example can probably be convincing. Estimates from the three authors suggest that in presence of a stable endowment of SC, and in particular of relational goods, American SWB would have been higher than the actual one. Similarly, if income growth should compensate for the effect of the reduction of SC on happiness, keeping this variable stable to its 1975 levels, then the growth rate of GDP should have been more than 10%. Finally, they also estimate that the positive effect of income growth on SWB has been counterbalanced by the increase of other's people income (which offsets 2/3 of the effect of income growth) and by the decrease in relational goods and confidence in institutions (which accounts for 5/6 of the total effect of social comparisons on SWB).

Concluding, the contribution from Bartolini et al. (2008) seems to suggest that differences in SC trends can help to explain differences in SWB trends. The aim of present work is to provide further evidence to support this hypothesis looking at some European countries.
Main results of my research are the following:

1. SC trends in the majority of the western European countries are different from the American ones. Great Britain is the country with the worst trend, among the investigated ones, for SC;
2. SWB trends in present sample of countries are generally positive with the only exception of Great Britain;
3. SC and SWB trends for investigated European countries are compatible with a relational explanation of the Easterlin paradox.

Present chapter is structured in four sections: the first section outlined my research questions and motivations behind them; the second section points out data adopted for my research and methodological aspects; the following section reports results from different regressions considering various proxies of SC as dependent variable and adopting time dummies and socio-economic conditions as indipendent variables. The last section summarizes the main results and conclusions.

2 Data and methodological aspects

The analysis of SC trends for different European countries asks for a generous data-set. From this point of view, probably, the most comprehensive data-base is represented by the World Values Survey (WVS)[7]. Data have been collected in four waves (1980 - 82; 1990 - 91; 1995 - 97 and 1999 - 2001) for a total of 267,870 observations for about 20 years. Anyway, the sample available for present study is smaller since I focus on the trend of SC indicators in a small subset of countries for which I have enough observations during time. Furthermore, since my aim is to check whether different economic systems have different performances comparing Western Europe and USA, I also exclude all those countries that have been subjected to any recent institutional shock[8]. Considered countries are: Italy, France, the Netherlands, Belgium, United Kingdom, Ireland, Germany, Denmark, Sweden, Norway and Finland.

Although SC has been longly a much debated topic, actually it still lacks a commonly agreed definition. This topic has been developed and applied in many different social disciplines hence different definitions have been advanced so far. Some of the fathers of this concept propose different definitions for it. For example, Pierre Bourdieu, probably the first scientist introducing this term, defines social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition ... which provides each of its members with the backing of collectively-owned capital."[9] Such a definition focuses on three important aspects of social capital: 1) the existence of a network of individuals; 2) participation in this network and 3) social capital as a public good. Nonetheless, Bourdieu misses to precisely identify social capital pointing on its sources: "the network of relationships". Differently, James Coleman proposes the following definition: "social capital is the set of resources that inhere in family relations and in community social organization and that are useful for the cognitive or social development of a child or a young person."[10] In Coleman's view the network aspect is less emphasized while he stresses the importance of the group in which social relations constitute useful capital resources. Such a concept can be related to the category of "bonding" social capital in contrast with that one of "bridging" social capital.

Bonding refers typically to "relations among members of families and ethnic groups. Bridging social capital refers to relations with distant friends, associates and

[7] For more details on World Values Survey, please, refer to section 4 in chapter 2.

[8] Coutries excluded from the sample are Spain, Portugal, Greece and Luxembourg.

[9] quoted in S. Baron, J. Field and T. Schuller, Social capital: critical perspectives, Oxford University Press, Oxford, 2000, p. 5.

[10] quoted in S. Baron, J. Field and T. Schuller, Social capital: critical perspectives, Oxford University Press, Oxford, 2000, p. 6.

colleagues."[11] These are two different forms of social capital that should be considered mutual. In fact, while the first form gives particular groups of people "a sense of identity and common purpose, without bridgind ties that transcend various social divides (e.g. religion, ethinicity, socio-economic status), bonding ties can become a basis for the pursuit of narrow interests, and can actively exclude outsiders."[12] Such groups can be characterized by strong and co-operative norms, but low trust and co-operation with the rest of society becoming a barrier to social cohesion and personal development. Taking this aspect to the extreme, strong group ties can bring to neglect wider "public" interests promoting socially destructive "rent-seeking" activities (Olson, 1982).

Finally, Robert Putnam defines social capital the "features of social life - networks, norms, and trust - that enable participants to act together more effectively to pursue shared objectives"[13]. In this way the author identifies crucial aspects of social capital specifying their role in social relationships: they enable different people to co-operate (even unconsciously) to reach common goals.

Nonetheless, given the empirical nature of present work, I opted for a more operating definition such as the one proposed by Bartolini et al. (2008) who define SC as "the stock of both *non-market relations* and *beliefs concerning institutions* that affect either utility or production functions."[14]. In this way the authors do not focus solely on particular aspects of SC - networks, norms and trust - but comprise all those aspects - material and immaterial - that can contribute to develop mutual trust and co-operation. In particular, they point to two main aspects of SC: 1) every non-market relationships among individuals which allow people to communicate each other and to develop mutual trust. They define this aspect *relational* SC; 2) the system of values or believes that makes people act coherently. Moreover, the authors propose a further distinction in intrinsically and extrinsically motivated *relational SC* depending on whether the incentives to act come from within or outside the individual. They define *intrinsic SC* (alternatively defined as *relational goods*) those components "that enter into people's utility function"; by *extrinsic SC* they mean those components that do not "directly enter into people's utility functions but are instrumental to something else that may be considered valuable"[15].

This distinction allows to go deeper in the analysis of the category of relational SC. In fact, quoting Deci's work (1971), they focus on the non-instrumental nature

[11] OECD, The well-being of nations: the role of human and social capital, Paris, 2001, p. 42.

[12] OECD, ibidem, p.42.

[13] R. Putnam, Making democracy work: civic traditions in modern Italy, Princeton NJ: Princeton University Press, 1993, p. 56.

[14] S. Bartolini, E. Bilancini, M. Pugno, Did the decline in social capital decrease American happiness? A relational explanation of the happiness paradox, Università degli Studi di Siena - Quaderni del Dipartimento di Economia Politica, n. 540, Agosto 2008, Siena, p. 5.

[15] S. Bartolini, E. Bilancini, M. Pugno, pp. 5 - 6.

of intrinsic motivated activities. This peculiarity allows to focus on a broader point: non-market relations are not always intrinsic; there can be extrinsic relational SC (or purely extrinsic) as well as intrinsic one.[16]

Relational goods	trust in others	
	membership in putnamian groups	
	Unpaid voluntary work in putnamian groups	
Extrinsic RSC	membership in olsonian groups	
	Unpaid voluntary work in olsonian groups	
Other RSC	membership in other groups	
	unpaid voluntary work in other groups	
Non - RSC	Confidence in	Church
		Armed forces
		Educational System
		Press
		Labor Unions
		Police
		Parliament
		Civil services
		Major Companies
		Judicial System

Table 3.1: Summarizing scheme of the different constituents of social capital

[16] please refer to tab.3.1 for a summarizing scheme.

A further critical aspect about SC is how to measure it. Different proposals have been advanced, but generally there are some agreed proxies of SC. For example, following Putnam (2000) main measures of SC centre around proxies of trust and levels of engagement or interaction in social or group activities. When trying to measure SC we should keep in mind particular aspects (OECD, 2001):

- we should pay attention to causal connections since sources, functions and outcomes may be confused;
- SC is mainly characterized by tacit and relational aspects which are naturally difficult to observe, to measure and to codify;
- usual variables of SC (trust, membership, voting, etc.) provide proxy measures and should not be confused with the underlying concept.

According to the vast majority of the literature on SC (Paxton, 2004; Costa and Kahn, 2003; Van Schaik, 2002), I observe the *beliefs* component through several reports of confidence in institutions, namely armed forces, police, parliament, civil services, press, ecclesiastic, judicial system, education system, labour unions and major companies. Answers to these questions range on a 1 to 4 point scale going from *none at all* to *a great deal*. To measure *non-market relations*, I use trust in individuals (represented by a dummy variable), membership and unpaid voluntary work in various groups and organizations. Given the multiple nature of the last two proxies, I adopt the mentioned distinction between intrinsically and extrinsically motivated group participation (Bartolini et al., 2008). Groups and organizations entering the first set are labelled Putnam's groups while those comprised in the second one are named Olson's group (Knack, 2003). This distinction is based on the works of the two authors: Olson[17] emphasizes the tendency of associations to act as lobbies to get policies that protect the interest of special groups at the expenses of the society as a whole.

Consequently, I include in Olson's groups all those groups and organizations which are extrinsically motivated since it is supposed they are experienced only for instrumental reasons. On the contrary, Putnam[18] identifies in associations a source of general trust and of social ties leading to governmental and economic efficiency (Bartolini et al., 2008).

In this paper putnamian groups are interpreted as intrinsic SC supposing they are experienced only for the pleasure of being a member. Among Putnam's group I include social welfare service for elderly, church organizations, sport clubs, art and literature clubs, fraternal groups and youth associations, human and animal rights,

[17] Olson M., The rise and decline of nations: economic growth, stagflation and social rigidities, Yale UP: New Haven, 1982.

[18] Putnam R.D., Making democracy work: civic traditions in modern Italy, Princeton NJ, Princeton University Press, 1993.

peace movements and environmental groups. Among Olson's groups I include fraternity associations, unions, professional organizations and farm organizations, organization concerned with health and consumer groups.

Finally, there are some groups that were left unclassified and labeled as *other groups* because it is not clear whether they constitute intrinsic or extrinsic RSC, althought they are part of RSC. In this latter group I included veterans associations, political parties and "other groups". Each option between these three groups of variables is expressed as a dummy variable.

SWB is proxied by the variable *happiness* that is measured on a scale ranging from 1 to 4 and is based on answers to the following question: *"All considered you would say that you are: 1. very happy; 2. pretty happy; 3. not too happy; 4. not at all happy?"*.

In order to study SC and SWB trends during the last 20 years for each of the considered European countries, I follow two approaches[19]: I first regress the proxies of SC and SWB on time dummy variables. In this way trends are based on mean values; than I regress the same proxies on different groups of control variables (age, gender, familiar status and education) to check whether such trends depend on peculiar individual and social aspects. In particular, age is considered linearly and with its square; a dummy on male is introduced; familiar status is controlled through three proxies: the number of children, a variable ranging between zero and twenty, and two dummy variables for single and married; finally, education includes a dummy for illiterate.

This model is repeated for each considered country. Formally, I estimate the following:

$$\begin{aligned} Proxy_{it}^{j} = \alpha + \beta_1 \cdot D_{i,w_2} + \beta_2 \cdot D_{i,w_3} + \beta_3 \cdot D_{i,w_4} + \gamma_1 \cdot Age_{it} + \gamma_2 \cdot Age_{it}^2 + \\ \gamma_3 \cdot Male_i + \upsilon_1 \cdot NChild_{it} + \upsilon_2 \cdot Single_{it} + \upsilon_3 \cdot Married_{it} + \delta_1 \cdot Illiterate_{it} \end{aligned} \tag{3.1}$$

where index j stands for the different proxies of SC and SWB, index t represents the various waves and index i stands for each individual. In each equation three dummy variables have been introduced to account for the four waves. Where possible I kept the first wave as the reference period. When informations about the first waves where not available, I adopted the second wave as reference period.

Since I have different indicators of SC and one proxy of SWB, my regression methodology varies following the specifities of each depending variable: in the case of generalized trust, participation in voluntary organizations and unpaid voluntary work, that are expressed in the form of dummies, I adopted a logit model; when studying confidence in institutions or happiness, which are ordered variables, I used

[19] M. Aguiar and E. Hurst, Measuring trends in leisure: the allocation of time over five decades, Federal Reserve Bank of Boston, Working Papers n. 2, 2006.

an ordered logit model. Tables from 3.2 to 3.12 in the appendix report summary statistics for each considered country.

When dealing with these data we have to be careful because, although the WVS is the most complete database on our topic, it has some deficiencies. In particular, we have to keep in mind that observations about Italy, Ireland, Denmark, France, The Netherlands and Belgium are missing in the third wave; similarly, data about Finland are not collected in the first wave, while Norway is not observed in the fourth wave. Finally, the third wave does not contain informations about trust in the United Kingdom and about confidence in the educational system in Sweden, Norway, Finland and Germany. Overall, the pooled dataset contains 48340 observations.

3 Results

3.1 Social capital trends in Europe

I report and discuss results from several regressions relative to equation 3.1. Results about each regression are reported in the appendix from tab.3.13 to tab.3.23. Here I discuss directly my conclusive results which are summerized in charts in the appendix.

A first interesting aspect emerging from my regressions is that SC trend in considered European countries is mainly positive. Hence, the picture about western Europe appears different from the American one. There is only one country that seems more similar to USA, the Great Britain. In this case the majority of the considered proxies of SC is declining meaning that during last twenty years Great Britain experienced an erosion of SC. Charts from fig.3.1 to fig.3.7 show this result. On the x-axis I reported the time from 1980 to 2000. Each point on the x-axis corresponds to a wave in the WVS. On the y-axis I report coefficients of the time dummies originating from regressions. The point on the x-axis corresponding to zero represents the reference year, while other points in the charts defining trends corresponds to the coefficients of the time dummies. Finally, each chart reports more than one line. Each line represents results from regressions with different sets of control variables, coherently with the adopted model. Charts suggest that in Great Britain SC, and in particular membership in groups or organizations and trust in others, decreases strongly during all the considered period. Similarly, every proxy of *beliefs in institutions* declines steadily all along the last twenty years. This picture changes if we turn considering unpaid voluntary work. Figures 3.1(c) and 3.2(c) and (d) suggest that all these proxies have been increasing during last twenty years in stark contrast with the other proxies of relational SC.

Overall, the evolution in time of British SC seems to be similar to the American one for what concern trust, membership in groups and associations and trust

in others, while a more optimistic conclusions may be drawn considering unpaid voluntary work.

The picture is completely different if we consider remaining countries. First of all, the strong contraddiction between membership and unpaid voluntary work observed for Great Britain disappears: looking at charts from fig.3.8(c) to fig.3.14(c) we observe that in all these cases the trends of the two proxies are concordant. Secondly, trends about relational goods are generally positive. Here I will discuss only results for some of the major countries of the sample. Considering *membership in Putnam's groups*, charts from fig.3.8(a) to fig.3.10(a) suggest that Italy, the Netherlands and Sweden from 1980 to 2000 experienced a growing trend. Figure 3.11(a) and fig.3.12(a) show that the same trend is positive also in France and in Denmark, even if in these two cases relative growth rate reduces since 1990. Considering Norway, fig.3.13(a) suggests a positive trend, but in this case available data do not allow to set a clear pattern. I can only conclude that in this case the trend between 1980 and 1990 is positive. Finally, the chart about Germany[20] (fig.3.14(a)) points out that overall from 1980 to 2000 membership in Putnam's groups is positive, but I have to remark that the trend reverted since 1990.

Considering the other component of relational goods, that is to say *trust in others*, the picture emerging from regressions is more homogeneous, since it grows up in every of the mentioned countries. I have only to highlight two cases: 1) Italy, in which the overall trend is positive although the growth rate of *trust in other's* slightly reduces starting from 1990; 2) France, which emerges as the only Continental European country, among the investigated ones, with a decreasing trend of *trust in others* during last twenty years (please, consider (b) charts from fig.3.8 to fig.3.14.

Let's turn now to the second component of SC: *beliefs in institutions*. In this case trends are more mixed among both variables and countries. In any case, some general trends arise quite clearly indicating a worrying trend for confidence in some institutions: in particular, it seems that during last twenty years European citizens have persistently lost confidence in the judicial system, in religious institutions, in armed forces and in police.

Overall, we can state that, althought some specificities and a mixed pattern regarding confidence in institutions, results suggest that the evolution of SC during time in the considered European countries is different from the American one. In this framework, the experience of Great Britain appears as peculiar and, at least regarding the majority of the considered proxies, more similar to the American one.

[20] Observations about Germany before 1989 refer to West Germany.

3.2 Social capital and subjective well-being in Europe

Previous results conveyed a framework in which western European countries appear as very different from the USA. For quite every considered country, relational SC increased from 1980 to 2000. Regressions about the trend of SWB in the same countries confirm a similar pattern. In fact, SWB increases in every considered country with the exception of Great Britain in which SWB is strongly decreasing between 1980 and 1995. Unfortunately, data about the fourth wave are not available in this case (see fig.3.15 to fig.3.19 in the appendix). Charts about remaining considered European countries show an overall positive pattern, even if single trends may differ. For example, France, Norway, Denmark and Netherlands have a steady growing trend (see fig.3.17(b), fig.3.18(a) and (b), and fig.3.16(b)); trends for Germany and Italy are positive too, but the growth rate reduces signifcantly between 1990 and 2000 (see fig.3.16(a) and fig.3.19 in the appendix); finally, Sweden's trend has a U-shaped outline (see fig.3.17(a)), even if the net result is positive.

4 Conclusions

The aim of present study was to point out trends of SC in western European countries finding evidence to support the thesis that SC trends can help to explain SWB trends. In this way SC gains a new dimension: it can give further meaning to the widely used term *well-being*. Whenever present thesis would be corroborated by further research, SC would acquire a central role in the definition of our policy agenda. For example, future economic policies should not only focus on ways to promote economic growth, but should pay attention also to their effects on SC.

Using different regression techniques, following the nature of dependent variables, I tried to assess the trends of four proxies of SC for each country in the period between 1980 and 2000. Following a broadly accepted approach in the literature, I adopted the following variables: trust in individuals, membership in eighteen different voluntary organizations, performing unpaid voluntary work in 18 organizations and confidence in ten institutions. Results are quite innovative for at least two reasons: 1) contemporary literature largely focused on trends in USA rather than in European countries. This is mainly due to the fact that USA have large data-bases allowing such studies for longer periods of time (for example the U.S. GSS); 2) following the debate on the Easterlin paradox, my results suggest that we can not discard the hypothesis that the trend of SC is important for the trend of SWB. From this point of view, it is important to stress that I am not performing a causal analysis, but I am simply assessing SC and SWB trends and notice that in 10 out of 11 countries signs of SC trends are concordant with signs of SWB trends. Such finding implies also that the theoretical predictions of the NEG model are largely met confirming the relevance of the model as explanatory tool. Moreover, whether such evidence

would be substantiated by future research, we could say that U.S.A. do not represent a "puzzling outlier" since "income growth is desirable as far as it is not associated with a deterioration of SC."[21] Nonetheless, the question about whether SC trend can help to explain SWB trend is still an open question asking for further and deeper research.
Summarizing, my findings are the following:

1. Trends for SC in the analysed European countries are mainly positive (in particular for relational goods);
2. Althought the trends of memebership and unpaid voluntary work in Great Britain are contrasting, still this country appears as an exception in the European landscape with declining trends for the majority of the SC proxies;
3. All the considered countries seem affected by a general crisis of some particular institutions;
4. Given the concordance between SC and SWB trends in 10 out of 11 cases, we can not reject the hypothesis that SC can help to explain SWB.

Concluding, present research allows to remark a few aspects: the first one is that the majority of the western European countries and USA are not exactly following the same pattern. While both regions have experienced an institutional crisis during last twenty years, relational social capital and subjective well-being in western Europe increased. Nonetheless, we should take in mind that these figures need further investigation to extend both the number of observed countries and the lenght of the considered period. By now, present results suggesting a quite different pattern between USA and the western European sample push future research in two main directions: 1) to enlarge present research to discover trends relative to other countries; 2) to investigate the causes of such a different performance. Which forces have pushed toward an increasing erosion of social capital in USA? Is European social capital subjected to the same erosive forces? 3) Do SC trends explain SWB trends in Europe?

[21] S. Bartolini, E. Bilancini, M. Pugno, Did the decline in social capital decrease American happiness? A relational explanation of the happiness paradox, Università degli Studi di Siena - Quaderni del Dipartimento di Economia Politica, n. 540, Siena, Agosto 2008, p. 26.

Appendix: Tables

Italy		Wave 1					Wave 2					Wave 3	Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1324	2.879	0.632	1	4	1971	2.990	0.602	1	4	0	1975	2.952	0.693	1	4
trust in others		1302	0.268	0.443	0	1	1932	0.353	0.478	0	1	0	1946	0.326	0.469	0	1
Putnam's group		1348	0.127	0.333	0	1	2018	0.246	0.431	0	1	0	2000	0.314	0.464	0	1
Olson's group		1348	0.103	0.304	0	1	2018	0.123	0.328	0	1	0	2000	0.171	0.377	0	1
Other groups		1348	0.084	0.277	0	1	2018	0.108	0.310	0	1	0	2000	0.108	0.310	0	1
Unpaid work in putnamian groups		1348	0.103	0.304	0	1	2018	0.184	0.388	0	1	0	2000	0.212	0.408	0	1
Unpaid work in olsonian groups		1348	0.062	0.240	0	1	2018	0.065	0.247	0	1	0	2000	0.074	0.262	0	1
Unpaid work in other groups		1348	0.045	0.206	0	1	2018	0.060	0.237	0	1	0	2000	0.054	0.226	0	1
Confidence in	Church	1348	2.628	1.065	1	4	2016	2.724	0.991	1	4	0	1975	2.870	0.891	1	4
	Armed forces	1348	2.542	0.954	1	4	2012	2.352	0.859	1	4	0	1948	2.524	0.825	1	4
	Educational system	1348	2.568	0.872	1	4	2017	2.453	0.813	1	4	0	1966	2.596	0.816	1	4
	Press	1348	2.131	0.814	1	4	2013	2.281	0.778	1	4	0	1954	2.271	0.754	1	4
	Labour Unions	1348	2.020	0.858	1	4	2009	2.156	0.809	1	4	0	1927	2.090	0.804	1	4
	Police	1348	2.708	0.879	1	4	2012	2.701	0.746	1	4	0	1968	2.767	0.748	1	4
	Parliament	1348	2.082	0.847	1	4	2011	2.122	0.803	1	4	0	1944	2.222	0.780	1	4
	Civil Services	1348	2.022	0.827	1	4	2013	2.002	0.801	1	4	0	1944	2.216	0.738	1	4
	Major Companies	1348	2.073	0.880	1	4	2005	2.631	0.807	1	4	0	1879	2.444	0.779	1	4
	Judicial system	1348	2.372	0.880	1	4	2012	2.153	0.821	1	4	0	1946	2.184	0.808	1	4
age		1348	39.553	16.872	17	86	2018	41.353	16.094	18	88	0	2000	45.284	16.888	18	92
age2		1348	1848.942	1478.435	289	7396	2018	1968.936	1455.248	324	7744	0	2000	2335.641	1617.433	324	8464
male		1348	0.493	0.500	0	1	2018	0.478	0.500	0	1	0	2000	0.480	0.500	0	1
number of children		766	2.275	1.311	1	8	1983	1.317	1.337	0	6	0	1850	1.402	1.330	0	9
single		1348	0.355	0.479	0	1	2018	0.315	0.464	0	1	0	2000	0.309	0.462	0	1
married		1348	0.564	0.496	0	1	2018	0.581	0.493	0	1	0	2000	0.584	0.493	0	1
illiterate		1348	0	0	0	0	2018	0	0	0	0	0	2000	0.065	0.247	0	1

Table 3.2: Descriptive statistics about Italy

Francesco Sarracino, *Social capital, economic growth and well-being*, ISBN 978-88-6655-277-2 (online)

Great Britain		Wave 1					Wave 2					Wave 3	Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1163	3.33	0.57	1	4	1474	3.25	0.66	1	4	1091	0				
trust in others		1127	0.43	0.50	0	1	1440	0.44	0.50	0	1	1073	960	0.29	0.45	0	1
Putnam's group		1167	0.32	0.47	0	1	1484	0.37	0.48	0	1	1093	1000	0.20	0.40	0	1
Olson's group		1167	0.27	0.44	0	1	1484	0.25	0.44	0	1	1093	1000	0.13	0.34	0	1
Other groups		1167	0.12	0.32	0	1	1484	0.18	0.38	0	1	1093	1000	0.12	0.33	0	1
Unpaid work in putnamian groups		1167	0.13	0.34	0	1	1484	0.17	0.37	0	1	0	1000	0.31	0.46	0	1
Unpaid work in olsonian groups		1167	0.08	0.27	0	1	1484	0.07	0.26	0	1	0	1000	0.22	0.41	0	1
Unpaid work in other groups		1167	0.01	0.12	0	1	1484	0.05	0.22	0	1	0	1000	0.03	0.16	0	1
Confidence in	Church	1155	2.52	0.91	1	4	1467	2.52	0.93	1	4	0	942	2.25	0.87	1	4
	Armed forces	1152	3.14	0.77	1	4	1472	3.10	0.79	1	4	0	975	3.07	0.71	1	4
	Educational system	1148	2.69	0.75	1	4	1472	2.58	0.79	1	4	0	980	2.73	0.72	1	4
	Press	1150	2.19	0.72	1	4	1476	1.90	0.72	1	4	0	986	1.78	0.71	1	4
	Labour Unions	1139	2.08	0.79	1	4	1456	2.11	0.82	1	4	0	899	2.07	0.77	1	4
	Police	1155	3.21	0.75	1	4	1478	2.98	0.77	1	4	0	984	2.80	0.78	1	4
	Parliament	1146	2.37	0.80	1	4	1467	2.43	0.82	1	4	0	956	2.25	0.76	1	4
	Civil Services	1133	2.47	0.75	1	4	1452	2.46	0.76	1	4	0	903	2.41	0.71	1	4
	Major Companies	1112	2.52	0.78	1	4	1433	2.46	0.78	1	4	0	871	2.31	0.73	1	4
	Judicial system	1147	2.79	0.80	1	4	1465	2.60	0.81	1	4	0	971	2.42	0.84	1	4
age		1167	40.84	19.53	18	90	1475	46.85	18.43	18	90	1093	971	44.12	17.79	17	92
age2		1167	2049.14	1860.43	324	8100	1475	2534.26	1845.16	324	8100	1093	971	2263.05	1759.52	289	8464
male		1167	0.48	0.50	0	1	1484	0.47	0.50	0	1	1093	1000	0.44	0.50	0	1
number of children		680	2.32	1.27	1	8	1476	1.73	1.48	0	6	1093	986	1.88	1.56	0	14
single		1167	0.30	0.46	0	1	1484	0.18	0.38	0	1	1093	1000	0.27	0.44	0	1
married		1167	0.58	0.49	0	1	1484	0.61	0.49	0	1	1093	1000	0.51	0.50	0	1
illiterate		1167	0.00	0.00	0	0	1484	0.00	0.00	0	0	1093	1000	0.00	0.00	0	0

Table 3.3: Descriptive statistics about Great Britain

Ireland		Wave 1					Wave 2					Wave 3	Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1175	3.361	0.579	1	4	980	3.359	0.640	1	4	0	1008	3.381	0.577	1	4
trust in others		1170	0.411	0.492	0	1	988	0.474	0.500	0	1	0	992	0.360	0.480	0	1
Putnam's group		1217	0.389	0.488	0	1	1000	0.399	0.490	0	1	0	1012	0.448	0.497	0	1
Olson's group		1217	0.164	0.370	0	1	1000	0.170	0.376	0	1	0	1012	0.213	0.410	0	1
Other groups		1217	0.127	0.333	0	1	1000	0.159	0.366	0	1	0	1012	0.202	0.401	0	1
Unpaid work in putnamian groups		1217	0.146	0.354	0	1	1000	0.206	0.405	0	1	0	1012	0.249	0.433	0	1
Unpaid work in olsonian groups		1217	0.090	0.286	0	1	1000	0.079	0.270	0	1	0	1012	0.105	0.306	0	1
Unpaid work in other groups		1217	0.016	0.127	0	1	1000	0.062	0.241	0	1	0	1012	0.091	0.288	0	1
Confidence in	Church	1210	3.246	0.887	1	4	999	3.083	0.884	1	4	0	1003	2.754	0.907	1	4
	Armed forces	1213	3.030	0.826	1	4	996	2.748	0.865	1	4	0	969	2.740	0.830	1	4
	Educational system	1206	2.833	0.787	1	4	994	2.948	0.764	1	4	0	1002	3.220	0.669	1	4
	Press	1205	2.433	0.775	1	4	998	2.266	0.783	1	4	0	989	2.308	0.782	1	4
	Labour Unions	1202	2.313	0.817	1	4	994	2.385	0.815	1	4	0	952	2.470	0.825	1	4
	Police	1211	3.201	0.749	1	4	997	3.187	0.751	1	4	0	1004	3.192	0.754	1	4
	Parliament	1205	2.578	0.857	1	4	992	2.528	0.846	1	4	0	986	2.224	0.835	1	4
	Civil Services	1205	2.606	0.811	1	4	994	2.640	0.796	1	4	0	974	2.697	0.792	1	4
	Major Companies	1190	2.521	0.842	1	4	989	2.540	0.798	1	4	0	0				
	Judicial system	1201	2.675	0.829	1	4	994	2.491	0.834	1	4	0	992	2.620	0.840	1	4
age		1214	40.581	18.932	18	93	1000	44.619	17.440	18	89	0	986	47.058	17.122	18	90
age2		1214	2004.937	1797.291	324	8649	1000	2294.711	1683.646	324	7921	0	986	2507.311	1734.106	324	8100
male		1217	0.439	0.496	0	1	1000	0.480	0.500	0	1	0	1012	0.459	0.499	0	1
number of children		597	3.466	1.861	1	8	999	2.313	2.138	0	6	0	1001	2.509	2.426	0	20
single		1217	0.412	0.492	0	1	1000	0.298	0.458	0	1	0	1012	0.254	0.435	0	1
married		1217	0.493	0.500	0	1	1000	0.615	0.487	0	1	0	1012	0.589	0.492	0	1
illiterate		1217	0.000	0.000	0	0	1000	0.000	0.000	0	0	0	1012	0.227	0.419	0	1

Table 3.4: Descriptive statistics about Ireland

France		Wave 1					Wave 2					Wave 3	Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1179	3.11	0.55	1	4	995	3.16	0.57	1	4	0	1607	3.24	0.62	1	4
trust in others		1117	0.25	0.43	0	1	939	0.23	0.42	0	1	0	1560	0.21	0.41	0	1
Putnam's group		1200	0.13	0.34	0	1	1002.00	0.30	0.46	0	1	0	1615	0.29	0.46	0	1
Olson's group		1200	0.12	0.33	0	1	1002.00	0.12	0.33	0	1	0	1615	0.11	0.31	0	1
Other groups		1200	0.08	0.27	0	1	1002.00	0.11	0.31	0	1	0	1615	0.11	0.31	0	1
Unpaid work in putnamian groups		1200	0.09	0.29	0	1	1002.00	0.18	0.39	0	1	0	1615	0.20	0.40	0	1
Unpaid work in olsonian groups		1200	0.08	0.28	0	1	1002.00	0.07	0.25	0	1	0	1615	0.04	0.20	0	1
Unpaid work in other groups		1200	0.02	0.13	0	1	1002.00	0.08	0.27	0	1	0	1615	0.08	0.27	0	1
Confidence in	Church	1145	2.43	1.03	1	4	965.00	2.37	0.98	1	4	0	1564	2.27	1.01	1	4
	Armed forces	1141	2.45	0.98	1	4	967.00	2.48	0.94	1	4	0	1564	2.64	0.93	1	4
	Educational system	1147	2.56	0.76	1	4	968.00	2.69	0.79	1	4	0	1597	2.75	0.77	1	4
	Press	1157	2.16	0.75	1	4	973.00	2.19	0.82	1	4	0	1601	2.14	0.80	1	4
	Labour Unions	1113	2.24	0.82	1	4	945.00	2.06	0.84	1	4	0	1551	2.13	0.84	1	4
	Police	1176	2.62	0.84	1	4	980.00	2.66	0.78	1	4	0	1598	2.70	0.83	1	4
	Parliament	1031	2.48	0.80	1	4	902	2.36	0.82	1	4	0	1544	2.20	0.83	1	4
	Civil Services	1131	2.45	0.75	1	4	947	2.38	0.80	1	4	0	1575	2.33	0.81	1	4
	Major Companies	1041	2.36	0.79	1	4	902	2.67	0.75	1	4	0	1530	2.37	0.80	1	4
	Judicial system	1171	2.55	0.78	1	4	968	2.54	0.78	1	4	0	1588	2.32	0.85	1	4
age		1200	40.36	17.91	17	89	1002	42.85	17.22	18	92	0	1615	45.12	16.94	18	93
age2		1200	1949.76	1692.78	289	7921	1002	2132.65	1639.38	324	8464	0	1615	2323.09	1661.32	324	8649
male		1200	0.48	0.50	0	1	1002	0.47	0.50	0	1	0	1615	0.50	0.50	0	1
number of children		770	2.49	1.52	1	8	998	1.70	1.55	0	6	0	1615	1.75	1.54	0	7
single		1200	0.24	0.43	0	1	1002	0.21	0.41	0	1	0	1615	0.26	0.44	0	1
married		1200	0.62	0.49	0	1	1002	0.56	0.50	0	1	0	1615	0.52	0.50	0	1
illiterate		1200	0.00	0.00	0	0	1002	0.00	0.00	0	0	0	1615	0.18	0.39	0	1

Table 3.5: Descriptive statistics about France

Germany		wave 1				Wave 2					Wave 3					Wave 4				
Variable	Obs	Mean	Std.	Min	Max	Obs	Mean	Std.	Min	Max	Obs	Mean	Std.	Min	Max	Obs	Mean	Std.	Min	Max
happiness	1211	2.97	0.52	1	4	3201	3.01	0.56	1	4	2002	2.97	0.68	1	4	1995	2.97	0.67	1	4
trust in others	1084	0.32	0.47	0	1	2893	0.33	0.47	0	1	1956	0.33	0.47	0	1	1937	0.38	0.48	0	1
Putnam's group	1305	0.26	0.44	0	1	3437	0.52	0.50	0	1	2026	0.00	0.00	0	0	2036	0.38	0.48	0	1
Olson's group	1305	0.22	0.42	0	1	3437	0.40	0.49	0	1	2026	0.00	0.00	0	0	2036	0.13	0.33	0	1
Other groups	1305	0.13	0.33	0	1	3437	0.24	0.43	0	1	2026	0.00	0.00	0	0	2036	0.11	0.32	0	1
Unpaid work in putnamian groups	1305	0.14	0.34	0	1	3437	0.25	0.43	0	1	0					2036	0.14	0.35	0	1
Unpaid work in olsonian groups	1305	0.06	0.24	0	1	3437	0.11	0.31	0	1	0					2036	0.04	0.19	0	1
Unpaid work in other groups	1305	0.04	0.19	0	1	3437	0.08	0.27	0	1	0					2036	0.04	0.19	0	1
Confidence in Church	1300	2.43	0.94	1	4	3434	2.36	0.94	1	4	1979	2.04	0.83	1	4	1911	2.14	0.93	1	4
Armed forces	1297	2.50	0.80	1	4	3433	2.06	0.82	1	4	1950	2.36	0.78	1	4	1910	2.48	0.73	1	4
Educational system	1300	2.41	0.70	1	4	3430	2.49	0.72	1	4	0					1975	2.80	0.62	1	4
Press	1299	2.19	0.68	1	4	3436	2.16	0.70	1	4	2005	1.94	0.67	1	4	1978	2.27	0.76	1	4
Labour Unions	1294	2.30	0.77	1	4	3428	2.19	0.78	1	4	1886	2.26	0.71	1	4	1866	2.28	0.75	1	4
Police	1297	2.80	0.74	1	4	3437	2.60	0.76	1	4	2012	2.63	0.70	1	4	2006	2.77	0.66	1	4
Parliament	1293	2.55	0.72	1	4	3432	2.42	0.76	1	4	1950	2.05	0.67	1	4	1933	2.24	0.75	1	4
Civil Services	1297	2.24	0.70	1	4	3429	2.18	0.71	1	4	1971	2.39	0.68	1	4	1947	2.28	0.69	1	4
Major Companies	1292	2.18	0.80	1	4	3424	2.33	0.79	1	4	1931	2.08	0.69	1	4	1851	2.29	0.79	1	4
Judicial system	1295	2.77	0.75	1	4	3434	2.60	0.79	1	4	1991	2.38	0.73	1	4	1966	2.58	0.74	1	4
age	1304	41.34	17.42	16	100	3437	45.03	17.57	18	90	2019	43.61	16.17	18	90	2034	48.86	17.77	18	92
age2	1304	2012.0	1579.4	256	10000	3437	2336.5	1703.8	324	8100	2019	2162.9	1566.2	324	8100	2034	2702.6	1795.9	324	8464
male	1305	0.47	0.50	0	1	3437	0.47	0.50	0	1	2026	0.46	0.50	0	1	2036	0.43	0.50	0	1
number of children	768	2.21	1.16	1	8	3431	1.47	1.29	0	6	2020	1.39	1.23	0	8	2033	1.56	1.29	0	11
single	1305	0.27	0.44	0	1	3437	0.19	0.39	0	1	2026	0.20	0.40	0	1	2036	0.21	0.41	0	1
married	1305	0.56	0.50	0	1	3437	0.58	0.49	0	1	2026	0.54	0.50	0	1	2036	0.56	0.50	0	1
illiterate	1305	0.00	0.00	0	0	3437	0.00	0.00	0	0	2026	0.03	0.17	0	1	2036	0.02	0.14	0	1

Table 3.6: Descriptive statistics about Germany

Netherlands		Wave 1					Wave 2					Wave 3	Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1195	3.31	0.53	1	4	1015	3.39	0.65	1	4	0	1002	3.40	0.60	1	4
trust in others		1072	0.45	0.50	0	1	965	0.53	0.50	0	1	0	997	0.60	0.49	0	1
Putnam's group		1221	0.49	0.50	0	1	1017	0.78	0.41	0	1	0	1003	0.89	0.32	0	1
Olson's group		1221	0.25	0.44	0	1	1017	0.40	0.49	0	1	0	1003	0.43	0.49	0	1
Other groups		1221	0.14	0.35	0	1	1017	0.28	0.45	0	1	0	1003	0.26	0.44	0	1
Unpaid work in putnamian groups		1221	0.19	0.39	0	1	1017	0.30	0.46	0	1	0	1003	0.43	0.50	0	1
Unpaid work in olsonian groups		1221	0.07	0.26	0	1	1017	0.09	0.29	0	1	0	1003	0.11	0.32	0	1
Unpaid work in other groups		1221	0.02	0.13	0	1	1017	0.07	0.26	0	1	0	1003	0.11	0.32	0	1
Confidence in	Church	1205	2.27	0.95	1	4	1014	2.14	0.89	1	4	0	993	2.14	0.82	1	4
	Armed forces	1189	2.33	0.79	1	4	1012	2.13	0.78	1	4	0	993	2.31	0.70	1	4
	Educational system	1190	2.83	0.67	1	4	1006	2.71	0.66	1	4	0	996	2.80	0.65	1	4
	Press	1192	2.18	0.65	1	4	1012	2.22	0.75	1	4	0	997	2.58	0.66	1	4
	Labour Unions	1173	2.32	0.74	1	4	994	2.45	0.76	1	4	0	966	2.56	0.68	1	4
	Police	1196	2.82	0.69	1	4	1015	2.80	0.64	1	4	0	999	2.70	0.66	1	4
	Parliament	1183	2.41	0.72	1	4	1008	2.49	0.68	1	4	0	993	2.54	0.67	1	4
	Civil Services	1173	2.42	0.70	1	4	1004	2.42	0.65	1	4	0	989	2.32	0.62	1	4
	Major Companies	1173	2.24	0.75	1	4	1000	2.41	0.70	1	4	0	0				
	Judicial system	1185	2.72	0.71	1	4	1011	2.67	0.73	1	4	0	986	2.45	0.72	1	4
age		1198	39.26	17.03	18	89	1017	43.16	16.49	18	89	0	1002	46.38	16.24	18	93
age2		1198	1830.82	1558.72	324	7921	1017	2134.52	1585.83	324	7921	0	1002	2414.49	1691.06	324	8649
male		1221	0.42	0.49	0	1	1017	0.43	0.50	0	1	0	1003	0.49	0.50	0	1
number of children		759	2.60	1.46	1	8	998	1.54	1.42	0	6	0	1001	1.60	1.48	0	9
single		1221	0.21	0.41	0	1	1017	0.22	0.42	0	1	0	1003	0.27	0.44	0	1
married		1221	0.63	0.48	0	1	1017	0.57	0.50	0	1	0	1003	0.55	0.50	0	1
illiterate		1221	0.00	0.00	0	0	1017	0.00	0.00	0	0	0	1003	0.01	0.10	0	1

Table 3.7: Descriptive statistics about Netherlands

Belgium		Wave 1					Wave 2					Wave 3	Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1089	3.26	0.59	1	4	2701	3.31	0.64	1	4	0	1894	3.31	0.68	1	4
trust in others		1001	0.29	0.45	0	1	2576	0.34	0.47	0	1	0	1824	0.29	0.45	0	1
Putnam's group		1145	0.23	0.42	0	1	2792	0.44	0.50	0	1	0	1912	0.48	0.50	0	1
Olson's group		1145	0.19	0.40	0	1	2792	0.24	0.43	0	1	0	1912	0.27	0.45	0	1
Other groups		1145	0.08	0.27	0	1	2792	0.24	0.43	0	1	0	1912	0.29	0.45	0	1
Unpaid work in putnamian groups		1145	0.15	0.36	0	1	2792	0.22	0.42	0	1	0	1912	0.26	0.44	0	1
Unpaid work in olsonian groups		1145	0.07	0.25	0	1	2792	0.11	0.31	0	1	0	1912	0.11	0.31	0	1
Unpaid work in other groups		1145	0.01	0.12	0	1	2792	0.06	0.23	0	1	0	1912	0.12	0.32	0	1
Confidence in	Church	1046	2.72	0.99	1	4	2776	2.48	0.98	1	4	0	1871	2.31	0.98	1	4
	Armed forces	1047	2.31	0.88	1	4	2768	2.14	0.86	1	4	0	1845	2.24	0.85	1	4
	Educational system	1075	2.95	0.72	1	4	2776	2.84	0.72	1	4	0	1885	2.92	0.71	1	4
	Press	1074	2.22	0.75	1	4	2767	2.35	0.76	1	4	0	1892	2.24	0.79	1	4
	Labour Unions	1022	2.12	0.83	1	4	2762	2.24	0.79	1	4	0	1825	2.22	0.83	1	4
	Police	1079	2.65	0.78	1	4	2771	2.48	0.79	1	4	0	1891	2.51	0.78	1	4
	Parliament	1010	2.24	0.79	1	4	2762	2.32	0.77	1	4	0	1824	2.23	0.82	1	4
	Civil Services	1021	2.36	0.80	1	4	2755	2.33	0.77	1	4	0	1858	2.35	0.77	1	4
	Major Companies	972	2.32	0.79	1	4	2736	2.46	0.78	1	4	0	0				
	Judicial system	1060	2.59	0.85	1	4	2761	2.39	0.80	1	4	0	1883	2.19	0.86	1	4
age		1145	43.12	19.22	15	87	2792	44.68	17.27	17	93	0	1905	46.39	17.55	15	98
age2		1145	2228.55	1838.87	225	7569	2792	2294.08	1643.22	289	8649	0	1905	2460.11	1775.72	225	9604
male		1145	0.47	0.50	0	1	2792	0.49	0.50	0	1	0	1912	0.46	0.50	0	1
number of children		695	2.38	1.48	1	8	2777	1.61	1.49	0	6	0	1873	1.71	1.56	0	12
single		1145	0.22	0.41	0	1	2792	0.20	0.40	0	1	0	1912	0.23	0.42	0	1
married		1145	0.63	0.48	0	1	2792	0.59	0.49	0	1	0	1912	0.58	0.49	0	1
illiterate		1145	0.00	0.00	0	0	2792	0.00	0.00	0	0	0	1912	0.02	0.14	0	1

Table 3.8: Descriptive statistics about Belgium

Denmark		Wave 1				Wave 2				Wave 3		Wave 4			
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Obs	Mean	Std. Dev.	Min	Max
happiness		1150	3.26	0.54	1	4	1022	3.36	0.62	1	4	0	1017	3.39	0.60	1	4
trust in others		1059	0.53	0.50	0	1	992	0.58	0.49	0	1	0	986	0.67	0.47	0	1
Putnam's group		1182	0.19	0.39	0	1	1030	0.52	0.50	0	1	0	1023	0.56	0.50	0	1
Olson's group		1182	0.50	0.50	0	1	1030	0.60	0.49	0	1	0	1023	0.61	0.49	0	1
Other groups		1182	0.16	0.36	0	1	1030	0.23	0.42	0	1	0	1023	0.26	0.44	0	1
Unpaid work in putnamian groups		1182	0.06	0.24	0	1	1030	0.19	0.39	0	1	0	1023	0.25	0.44	0	1
Unpaid work in olsonian groups		1182	0.13	0.33	0	1	1030	0.07	0.26	0	1	0	1023	0.11	0.31	0	1
Unpaid work in other groups		1182	0.02	0.14	0	1	1030	0.07	0.26	0	1	0	1023	0.12	0.32	0	1
Confidence in	Church	1166	2.41	0.89	1	4	1015	2.45	0.84	1	4	0	949	2.62	0.74	1	4
	Armed forces	1170	2.31	0.85	1	4	1009	2.43	0.80	1	4	0	965	2.64	0.69	1	4
	Educational system	1168	2.75	0.72	1	4	1014	2.99	0.64	1	4	0	994	2.83	0.60	1	4
	Press	1171	2.19	0.71	1	4	1020	2.18	0.72	1	4	0	995	2.24	0.67	1	4
	Labour Unions	1144	2.54	0.81	1	4	1004	2.40	0.82	1	4	0	953	2.45	0.73	1	4
	Police	1173	3.12	0.72	1	4	1019	3.18	0.62	1	4	0	1011	3.16	0.60	1	4
	Parliament	1167	2.27	0.79	1	4	1015	2.38	0.74	1	4	0	986	2.47	0.70	1	4
	Civil Services	1161	2.45	0.74	1	4	1010	2.52	0.69	1	4	0	978	2.54	0.64	1	4
	Major Companies	1115	2.24	0.74	1	4	978	2.32	0.72	1	4	0	0				
	Judicial system	1170	3.01	0.75	1	4	1011	3.00	0.69	1	4	0	980	2.92	0.67	1	4
age		1182	40.88	18.32	18	91	1030	43.99	17.80	18	90	0	1023	45.76	17.43	18	92
age2		1182	2006.60	1714.56	324	8281	1030	2251.69	1765.44	324	8100	0	1023	2397.96	1768.26	324	8464
male		1182	0.49	0.50	0	1	1030	0.50	0.50	0	1	0	1023	0.49	0.50	0	1
number of children		762	2.32	1.23	1	8	1027	1.62	1.43	0	6	0	1023	1.66	1.38	0	10
single		1182	0.22	0.41	0	1	1030	0.20	0.40	0	1	0	1023	0.30	0.46	0	1
married		1182	0.53	0.50	0	1	1030	0.51	0.50	0	1	0	1023	0.53	0.50	0	1
illiterate		1182	0.00	0.00	0	0	1030	0.00	0.00	0	0	0	1023	0.00	0.05	0	1

Table 3.9: Descriptive statistics about Denmark

Norway		Wave 1					Wave 2					Wave 3					Wave 4
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs
happiness		1044	3.20	0.57	1	4	1233	3.22	0.58	1	4	1125	3.24	0.57	1	4	0
trust in others		958	0.61	0.49	0	1	1156	0.65	0.48	0	1	1118	0.65	0.48	0	1	0
Putnam's group		1051	0.28	0.45	0	1	1239	0.55	0.50	0	1	1127	0.00	0.00	0	0	0
Olson's group		1051	0.43	0.50	0	1	1239	0.54	0.50	0	1	1127	0.00	0.00	0	0	0
Other groups		1051	0.21	0.40	0	1	1239	0.35	0.48	0	1	1127	0.00	0.00	0	0	0
Unpaid work in putnamian groups		1051	0.14	0.34	0	1	1239	0.27	0.44	0	1	0					0
Unpaid work in olsonian groups		1051	0.14	0.35	0	1	1239	0.12	0.32	0	1	0					0
Unpaid work in other groups		1051	0.04	0.20	0	1	1239	0.11	0.31	0	1	0					0
Confidence in	Church	1047	2.57	0.86	1	4	1234	2.44	0.83	1	4	1119	2.56	0.77	1	4	0
	Armed forces	1045	2.80	0.76	1	4	1234	2.71	0.72	1	4	1122	2.80	0.66	1	4	0
	Educational system	1044	2.96	0.64	1	4	1233	2.92	0.62	1	4	0					0
	Press	1045	2.40	0.66	1	4	1229	2.42	0.65	1	4	1120	2.26	0.62	1	4	0
	Labour Unions	1040	2.58	0.73	1	4	1221	2.60	0.72	1	4	1090	2.67	0.65	1	4	0
	Police	1044	3.19	0.63	1	4	1235	3.06	0.60	1	4	1124	3.00	0.59	1	4	0
	Parliament	1047	2.95	0.69	1	4	1235	2.62	0.71	1	4	1117	2.74	0.60	1	4	0
	Civil Services	1042	2.62	0.67	1	4	1232	2.41	0.67	1	4	1116	2.48	0.63	1	4	0
	Major Companies	1035	2.43	0.66	1	4	1224	2.53	0.64	1	4	1096	2.60	0.60	1	4	0
	Judicial system	1045	3.11	0.69	1	4	1228	2.88	0.68	1	4	1121	2.76	0.66	1	4	0
age		1051	44.09	16.92	17	79	1239	44.31	16.35	19	80	1127	43.26	16.18	18	79	0
age2		1051	2229.90	1582.86	289	6241	1239	2230.45	1568.39	361	6400	1127	2133.36	1529.12	324	6241	0
male		1051	0.53	0.50	0	1	1239	0.51	0.50	0	1	1127	0.49	0.50	0	1	0
number of children		767	2.44	1.28	1	8	1230	1.65	1.38	0	6	1126	1.68	1.40	0	8	0
single		1051	0.16	0.37	0	1	1239	0.19	0.39	0	1	1127	0.18	0.39	0	1	0
married		1051	0.68	0.47	0	1	1239	0.62	0.48	0	1	1127	0.54	0.50	0	1	0
illiterate		1051	0.00	0.00	0	0	1239	0	0	0	0	1127	0.02	0.13	0	1	0

Table 3.10: Descriptive statistics about Norway

Sweden		Wave 1					Wave 2					Wave 3					Wave 4				
Variable		Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
happiness		935	3.2	0.5	1	4	1038	3.4	0.6	1	4	997	3.3	0.6	1	4	1012	3.3	0.6	1	4
trust in others		876	0.6	0.5	0	1	944	0.7	0.5	0	1	957	0.6	0.5	0	1	974	0.7	0.5	0	1
Putnam's group		954	0.3	0.4	0	1	1047	0.6	0.5	0	1	1009	0.0	0.0	0	0	1015	0.9	0.3	0	1
Olson's group		954	0.5	0.5	0	1	1047	0.6	0.5	0	1	1009	0.0	0.0	0	0	1015	0.7	0.5	0	1
Other groups		954	0.2	0.4	0	1	1047	0.4	0.5	0	1	1009	0.0	0.0	0	0	1015	0.4	0.5	0	1
Unpaid work in putnamian groups		954	0.18	0.38	0.00	1.00	1047.00	0.27	0.45	0.00	1.00	0.00					1015.00	0.48	0.50	0.00	1.00
Unpaid work in olsonian groups		954	0.10	0.30	0.00	1.00	1047.00	0.16	0.36	0.00	1.00	0.00					1015.00	0.18	0.38	0.00	1.00
Unpaid work in other groups		954	0.02	0.14	0.00	1.00	1047.00	0.13	0.33	0.00	1.00	0.00					1015.00	0.17	0.38	0.00	1.00
Confidence in	Church	930	2.3	0.8	1	4	990	2.2	0.9	1	4	985	2.5	0.7	1	4	991	2.4	0.8	1	4
	Armed forces	915	2.6	0.7	1	4	1012	2.5	0.8	1	4	988	2.5	0.7	1	4	992	2.4	0.7	1	4
	Educational system	914	2.7	0.7	1	4	1014	2.8	0.7	1	4	0					1004	2.8	0.7	1	4
	Press	929	2.2	0.7	1	4	1024	2.2	0.7	1	4	1001	2.2	0.7	1	4	1004	2.5	0.7	1	4
	Labour Unions	886	2.5	0.8	1	4	981	2.3	0.8	1	4	952	2.4	0.7	1	4	986	2.4	0.7	1	4
	Police	940	2.9	0.7	1	4	1027	2.8	0.7	1	4	998	2.9	0.6	1	4	1011	2.9	0.7	1	4
	Parliament	901	2.4	0.7	1	4	1010	2.4	0.8	1	4	984	2.4	0.7	1	4	994	2.5	0.7	1	4
	Civil Services	854	2.4	0.7	1	4	949	2.4	0.7	1	4	925	2.4	0.6	1	4	946	2.5	0.6	1	4
	Major Companies	853	2.4	0.7	1	4	951	2.5	0.7	1	4	945	2.7	0.6	1	4	0				
	Judicial system	908	2.8	0.7	1	4	1019	2.6	0.8	1	4	990	2.7	0.7	1	4	995	2.6	0.7	1	4
age		954	45.1	16.6	18	90	993	42.6	15.7	18	82	1009	44.9	16.2	19	76	1015	44.2	15.9	18	75
age2		954	2311.3	1593.5	324	8100	993	2063.4	1420.1	324	6724	1009	2278.7	1531.3	361	5776	1015	2205.2	1463.9	324	5625
male		954	0.5	0.5	0	1	1047	0.5	0.5	0	1	1009	0.5	0.5	0	1	1015	0.5	0.5	0	1
number of children		698	2.1	1.0	1	8	1044	1.5	1.3	0	6	999	1.6	1.3	0	7	1012	1.4	1.3	0	5
single		954	0.1	0.3	0	1	1047	0.2	0.4	0	1	1009	0.2	0.4	0	1	1015	0.2	0.4	0	1
married		954	0.6	0.5	0	1	1047	0.5	0.5	0	1	1009	0.5	0.5	0	1	1015	0.5	0.5	0	1
illiterate		954	0.0	0.0	0	0	1047	0.0	0.0	0	0	1009	0.0	0.1	0	1	1015	0.0	0.1	0	1

Table 3.11: Descriptive statistics about Sweden

Finland		Wave 1	Wave 2					Wave 3					Wave 4				
Variable		Obs	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
happiness		0	568	3.09	0.59	1	4	975	3.15	0.57	1	4	1032	3.14	0.60	1	4
trust in others		0	558	0.63	0.48	0	1	969	0.49	0.50	0	1	1015	0.57	0.49	0	1
Putnam's group		0	588	0.55	0.50	0	1	987	0.00	0.00	0	0	1038	0.68	0.47	0	1
Olson's group		0	588	0.48	0.50	0	1	987	0.00	0.00	0	0	1038	0.42	0.49	0	1
Other groups		0	588	0.26	0.44	0	1	987	0.00	0.00	0	0	1038	0.25	0.43	0	1
Unpaid work in putnamian groups		0	588	0.34	0.47	0	1	0					1038	0.31	0.46	0	1
Unpaid work in olsonian groups		0	588	0.18	0.38	0	1	0					1038	0.11	0.31	0	1
Unpaid work in other groups		0	588	0.14	0.35	0	1	0					1038	0.09	0.28	0	1
Confidence in	Church	0	560	2.21	0.83	1	4	970	2.59	0.80	1	4	1019	2.59	0.81	1	4
	Armed forces	0	565	2.62	0.80	1	4	978	3.04	0.72	1	4	1021	3.07	0.69	1	4
	Educational system	0	571	2.91	0.63	1	4	0					1029	3.14	0.60	1	4
	Press	0	569	2.32	0.67	1	4	976	2.19	0.70	1	4	1028	2.30	0.67	1	4
	Labour Unions	0	543	2.24	0.72	1	4	942	2.49	0.75	1	4	1001	2.53	0.71	1	4
	Police	0	574	2.83	0.64	1	4	978	3.08	0.66	1	4	1032	3.19	0.63	1	4
	Parliament	0	570	2.23	0.75	1	4	968	2.20	0.69	1	4	1020	2.38	0.72	1	4
	Civil Services	0	556	2.24	0.70	1	4	963	2.25	0.66	1	4	1007	2.35	0.68	1	4
	Major Companies	0	535	2.34	0.68	1	4	957	2.46	0.68	1	4	1002	2.37	0.69	1	4
	Judicial system	0	576	2.75	0.70	1	4	974	2.77	0.75	1	4	1023	2.74	0.69	1	4
age		0	588	41.19	13.93	18	89	986	42.14	16.67	16	85	1017	42.58	16.08	17	79
age2		0	588	1890.16	1321.51	324	7921	986	2053.46	1556.91	256	7225	1017	2071.08	1468.33	289	6241
male		0	588	0.52	0.50	0	1	987	0.49	0.50	0	1	1038	0.48	0.50	0	1
number of children		0	580	1.85	1.41	0	6	982	1.56	1.58	0	8	971	1.74	1.88	0	20
single		0	588	0.12	0.32	0	1	987	0.21	0.40	0	1	1038	0.20	0.40	0	1
married		0	588	0.69	0.46	0	1	987	0.43	0.49	0	1	1038	0.43	0.50	0	1
illiterate		0	588	0.00	0.00	0	0	987	0.00	0.00	0	0	1038	0.00	0.00	0	0

Table 3.12: Descriptive statistics about Finland

Italy										
Putnam's groups	mean values		demographic controls		familiar status			education		
w2	0.808	[0.000]***	0.841	[0.000]***	0.619	[0.000]***	0.623	[0.000]***		
w4	1.145	[0.000]***	1.233	[0.000]***	1.015	[0.000]***	1.035	[0.000]***		
age			-0.00892	[0.438]	0.0344	[0.022]**	0.0320	[0.035]**		
age2			-0.0000507	[0.690]	-0.000414	[0.008]***	-0.000381	[0.016]**		
male			0.203	[0.002]***	0.245	[0.001]***	0.241	[0.001]***		
N of children					-0.0746	[0.053]*	-0.0715	[0.065]*		
single					0.482	[0.003]***	0.474	[0.003]***		
married					-0.122	[0.346]	-0.131	[0.313]		
illiterate							-0.343	[0.169]		
_cons	-1.929	[0.000]***	-1.605	[0.000]***	-2.501	[0.000]***	-2.462	[0.000]***		
num of observations	5366		5366		4599		4599			
pseudo R2	0.0278		0.0373		0.0456		0.0460			
chi2	145.8		183.6		215.1		218.2			
Olson's groups	mean values		demographic controls		familiar status			education		
w2	0.198	[0.078]*	0.149	[0.187]	-0.0145	[0.912]	-0.0106	[0.935]		
w4	0.585	[0.000]***	0.553	[0.000]***	0.393	[0.002]***	0.414	[0.002]***		
age			0.150	[0.000]***	0.135	[0.000]***	0.132	[0.000]***		
age2			-0.00163	[0.000]***	-0.00146	[0.000]***	-0.00142	[0.000]***		
male			0.747	[0.000]***	0.778	[0.000]***	0.772	[0.000]***		
N of children					-0.143	[0.001]***	-0.139	[0.001]***		
single					-0.199	[0.327]	-0.207	[0.306]		
married					-0.116	[0.447]	-0.124	[0.416]		
illiterate							-0.464	[0.180]		
_cons	-2.163	[0.000]***	-5.556	[0.000]***	-4.824	[0.000]***	-4.772	[0.000]***		
num of observations	5366		5366		4599		4599			
pseudo R2	0.00842		0.0490		0.0456		0.0461			
chi2	35.73		199.6		172.4		174.0			
Other groups	mean values		demographic controls		familiar status			education		
w2	0.275	[0.024]**	0.292	[0.017]**	0.153	[0.330]	0.161	[0.305]		
w4	0.280	[0.022]**	0.329	[0.008]***	0.168	[0.285]	0.206	[0.192]		
age			0.0162	[0.333]	0.0459	[0.040]**	0.0412	[0.066]*		
age2			-0.000280	[0.130]	-0.000510	[0.028]**	-0.000447	[0.055]*		
male			0.666	[0.000]***	0.597	[0.000]***	0.590	[0.000]***		
N of children					-0.104	[0.038]**	-0.0988	[0.051]*		
single					0.275	[0.251]	0.260	[0.278]		
married					0.0384	[0.837]	0.0248	[0.894]		
illiterate							-0.977	[0.059]*		
_cons	-2.391	[0.000]***	-2.896	[0.000]***	-3.485	[0.000]***	-3.407	[0.000]***		
num of observations	5366		5366		4599		4599			
pseudo R2	0.00186		0.0205		0.0217		0.0232			
chi2	6.296		86.36		80.05		81.06			
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01							

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.399	[0.000]***	0.397	[0.000]***	0.411	[0.000]***	0.414	[0.000]***
w4	0.280	[0.000]***	0.306	[0.000]***	0.299	[0.004]***	0.317	[0.002]***
age			0.0272	[0.014]**	0.0662	[0.000]***	0.0642	[0.000]***
age2			-0.000376	[0.002]***	-0.000709	[0.000]***	-0.000683	[0.000]***
male			0.0569	[0.342]	0.0390	[0.552]	0.0360	[0.582]
N of children					-0.0592	[0.076]*	-0.0568	[0.090]*
single					0.300	[0.039]**	0.293	[0.044]**
married					-0.00613	[0.958]	-0.0132	[0.909]
illiterate							-0.298	[0.203]
_cons	-1.005	[0.000]***	-1.418	[0.000]***	-2.401	[0.000]***	-2.368	[0.000]***
num of observations	5180		5180		4441		4441	
pseudo R2	0.00407		0.00783		0.0122		0.0125	
chi2	25.90		49.19		62.12		62.28	
Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.53	[0.000]***	0.533	[0.000]***	0.395	[0.009]***	0.4	[0.008]***
w4	0.77	[0.000]***	0.779	[0.000]***	0.635	[0.000]***	0.661	[0.000]***
age			-0.00266	[0.848]	0.0305	[0.101]	0.0284	[0.129]
age2			-0.0001	[0.519]	-0.000364	[0.064]*	-0.000335	[0.091]*
male			0.231	[0.003]***	0.255	[0.002]***	0.251	[0.003]***
N of children					-0.0632	[0.148]	-0.0602	[0.171]
single					0.478	[0.014]**	0.47	[0.016]**
married					-0.0377	[0.810]	-0.045	[0.775]
illiterate							-0.445	[0.142]
_cons	-2.086	[0.000]***	-1.868	[0.000]***	-2.651	[0.000]***	-2.621	[0.000]***
num of observations	5366		5366		4599		4599	
pseudo R2	0.0123		0.021		0.0291		0.0297	
chi2	46.1		62.11		94.2		98.5	
Happiness	mean values		demographic controls		familiar status		education	
w2	0.356	[0.000]***	0.380	[0.000]***	0.327	[0.000]***	0.330	[0.000]***
w4	0.258	[0.001]***	0.346	[0.000]***	0.290	[0.001]***	0.307	[0.001]***
age			0.0205	[0.042]**	-0.0506	[0.000]***	-0.0523	[0.000]***
age2			-0.000401	[0.000]***	0.000316	[0.024]**	0.000338	[0.017]**
male			0.203	[0.000]***	0.174	[0.006]***	0.172	[0.007]***
N of children					-0.0441	[0.182]	-0.0421	[0.201]
single					0.337	[0.021]**	0.330	[0.023]**
married					1.226	[0.000]***	1.220	[0.000]***
illiterate							-0.238	[0.292]
cut1	-3.310	[0.000]***	-3.182	[0.000]***	-4.118	[0.000]***	-4.146	[0.000]***
cut2	-1.298	[0.000]***	-1.148	[0.000]***	-2.039	[0.000]***	-2.067	[0.000]***
cut3	1.927	[0.000]***	2.133	[0.000]***	1.355	[0.000]***	1.328	[0.000]***
num of observations	5270				4519		4519	
pseudo R2	0.00244		0.380		0.0338		0.0340	
chi2	26.85				271.9		272.2	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Table 3.13: Logit regression about the trends of relational goods and subjective well-being in Italy

Table 3.14: Logit regression about the trends of relational goods and subjective well-being in Great Britain

United Kingdom

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	0.224	[0.007]***	0.185	[0.029]**	0.159	[0.117]	0.159	[0.117]
w4	-0.669	[0.000]***	-0.776	[0.000]***	-0.786	[0.000]***	-0.786	[0.000]***
age			0.0239	[0.035]**	0.0507	[0.001]***	0.0507	[0.001]***
age2			-0.000201	[0.081]*	-0.000443	[0.002]***	-0.000443	[0.002]***
male			-0.203	[0.006]***	-0.135	[0.096]*	-0.135	[0.096]*
N of children					-0.141	[0.000]***	-0.141	[0.000]***
single					0.239	[0.119]	0.239	[0.119]
married					0.101	[0.339]	0.101	[0.339]
illiterate								
_cons	-0.736	[0.000]***	-1.207	[0.000]***	-1.716	[0.000]***	-1.716	[0.000]***
num of observations	3651		3613		3105		3105	
pseudo R2	0.0208		0.0272		0.0354		0.0354	
chi2	87.18		108.1		129.2		129.2	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	-0.0873	[0.326]	-0.163	[0.075]*	-0.0588	[0.590]	-0.0588	[0.590]
w4	-0.888	[0.000]***	-1.003	[0.000]***	-0.864	[0.000]***	-0.864	[0.000]***
age			0.121	[0.000]***	0.159	[0.000]***	0.159	[0.000]***
age2			-0.00134	[0.000]***	-0.00166	[0.000]***	-0.00166	[0.000]***
male			0.749	[0.000]***	0.839	[0.000]***	0.839	[0.000]***
N of children					-0.132	[0.000]***	-0.132	[0.000]***
single					0.224	[0.251]	0.224	[0.251]
married					0.164	[0.200]	0.164	[0.200]
illiterate								
_cons	-0.986	[0.000]***	-3.593	[0.000]***	-4.663	[0.000]***	-4.663	[0.000]***
num of observations	3651		3613		3105		3105	
pseudo R2	0.0194		0.0658		0.0802		0.0802	
chi2	67.43		186.1		196.2		196.2	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.504	[0.000]***	0.460	[0.000]***	0.589	[0.000]***	0.589	[0.000]***
w4	0.0613	[0.644]	-0.0314	[0.817]	0.145	[0.375]	0.145	[0.375]
age			0.0595	[0.000]***	0.0811	[0.000]***	0.0811	[0.000]***
age2			-0.000636	[0.000]***	-0.000816	[0.000]***	-0.000816	[0.000]***
male			-0.00826	[0.931]	-0.111	[0.290]	-0.111	[0.290]
N of children					-0.0712	[0.060]*	-0.0712	[0.060]*
single					-0.0736	[0.717]	-0.0736	[0.717]
married					0.227	[0.104]	0.227	[0.104]
illiterate								
_cons	-2.026	[0.000]***	-3.163	[0.000]***	-3.821	[0.000]***	-3.821	[0.000]***
num of observations	3651		3613		3105		3105	
pseudo R2	0.00843		0.0149		0.0220		0.0220	
chi2	25.39		41.24		53.22		53.22	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.0227	[0.777]	-0.0367	[0.655]	-0.0405	[0.678]	-0.0434	[0.657]
w3	-0.588	[0.000]***	-0.642	[0.000]***	-0.743	[0.000]***	-0.596	[0.000]***
w4	-0.626	[0.000]***	-0.660	[0.000]***	-0.646	[0.000]***	-0.644	[0.000]***
age			0.0442	[0.000]***	0.0610	[0.000]***	0.0617	[0.000]***
age2			-0.000409	[0.000]***	-0.000556	[0.000]***	-0.000549	[0.000]***
male			0.265	[0.000]***	0.275	[0.000]***	0.267	[0.000]***
N of children					-0.0820	[0.002]***	-0.0895	[0.001]***
single					0.165	[0.191]	0.155	[0.219]
married					0.0949	[0.279]	0.0920	[0.294]
illiterate							-0.538	[0.001]***
_cons	-0.277	[0.000]***	-1.376	[0.000]***	-1.729	[0.000]***	-1.755	[0.000]***
num of observations	4600		4563		4076		4076	
pseudo R2	0.0163		0.0233		0.0281		0.0304	
chi2	96.70		136.8		147.3		156.3	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.295	[0.015]**	0.286	[0.019]**	0.254	[0.068]*	0.254	[0.068]*
w4	1.06	[0.000]***	1.063	[0.000]***	1.083	[0.000]***	1.083	[0.000]***
age			0.0823	[0.000]***	0.0966	[0.000]***	0.0966	[0.000]***
age2			-0.00075	[0.000]***	-0.000872	[0.000]***	-0.000872	[0.000]***
male			-0.255	[0.008]***	-0.228	[0.025]**	-0.228	[0.025]**
N of children					-0.12	[0.002]***	-0.12	[0.002]***
single					0.179	[0.345]	0.179	[0.345]
married					0.243	[0.079]*	0.243	[0.079]*
illiterate								
_cons	-1.844	[0.000]***	-3.678	[0.000]***	-4.009	[0.000]***	-4.009	[0.000]***
num of observations	3651		3613		3105		3105	
pseudo R2	0.03		0.0448		0.0442		0.0442	
chi2	90.62		134.1		116.5		116.5	

Happiness	mean values		demographic controls		familiar status		education	
w2	-0.206	[0.006]***	-0.232	[0.002]***	-0.182	[0.048]**	-0.183	[0.048]**
w3	-0.297	[0.000]***	-0.320	[0.000]***	-0.313	[0.003]***	-0.272	[0.015]**
age			0.0149	[0.111]	-0.0237	[0.052]*	-0.0236	[0.054]*
age2			-0.000132	[0.167]	0.000258	[0.030]**	0.000261	[0.028]**
male			-0.0612	[0.348]	-0.0874	[0.225]	-0.0896	[0.213]
N of children					-0.0782	[0.008]***	-0.0810	[0.006]***
single					0.0349	[0.806]	0.0286	[0.841]
married					0.875	[0.000]***	0.875	[0.000]***
illiterate							-0.146	[0.304]
cut1	-4.414	[0.000]***	-4.123	[0.000]***	-4.470	[0.000]***	-4.463	[0.000]***
cut2	-2.649	[0.000]***	-2.342	[0.000]***	-2.686	[0.000]***	-2.678	[0.000]***
cut3	0.436	[0.000]***	0.747	[0.000]***	0.375	[0.204]	0.383	[0.195]
num of observations	3728				3224		3224	
pseudo R2	0.00201		-0.232		0.0214		0.0215	
chi2	14.58				121.8		121.7	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Table 3.15: Logit regression about the trends of relational goods and subjective well-being in Ireland

Ireland

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	0.0399	[0.648]	0.0174	[0.845]	-0.0846	[0.451]	-0.0790	[0.481]
w4	0.239	[0.006]***	0.218	[0.015]**	0.162	[0.148]	0.256	[0.030]**
age			0.0167	[0.141]	0.0222	[0.165]	0.0208	[0.192]
age2			-0.000200	[0.086]*	-0.000232	[0.141]	-0.000202	[0.200]
male			0.220	[0.002]***	0.233	[0.005]***	0.246	[0.003]***
N of children					0.00607	[0.803]	0.0113	[0.641]
single					0.835	[0.000]***	0.837	[0.000]***
married					0.398	[0.005]***	0.395	[0.005]***
illiterate							-0.413	[0.014]**
_cons	-0.449	[0.000]***	-0.820	[0.001]***	-1.409	[0.000]***	-1.438	[0.000]***
num of observations	3229		3200		2572		2572	
pseudo R2	0.00194		0.00497		0.0151		0.0168	
chi2	8.516		21.04		49.66		56.53	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.0467	[0.683]	0.0105	[0.928]	0.207	[0.175]	0.211	[0.167]
w4	0.328	[0.003]***	0.322	[0.004]***	0.501	[0.001]***	0.593	[0.000]***
age			0.0610	[0.000]***	0.108	[0.000]***	0.107	[0.000]***
age2			-0.000824	[0.000]***	-0.00124	[0.000]***	-0.00121	[0.000]***
male			0.712	[0.000]***	0.694	[0.000]***	0.712	[0.000]***
N of children					-0.0220	[0.486]	-0.0152	[0.631]
single					0.281	[0.257]	0.289	[0.245]
married					0.180	[0.386]	0.173	[0.404]
illiterate							-0.499	[0.029]**
_cons	-1.632	[0.000]***	-2.853	[0.000]***	-4.317	[0.000]***	-4.367	[0.000]***
num of observations	3229		3200		2572		2572	
pseudo R2	0.00337		0.0397		0.0482		0.0503	
chi2	10.45		115.7		115.6		122.0	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.266	[0.029]**	0.313	[0.010]**	0.463	[0.005]***	0.466	[0.004]***
w4	0.555	[0.000]***	0.609	[0.000]***	0.733	[0.000]***	0.777	[0.000]***
age			-0.0126	[0.437]	0.0300	[0.177]	0.0293	[0.189]
age2			0.0000220	[0.896]	-0.000387	[0.081]*	-0.000370	[0.097]*
male			0.139	[0.157]	0.0716	[0.523]	0.0790	[0.480]
N of children					0.0309	[0.322]	0.0338	[0.280]
single					0.174	[0.455]	0.175	[0.452]
married					0.0439	[0.815]	0.0410	[0.827]
illiterate							-0.209	[0.323]
_cons	-1.932	[0.000]***	-1.547	[0.000]***	-2.774	[0.000]***	-2.790	[0.000]***
num of observations	3229		3200		2572		2572	
pseudo R2	0.00810		0.0133		0.0150		0.0155	
chi2	22.86		42.57		37.74		38.90	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.254	[0.004]***	0.218	[0.014]**	0.131	[0.240]	0.133	[0.230]
w4	-0.217	[0.015]**	-0.235	[0.010]***	-0.289	[0.010]**	-0.244	[0.041]**
age			0.0213	[0.061]*	0.0376	[0.020]**	0.0369	[0.022]**
age2			-0.000202	[0.084]*	-0.000275	[0.082]*	-0.000261	[0.102]
male			0.233	[0.001]***	0.140	[0.096]*	0.145	[0.083]*
N of children					-0.00697	[0.776]	-0.00456	[0.853]
single					0.791	[0.000]***	0.794	[0.000]***
married					0.598	[0.000]***	0.598	[0.000]***
illiterate							-0.192	[0.260]
_cons	-0.359	[0.000]***	-0.922	[0.000]***	-1.938	[0.000]***	-1.952	[0.000]***
num of observations	3150		3121		2520		2520	
pseudo R2	0.00621		0.00891		0.0176		0.0180	
chi2	26.37		37.92		58.75		59.35	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.383	[0.001]***	0.345	[0.003]***	0.326	[0.026]**	0.343	[0.019]**
w4	0.538	[0.000]***	0.491	[0.000]***	0.516	[0.000]***	0.727	[0.000]***
age			0.0572	[0.000]***	0.0414	[0.047]**	0.0431	[0.040]**
age2			-0.000616	[0.000]***	-0.00044	[0.034]**	-0.000423	[0.043]**
male			0.0964	[0.300]	0.0772	[0.458]	0.0929	[0.374]
N of children					0.0275	[0.362]	0.0403	[0.187]
single					0.818	[0.000]***	0.827	[0.000]***
married					0.731	[0.000]***	0.725	[0.000]***
illiterate							-0.797	[0.000]***
_cons	-1.733	[0.000]***	-2.888	[0.000]***	-3.327	[0.000]***	-3.494	[0.000]***
num of observations	3229		3200		2572		2572	
pseudo R2	0.00816		0.0136		0.0172		0.0235	
chi2	23.04		41.78		38.01		56.79	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.0534	[0.539]	0.0818	[0.355]	-0.0359	[0.744]	-0.0376	[0.733]
w4	0.0687	[0.405]	0.0823	[0.335]	0.0359	[0.737]	0.0123	[0.913]
age			0.00607	[0.584]	-0.0590	[0.000]***	-0.0587	[0.000]***
age2			-0.000121	[0.290]	0.000551	[0.000]***	0.000544	[0.000]***
male			-0.311	[0.000]***	-0.342	[0.000]***	-0.345	[0.000]***
N of children					-0.0372	[0.126]	-0.0386	[0.116]
single					0.217	[0.226]	0.219	[0.224]
married					1.019	[0.000]***	1.021	[0.000]***
illiterate							0.102	[0.526]
cut1	-4.795	[0.000]***	-4.939	[0.000]***	-5.892	[0.000]***	-5.898	[0.000]***
cut2	-2.976	[0.000]***	-3.134	[0.000]***	-3.997	[0.000]***	-4.004	[0.000]***
cut3	0.355	[0.000]***	0.229	[0.331]	-0.648	[0.081]*	-0.654	[0.079]*
num of observations	3163				2531		2531	
pseudo R2	0.000137		0.0818		0.0234		0.0235	
chi2	0.770				94.58		94.60	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Table 3.16: Logit regression about the trends of relational goods and subjective well-being in France

France

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.045	[0.000]***	1.031	[0.000]***	0.930	[0.000]***	0.949	[0.000]***
w4	0.990	[0.000]***	0.966	[0.000]***	0.862	[0.000]***	0.998	[0.000]***
age			0.0450	[0.000]***	0.0400	[0.007]***	0.0373	[0.012]**
age2			-0.000505	[0.000]***	-0.000458	[0.002]***	-0.000394	[0.008]***
male			0.133	[0.082]*	0.145	[0.074]*	0.143	[0.079]*
N of children					-0.0205	[0.509]	-0.00766	[0.807]
single					0.153	[0.277]	0.146	[0.301]
married					0.0848	[0.431]	0.0900	[0.405]
illiterate							-0.793	[0.000]***
_cons	-1.872	[0.000]***	-2.775	[0.000]***	-2.614	[0.000]***	-2.670	[0.000]***
num of observations	3817		3817		3383		3383	
pseudo R2	0.0305		0.0347		0.0249		0.0308	
chi2	113.6		132.9		86.27		107.7	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.0442	[0.735]	-0.0706	[0.596]	-0.0941	[0.518]	-0.0878	[0.547]
w4	-0.141	[0.240]	-0.337	[0.006]***	-0.354	[0.012]**	-0.279	[0.059]*
age			0.198	[0.000]***	0.192	[0.000]***	0.191	[0.000]***
age2			-0.00202	[0.000]***	-0.00195	[0.000]***	-0.00192	[0.000]***
male			0.788	[0.000]***	0.753	[0.000]***	0.753	[0.000]***
N of children					-0.0921	[0.026]**	-0.0880	[0.034]**
single					-0.0325	[0.887]	-0.0418	[0.854]
married					0.355	[0.026]**	0.362	[0.024]**
illiterate							-0.409	[0.098]*
_cons	-1.992	[0.000]***	-6.586	[0.000]***	-6.526	[0.000]***	-6.549	[0.000]***
num of observations	3817		3817		3383		3383	
pseudo R2	0.000936		0.0578		0.0606		0.0618	
chi2	2.537		141.5		141.7		141.4	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.340	[0.021]**	0.313	[0.033]**	0.571	[0.001]***	0.588	[0.001]***
w4	0.371	[0.005]***	0.322	[0.016]**	0.573	[0.001]***	0.708	[0.000]***
age			0.0589	[0.002]***	0.0707	[0.002]***	0.0679	[0.003]***
age2			-0.000635	[0.001]***	-0.000714	[0.002]***	-0.000652	[0.004]***
male			0.345	[0.002]***	0.258	[0.033]**	0.256	[0.035]**
N of children					0.0301	[0.491]	0.0419	[0.343]
single					0.419	[0.059]*	0.410	[0.065]*
married					0.418	[0.014]**	0.424	[0.012]**
illiterate							-0.800	[0.003]***
_cons	-2.454	[0.000]***	-3.785	[0.000]***	-4.737	[0.000]***	-4.793	[0.000]***
num of observations	3817		3817		3383		3383	
pseudo R2	0.00358		0.0117		0.0183		0.0232	
chi2	8.487		30.29		40.38		49.42	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Trust in others	mean values		demographic controls		familiar status		education	
w2	-0.111	[0.288]	-0.111	[0.288]	-0.0994	[0.420]	-0.0737	[0.549]
w4	-0.195	[0.036]**	-0.190	[0.044]**	-0.228	[0.048]**	-0.0588	[0.622]
age			0.0209	[0.127]	0.0569	[0.001]***	0.0538	[0.002]***
age2			-0.000280	[0.055]*	-0.000571	[0.002]***	-0.000499	[0.005]***
male			0.0665	[0.403]	-0.0282	[0.749]	-0.0341	[0.699]
N of children					-0.0728	[0.039]**	-0.0599	[0.094]*
single					0.444	[0.004]***	0.429	[0.005]***
married					0.00317	[0.979]	0.0112	[0.926]
illiterate							-1.083	[0.000]***
_cons	-1.109	[0.000]***	-1.443	[0.000]***	-2.310	[0.000]***	-2.371	[0.000]***
num of observations	3616		3616		3218		3218	
pseudo R2	0.00113		0.00359		0.00880		0.0174	
chi2	4.402		12.40		27.56		48.57	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.758	[0.000]***	0.755	[0.000]***	0.816	[0.000]***	0.839	[0.000]***
w4	0.834	[0.000]***	0.802	[0.000]***	0.899	[0.000]***	1.031	[0.000]***
age			0.0859	[0.000]***	0.0712	[0.000]***	0.0692	[0.000]***
age2			-0.000834	[0.000]***	-0.000701	[0.000]***	-0.00065	[0.001]***
male			0.0849	[0.358]	0.093	[0.338]	0.0912	[0.348]
N of children					0.00644	[0.851]	0.0175	[0.614]
single					0.221	[0.215]	0.215	[0.226]
married					0.385	[0.004]***	0.395	[0.003]***
illiterate							-0.656	[0.001]***
_cons	-2.263	[0.000]***	-4.23	[0.000]***	-4.229	[0.000]***	-4.301	[0.000]***
num of observations	3817		3817		3383		3383	
pseudo R2	0.018		0.0282		0.0255		0.0297	
chi2	48		88.31		77.03		90.04	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.193	[0.025]**	0.224	[0.010]***	0.302	[0.002]***	0.309	[0.002]***
w4	0.502	[0.000]***	0.564	[0.000]***	0.701	[0.000]***	0.746	[0.000]***
age			-0.0101	[0.335]	-0.0737	[0.000]***	-0.0743	[0.000]***
age2			-0.0000212	[0.846]	0.000581	[0.000]***	0.000597	[0.000]***
male			-0.0537	[0.424]	-0.0824	[0.256]	-0.0837	[0.249]
N of children					0.0300	[0.310]	0.0334	[0.258]
single					0.351	[0.012]**	0.347	[0.013]**
married					1.069	[0.000]***	1.072	[0.000]***
illiterate							-0.220	[0.132]
cut1	-4.350	[0.000]***	-4.841	[0.000]***	-5.533	[0.000]***	-5.514	[0.000]***
cut2	-2.186	[0.000]***	-2.674	[0.000]***	-3.351	[0.000]***	-3.332	[0.000]***
cut3	1.266	[0.000]***	0.807	[0.000]***	0.200	[0.503]	0.220	[0.460]
num of observations	3781				3358		3358	
pseudo R2	0.00632		0.224		0.0349		0.0353	
chi2	40.84				187.2		189.0	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Table 3.17: Logit regression about the trends of relational goods and subjective well-being in Germany

Germany

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.098	[0.000]***	1.100	[0.000]***	0.948	[0.000]***	0.948	[0.000]***
w4	0.522	[0.000]***	0.535	[0.000]***	0.366	[0.000]***	0.369	[0.000]***
age			0.0227	[0.005]***	0.0184	[0.063]*	0.0183	[0.065]*
age2			-0.000258	[0.002]***	-0.000215	[0.027]**	-0.000214	[0.028]**
male			0.176	[0.001]***	0.179	[0.001]***	0.179	[0.001]***
N of children					0.0462	[0.063]*	0.0465	[0.062]*
single					0.398	[0.000]***	0.397	[0.000]***
married					0.144	[0.038]**	0.143	[0.040]**
illiterate							-0.153	[0.663]
_cons	-1.031	[0.000]***	-1.534	[0.000]***	-1.516	[0.000]***	-1.514	[0.000]***
num of observations	6778		6775		6230		6230	
pseudo R2	0.0309		0.0336		0.0271		0.0271	
chi2	271.2		290.5		218.7		218.7	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.831	[0.000]***	0.848	[0.000]***	0.886	[0.000]***	0.886	[0.000]***
w4	-0.673	[0.000]***	-0.677	[0.000]***	-0.610	[0.000]***	-0.593	[0.000]***
age			0.109	[0.000]***	0.0755	[0.000]***	0.0754	[0.000]***
age2			-0.00120	[0.000]***	-0.000889	[0.000]***	-0.000889	[0.000]***
male			0.747	[0.000]***	0.742	[0.000]***	0.743	[0.000]***
N of children					0.000739	[0.979]	0.00188	[0.947]
single					-0.248	[0.041]**	-0.252	[0.039]**
married					0.185	[0.023]**	0.181	[0.026]**
illiterate							-1.705	[0.097]*
_cons	-1.240	[0.000]***	-3.761	[0.000]***	-3.060	[0.000]***	-3.057	[0.000]***
num of observations	6778		6775		6230		6230	
pseudo R2	0.0637		0.105		0.109		0.109	
chi2	451.8		728.4		689.3		685.4	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.794	[0.000]***	0.797	[0.000]***	1.342	[0.000]***	1.342	[0.000]***
w4	-0.111	[0.307]	-0.0946	[0.376]	0.416	[0.005]***	0.409	[0.006]***
age			0.00730	[0.483]	0.0306	[0.018]**	0.0308	[0.018]**
age2			-0.0000934	[0.383]	-0.000303	[0.018]**	-0.000305	[0.018]**
male			0.192	[0.003]***	0.0848	[0.217]	0.0845	[0.219]
N of children					0.125	[0.000]***	0.125	[0.000]***
single					0.403	[0.002]***	0.405	[0.002]***
married					0.188	[0.042]**	0.190	[0.040]**
illiterate							0.337	[0.442]
_cons	-1.940	[0.000]***	-2.147	[0.000]***	-3.576	[0.000]***	-3.580	[0.000]***
num of observations	6778		6775		6230		6230	
pseudo R2	0.0276		0.0292		0.0408		0.0409	
chi2	166.7		180.2		223.7		223.6	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.0282	[0.711]	0.0571	[0.454]	0.148	[0.128]	0.148	[0.128]
w3	0.0451	[0.576]	0.0606	[0.454]	0.144	[0.153]	0.160	[0.115]
w4	0.231	[0.004]***	0.290	[0.000]***	0.359	[0.000]***	0.368	[0.000]***
age			-0.00253	[0.751]	0.0161	[0.096]*	0.0159	[0.101]
age2			-0.0000578	[0.484]	-0.000205	[0.034]**	-0.000200	[0.038]**
male			0.0801	[0.095]*	0.0469	[0.353]	0.0455	[0.367]
N of children					-0.00283	[0.896]	-0.00319	[0.883]
single					0.334	[0.000]***	0.329	[0.000]***
married					0.0976	[0.132]	0.0937	[0.148]
illiterate							-0.556	[0.023]**
_cons	-0.741	[0.000]***	-0.558	[0.002]***	-1.246	[0.000]***	-1.242	[0.000]***
num of observations	7870		7861		7408		7408	
pseudo R2	0.00139		0.00510		0.00636		0.00695	
chi2	14.13		51.16		59.29		64.36	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.662	[0.000]***	0.658	[0.000]***	0.671	[0.000]***	0.672	[0.000]***
w4	0.193	[0.100]	0.173	[0.141]	0.157	[0.230]	0.171	[0.192]
age			0.0479	[0.000]***	0.0347	[0.007]***	0.0342	[0.008]***
age2			-0.000498	[0.000]***	-0.000387	[0.002]***	-0.000381	[0.003]***
male			0.319	[0.000]***	0.335	[0.000]***	0.337	[0.000]***
N of children					0.067	[0.046]**	0.0682	[0.042]**
single					0.179	[0.209]	0.177	[0.215]
married					0.226	[0.020]**	0.225	[0.020]**
illiterate							-1.122	[0.276]
_cons	-1.794	[0.000]***	-2.942	[0.000]***	-2.891	[0.000]***	-2.883	[0.000]***
num of observations	6778		6775		6230		6230	
pseudo R2	0.012		0.0201		0.0216		0.0221	
chi2	60.86		101		107.8		108.3	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.142	[0.018]**	0.171	[0.004]***	0.163	[0.034]**	0.164	[0.033]**
w3	0.0576	[0.423]	0.0818	[0.259]	0.122	[0.158]	0.142	[0.102]
w4	0.0565	[0.435]	0.115	[0.115]	0.147	[0.090]*	0.159	[0.067]*
age			-0.0121	[0.106]	-0.0726	[0.000]***	-0.0732	[0.000]***
age2			0.0000524	[0.513]	0.000654	[0.000]***	0.000663	[0.000]***
male			0.0340	[0.460]	-0.0362	[0.450]	-0.0393	[0.413]
N of children					-0.0326	[0.140]	-0.0331	[0.134]
single					0.0526	[0.553]	0.0469	[0.596]
married					0.938	[0.000]***	0.935	[0.000]***
illiterate							-0.632	[0.009]***
cut1	-3.876	[0.000]***	-4.258	[0.000]***	-5.160	[0.000]***	-5.173	[0.000]***
cut2	-1.590	[0.000]***	-1.968	[0.000]***	-2.840	[0.000]***	-2.851	[0.000]***
cut3	1.744	[0.000]***	1.375	[0.000]***	0.549	[0.015]**	0.541	[0.017]**
num of observations	8409		8400		7887		7887	
pseudo R2	0.000335		0.00228		0.0216		0.0221	
chi2	6.269		36.37		303.3		309.5	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Table 3.18: Logit regression about the trends of relational goods and subjective well-being in Netherlands

Netherlands								
Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.308	[0.000]***	1.259	[0.000]***	1.239	[0.000]***	1.240	[0.000]***
w4	2.088	[0.000]***	2.003	[0.000]***	1.986	[0.000]***	2.005	[0.000]***
age			0.0572	[0.000]***	0.0282	[0.133]	0.0256	[0.166]
age2			-0.000541	[0.000]***	-0.000277	[0.134]	-0.000247	[0.172]
male			0.0390	[0.644]	0.169	[0.082]*	0.164	[0.092]*
N of children					0.0409	[0.326]	0.0408	[0.328]
single					0.336	[0.068]*	0.326	[0.077]*
married					0.490	[0.000]***	0.490	[0.000]***
illiterate							-1.130	[0.106]
_cons	-0.0442	[0.440]	-1.314	[0.000]***	-1.070	[0.015]**	-1.018	[0.020]**
num of observations	3241		3217		2744		2744	
pseudo R2	0.118		0.123		0.0978		0.0985	
chi2	408.3		416.9		274.8		275.8	
Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.682	[0.000]***	0.590	[0.000]***	0.728	[0.000]***	0.728	[0.000]***
w4	0.783	[0.000]***	0.612	[0.000]***	0.737	[0.000]***	0.739	[0.000]***
age			0.130	[0.000]***	0.121	[0.000]***	0.121	[0.000]***
age2			-0.00131	[0.000]***	-0.00118	[0.000]***	-0.00118	[0.000]***
male			0.569	[0.000]***	0.542	[0.000]***	0.541	[0.000]***
N of children					-0.0393	[0.272]	-0.0396	[0.268]
single					0.333	[0.041]**	0.331	[0.042]**
married					0.468	[0.000]***	0.468	[0.000]***
illiterate							-0.317	[0.691]
_cons	-1.078	[0.000]***	-4.091	[0.000]***	-4.377	[0.000]***	-4.369	[0.000]***
num of observations	3241		3217		2744		2744	
pseudo R2	0.0212		0.0571		0.0525		0.0526	
chi2	85.46		221.9		183.7		184.5	
Other groups	mean values		demographic controls		familiar status		education	
w2	0.835	[0.000]***	0.801	[0.000]***	0.881	[0.000]***	0.881	[0.000]***
w4	0.733	[0.000]***	0.676	[0.000]***	0.733	[0.000]***	0.730	[0.000]***
age			0.00196	[0.889]	0.0271	[0.121]	0.0278	[0.111]
age2			0.0000656	[0.642]	-0.000143	[0.401]	-0.000150	[0.374]
male			-0.0123	[0.886]	-0.0510	[0.585]	-0.0497	[0.595]
N of children					0.0410	[0.276]	0.0412	[0.274]
single					0.609	[0.001]***	0.612	[0.001]***
married					0.402	[0.003]***	0.403	[0.003]***
illiterate							0.268	[0.704]
_cons	-1.788	[0.000]***	-1.978	[0.000]***	-3.137	[0.000]***	-3.151	[0.000]***
num of observations	3241		3217		2744		2744	
pseudo R2	0.0214		0.0241		0.0257		0.0257	
chi2	68.11		72.77		67.71		67.90	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.349	[0.000]***	0.417	[0.000]***	0.401	[0.000]***	0.401	[0.000]***
w4	0.619	[0.000]***	0.740	[0.000]***	0.678	[0.000]***	0.682	[0.000]***
age			0.000297	[0.980]	0.0174	[0.272]	0.0166	[0.297]
age2			-0.000186	[0.133]	-0.000319	[0.040]**	-0.000310	[0.048]**
male			0.135	[0.073]*	0.0762	[0.359]	0.0743	[0.371]
N of children					0.0269	[0.456]	0.0265	[0.462]
single					0.647	[0.000]***	0.644	[0.000]***
married					0.271	[0.017]**	0.271	[0.017]**
illiterate							-0.435	[0.561]
_cons	-0.210	[0.001]***	0.0488	[0.852]	-0.694	[0.070]*	-0.677	[0.079]*
num of observations	3034		3014		2596		2596	
pseudo R2	0.0117		0.0274		0.0335		0.0336	
chi2	48.58		105.6		111.2		111.3	
Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.556	[0.000]***	0.571	[0.000]***	0.48	[0.000]***	0.48	[0.000]***
w4	1.162	[0.000]***	1.164	[0.000]***	1.074	[0.000]***	1.084	[0.000]***
age			0.0779	[0.000]***	0.0556	[0.002]***	0.0537	[0.003]***
age2			-0.000765	[0.000]***	-0.000551	[0.001]***	-0.000529	[0.003]***
male			0.0266	[0.752]	0.0345	[0.698]	0.0306	[0.731]
N of children					0.0504	[0.182]	0.0501	[0.185]
single					0.479	[0.005]***	0.471	[0.006]***
married					0.438	[0.001]***	0.436	[0.001]***
illiterate							-1.118	[0.163]
_cons	-1.434	[0.000]***	-3.185	[0.000]***	-3.037	[0.000]***	-3	[0.000]***
num of observations	3241		3217		2744		2744	
pseudo R2	0.0384		0.0484		0.0376		0.0382	
chi2	125.1		183.1		113.3		116.8	
Happiness	mean values		demographic controls		familiar status		education	
w2	0.373	[0.000]***	0.397	[0.000]***	0.475	[0.000]***	0.476	[0.000]***
w4	0.391	[0.000]***	0.445	[0.000]***	0.600	[0.000]***	0.607	[0.000]***
age			0.00717	[0.527]	-0.0896	[0.000]***	-0.0916	[0.000]***
age2			-0.000156	[0.195]	0.000767	[0.000]***	0.000790	[0.000]***
male			-0.168	[0.017]**	-0.118	[0.138]	-0.120	[0.130]
N of children					-0.0115	[0.742]	-0.0116	[0.741]
single					0.0568	[0.723]	0.0521	[0.746]
married					1.157	[0.000]***	1.158	[0.000]***
illiterate							-0.944	[0.468]
cut1	-4.802	[0.000]***	-4.878	[0.000]***	-6.226	[0.000]***	-6.267	[0.000]***
cut2	-2.811	[0.000]***	-2.892	[0.000]***	-4.282	[0.000]***	-4.322	[0.000]***
cut3	0.582	[0.000]***	0.515	[0.032]**	-0.928	[0.014]**	-0.967	[0.012]**
num of observations	3212				2733		2733	
pseudo R2	0.00513		0.397		0.0410		0.0413	
chi2	29.24				173.3		173.8	
p-values in brackets	* p<0.10	** p<0.05	*** p<0.01					

Table 3.19: Logit regression about the trends of relational goods and subjective well-being in Belgium

Belgium

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.010	[0.000]***	1.005	[0.000]***	0.926	[0.000]***	0.927	[0.000]***
w4	1.166	[0.000]***	1.181	[0.000]***	1.096	[0.000]***	1.110	[0.000]***
age			0.0149	[0.078]*	0.0190	[0.066]*	0.0184	[0.076]*
age2			-0.000222	[0.012]**	-0.000265	[0.010]***	-0.000256	[0.013]**
male			0.272	[0.000]***	0.282	[0.000]***	0.282	[0.000]***
N of children					0.0699	[0.002]***	0.0710	[0.002]***
single					0.422	[0.000]***	0.414	[0.000]***
married					0.119	[0.124]	0.111	[0.151]
illiterate							-0.680	[0.055]*
_cons	-1.235	[0.000]***	-1.523	[0.000]***	-1.803	[0.000]***	-1.790	[0.000]***
num of observations	5849		5842		5340		5340	
pseudo R2	0.0288		0.0350		0.0292		0.0298	
chi2	203.6		234.8		186.1		189.4	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.272	[0.002]***	0.203	[0.021]**	0.240	[0.023]**	0.240	[0.023]**
w4	0.435	[0.000]***	0.390	[0.000]***	0.463	[0.000]***	0.469	[0.000]***
age			0.0987	[0.000]***	0.0623	[0.000]***	0.0619	[0.000]***
age2			-0.00114	[0.000]***	-0.000804	[0.000]***	-0.000799	[0.000]***
male			0.622	[0.000]***	0.661	[0.000]***	0.661	[0.000]***
N of children					0.0408	[0.113]	0.0413	[0.109]
single					-0.210	[0.116]	-0.214	[0.109]
married					0.165	[0.072]*	0.161	[0.079]*
illiterate							-0.344	[0.419]
_cons	-1.419	[0.000]***	-3.502	[0.000]***	-2.832	[0.000]***	-2.825	[0.000]***
num of observations	5849		5842		5340		5340	
pseudo R2	0.00367		0.0383		0.0397		0.0399	
chi2	23.15		203.7		205.1		205.4	

Other groups	mean values		demographic controls		familiar status		education	
w2	1.332	[0.000]***	1.342	[0.000]***	1.726	[0.000]***	1.727	[0.000]***
w4	1.542	[0.000]***	1.551	[0.000]***	1.908	[0.000]***	1.919	[0.000]***
age			-0.00634	[0.522]	0.00195	[0.868]	0.00143	[0.903]
age2			0.0000524	[0.603]	-0.0000231	[0.841]	-0.0000164	[0.887]
male			-0.138	[0.031]**	-0.166	[0.013]**	-0.166	[0.013]**
N of children					0.147	[0.000]***	0.148	[0.000]***
single					0.486	[0.000]***	0.480	[0.000]***
married					0.164	[0.069]*	0.157	[0.082]*
illiterate							-0.549	[0.188]
_cons	-2.461	[0.000]***	-2.242	[0.000]***	-3.245	[0.000]***	-3.235	[0.000]***
num of observations	5849		5842		5340		5340	
pseudo R2	0.0351		0.0360		0.0400		0.0403	
chi2	163.4		171.9		155.6		157.5	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.202	[0.013]**	0.202	[0.013]**	0.160	[0.108]	0.161	[0.108]
w4	0.00245	[0.977]	0.0161	[0.853]	-0.0469	[0.655]	-0.0397	[0.706]
age			0.00396	[0.673]	0.0115	[0.315]	0.0111	[0.331]
age2			-0.0000958	[0.326]	-0.000147	[0.199]	-0.000142	[0.214]
male			0.157	[0.008]***	0.140	[0.024]**	0.141	[0.023]**
N of children					0.0323	[0.176]	0.0327	[0.172]
single					0.302	[0.010]**	0.297	[0.011]**
married					0.117	[0.164]	0.113	[0.180]
illiterate							-0.363	[0.370]
_cons	-0.887	[0.000]***	-0.922	[0.000]***	-1.271	[0.000]***	-1.263	[0.000]***
num of observations	5401		5395		4958		4958	
pseudo R2	0.00173		0.00440		0.00489		0.00503	
chi2	11.57		29.79		29.89		30.45	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.452	[0.000]***	0.434	[0.000]***	0.469	[0.000]***	0.47	[0.000]***
w4	0.685	[0.000]***	0.676	[0.000]***	0.683	[0.000]***	0.688	[0.000]***
age			0.0336	[0.005]***	0.0507	[0.001]***	0.0505	[0.001]***
age2			-0.000369	[0.003]***	-0.00053	[0.000]***	-0.000527	[0.000]***
male			0.269	[0.000]***	0.245	[0.001]***	0.245	[0.001]***
N of children					0.0995	[0.001]***	0.0998	[0.001]***
single					0.624	[0.000]***	0.621	[0.000]***
married					0.129	[0.227]	0.125	[0.239]
illiterate							-0.224	[0.641]
_cons	-1.704	[0.000]***	-2.481	[0.000]***	-3.261	[0.000]***	-3.257	[0.000]***
num of observations	5849		5842		5340		5340	
pseudo R2	0.00857		0.0138		0.0181		0.0182	
chi2	44.84		69.84		81.55		81.64	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.207	[0.002]***	0.223	[0.001]***	0.352	[0.000]***	0.352	[0.000]***
w4	0.231	[0.001]***	0.266	[0.000]***	0.403	[0.000]***	0.395	[0.000]***
age			-0.00815	[0.306]	-0.0634	[0.000]***	-0.0630	[0.000]***
age2			-0.0000125	[0.881]	0.000526	[0.000]***	0.000520	[0.000]***
male			-0.00316	[0.952]	-0.0590	[0.289]	-0.0597	[0.284]
N of children					0.0256	[0.251]	0.0252	[0.260]
single					0.241	[0.037]**	0.247	[0.033]**
married					1.064	[0.000]***	1.069	[0.000]***
illiterate							0.364	[0.240]
cut1	-4.053	[0.000]***	-4.443	[0.000]***	-4.889	[0.000]***	-4.881	[0.000]***
cut2	-2.358	[0.000]***	-2.744	[0.000]***	-3.213	[0.000]***	-3.205	[0.000]***
cut3	0.615	[0.000]***	0.242	[0.167]	-0.145	[0.566]	-0.135	[0.591]
num of observations	5684				5207		5207	
pseudo R2	0.00105		0.223		0.0302		0.0303	
chi2	11.91				268.4		268.6	

p-values in brackets ="* p<0.1 ** p<0.05 *** p<0.01"

Table 3.20: Logit regression about the trends of relational goods and subjective well-being in Denmark

Denmark

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.551	[0.000]***	1.572	[0.000]***	1.573	[0.000]***	1.572	[0.000]***
w4	1.703	[0.000]***	1.735	[0.000]***	1.772	[0.000]***	1.774	[0.000]***
age			0.0341	[0.004]***	0.0253	[0.094]*	0.0250	[0.098]*
age2			-0.000470	[0.000]***	-0.000378	[0.010]***	-0.000375	[0.010]**
male			0.0595	[0.439]	0.0930	[0.254]	0.0906	[0.267]
N of children					-0.101	[0.010]**	-0.101	[0.010]**
single					-0.264	[0.065]*	-0.261	[0.069]*
married					0.109	[0.300]	0.109	[0.298]
illiterate							-0.921	[0.459]
_cons	-1.481	[0.000]***	-1.979	[0.000]***	-1.657	[0.000]***	-1.647	[0.000]***
num of observations	3235		3235		2812		2812	
pseudo R2	0.0935		0.103		0.0929		0.0931	
chi2	352.4		370.9		270.6		271.0	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.389	[0.000]***	0.381	[0.000]***	0.566	[0.000]***	0.564	[0.000]***
w4	0.455	[0.000]***	0.446	[0.000]***	0.708	[0.000]***	0.712	[0.000]***
age			0.184	[0.000]***	0.174	[0.000]***	0.173	[0.000]***
age2			-0.00222	[0.000]***	-0.00211	[0.000]***	-0.00211	[0.000]***
male			0.548	[0.000]***	0.520	[0.000]***	0.515	[0.000]***
N of children					-0.0955	[0.018]**	-0.0959	[0.017]**
single					-0.619	[0.000]***	-0.610	[0.000]***
married					-0.0213	[0.849]	-0.0206	[0.854]
illiterate								
_cons	-0.0033	[0.954]	-3.384	[0.000]***	-3.052	[0.000]***	-3.036	[0.000]***
num of observations	3235		3235		2812		2809	
pseudo R2	0.00753		0.113		0.124		0.123	
chi2	33.28		318.2		310.2		309.7	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.455	[0.000]***	0.434	[0.000]***	0.680	[0.000]***	0.683	[0.000]***
w4	0.649	[0.000]***	0.618	[0.000]***	0.837	[0.000]***	0.833	[0.000]***
age			0.0187	[0.168]	0.0420	[0.016]**	0.0432	[0.013]**
age2			-0.000150	[0.273]	-0.000362	[0.029]**	-0.000373	[0.024]**
male			0.116	[0.184]	0.145	[0.121]	0.153	[0.104]
N of children					0.0834	[0.036]**	0.0836	[0.036]**
single					0.122	[0.482]	0.110	[0.527]
married					0.123	[0.302]	0.121	[0.309]
illiterate							2.253	[0.061]*
_cons	-1.684	[0.000]***	-2.211	[0.000]***	-3.251	[0.000]***	-3.286	[0.000]***
num of observations	3235		3235		2812		2812	
pseudo R2	0.0117		0.0134		0.0232		0.0244	
chi2	37.70		40.64		66.82		70.23	
p-values in brackets	* p<0.1(		** p<0.05		*** p<0.01			

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.201	[0.024]**	0.238	[0.008]***	0.344	[0.001]***	0.345	[0.001]***
w4	0.579	[0.000]***	0.645	[0.000]***	0.723	[0.000]***	0.721	[0.000]***
age			0.0127	[0.267]	0.0222	[0.147]	0.0227	[0.139]
age2			-0.000289	[0.014]**	-0.000346	[0.019]**	-0.000350	[0.018]**
male			-0.102	[0.175]	-0.128	[0.117]	-0.124	[0.126]
N of children					-0.0561	[0.134]	-0.0560	[0.135]
single					0.160	[0.281]	0.154	[0.298]
married					0.262	[0.012]**	0.261	[0.013]**
illiterate								
_cons	0.108	[0.080]*	0.215	[0.400]	-0.241	[0.507]	-0.254	[0.485]
num of observations	3037		3037		2659		2656	
pseudo R2	0.0101		0.0246		0.0301		0.0298	
chi2	40.83		95.20		99.06		97.93	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	1.234	[0.000]***	1.224	[0.000]***	1.21	[0.000]***	1.208	[0.000]***
w4	1.637	[0.000]***	1.63	[0.000]***	1.599	[0.000]***	1.601	[0.000]***
age			0.0434	[0.009]***	0.0531	[0.008]***	0.0526	[0.008]***
age2			-0.000524	[0.002]***	-0.000605	[0.002]***	-0.0006	[0.002]***
male			0.194	[0.051]*	0.216	[0.037]**	0.211	[0.040]**
N of children					-0.00257	[0.958]	-0.0028	[0.954]
single					0.137	[0.446]	0.142	[0.429]
married					0.0389	[0.773]	0.0396	[0.770]
illiterate								
_cons	-2.714	[0.000]***	-3.549	[0.000]***	-3.84	[0.000]***	-3.823	[0.000]***
num of observations	3235		3235		2812		2809	
pseudo R2	0.059		0.0664		0.0594		0.0596	
chi2	122.7		130.6		102.2		102.6	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.416	[0.000]***	0.433	[0.000]***	0.511	[0.000]***	0.510	[0.000]***
w4	0.518	[0.000]***	0.545	[0.000]***	0.685	[0.000]***	0.687	[0.000]***
age			0.0155	[0.159]	-0.0572	[0.000]***	-0.0579	[0.000]***
age2			-0.000260	[0.024]**	0.000391	[0.007]***	0.000396	[0.007]***
male			-0.0569	[0.421]	0.00439	[0.954]	0.00166	[0.983]
N of children					-0.00201	[0.956]	-0.00203	[0.955]
single					-0.291	[0.040]**	-0.287	[0.043]**
married					0.781	[0.000]***	0.783	[0.000]***
illiterate							-1.427	[0.448]
cut1	-4.958	[0.000]***	-4.890	[0.000]***	-6.052	[0.000]***	-6.070	[0.000]***
cut2	-2.671	[0.000]***	-2.600	[0.000]***	-3.835	[0.000]***	-3.852	[0.000]***
cut3	0.745	[0.000]***	0.837	[0.000]***	-0.440	[0.203]	-0.455	[0.189]
num of observations	3189				2775		2775	
pseudo R2	0.00765		0.433		0.0321		0.0323	
chi2	42.79				147.8		148.2	
p-values in brackets	* p<0.1(		** p<0.05		*** p<0.01			

Table 3.21: Logit regression about the trends of relational goods and subjective well-being in Norway

Norway

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.168	[0.000]***	1.162	[0.000]***	1.138	[0.000]***	1.138	[0.000]***
age			0.0423	[0.008]***	0.0303	[0.148]	0.0303	[0.148]
age2			-0.000479	[0.005]***	-0.000367	[0.083]*	-0.000367	[0.083]*
male			-0.119	[0.179]	-0.0696	[0.460]	-0.0696	[0.460]
N of children					0.104	[0.013]**	0.104	[0.013]**
single					0.593	[0.002]***	0.593	[0.002]***
married					0.186	[0.157]	0.186	[0.157]
illiterate								
_cons	-0.955	[0.000]***	-1.695	[0.000]***	-1.812	[0.000]***	-1.812	[0.000]***
num of observations	2290		2290		1997		1997	
pseudo R2	0.0574		0.0608		0.0562		0.0562	
chi2	170.2		176.8		138.4		138.4	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.430	[0.000]***	0.434	[0.000]***	0.611	[0.000]***	0.611	[0.000]***
age			0.170	[0.000]***	0.158	[0.000]***	0.158	[0.000]***
age2			-0.00177	[0.000]***	-0.00163	[0.000]***	-0.00163	[0.000]***
male			0.563	[0.000]***	0.617	[0.000]***	0.617	[0.000]***
N of children					-0.0184	[0.656]	-0.0184	[0.656]
single					-0.630	[0.002]***	-0.630	[0.002]***
married					0.0781	[0.552]	0.0781	[0.552]
illiterate								
_cons	-0.270	[0.000]***	-4.150	[0.000]***	-4.016	[0.000]***	-4.016	[0.000]***
num of observations	2290		2290		1997		1997	
pseudo R2	0.00823		0.0586		0.0648		0.0648	
chi2	25.95		162.6		158.5		158.5	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.746	[0.000]***	0.750	[0.000]***	0.707	[0.000]***	0.707	[0.000]***
age			0.0254	[0.140]	0.0147	[0.500]	0.0147	[0.500]
age2			-0.000270	[0.134]	-0.000164	[0.454]	-0.000164	[0.454]
male			0.343	[0.000]***	0.348	[0.001]***	0.348	[0.001]***
N of children					0.0368	[0.400]	0.0368	[0.400]
single					0.0978	[0.622]	0.0978	[0.622]
married					0.0518	[0.712]	0.0518	[0.712]
illiterate								
_cons	-1.346	[0.000]***	-2.052	[0.000]***	-1.884	[0.000]***	-1.884	[0.000]***
num of observations	2290		2290		1997		1997	
pseudo R2	0.0226		0.0283		0.0234		0.0234	
chi2	59.62		74.71		55.63		55.63	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.180	[0.047]**	0.181	[0.049]**	0.190	[0.068]*	0.189	[0.069]*
w3	0.191	[0.037]**	0.173	[0.062]*	0.193	[0.067]*	0.217	[0.040]**
age			0.0449	[0.001]***	0.0368	[0.032]**	0.0354	[0.040]**
age2			-0.000670	[0.000]***	-0.000588	[0.001]***	-0.000569	[0.001]***
male			0.117	[0.117]	0.127	[0.109]	0.127	[0.109]
N of children					-0.0325	[0.358]	-0.0334	[0.346]
single					-0.177	[0.228]	-0.172	[0.243]
married					0.125	[0.219]	0.129	[0.209]
illiterate							-1.400	[0.009]***
_cons	0.441	[0.000]***	-0.0966	[0.748]	0.0752	[0.847]	0.0936	[0.811]
num of observations	3232		3232		2968		2968	
pseudo R2	0.00128		0.0233		0.0240		0.0260	
chi2	5.448		96.37		91.16		97.06	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.823	[0.000]***	0.813	[0.000]***	0.938	[0.000]***	0.938	[0.000]***
age			0.0926	[0.000]***	0.0729	[0.005]***	0.0729	[0.005]***
age2			-0.000953	[0.000]***	-0.000781	[0.002]***	-0.000781	[0.002]***
male			0.0196	[0.852]	0.114	[0.308]	0.114	[0.308]
N of children					0.18	[0.000]***	0.18	[0.000]***
single					0.744	[0.002]***	0.744	[0.002]***
married					0.48	[0.005]***	0.48	[0.005]***
illiterate								
_cons	-1.84	[0.000]***	-3.831	[0.000]***	-4.269	[0.000]***	-4.269	[0.000]***
num of observations	2290		2290		1997		1997	
pseudo R2	0.0252		0.0348		0.0438		0.0438	
chi2	55.55		72.37		78.11		78.11	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.0877	[0.318]	0.0876	[0.321]	0.0916	[0.364]	0.0912	[0.368]
w3	0.125	[0.159]	0.114	[0.200]	0.184	[0.072]*	0.211	[0.040]**
age			-0.00541	[0.671]	-0.0760	[0.000]***	-0.0782	[0.000]***
age2			-0.0000372	[0.787]	0.000622	[0.000]***	0.000650	[0.000]***
male			-0.177	[0.013]**	-0.196	[0.010]**	-0.196	[0.010]**
N of children					-0.0686	[0.049]**	-0.0687	[0.050]**
single					-0.371	[0.010]**	-0.365	[0.012]**
married					0.844	[0.000]***	0.847	[0.000]***
illiterate							-1.783	[0.002]***
cut1	-4.834	[0.000]***	-5.260	[0.000]***	-6.674	[0.000]***	-6.727	[0.000]***
cut2	-2.639	[0.000]***	-3.062	[0.000]***	-4.451	[0.000]***	-4.496	[0.000]***
cut3	0.960	[0.000]***	0.555	[0.040]**	-0.728	[0.040]**	-0.758	[0.032]**
num of observations	3402				3109		3109	
pseudo R2	0.000365		0.0876		0.0264		0.0288	
chi2	2.058				133.8		148.8	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Table 3.22: Logit regression about the trends of relational goods and subjective well-being in Sweden

Sweden

Putnam's groups	mean values		demographic controls		familiar status		education	
w2	1.218	[0.000]***	1.219	[0.000]***	1.192	[0.000]***	1.193	[0.000]***
w4	3.039	[0.000]***	3.036	[0.000]***	3.032	[0.000]***	3.038	[0.000]***
age			0.0191	[0.236]	0.0140	[0.493]	0.0134	[0.510]
age2			-0.000239	[0.176]	-0.000201	[0.344]	-0.000194	[0.360]
male			-0.189	[0.030]**	-0.178	[0.053]*	-0.177	[0.054]*
N of children					0.00808	[0.863]	0.00795	[0.865]
single					0.313	[0.066]*	0.312	[0.067]*
married					0.196	[0.082]*	0.199	[0.077]*
illiterate							-0.856	[0.475]
_cons	-0.982	[0.000]***	-1.197	[0.001]***	-1.220	[0.007]***	-1.210	[0.007]***
num of observations	3016		2962		2700		2700	
pseudo R2	0.203		0.209		0.202		0.202	
chi2	615.0		630.0		552.2		552.0	

Olson's groups	mean values		demographic controls		familiar status		education	
w2	0.555	[0.000]***	0.589	[0.000]***	0.730	[0.000]***	0.732	[0.000]***
w4	0.887	[0.000]***	0.935	[0.000]***	1.074	[0.000]***	1.081	[0.000]***
age			0.210	[0.000]***	0.201	[0.000]***	0.200	[0.000]***
age2			-0.00239	[0.000]***	-0.00230	[0.000]***	-0.00229	[0.000]***
male			0.261	[0.001]***	0.251	[0.003]***	0.254	[0.003]***
N of children					-0.0434	[0.330]	-0.0433	[0.331]
single					-0.557	[0.000]***	-0.559	[0.000]***
married					-0.0607	[0.566]	-0.0550	[0.603]
illiterate							-1.396	[0.323]
_cons	-0.0377	[0.560]	-4.162	[0.000]***	-3.896	[0.000]***	-3.876	[0.000]***
num of observations	3016		2962		2700		2700	
pseudo R2	0.0231		0.0865		0.0868		0.0872	
chi2	91.50		233.6		209.9		210.4	

Other groups	mean values		demographic controls		familiar status		education	
w2	0.898	[0.000]***	0.926	[0.000]***	0.973	[0.000]***	0.974	[0.000]***
w4	1.022	[0.000]***	1.042	[0.000]***	1.105	[0.000]***	1.110	[0.000]***
age			0.0307	[0.043]**	0.00777	[0.673]	0.00697	[0.706]
age2			-0.000191	[0.240]	0.0000116	[0.951]	0.0000206	[0.914]
male			0.0769	[0.348]	0.130	[0.126]	0.131	[0.123]
N of children					0.0581	[0.161]	0.0579	[0.163]
single					-0.260	[0.087]*	-0.262	[0.086]*
married					0.129	[0.203]	0.133	[0.191]
illiterate							-0.899	[0.439]
_cons	-1.514	[0.000]***	-2.517	[0.000]***	-2.137	[0.000]***	-2.124	[0.000]***
num of observations	3016		2962		2700		2700	
pseudo R2	0.0303		0.0384		0.0354		0.0356	
chi2	102.1		123.9		114.9		115.6	

p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Trust in others	mean values		demographic controls		familiar status		education	
w2	0.397	[0.000]***	0.375	[0.000]***	0.481	[0.000]***	0.481	[0.000]***
w3	0.120	[0.204]	0.114	[0.234]	0.234	[0.028]**	0.235	[0.028]**
w4	0.407	[0.000]***	0.393	[0.000]***	0.527	[0.000]***	0.528	[0.000]***
age			0.0352	[0.005]***	0.0245	[0.112]	0.0244	[0.113]
age2			-0.000479	[0.000]***	-0.000383	[0.015]**	-0.000382	[0.015]**
male			0.0574	[0.402]	0.0582	[0.417]	0.0585	[0.415]
N of children					-0.0328	[0.373]	-0.0328	[0.373]
single					-0.0952	[0.440]	-0.0952	[0.440]
married					0.347	[0.000]***	0.348	[0.000]***
illiterate							-0.178	[0.819]
_cons	0.271	[0.000]***	-0.240	[0.389]	-0.205	[0.554]	-0.203	[0.557]
num of observations	3751		3700		3452		3452	
pseudo R2	0.00541		0.0121		0.0172		0.0172	
chi2	26.81		58.33		75.96		76.09	

Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w2	0.545	[0.000]***	0.522	[0.000]***	0.434	[0.000]***	0.434	[0.000]***
w4	1.466	[0.000]***	1.475	[0.000]***	1.406	[0.000]***	1.407	[0.000]***
age			0.0285	[0.072]*	0.0199	[0.288]	0.0199	[0.290]
age2			-0.000359	[0.037]**	-0.000297	[0.129]	-0.000296	[0.130]
male			0.28	[0.001]***	0.291	[0.001]***	0.292	[0.001]***
N of children					0.0466	[0.279]	0.0466	[0.279]
single					0.19	[0.210]	0.19	[0.210]
married					0.181	[0.086]*	0.181	[0.085]*
illiterate							-0.0574	[0.959]
_cons	-1.529	[0.000]***	-2.144	[0.000]***	-2.034	[0.000]***	-2.033	[0.000]***
num of observations	3016		2962		2700		2700	
pseudo R2	0.0604		0.0667		0.0607		0.0607	
chi2	209.7		228.2		196		196	

Happiness	mean values		demographic controls		familiar status		education	
w2	0.463	[0.000]***	0.461	[0.000]***	0.633	[0.000]***	0.633	[0.000]***
w3	0.393	[0.000]***	0.393	[0.000]***	0.607	[0.000]***	0.608	[0.000]***
w4	0.236	[0.010]***	0.229	[0.013]**	0.464	[0.000]***	0.465	[0.000]***
age			-0.0182	[0.115]	-0.112	[0.000]***	-0.112	[0.000]***
age2			0.000125	[0.321]	0.000970	[0.000]***	0.000972	[0.000]***
male			-0.274	[0.000]***	-0.298	[0.000]***	-0.298	[0.000]***
N of children					-0.0324	[0.339]	-0.0324	[0.339]
single					-0.760	[0.000]***	-0.760	[0.000]***
married					0.939	[0.000]***	0.940	[0.000]***
illiterate							-0.277	[0.804]
cut1	-4.406	[0.000]***	-5.082	[0.000]***	-6.948	[0.000]***	-6.952	[0.000]***
cut2	-2.719	[0.000]***	-3.404	[0.000]***	-5.304	[0.000]***	-5.308	[0.000]***
cut3	0.828	[0.000]***	0.159	[0.528]	-1.596	[0.000]***	-1.599	[0.000]***
num of observations	3982		3928		3662		3662	
pseudo R2	0.00452		0.00915		0.0463		0.0463	
chi2	32.22		60.20		268.4		268.4	

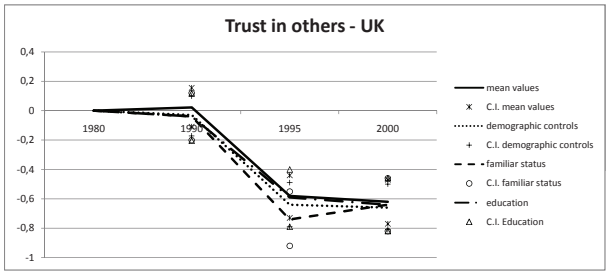
p-values in brackets * p<0.10 ** p<0.05 *** p<0.01

Finland	mean values		demographic controls		familiar status		education	
Putnam's groups								
w4	0.577	[0.000]***	0.575	[0.000]***	0.640	[0.000]***	0.640	[0.000]***
age			0.0113	[0.552]	-0.00449	[0.833]	-0.00449	[0.833]
age2			-0.0000883	[0.668]	0.0000581	[0.796]	0.0000581	[0.796]
male			-0.138	[0.189]	-0.140	[0.197]	-0.140	[0.197]
N of children					-0.0149	[0.692]	-0.0149	[0.692]
single					-0.153	[0.390]	-0.153	[0.390]
married					0.232	[0.076]*	0.232	[0.076]*
illiterate								
_cons	0.191	[0.021]**	-0.0368	[0.930]	0.232	[0.619]	0.232	[0.619]
num of observations	1626		1605		1532		1532	
pseudo R2	0.0138		0.0152		0.0183		0.0183	
chi2	29.38		31.99		36.47		36.47	
Olson's groups	mean values		demographic controls		familiar status		education	
w4	-0.243	[0.019]**	-0.105	[0.331]	0.00879	[0.939]	0.00879	[0.939]
age			0.206	[0.000]***	0.175	[0.000]***	0.175	[0.000]***
age2			-0.00228	[0.000]***	-0.00197	[0.000]***	-0.00197	[0.000]***
male			-0.0708	[0.497]	-0.0829	[0.445]	-0.0829	[0.445]
N of children					-0.0481	[0.207]	-0.0481	[0.207]
single					-0.297	[0.107]	-0.297	[0.107]
married					0.558	[0.000]***	0.558	[0.000]***
illiterate								
_cons	-0.0953	[0.249]	-4.281	[0.000]***	-3.821	[0.000]***	-3.821	[0.000]***
num of observations	1626		1605		1532		1532	
pseudo R2	0.00246		0.0513		0.0664		0.0664	
chi2	5.479		96.65		124.1		124.1	
Other groups	mean values		demographic controls		familiar status		education	
w4	-0.0754	[0.524]	-0.0986	[0.411]	-0.0114	[0.928]	-0.0114	[0.928]
age			0.0315	[0.158]	0.00862	[0.725]	0.00862	[0.725]
age2			-0.000129	[0.581]	0.0000810	[0.748]	0.0000810	[0.748]
male			-0.0233	[0.840]	-0.0370	[0.754]	-0.0370	[0.754]
N of children					0.00475	[0.901]	0.00475	[0.901]
single					-0.137	[0.522]	-0.137	[0.522]
married					0.343	[0.015]**	0.343	[0.015]**
illiterate								
_cons	-1.036	[0.000]***	-2.095	[0.000]***	-1.771	[0.001]***	-1.771	[0.001]***
num of observations	1626		1605		1532		1532	
pseudo R2	0.000221		0.0154		0.0202		0.0202	
chi2	0.407		26.96		33.81		33.81	
p-values in brackets	* p<0.10 ** p<0.05 *** p<0.01							

Trust in others	mean values		demographic controls		familiar status		education	
w3	-0.568	[0.000]***	-0.594	[0.000]***	-0.518	[0.000]***	-0.518	[0.000]***
w4	-0.221	[0.041]**	-0.237	[0.031]**	-0.143	[0.203]	-0.143	[0.203]
age			-0.0312	[0.031]**	-0.0442	[0.006]***	-0.0442	[0.006]***
age 2			0.000293	[0.061]*	0.000415	[0.014]**	0.000415	[0.014]**
male			-0.140	[0.083]*	-0.171	[0.040]**	-0.171	[0.040]**
N of children					0.0139	[0.639]	0.0139	[0.639]
single					0.191	[0.144]	0.191	[0.144]
married					0.367	[0.000]***	0.367	[0.000]***
illiterate								
_cons	0.520	[0.000]***	1.327	[0.000]***	1.341	[0.000]***	1.341	[0.000]***
num of observations	2542		2520		2451		2451	
pseudo R2	0.00884		0.0117		0.0166		0.0166	
chi2	30.61		39.74		53.31		53.31	
Unpaid putnamian work	mean values		demographic controls		familiar status		education	
w4	-0.138	[0.214]	-0.151	[0.178]	-0.0369	[0.756]	-0.0369	[0.756]
age			0.0427	[0.037]**	0.0167	[0.462]	0.0167	[0.462]
age 2			-0.000349	[0.108]	-0.000103	[0.662]	-0.000103	[0.662]
male			0.0726	[0.507]	0.0656	[0.560]	0.0656	[0.560]
N of children					0.00492	[0.898]	0.00492	[0.898]
single					-0.187	[0.342]	-0.187	[0.342]
married					0.304	[0.027]**	0.304	[0.027]**
illiterate								
_cons	-0.655	[0.000]***	-1.795	[0.000]***	-1.394	[0.006]***	-1.394	[0.006]***
num of observations	1626		1605		1532		1532	
pseudo R2	0.00078		0.0062		0.0109		0.0109	
chi2	1.545		12.9		20.54		20.54	
Happiness	mean values		demographic controls		familiar status		education	
w3	0.236	[0.032]**	0.188	[0.091]*	0.418	[0.000]***	0.418	[0.000]***
w4	0.202	[0.071]*	0.182	[0.109]	0.429	[0.000]***	0.429	[0.000]***
age			-0.0695	[0.000]***	-0.140	[0.000]***	-0.140	[0.000]***
age 2			0.000637	[0.000]***	0.00131	[0.000]***	0.00131	[0.000]***
male			-0.216	[0.010]***	-0.205	[0.018]**	-0.205	[0.018]**
N of children					-0.0460	[0.160]	-0.0460	[0.160]
single					-0.553	[0.000]***	-0.553	[0.000]***
married					0.833	[0.000]***	0.833	[0.000]***
illiterate								
cut1	-4.210	[0.000]***	-6.003	[0.000]***	-7.287	[0.000]***	-7.287	[0.000]***
cut2	-2.141	[0.000]***	-3.937	[0.000]***	-5.237	[0.000]***	-5.237	[0.000]***
cut3	1.353	[0.000]***	-0.398	[0.235]	-1.533	[0.000]***	-1.533	[0.000]***
num of observations	2575		2482		2482		2482	
pseudo R2	0.00110		0.188		0.0383		0.0383	
chi2	4.891				145.1		145.1	
p-values in brackets	* p<0.10 ** p<0.05 *** p<0.01							

Table 3.23: Logit regression about the trends of relational goods and subjective well-being in Finland

Appendix: Figures



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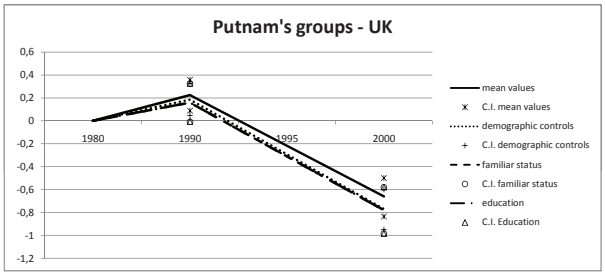

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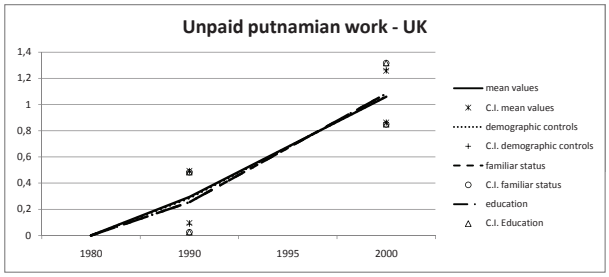


(c)

Figure 3.1: Relational social capital trends for Great Britain from 1980 to 2000. a) trust in others; b) membership in Putnam's groups; c) unpaid voluntary work in putnamian groups

Francesco Sarracino, *Social capital, economic growth and well-being*, ISBN 978-88-6655-277-2 (online)

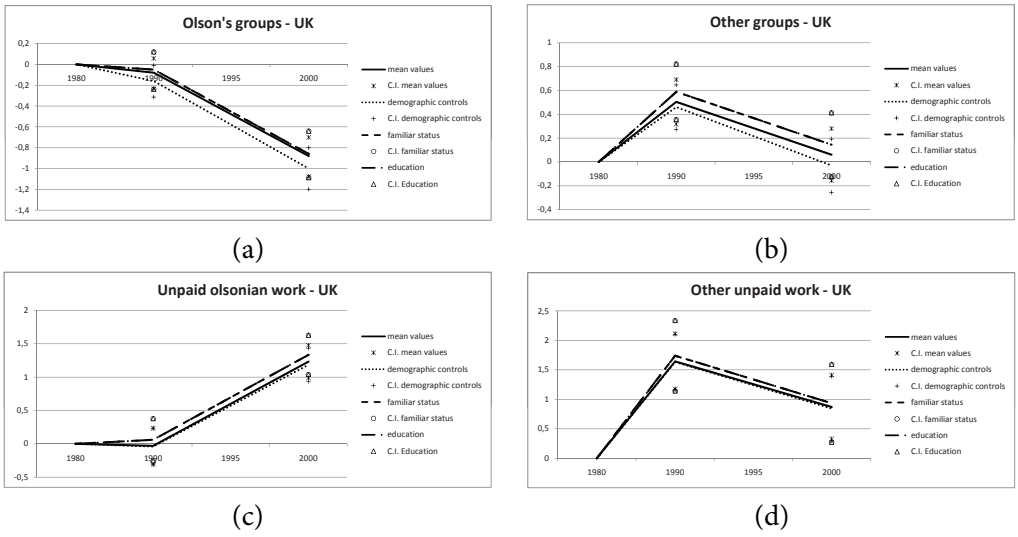


Figure 3.2: Trends about membership and unpaid voluntary work in Olson's and other groups for Great Britain from 1980 to 2000. Membership in Olson's (a) and other groups (b); performing unpaid voluntary work in olsonian (c) and other (d) groups

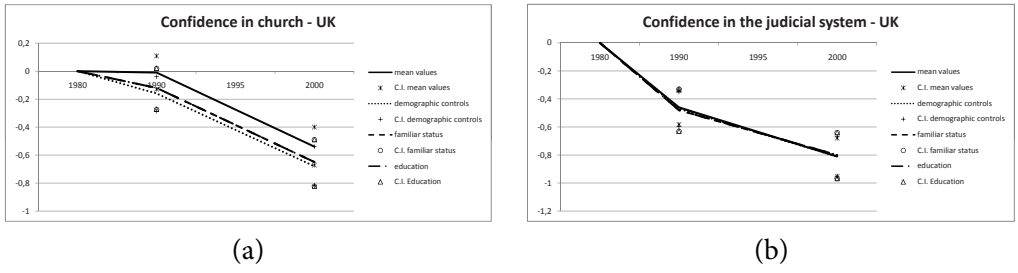
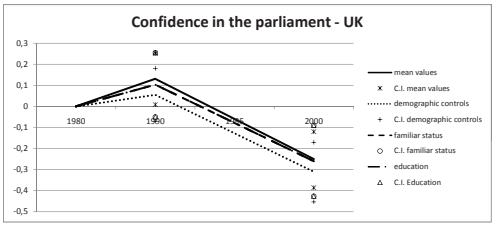


Figure 3.3: Trends about confidence in institutions for Great Britain from 1980 to 2000. (a) Confidence in religious institutions; (b) Confidence in judicial system



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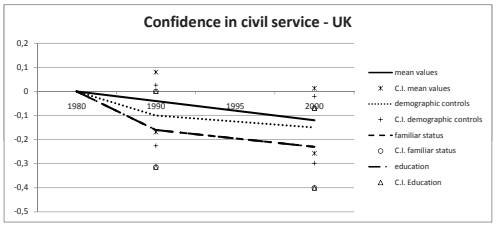

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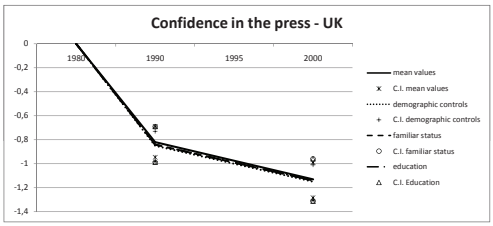
Figure 3.4: Trends about confidence in institutions for Great Britain from 1980 to 2000. (a) Confidence in parliament; (b) Confidence in civil services



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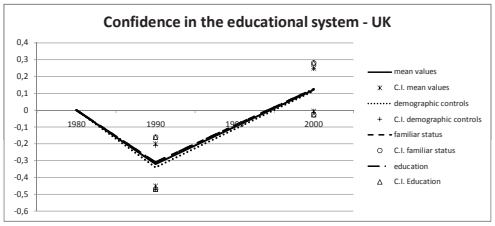
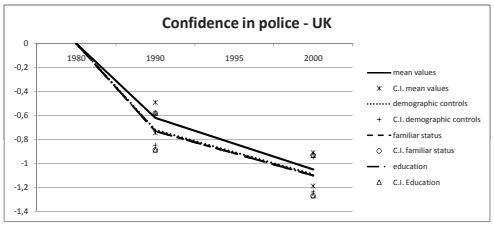


(b)

Figure 3.5: Trends about confidence in institutions for Great Britain from 1980 to 2000. (a) Confidence in press; (b) Confidence in educational system



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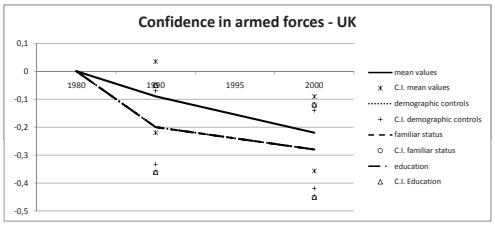

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Figure 3.6: Trends about confidence in institutions for Great Britain from 1980 to 2000. (a) Confidence in police; (b) Confidence in armed forces

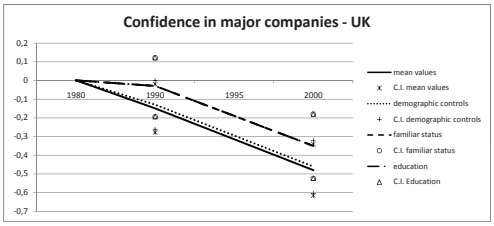
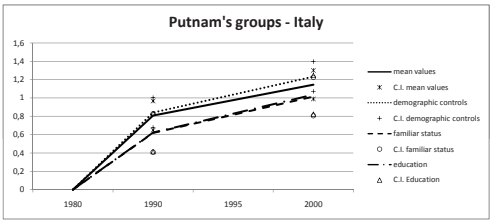


Figure 3.7: Trends about confidence in major companies for Great Britain from 1980 to 2000



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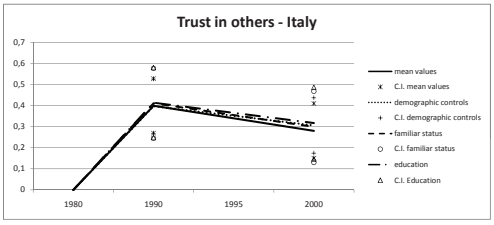

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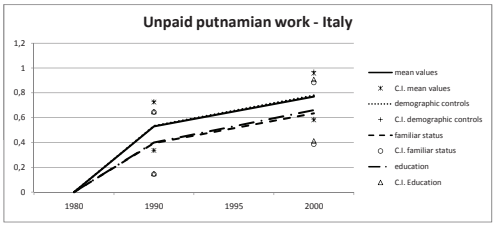
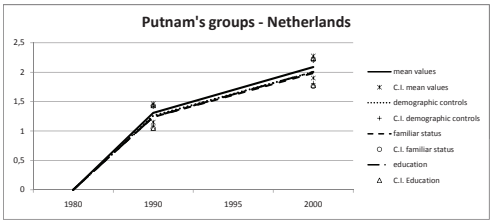


(c)

Figure 3.8: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for Italy from 1980 to 2000



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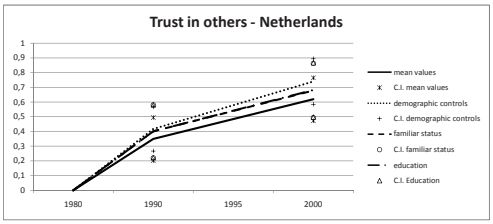

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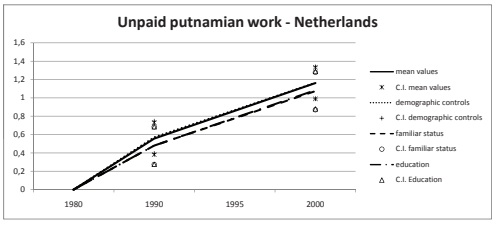
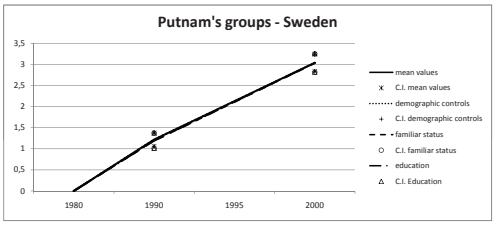


(c)

Figure 3.9: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for the Netherlands from 1980 to 2000



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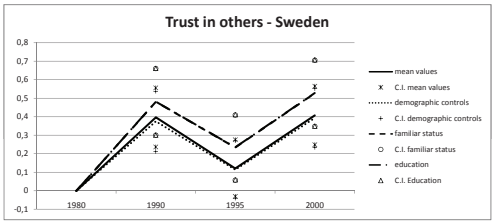

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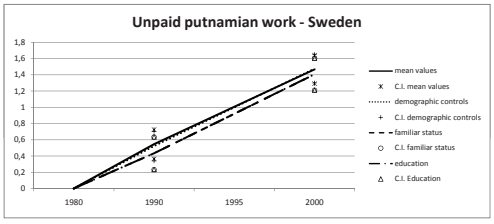

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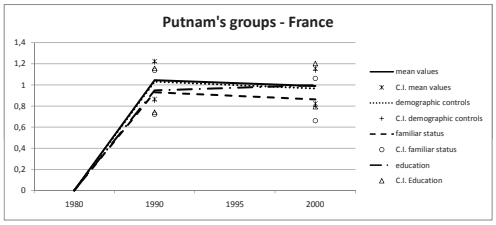
Figure 3.10: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for Sweden from 1980 to 2000



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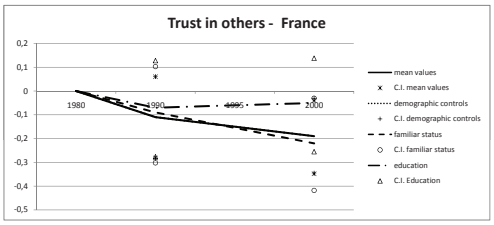

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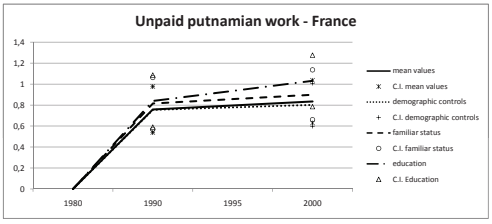

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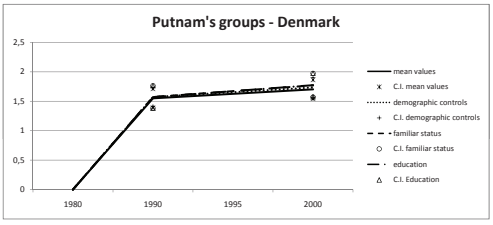
Figure 3.11: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for France from 1980 to 2000



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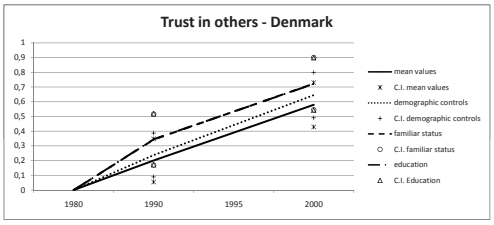

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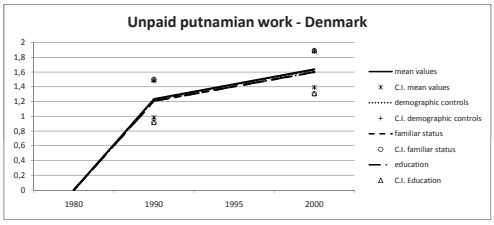
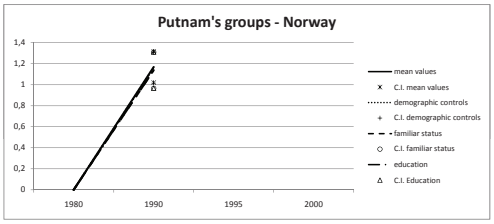


(c)

Figure 3.12: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for Denmark from 1980 to 2000



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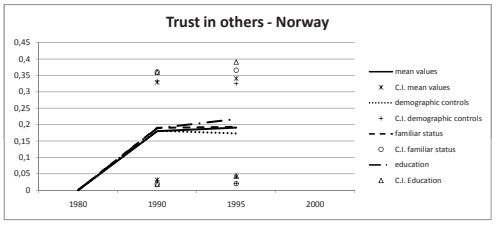

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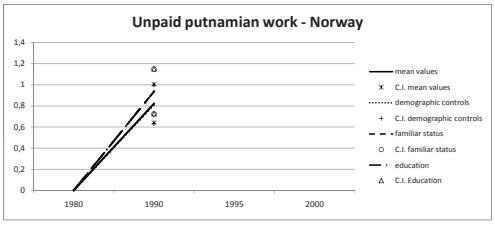
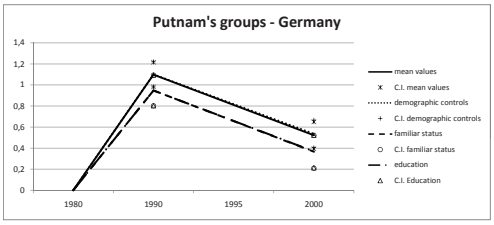


(c)

Figure 3.13: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for Norway from 1980 to 2000



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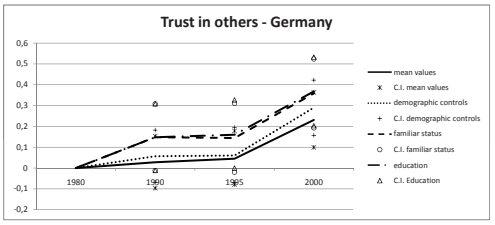

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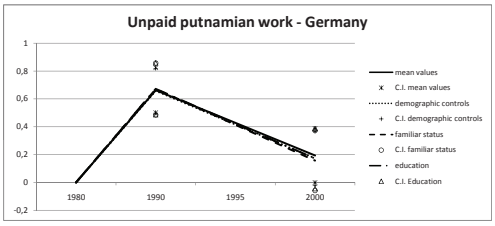

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Figure 3.14: Trends about membership in Putnam's groups (a), trust in others (b) and unpaid putnamian voluntary work (c) for Germany from 1980 to 2000

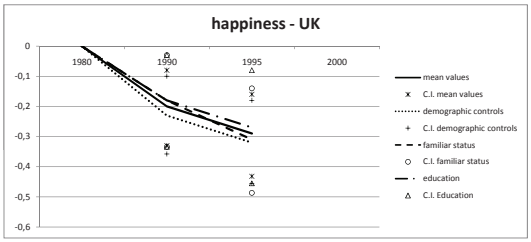
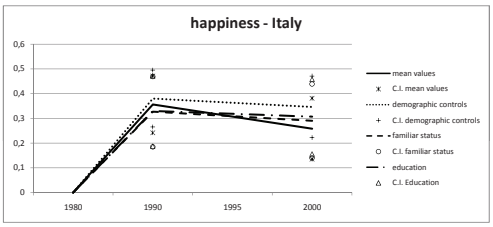
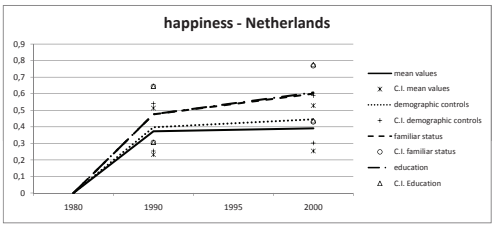


Figure 3.15: Subjective well-being trends for Great Britain from 1980 to 2000

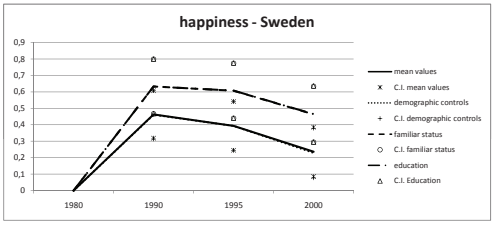


(a)

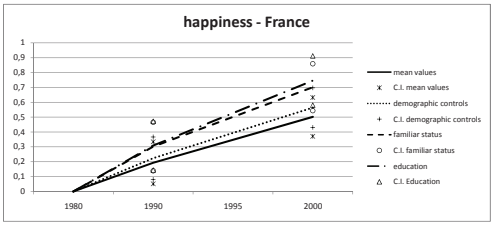


(b)

Figure 3.16: Subjective well-being trends for (a) Italy and (b) Netherlands from 1980 to 2000

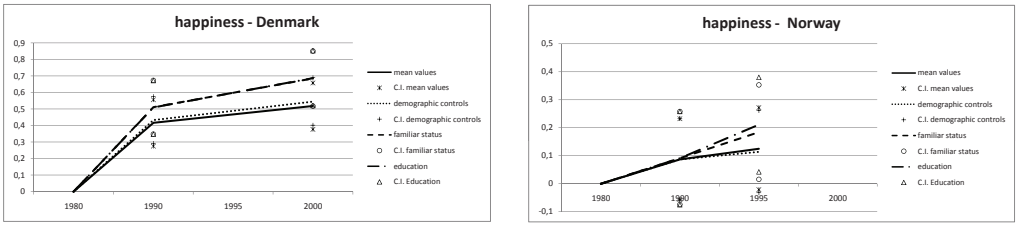


(a)



(b)

Figure 3.17: Subjective well-being trends for (a) Sweden and (b) France from 1980 to 2000



(a) (b)

Figure 3.18: Subjective well-being trends for (a) Denmark and (b) Norway from 1980 to 2000

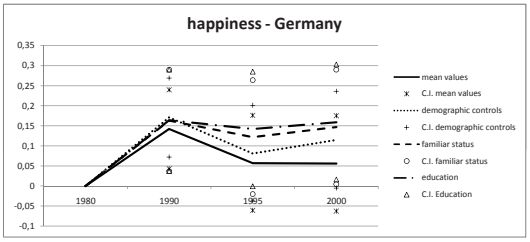


Figure 3.19: Subjective well-being trends for Germany from 1980 to 2000

Chapter 4

Predicting the life satisfaction of Germans

1 Introduction

In this paper I offer the first attempt to quantify the extent to which the main correlates of subjective well-being (SWB) predict its variations over time. There are three main reasons for the considerable scientific - as well as mediatic - visibility of the happiness research. The first is that there is a large body of validation tests documenting the reliability of SWB as an indicator of well-being[1]. The second is the extensive availability of data and its relatively low acquisition cost. The third is that this data tell us interesting stories.

Probably the most known one concerns the trends of SWB in western countries. There are decades-long time series for these countries, which indicate that SWB has not increased significantly and that, on the contrary, in some cases it has actually decreased (see Stevenson and Wolfers 2008; Blanchflower and Oswald 2004, on the case of US). This is an astonishing fact when seen in the context of the pronounced economic growth which has characterized the post Second World War western world. Indeed, economic theory assumes that the greater access to consumer goods brought about by growth leads to an increase in well-being.

The analysis of the bivariate correlations between income and SWB confirms that GDP and SWB are unrelated in the long-term (Easterlin and Angelescu, 2009). The paradox can be further explored focusing the research on micro data. In particular, four forces that can potentially influence the trend of SWB have been identified. The first, and the most straightforward, is the growth of absolute income. On average, individuals with higher incomes are more satisfied than individuals with lower incomes. This relationship tends to weaken as income grows. Such a result confirms

[1]The happiness data pass a series of "validation exercises" showing that they are well correlated with the assessment of one's person happiness by friends and family members, or physical manifestations of well-being such as smiling or electroencephalogram measures of prefrontal brain activity, hearth and blood pressure measures responses to stress, psychosomatic illnesses.

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the basic predictions of economic theory, including that of decreasing marginal utility of income.

The second force is adaptation. The theory of adaptation assumes that changes in the economic conditions in the life of individuals tend to have a transitory effect on their well-being. Adaptation offsets partially or completely the effects of an increase in income.

The third force is social comparisons. Social comparison theory holds that what matters for the average individual is his/her relative position with regards to a selected group of people he/she respects and to whom he/she wants to resemble. These people, forming the so called reference group, determine the income to which the average individual compares his/her own.

Thus economic growth seems simultaneously to have both positive and negative consequences on well-being. It has a positive effect, because it increases absolute income; a negative one, because it generates a constant upward shift of income aspirations, fueled by the increase in income of the reference groups and the continuous adaptation of consumption standards.

Some papers have recently identified a fourth force - social capital (SC)- that has a great importance for SWB. Helliwell (2006) has shown that social capital is positively correlated to SWB. The notion of social capital is a composite concept that indicates various kind of non-market relations among individuals and/or institutions. As documented by Bruni and Stanca (2008) and by Becchetti et al. (2008), the component of social capital more remarkably related to SWB is the one concerning sociability - i.e. the relationships among individuals, also termed relational goods. In a related paper, Becchetti et al. (2009) provide a causal analysis of the relationship between relational goods and SWB, showing that social capital have a strong and significant effect on SWB.

All these papers suggest that SWB is strongly correlated with sociability, but do not provide any analysis of the co-movements of social capital and SWB. Using micro data from the US General Social Survey for the past 30 years, Bartolini et al. (2008) show that a large portion of the declining happiness trend is predicted by the decline in social capital. They also find that the increasing trend of income and the increasing trend of reference income play a significant role in predicting the happiness trend.

In this chapter, I quantify the relative importance of these four forces in Germany for the period 1996-2007. I use the German Socio-Economic Panel (GSOEP) which is one of the main sources of evidence on the relevance of adaptation and social comparisons (e.g. Ferrer-I-Carbonell, 2005; Vendrik and Wojtiers, 2007; Layard et al. 2009; see also Clark et al. 2008, and references therein). Moreover, the GSOEP is rich in social capital data and indeed it has been used to show the importance of this data for well-being (Becchetti et al. 2008; Becchetti et al. 2009). It is, therefore, an ideal database for providing a test of the predictive potential of the four main forces that affect the trend of SWB. The GSOEP is also able to overcome some of the

limitations of the cross-sectional data used by Bartolini, et al. (2008). In effect, the GSS is not a panel and therefore i) it does not allow one to check for adaptation; ii) it does not allow one to check for fixed effects; iii) it offers the possibility of a more limited analysis of causality with respect to a panel. These limits can be surmounted by using panel data.

My results confirm that all these four forces might have played an important role in the recent evolution of SWB in Germany. In particular, evidence suggests that four fifths of the benefits of income growth (first force) might have been lost due to comparisons and adaptation (second and third forces). In addition, sociability appears to be the largest positive predictor of SWB between 1996 and 2007. Besides this, the data suggest that aging of the population might have been the principal source of the reduction in life satisfaction over the period considered. This result appears to crucially hinge on the loss of satisfaction experienced beyond age 65.

The chapter is organized as follows. Section 2 describes data, concepts and my empirical strategy. Section 3 reports my main figures together with detailed comments on the numbers of interest. Section 4 provides a series of robustness checks that corroborates our basic findings. Section 5 summarizes my results and provides some final remarks on the scope of my findings.

2 Data and empirical strategy

Present study primarily aims at quantifying co-movements over time of SWB and some of its important correlates. More precisely, my purpose is to quantify what part of the change over time in SWB can be predicted by changes in each correlate. The objective is to identify which correlates better predict the evolution of SWB.

Besides standard socio-economic correlates I consider three potential predictors of SWB. The first correlate is reference income and is intended to capture the effects of social comparisons. The second correlate is own past income and is intended to capture the effects of income adaptation. The third correlate is a set of social capital indicators at the individual level which are intended to capture the contribution of sociability to the evolution of SWB. Below I provide a detailed definition of these constructs.

I employ the German Socio-Economic Panel dataset[2] managed with the panelwhiz tool[3]. In my baseline estimations, I consider the sub-sample of West and East

[2]The data used in this publication were made available by the German Socio-Economic Panel Study (SOEP) at the German Institute for Economic Research (DIW), Berlin.

[3]The data used in this paper were extracted using the Add-On package PanelWhiz v2.0 (Nov 2007) for Stata. PanelWhiz was written by Dr. John P. Haisken-DeNew (john@panelwhiz.eu). The PanelWhiz generated DO file to retrieve the SOEP data used here and any Panelwhiz Plugins are available upon request. Any data or computational errors in this paper are my own. Haisken-DeNew and Hahn (2006) describe PanelWhiz in detail.

Germans between 1994 and 2007. This restriction is imposed by data availability - more on this below. I have chosen the GSOEP for three reasons. First, its longitudinal structure allows me to investigate the role of income adaptation and to control for fixed unobservable characteristics at the individual level. Second, its long time span permits to go beyond short run variations in SWB. Third, the GSOEP contains a sufficient number of observations for social capital variables at the individual level, making it possible to explore the role of sociability.

In order to test how changes across time of my independent variables predict the change in time of SWB, I adopt the following two-steps empirical strategy, which has been already applied in Di Tella and Mac Culloch (2009) and Bartolini et al. (2009). First, I estimate a baseline equation quantifying partial correlations between SWB and its correlates. Second, I multiply the estimated coefficients that are statistically significant for their variation over the period 1996-2007. In this way we obtain the variation of SWB predicted by the variation over time of our significant regressors. This is not a simple accounting technique since predictions are based on weighted averages representative of the whole German population while the coefficients are estimated without weights considering the sample from West and East Germany. In this way I prevent statistical biases and, at the same time, I attain representativeness of the German population. The fundamental implicit assumption of my strategy is that, apart from level effects, all Germans respond to the same SWB equation at all points in time during 1992-2007.

2.1 The data

The GSOEP is a longitudinal survey of households and persons in the Federal Republic of Germany and it is run on a yearly basis by the DIW in Berlin[4]. The GSOEP focuses on micro-data about demographic, economic, social and political variables. The survey started in 1984 and initially it was designed for West Germany only, including about 6000 households. However, since June 1990 the sampling was extended to include about 2000 East German households.

For my baseline regression, I focus on the sub-samples constituted by residents in West and East Germany for the period 1994-2007. I exclude sub-samples dedicated to foreigners, immigrants, high income households, as well as refreshments. In other words, I only consider the Germans participating to the initial samples relative to East and West Germany. The reason is that the sub-samples that I discarded are constructed with a large use of oversampling to allow the assessment of specific questions about sub-populations. The potential risk of using these sub-samples is that of biases due to sample selection. When I move to predicting the trend of SWB I take care of a correct representation of the German population by using the whole

[4] <www.diw.de> .

sample and applying the appropriate weights provided by in GSOEP.

Due to both sample constraints and data missing I end up using 59527 person-year observations out of 222404 available. The years for which I actually have observations for all variables of interest are 1994, 1996, 1997, 1999, 2001, 2005, and 2007. This substantial loss of information is mostly due to the fact that indicators of sociability are not recorded on a yearly basis.

Later on, I will repeat the analysis considering only the sub-sample constituted of West Germans only for the period 1988-2007. Besides providing a meaningful robustness check, such a repetition will allow me to investigate the differences between East and West Germans.

2.2 Estimation of the SWB equation

I posit that an individual's SWB is determined by the following function:

$$SWB_{i,t} = v(X_{i,t}, y_{i,t}, \bar{y}_{i,t}, y_{i,t-k}, SC_{i,t}) \tag{4.1}$$

where the indices i and t denote, respectively, the individual and the year; moreover, y is a variable representing i's income, $\bar{y}$ is a variable representing the reference income i compares herself with, X collects a set of social and demographic characteristics, and SC stands for a set of social capital variables at the individual level. Note that i's income appears twice as the one year index t is current income while the one with year index t-k is the income on k years before t.

Of course, I do not observe $SWB_{i,t}$ directly but only a proxy of it, namely reported SWB which I indicate with $SWB^R_{i,t}$. In particular, I rely on the following question of reported SWB provided in the GSOEP: "And finally, we would like to ask you about your satisfaction with your life in general. Please answer by using the following scale, in which 0 means totally unhappy, and 10 means totally happy. How happy are you at present with your life as a whole?". As the answer takes discrete values from 0 to 10, I am in a typical case of latent dependent variable proxied by a multinomial ordered variable. Because of such a latency and the longitudinal characteristic of the dataset, best statistical practice would suggest the use of ordered probit augmented with individual random effects and Mundlak's corrections (see e.g. Ferrer-i-Carbonell, 2005) or, in alternative, ordered logit with individual fixed effects. However, it is now well documented that in similar cases the use of OLS with individual fixed effects is equivalent to the use of these alternative techniques (Ferrer-i-Carbonell and Frijters, 2004). In the light of this I resort to the use of OLS with individual fixed effects to estimate the following baseline equation:

$$SWB^R_{i,t} = \alpha + \beta_1 \cdot X^d_{i,t} + \gamma_1 \cdot ln(y_{i,t}) + \gamma_2 \cdot ln(\bar{y}_{i,t}) + \gamma_3 \cdot ln(y_{i,t-k}) + \delta \cdot SC_{i,t} + e_{i,t} \tag{4.2}$$

In addition to the variables specified in eq. 4.1 I add a set of dummies to control for the fixed effects of years, Lander, and former West Germany. This is reported

in eq. 4.2 by adding the superscript d to X which means that I augmented X with the described dummy variables. Other variables cosidered in X are: age, marital status, work status, household size, presence of children, and years of education. The descriptive statistics of these variables are reported in tab. 4.10 in the appendix.

Absolute income y is operationalized as the GSOEP variable "adjusted monthly household net income". "Adjusted" stands for the fact that income is real and converted in euros of 2000. I preferred the use of household income instead of personal income because I believe that household income better proxies the true access to economic resources that individuals have.

2.3 Reference income

I operationalize reference income of individual i in year t as the average income of i's reference group in year t. The reference group of individual i is constructed as the sub-sample of Germans living in i's the same region (west or east), in the same year and having about i's education and age. More precisely, three categories of education are used according to years of education: less than 11, between 11 and 12, and 13 or more. Similarly, three age brackets are considered: younger than 30, between 31 and 60, and 61 or older.

The combination of these characteristics generates 378 different reference groups. The mean size of these groups is of 969 individuals, the median is 683 and the minunim size is 70. I opted for having only three age categories in order to being able to condition the reference group on the region and still have groups of non-negligible sizes. Indeed, I believe that living in the same region in the same year is more relevant to comparisons than being almost of the same age.

As convincingly argued by Falk and Knell (2003), reference groups are likely to be endogenous. However, in my opinion one's reference group is likely to change rather slowly and in accordance with the change in one's lifestyle. Thus, my definition of reference group should work sufficiently well for my purposes.

Another issue is what measure of income should be used to calculate reference income. We use household income as in Ferrer-i-Carbonell (2004), Vendrik and Wojtiers (2007), and Layard et al. (2009). This amounts to assume that the likelihood of having characteristics similar to i's ones is greater for people in i's household than for the rest of the population. Of course, other definitions of reference group are possible.

For instance, one could further refine the reference group by also considering gender (Vendrik and Wojtiers, 2007; Ferrer-I-Carbonell, 2005, appendix). Alternatively, one can focus especially on the community or region of residence (as in Diener et al., 1993; Stutzer, 2004; Luttmer, 2005), people's cohort (McBride, 2001), or people's state or country (Easterlin, 1995; Blanchflower and Oswald, 2004). Finally, individuals might have more than one reference group (Kapteyn and Wansbeek, 1985; Vendrik and Hirata, 2007).

Admittedly, there is no simple way to establish what is the reference group of an individual. D'Ambrosio and Frick (2008) propose an original definition of reference group which allows to distinguish relativity effects based on social comparisons from those having an information basis. Overall, they find that the SWB of an individual is negatively affected by the comparison with permanently richer individuals, while the presence of newly richer individuals plays the informational role described in Hirschman's tunnel effect only for those individuals that experience an increasing income[5].

Finally, Di Tella et al. (2007) propose, in alternative to usual measures of relative income, the use of the Occupational Prestige Score (OPS) as a measure of social standing. The OPS is a coded ranking, often applied by sociologists, which is based on an individual's type of job. This measure is certainly interesting and deserves attention but it reasonably captures many other aspects of the working and social life beyond relative income. Since one of my objectives is to single out the net effect of income on SWB the OPS does not seem fully appropriate.

2.4 Lagged income

I control for income adaptation by including one's own past household income in the SWB equation. Several specifications of this variable are possible and, in fact, I have tried some. In line with what found by Layard et al. (2009), the specification of past household income that seems more relevant to $SWB^R_{i,t}$ is $y_{i,t-3}$, that is, a three-years-in-the-past income.

Beyond Layard et al. (2009), other two papers attempt to measure the role of past income on current SWB using the GSOEP, namely Di Tella et al. (2007) and Di Tella and MacCulloch (2008). Di Tella et al. (2007) apply all lags between 1 and 4; Di Tella and MacCulloch (2009) apply all lags between 1 and 7. While the first paper offers, in addition, the analysis of adaptation to one's social status (as measured by the OPS), the second paper investigates the issue of income adaptation when basic needs are satisfied exploring a broader sample of subjects (including also the the World Gallup Poll and the Eurobarometer for 16 European countries). The fundamental conclusion of both papers is that after about 5 years adaptation is almost complete for certain social groups, while it is never complete for others. I will further come back on these results when I will comment my findings.

My choice of using a three-years-in-the-past income to capture income adaptation is not an ad hoc choice. To show this in section 4.1 I report estimations of eq. 4.2 where $y_{i,t-k}$ is alternatively specified with k equal to 1, 2, 4, 5, 6, 7 and 8. Again, the choice of using household income instead of personal income follows the idea that people's access to resources is better proxied by the former.

[5] For more on the tunnel effect see Hirschman (1973) or, more recently, Senik (2004).

2.5 Indicators of sociability

In this paper by sociability I mean non-instrumental non-market relationships among individuals. There is a certain terminological variability in the rapidly growing economic literature on sociability. The latter is indicated with the term social capital (Helliwell, 2006; Helliwell and Putnam, 2004; Sabatini, 2009), relational goods (Uhlaner 1989; Gui and Sugden, 2005; Bruni and Stanca, 2008; Becchetti et al., 2008), social interactions. I will use this terms interchangeably. Although I recognize that they might be used to mean different constructs I stress that this is not the case in the present study.

I measure sociability with a number of indicators which are supposed to capture voluntary social interactions. More precisely, I focus on the frequency of social activities such as attending religious events, attending cultural events, attending cinema, pop concerts and similar, participating actively in sports, attending social gatherings, helping out friends, performing volunteer work, and participating in local politics. The GSOEP has a specific variable for each of these activities. In particular, respondents are asked to say which of the following frequencies best fits their lifestyle: every day (1); every week (2); every month (3); less frequently (4); never (5). Their descriptive statistics are reported in tab. 4.10.

For each of the eight indicators I construct a dummy variable which is set equal to 1 if the respondent perform the mentioned activity at least once a month, and 0 otherwise. I have chosen the reported frequency "at least once a month" as a threshold because it well captures the sample variation. This can be seen in tab. 4.1 which illustrates the frequencies of social activities for the whole population of Germany in the period considered. These figures are representative of the actual population as we used the appropriate weights to calculate them.

Becchetti et al. (2008) and Becchetti et al. (2009) also investigate the relationship between sociability and SWB using the GSOEP. In both papers five of the eight indicators I used are employed to construct a Relational Time Index which is then applied in a bunch of causality tests. More precisely, they exclude (i) attending cinema, pop concerts, dance hall and related events, (ii) helping our friends or relatives, and (iii) participating in local political activities. I ignore why such an exclusion but, following their own argument that the included activities entails intrinsically motivated social relationships, I can not exclude that also (i), (ii) and (iii) are good indicators of sociability.

More in general, one might contend that the selected indicators do not capture only a relational dimension but also other aspects of life that are reasonably relevant to SWB. In fact, I think that this is the case and it is especially true for indicators such as attending cultural, popular and religious events. Listening to good music or tuning one's body to music might well increase SWB by itself. I do not deny this case, but presume that such activities have a relational part which qualifies them as beneficial to SWB. Put it differently, going to a pop concert or to a dancing hall

Go to church or religious institutions	Freq.	Percent	Cum.
[-1] No Answer	1.673,19	0,46	0,46
[1] Every day	13.245,93	3,65	4,11
[2] Every week	17.774,41	4,9	9
[3] Every month	43.464,11	11,97	20,98
[4] Less Frequently	84.280,77	23,21	44,19
[5] Never	30.049,32	8,28	52,47
not observed	172.585,28	47,53	100
Total	363.073	100	

Go to cultural events (concerts, theater, lectures)	Freq.	Percent	Cum.
[-1] No Answer	1.974,03	0,54	0,54
[1] Every day	10.178,24	2,8	3,35
[2] Every week	26.486,73	7,3	10,64
[3] Every month	85.108,55	23,44	34,08
[4] Less Frequently	87.583,15	24,12	58,21
[5] Never	27.421,27	7,55	65,76
not observed	124.321,03	34,24	100
Total	363.073	100	

Go to the cinema, pop concerts, dance halls, disco, sporting events	Freq.	Percent	Cum.
[-1] No Answer	2.285,49	0,63	0,63
[1] Every day	12.726,16	3,51	4,13
[2] Every week	30.145,76	8,3	12,44
[3] Every month	71.153,10	19,6	32,04
[4] Less Frequently	83.926,06	23,12	55,15
[5] Never	26.472,51	7,29	62,44
not observed	136.363,93	37,56	100
Total	363.073	100	

Participate in sports	Freq.	Percent	Cum.
[-1] No Answer	3.226,42	0,89	0,89
[1] Every day	53.677,99	14,78	15,67
[2] Every week	27.850,02	7,67	23,34
[3] Every month	34.421,52	9,48	32,82
[4] Less Frequently	94.412,28	26	58,83
[5] Never	25.163,74	6,93	65,76
not observed	124.321,03	34,24	100
Total	363.073	100	

Visit with friends, relatives, or neighbors	Freq.	Percent	Cum.
[-1] No Answer	1.249,44	0,34	0,34
[1] Every day	70.305,45	19,36	19,71
[2] Every week	63.095,45	17,38	37,09
[3] Every month	37.463,24	10,32	47,4
[4] Less Frequently	5.528,37	1,52	48,93
not observed	185.431,04	51,07	100
Total	363.073	100	

Help out friends, relatives, or neighbors	Freq.	Percent	Cum.
[-1] No Answer	1.849,72	0,51	0,51
[1] Every day	20.766,50	5,72	6,23
[2] Every week	51.622,22	14,22	20,45
[3] Every month	77.657,99	21,39	41,84
[4] Less Frequently	25.745,52	7,09	48,93
not observed	185.431,04	51,07	100
Total	363.073	100	

Volunteer work in clubs, associations, or social services	Freq.	Percent	Cum.
[-1] No Answer	3.068,02	0,85	0,85
[1] Every day	22.899,73	6,31	7,15
[2] Every week	16.821,25	4,63	11,79
[3] Every month	24.909,77	6,86	18,65
[4] Less Frequently	125.660,27	34,61	53,26
[5] Never	45.392,93	12,5	65,76
not observed	124.321,03	34,24	100
Total	363.073	100	

Participate in citizens' action groups, political parties, local government	Freq.	Percent	Cum.
[-1] No Answer	3.334,45	0,92	0,92
[1] Every day	12.585,66	3,47	4,38
[2] Every week	3.804,68	1,05	5,43
[3] Every month	12.253,39	3,37	8,81
[4] Less Frequently	154.204,49	42,47	51,28
[5] Never	52.569,29	14,48	65,76
not observed	124.321,03	34,24	100
Total	363.073	100	

Weighted frequency distributions of sociability variables. Frequencies have been computed using cross-sectional sampling weights (GSOEP source variable: w1110507). For a more detailed definition of each variable, please refer to Appendix A.

Table 4.1: Sociability indicators, “How frequently do you do the following activities?”

without having good interactions with other individuals is not likely to provide a sensible increase in one's SWB, although the benefit from going can not be totally imputed to social relations.

3 Results

In this section I illustrate the baseline estimation of eq. 4.2 as well as the quantification of co-movements of SWB and its correlates. Special attention will be given to those correlates that are supposed to capture social comparisons, income adaptation, and sociability. Therefore, the discussion will mostly be focused on figures related to them and, for the sake of comparison, other important correlates such as absolute income, marital status and work status. Indeed, the estimates associated with correlates other than these are in line with the SWB literature and do not deserve any special comment[6]. The only exception is age to which I will devote the necessary space.

3.1 The SWB regression

I estimate eq. 4.2 using OLS with individual fixed effects under the baseline specification described in the previous section. Table 4.2 reports the estimates.

A first relevant finding is that income seems to buy happiness, although not in large amounts. The coefficients of reference income and lagged income are both highly significant and consistent with the presence, respectively, of social comparisons and hedonic adaptation. However, while the coefficient of absolute income is about 0.42, the coefficients of reference income and lagged income sum up to about -0.35 (being about -0.27 and -0.08, respectively). If taken seriously, this is by no means a small effect as more than four fifths of the impact of absolute income seems to be offset by reference and lagged income. Nevertheless, according to these numbers rising income should raise life satisfaction. To understand the magnitude of this effect is sufficient to look at the net effects of a a 500 euros rise in income, starting from 200 euros per month. From 200 to 700 euros the gain in life satisfaction is 0.093; from 700 to 1200 the gain is 0.04; from 1200 to 1700 the gain is 0.026; from 1700 to 2200 the gain is 0.019; from 2200 to 2700 the gain is 0.015; from 2700 to 3200 the gain is 0.013; from 3200 to 3700 the gain is 0.011, and so forth.

Put it differently, the positional treadmill and the hedonic treadmill seems to be in place, with the positional treadmill playing the most important role in depressing German's life satisfaction. However, these treadmills are not strong enough to wipe out the whole positive effect of rising income. This is consistent with what found by

[6] For a detailed discussion of standard demo-socio-economic controls see Clark and Oswald (1994), Blanchflower and Oswald (2004), Frey and Stutzer (2002), and van Praag et al. (2003).

OLS with individual fixed effects, Years 1992-2007, East and West Germans

Dependent variable: Life satisfaction (1-10)	Coefficient	p-value
married	0.0968	[0.024]**
separated	-0.3320	[0.000]***
divorced	-0.0014	[0.983]
widowed	-0.2110	[0.009]***
age	-0.0211	[0.000]***
age squared	-0.0003	[0.000]***
household size	-0.1250	[0.000]***
1 child	0.1280	[0.002]***
2 children	0.1550	[0.004]***
3 or more children	0.3670	[0.000]***
years of education	0.0095	[0.233]
living with parents when 16	-0.0009	[0.983]
log of monthly household income	0.4210	[0.000]***
log of reference income	-0.2720	[0.001]***
log of monthly household income 3 years before	-0.0751	[0.000]***
at least monthly attending to religious events	0.0766	[0.000]***
at least monthly attending to cultural events	0.1280	[0.000]***
at least monthly attending to cinema, pop concerts and similar activities	0.0276	[0.183]
at least monthly actively participating in sports	0.0671	[0.000]***
at least monthly volunteering	-0.0200	[0.290]
at least monthly participating in social gatherings	0.1900	[0.000]***
at least monthly helping out friends	0.0733	[0.000]***
at least monthly participating in local political activities	-0.0160	[0.533]
unemployed	-0.5540	[0.000]***
student	0.0214	[0.679]
not working for other reasons	-0.0446	[0.147]
retired	0.0495	[0.240]
doing military or civil service	-0.2430	[0.055]*
living in West Germany	-0.1590	[0.779]
Year dummies	yes	.
Lander dummies	yes	.
constant	8.144	[0.000]***
Number of observations	59527	
Overall R-square	0.03	
F-stat	35.34	Prob < 0.000

OLS regression with robust standard errors and fixed effects. The omitted categories are: employed, living in East Germany, without children, and single. Year and Lander dummies included. First column shows the coefficients from the regression (* means significant at 10%, ** means significant at 5%, *** means significant at 1%.). The last column reports the p-value.

Table 4.2: The baseline SWB regression

a series of papers exploring the potential role of the positional treadmill: Bartolini et al. (2008) and Luttmer (2005) for the US, Blachflower and Oswald (2004) for both US and UK, and Ferrer-I-Carbonell (2005) for Germany.

My findings are tightly related to those obtained by Layard et al. (2009) who estimate a SWB equation similar to mine using the GSOEP, although for West Germans only and on a longer period. Similarly, they find that both past and reference income are negatively correlated with SWB, with reference income playing the major role. One difference between the figures in Layard et al. (2009) and mine is that the former show that benefits of income growth are fully offset by past and reference income. I suspect that this different outcome is due the fact that they use a rough measure of reference income, namely average national household income. However, if I look at a reasonable confidence band of both mine estimates and theirs we can see that figures tell a quite similar story: a large part of the benefits of income growth seems to be offset by reference income.

Both papers by Di Tella et al. (2007) and Di Tella and MacCulloch (2008) suggests that, at least for certain social groups, income adaptation is complete after about five years. This is partly in contrast with my findings and with those of Layard et al. (2009) as I find only a secondary role for income adaptation. I suspect that the main drive of this difference is the absence of a reference income variable which might have made past income capture some reference income effects and, hence, become more relevant to SWB. Indeed in the case of Di Tella et al. (2007) social standing is measured by means of the OPS index, while in Di Tella and MacCulloch (2008) social standing is totally absent. Admittedly, beyond my suspects, I have no real clue on the source of such a difference. In any case, since in both papers full adaptation occurs only for certain social groups - females, leftists and employees in Di Tella et al. (2007), home-owners in Di Tella and MacCulloch (2008) - on average full adaptation fails to happen, which is consistent with my findings.

A second relevant finding is that sociability seems to matter a great deal. To be more precise, a certain kind of sociability. Being involved in volunteering and local political activities does not seem to go with higher SWB. On the contrary, attending to cultural or religious events, participate in social gatherings, playing sports and helping friends seem to have a sensible positive correlation with SWB. In particular, participation in social gatherings seem to have the largest effect suggesting that voluntary social interactions for their own sake are best for life satisfaction.

To have an idea of the potential impact of sociability on SWB we can do a few simple calculations and comparisons. Consider two hypothetical individuals with identical characteristics but for the fact that the first has all sociability indicators equal to zero while second participates to social gatherings, helps friends, attends to both religious and cultural event, and plays sports. The SWB of the second individuals is larger by a factor of 0.65 which is definitely a substantial amount. Suppose that both individuals earn 1200 euro per moth. In order to generate the same difference in SWB by means of a rise in monthly income the second individual should increase

his income beyond 2200 euro per month - and this without considering adaptation.

These findings are substantially in line with what found by Bruni and Stanca (2008) using the World Value Survey, by Bartolini et al. (2008) using the U.S. General Social Survey, by Powdthavee (2008) using the British Household Panel Survey, and by Becchetti et al. (2008) and Becchetti et. al (2009) using the GSOEP. More precisely, all these papers find a positive and significant correlation between sociability and SWB. Of particular interest are the papers of Becchetti et al. (2008) and Becchetti et. al (2009) which investigates the issue of the causal relationships between sociability and SWB. The findings suggests that sociability causes SWB, although the presence of a reverse causation can not be excluded.

As anticipated at the beginning of this section, the estimates associated with the remaining regressors are in line with the SWB literature so that I do not provide comments on them. The only exception is age which seems to have a concave negative impact, suggesting that old age is associated with particularly low life satisfaction for Germans. This is in contrast with the typical finding in the SWB literature suggesting that the relationship between age and SWB is U-shaped[7]. Given the large amount of evidence in favor of the U-shape hypothesis I do not believe that this study poses a serious trouble to its general validity. In particular, there are papers where an SWB equations is estimated using the GSOEP and where the U-shape is found. This is the case of both van Praag et al. (2003) and Ferrer-I-Carbonell (2005) where the age variables as the logs of current age and current age squared. Moreover, there is Ferrer-I-Carbonell and Frijters (2004) who find the U-shape in a variety of different models that use a specification of age variables similar to mine.

In the light of this, one may think that my finding of a negative and concave relationship between age and SWB rests on something peculiar to this study. A natural guess in this regard is that the introduction of sociability indicators distorts the U-shape relationship[8]. To test for this I run a new regression excluding sociability indicators. The negative concave relationship, however, turned out to be robust to such an exclusion.

A possible alternative explanation is that the U-shape relationship is not the whole story, at least for what concerns the GSOEP. This is indeed suggested by the analysis of Becchetti et al. (2009) who, using dummies for age categories, find that the relationship between age and SWB is U-shaped only up to mid 60s and after that

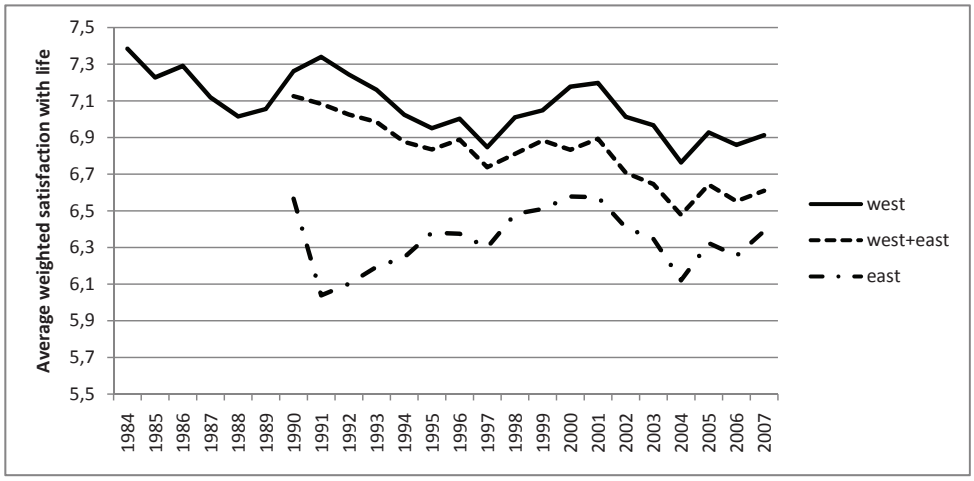
[7] See e.g Clark and Oswald (2007), Blanchflower and Oswald (2008) and references therein for a full list of contributions supporting the U-shape hypothesis in economics. See instead Mroczek and Spiro (2005) for a recent contribution in the psychological literature which also supports the U-shape hypothesis. Interestingly enough Mroczek and Spiro (2005) find that the age of minimum SWB is greater than the one typically found by economists of about twenty years (in the 60s instead of the 40s).

[8] In this respect, Becchetti et al. (2008) do not provide any indication since they do not allow for a non-linear relationship between age and SWB.

becomes negative and concave[9]. To test if I was capturing the old age concavity I run an additional regression excluding people of age 65 or older. We found that the usual U-shape re-appears. This convinced me that the negative and concave relationship estimated in the baseline regression is mainly due to a strongly negative and concave relationship in the very old age.

3.2 Prediction of SWB

Before proceeding with my analysis, it is useful to have an idea of the evolution of SWB in the period considered. Figure 4.1 illustrates the path of SWB separately for Eastern and Western Germans as well as for them jointly. As one can see SWB slightly declines, if anything, for everybody between 1996 and 2007[10]. Therefore, my prediction should give an almost flat trend in order to be acceptable. Moreover, since I already know that some positive and negative correlates of SWB moved upwards - e.g. absolute and reference income - I should find that the flat trend is the outcome of contrasting forces.



Trends of average weighted satisfaction with life for the three sub-samples: westerners (1984 – 2007); easterners (1990 – 2007) and the two sub-samples together (1990 – 2007). Averages have been computed using cross-sectional sampling weights (GSOEP source variable: w1110507).

Figure 4.1: The Trends of Subjective Well-Being in Germany

Using the estimates of eq.4.2 I attempt to predict the average variation of SWB from 1996 to 2007 in Germany. I do this by calculating the implied variation in SWB

[9] See also Van Landeghem (2008) on this.

[10] This period is not long enough to tell us something about the Easterlin paradox (Easterlin and Angelescu, 2009) but, since Germany grew considerably between 1996 and 2007, it nevertheless suggests that the paradox may be there.

associated with each statistically significant regressor in eq.4.2, apart from Lander and years dummies. More precisely, the implied SWB variation is obtained as the sum over the products of the estimated coefficients, which resulted statistically significant, and the total variation of the regressors associated with such coefficients. Formally, I predict the SWB variation as follows:

$$\Delta \hat{SWB} = \hat{b}\Delta\tilde{X} + \hat{c}_1\Delta ln(y) + \hat{c}_2\Delta ln(\bar{y}) + \hat{c}_3\Delta ln(y_{-3}) + \hat{d}\Delta\tilde{SC} \qquad (4.3)$$

where $\hat{b}$, $\hat{c}_1$, $\hat{c}_2$, $\hat{c}_3$ and $\hat{d}$ are the estimated coefficients of eq.4.2 which resulted statistically significant at least at the 10% level, while $\Delta\tilde{X}$, $\Delta ln(y)$, $\Delta ln(\bar{y})$, $\Delta ln(y_{-3})$, and $\Delta\tilde{SC}$ collects the variations of regressors associated with such coefficients.

I emphasize that variations of regressors are calculated using the weights provided in the GSOEP which allow to correct for special purpose stratifications and over-samplings. This has two consequences. First, I can attempt to predict the variation of SWB for the whole population of Germany, and not only for the sample of individuals surveyed in the GSOEP. Second, my calculation is indeed a prediction and not just an accounting technique. This latter point is reinforced by the fact that, while I estimated eq.4.2 for the period 1992-2007, I calculate eq.4.3 only for the period 1996-2007. I do this because before 1992 lagged income is observed only for West Germans while in 1993 and 1995 sociability indicators are not observed.

Table 4.3 reports the predicted co-movements at the most disaggregated level. Before moving to more aggregated figures, a brief comment on the trends of significant regressors is worth doing. Married and widowed individuals seem to have decreased in number while separated ones have increased. This suggests that the number of singles has been systematically increasing during the period considered. Not surprisingly, average age increased of about two years while fraction of household having children decreased for all categories considered. Consistently with these trends, household size decreased as well. These numbers depict an important change in the average household in Germany: older, smaller, with less children, and more often constituted by a single person. As expected, income growth has induced an increase in all income variables - i.e. absolute income, reference income, and past income. Again unsurprisingly, both unemployment and military/civil service slightly decreased.

Turning to sociability indicators we see that most of them increased during 1996-2007. This is especially true for participating actively in sports and attending to cultural events which increased, respectively, of 10% and 4%. Also the remaining indicators show an upward variation of about 1 or 2%. The only exception is participation to religious activities which decreased of 3%.

Let's now turn to the most relevant set of figures. Table 4.4 illustrates the predicted co-movements when I aggregate the regressors in five categories: marital status, age, income, sociability, and work status. Basically, these categories represents

Variables	Estimates of eq. (2)		1996		2007		Δ '96-'07	predicted
	Coeff	p-value	Mean	Std.Dev.	Mean	Std.Dev.		ΔSWB
life satisfaction (observed)			6,885	1,842	6,816	1,855	**-0,069**	
married	0,097	[0.024]**	0,560	0,496	0,521	0,500	-0,039	-0,0038
separated	-0,332	[0.000]***	0,018	0,132	0,021	0,143	0,003	-0,0010
divorced	-0,001	[0.983]	0,071	0,258	0,094	0,292	0,023	
widowed	-0,211	[0.009]***	0,105	0,306	0,087	0,282	-0,018	0,0037
age	-0,021	[0.000]***	47,183	18,035	49,025	18,034	1,842	-0,0389
age squared	-0,0003	[0.000]***	2551,5	1824,7	2728,7	1868,9	177,211	-0,0503
household size	-0,125	[0.000]***	2,590	1,285	2,439	1,236	-0,151	0,0189
1 child	0,128	[0.002]***	0,169	0,375	0,150	0,357	-0,019	-0,0024
2 children	0,155	[0.004]***	0,108	0,311	0,088	0,283	-0,020	-0,0031
3 or more children	0,367	[0.000]***	0,035	0,185	0,025	0,156	-0,011	-0,0039
years of education	0,010	[0.233]	11,464	2,515	12,044	2,639	0,580	
with parents at 16	-0,001	[0.983]	1,708	0,455	1,757	0,429	0,049	
log monthly income	0,421	[0.000]***	7,699	0,487	7,750	0,583	0,050	0,0212
log reference income	-0,272	[0.001]***	7,815	0,158	7,867	0,230	0,053	-0,0143
log income 3 years before	-0,075	[0.000]***	7,627	0,572	7,645	0,594	0,018	-0,0013
monthly at religious events	0,077	[0.000]***	0,488	0,500	0,459	0,498	-0,029	-0,0022
monthly at culture events	0,128	[0.000]***	0,659	0,474	0,691	0,462	0,031	0,0040
monthly at cinema	0,028	[0.183]	0,647	0,478	0,689	0,463	0,041	
monthly playing sport	0,067	[0.000]***	0,518	0,500	0,610	0,488	0,091	0,0061
monthly at social gathering	0,190	[0.000]***	0,778	0,416	0,789	0,408	0,011	0,0022
monthly helping friends	0,073	[0.000]***	0,411	0,492	0,437	0,496	0,025	0,0019
monthly volunteering	-0,020	[0.290]	0,293	0,455	0,303	0,460	0,011	
monthly political active	-0,016	[0.533]	0,111	0,314	0,082	0,274	-0,029	
unemployed	-0,554	[0.000]***	0,061	0,239	0,056	0,231	-0,004	0,0025
student	0,021	[0.679]	0,030	0,171	0,029	0,167	-0,001	
non working	-0,045	[0.147]	0,133	0,339	0,091	0,288	-0,041	
retired	0,050	[0.240]	0,177	0,382	0,206	0,404	0,028	
military/civil service	-0,243	[0.055]*	0,003	0,054	0,001	0,030	-0,002	0,0005
west	-0,159	[0.779]	0,813	0,390	0,815	0,388	0,003	

First column shows the coefficients of the baseline SWB regression (* means significant at 10%, ** means significant at 5%, *** means significant at 1%.). Second and third columns report, respectively, mean values of regressors in 1996 and their standard errors. Fourth and fifth columns report, respectively, mean values of regressors in 2007 and their standard errors. Sixth column reports the difference between average values of regressors in 2007 and average values in 1996. Last column reports the change in predicted probability of reporting to be "satisfied with own life" which is imputed to each regressor (it comes from the product of the values in column seven and the coefficients reported in column one). Reported numbers are relative to coefficients that are significant at least at the 10% level.

Table 4.3: Predicting the evolution of life satisfaction in Germany, disaggregated.

important life domains which are supposed to sensibly affect life satisfaction[11]. Before commenting on each category separately, I find important to remind the reader that small changes in SWB are typically very relevant. Indeed, SWB is rather stable with a standard deviation of just 1.84 in a scale which length is 11 (from 0 to 10). Therefore, even a 0.1% change in SWB, which amounts to an absolute change of about 0.007, is worth serious attention.

Variables	Significant Coefficients	Δ 1996-2007	Predicted Δ*SWB*		
			all	partial sums	total
life satisfaction (observed)		**-0,069**			
married	0,097	-0,039	-0,0038		
separated	-0,332	0,003	-0,0010	**Marital status**	
widowed	-0,211	-0,018	0,0037	-0,001	
age	-0,021	1,842	-0,0389	**Age**	
age squared	-0,0003	177,211	-0,0503	-0,089	
household size	-0,125	-0,151	0,0189		
1 child	0,128	-0,019	-0,0024	**Household**	
2 children	0,155	-0,020	-0,0031	**characteristics**	
3 or more children	0,367	-0,011	-0,0039	0,010	
log monthly income	0,421	0,050	0,0212		
log reference income	-0,272	0,053	-0,0143	**Income**	
log income 3 years before	-0,075	0,018	-0,0013	0,006	
monthly at religious events	0,077	-0,029	-0,0022		
monthly at culture events	0,128	0,031	0,0040		
monthly playing sport	0,067	0,091	0,0061		
monthly at social gathering	0,190	0,011	0,0022	**Sociability**	
monthly helping friends	0,073	0,025	0,0019	0,012	
unemployed	-0,554	-0,004	0,0025	**Work status**	
military/civil service	-0,243	-0,002	0,0005	0,003	**-0,06**

Table 4.4: Predicting the evolution of life satisfaction in Germany, partial sums

A first important thing to note is that total predicted variation is 0.06, which is very close to observed variation that is about 0.07. This is a remarkably good result, not at all warranted. Indeed, Di Tella and MacCulloch (2008) provide a good negative example in this regard. They show that applying a similar technique, one can get predictions far away from observed values. Moreover, they show that adding regressors with significant estimates can even worsen the prediction precision.

Furthermore, it is interesting to note that substantial changes in marital status predict a rather small change in SWB. This is the result of two contrasting facts: less married people and more separate people against less widowed people. This is in sharp contrast with what found in Bartolini et al. (2008) where marital status was shown to predict a large decrease in the SWB of US citizens. One possible reason for

[11]Such an aggregation is hence thought to help giving meaning to the numbers, but I want to emphasize that it is by no means the only meaningful way to aggregate SWB variations.

this difference is the different period considered - Bartolini et al. (2008) look at 1975-2004 - which may have seen a much stronger deterioration of traditional marriages and an upsurge of separations and divorces. Another potential explanation is that in Germany the family breakdown experienced in the US was less hard.

A second thing to note is that a mild change in work status predicts a small change in SWB. Here, however, there is no contrast: both less unemployment and less military/civil service predict a higher SWB.

Successively, we notice that the increase in age predicts a large negative change in SWB. Given the negative concave relationship between age and SWB that I found estimating eq. 4.2 this is not surprising. However, I admit that this result is surprising, at least in terms of its magnitude. Trying to make sense out of the numbers, we can imagine that the growth of the number of very old people may be a first responsible for the lack of growth in SWB in Germany. Needless to say, this claim needs to be carefully scrutinized in - I think - an ad hoc study.

Turning our attention to income, we see that it predicts a small but not negligible increase in SWB. This is consistent with the findings of Bartolini et al. (2008) for the US and Di Tella and MacCulloch (2008) for the EU. In both cases income growth predicts a growth in SWB, although not a large one. In other words, it seems that more money goes with more SWB, although only moderately so and in the short/medium run.

A further positive change in SWB is predicted by the change in household characteristics. More precisely, the reduction in the number of children predicts a reduction in SWB which is more than offset by the positive change predicted by the shrinking in household size. This is consistent with what found in Blanchflower and Oswald (2004) and Bartolini et al. (2008). My interpretation is that the reduction in household size captures the fact that a given amount of household income commands more goods and services per household member, while having less children captures a poorer relational environment in the household.

Finally, sociability predicts an important increase in SWB. More precisely, it provides the largest predicted variation of SWB after that predicted by age, and the largest positive. This suggests an important role for sociability. Again, this is consistent with Bartolini et al. (2008) who finds that the US change in SWB between 1975 and 2004 is better predicted when we include, among other regressors, social capital indicators. My finding reinforces that of Bartolini et al. (2008) since the former is obtained controlling for individual unobservable fixed effects and income adaptation.

The slight decrease in SWB that has taken place in Germany between 1996 and 2007 is well predicted by the following contrasting trends: income growth for a slight increase in SWB (moderate if household characteristics are interpreted as I suggest), aging for a substantial decrease in SWB, an improvement of work status for a slight increase in SWB that just offset the slight decrease predicted by the worsening of marital status and, finally, better sociability for a moderate increase in SWB.

4 Robustness checks

In this section I explore the robustness of my findigs by varying the specification of the baseline eq. 4.2 and adjusting preditions accordingly.

4.1 Alternative specifications of adaptation

As anticipated in section 2.4, I re-estimated the specification eq.4.2 with different year lags for the variable recording past household income. In particular, I re-estimate eq.4.2 with k = 1, 2, 4, 5, 6, 7, and 8. The estimates are reported in tab. 4.5. In each regression I include a different specification of lagged income. The numbers reported in the top row of tab. 4.5 identify the regressions and also indicate the number of years used to calculate lagged household income. For the sake of comparison, I report also the estimation with k = 3.

Overall, previous results seem confirmed. Almost all coefficients of non-income variables turn out to be extremely stable to this change in specification. One exception is the coefficient associated with the sociability indicator "at least monthly attending to cinema, pop concerts, etc" which, by increasing the lag of past income, becomes smaller and eventually statistically insignificant. I think this is mainly due to the fact that with a longer lag I lose observations on young people which are more likely to go and benefit from such activities. Another exception is military/civil service. Again, I believe that this is driven by the progressive exclusion of young people. Further investigation on descriptives confirms these guesses.

Turning our attention to the coefficients of income variables, we notice that those associated with absolute income and reference income show a remarkable robustness to changes in the lag of past income. The coefficient of reference income is substantially invariant while the coefficient of absolute income sightly decreases in the lentgh of the lag, but differences are neither statistically nor economically significant.

The coefficients of lagged income show some variability but, with the exclusion of the 1-year lag, all have the expected sign and roughly a similar magnitude. The coefficient of lagged income obtained in the regression with 1-year lag of past income is not statistically significant. However, its magnitude is in line with other estimates.

Summing up, this check supports the robustness of the baseline estimation of equation 4.2.

4.2 West Germans between 1988 and 2007

In section 3 I clarified that in order to consider a time period longer than 1996-2007 one has to restrict the analysis to the West Germany sample only. In this sub-section I illustrate the repetition of my analysis under such a restriction while extending the time period to 1988-2007.

Table 4-5: Varying the lag of past household income

Variables	(1) Coeff.	P-values	(2) Coeff.	P-values	(3) Coeff.	P-values	(4) Coeff.	P-values	(5) Coeff.	P-values	(6) Coeff.	P-values	(7) Coeff.	P-values
married	0.0867**	[0.028]	0.0978**	[0.016]	0.0968**	[0.024]	0.0989**	[0.025]	0.0935**	[0.038]	0.0752	[0.116]	0.0944*	[0.051]
separated	-0.333***	[0.000]	-0.336***	[0.000]	-0.332***	[0.000]	-0.334***	[0.000]	-0.328***	[0.000]	-0.373***	[0.000]	-0.337***	[0.000]
divorced	0.0410	[0.499]	0.0235	[0.704]	-0.00142	[0.983]	0.000190	[0.998]	0.0230	[0.731]	-0.0130	[0.856]	-0.00196	[0.978]
widowed	-0.190**	[0.012]	-0.157**	[0.040]	-0.211***	[0.009]	-0.192**	[0.019]	-0.219***	[0.009]	-0.292***	[0.001]	-0.253***	[0.005]
age	-0.0223***	[0.000]	-0.0231***	[0.000]	-0.0211***	[0.000]	-0.0207***	[0.001]	-0.0222***	[0.000]	-0.0199***	[0.002]	-0.0194***	[0.004]
age2	-0.000268***	[0.000]	-0.000253***	[0.000]	-0.000284***	[0.000]	-0.000289***	[0.000]	-0.000277***	[0.000]	-0.000289***	[0.000]	-0.000292***	[0.000]
household size	-0.134***	[0.000]	-0.133***	[0.000]	-0.125***	[0.000]	-0.124***	[0.000]	-0.110**	[0.000]	-0.111***	[0.000]	-0.121***	[0.000]
1 child	0.144***	[0.000]	0.144***	[0.000]	0.128***	[0.002]	0.144***	[0.001]	0.114**	[0.011]	0.122**	[0.012]	0.126***	[0.009]
2 children	0.183***	[0.000]	0.180***	[0.000]	0.155***	[0.004]	0.176***	[0.001]	0.121**	[0.031]	0.118**	[0.049]	0.102*	[0.090]
3 or more children	0.401***	[0.000]	0.384***	[0.000]	0.367***	[0.000]	0.381***	[0.000]	0.312***	[0.000]	0.317***	[0.000]	0.326***	[0.000]
years of education	0.00593	[0.450]	0.00737	[0.350]	0.00954	[0.233]	0.00962	[0.233]	0.00977	[0.246]	0.00597	[0.497]	0.00639	[0.470]
living with parents when 16	0.00864	[0.834]	0.0119	[0.772]	-0.000920	[0.983]	0.0179	[0.677]	-0.00287	[0.950]	0.00499	[0.919]	-0.00487	[0.921]
log of monthly household income	0.442***	[0.000]	0.435***	[0.000]	0.421***	[0.000]	0.405***	[0.000]	0.380***	[0.000]	0.365***	[0.000]	0.382***	[0.000]
log of reference income	-0.217***	[0.005]	-0.227***	[0.003]	-0.272***	[0.001]	-0.243***	[0.002]	-0.226***	[0.006]	-0.235***	[0.007]	-0.211**	[0.016]
log of monthly household income 1 year before	-0.0350	[0.171]												
log of monthly household income 2 year before			-0.0434**	[0.031]										
log of monthly household income 3 year before					-0.0751***	[0.000]								
log of monthly household income 4 year before							-0.0578***	[0.003]						
log of monthly household income 5 year before									-0.0727***	[0.000]				
log of monthly household income 6 year before											-0.0761***	[0.000]		
log of monthly household income 7 year before													-0.0424**	[0.034]
at least monthly attending to religious events	0.0924***	[0.000]	0.0964***	[0.000]	0.0766***	[0.000]	0.0697***	[0.001]	0.0718***	[0.001]	0.0733***	[0.001]	0.0697***	[0.003]
at least monthly attending to cultural events	0.125***	[0.000]	0.125***	[0.000]	0.128***	[0.000]	0.129***	[0.000]	0.132***	[0.000]	0.140***	[0.000]	0.137***	[0.000]
at least monthly attending to cinema, pop concerts, et	0.0352*	[0.075]	0.0354*	[0.074]	0.0276	[0.183]	0.0265	[0.203]	0.0240	[0.268]	0.0123	[0.587]	0.00747	[0.744]
at least monthly actively participating in sports	0.0767***	[0.000]	0.0766***	[0.000]	0.0671***	[0.000]	0.0716***	[0.000]	0.0771***	[0.000]	0.0780***	[0.000]	0.0861***	[0.000]
at least monthly volunteering	0.179***	[0.000]	0.183***	[0.000]	0.190***	[0.000]	0.186***	[0.000]	0.191***	[0.000]	0.183***	[0.000]	0.193***	[0.000]
at least monthly participating in social gatherings	0.0628***	[0.000]	0.0628***	[0.000]	0.0733***	[0.000]	0.0747***	[0.000]	0.0757***	[0.000]	0.0830***	[0.000]	0.0889***	[0.000]
at least monthly helping out friends	-0.0111	[0.542]	-0.00624	[0.733]	-0.0200	[0.290]	-0.0125	[0.513]	-0.0135	[0.499]	-0.00492	[0.812]	-0.00828	[0.693]
at least monthly participating in local political activiti	-0.0264	[0.281]	-0.0269	[0.276]	-0.0160	[0.533]	-0.0164	[0.525]	-0.0202	[0.451]	-0.0224	[0.421]	-0.0257	[0.359]
unemployed	-0.586***	[0.000]	-0.593***	[0.000]	-0.554***	[0.000]	-0.566***	[0.000]	-0.547***	[0.000]	-0.548***	[0.000]	-0.560***	[0.000]
student	0.0315	[0.523]	0.0438	[0.378]	0.0214	[0.679]	0.0170	[0.743]	0.0283	[0.606]	0.0304	[0.594]	0.0722	[0.212]
not working for other reasons	-0.0362	[0.224]	-0.0427	[0.155]	-0.0446	[0.147]	-0.0405	[0.190]	-0.0435	[0.171]	-0.0404	[0.218]	-0.0459	[0.166]
retired	0.0567	[0.165]	0.0442	[0.279]	0.0495	[0.240]	0.0507	[0.230]	0.0273	[0.531]	0.0159	[0.726]	0.0207	[0.649]
doing military or civil service	-0.219*	[0.064]	-0.243**	[0.027]	-0.243*	[0.055]	-0.219*	[0.083]	-0.248*	[0.068]	-0.149	[0.333]	-0.164	[0.286]
living in West Germany	-0.190	[0.737]	-0.194	[0.731]	-0.159	[0.779]	-0.192	[0.735]	-0.198	[0.730]	-0.149	[0.795]	-0.372	[0.560]
Year dummies	yes		yes		yes		yes		yes		yes		yes	
Lander dummies	yes		yes		yes		yes		yes		yes		yes	
constant	7.265***	[0.000]	7.404***	[0.000]	8.144***	[0.000]	7.871***	[0.000]	8.114***	[0.000]	8.241***	[0.000]	7.914***	[0.000]
number of observations	64999		64054		59527		58560		54338		50221		49412	
R2 overall	0.0317		0.0325		0.0273		0.0260		0.0251		0.0258		0.0261	
F	37.49		36.58		35.34		34.56		32.33		30.01		29.62	
prob > F	0,000		0,000		0,000		0,000		0,000		0,000		0,000	

OLS regression with robust standard errors and fixed effects. The omitted categories are: employed, living in East Germany, without children, and single. Year and Lander dummies included. P-values in brackets (* means significant at 10%, ** means significant at 5%, *** means significant at 1%.).

One limitation of focusing on this longer period is that I have to drop the sociability indicator about religious activities. This is because it is firstly observed in 1991. Nevertheless, estimates for Westerns turn out to be rather similar to those of the baseline regression, hence supporting my hypothesis. Table 4.6 reports these figures. Sociability indicators have coefficients that are remarkably similar to those estimated for eq. 4.2. The only difference is that also participating to popular events has a statistically significant coefficient, with magnitude similar to that of participating to cultural events. If anything, this reinforces the relevance of sociability indicators.

OLS with individual fixed effects, Years 1988-2007, West Germans

Dependent variable: Life satisfaction (1-10)	Coefficient	p-value
married	0.127	[0.001]***
separated	-0.460	[0.000]***
divorced	-0.034	[0.560]
widowed	-0.337	[0.000]***
age	-0.022	[0.000]***
age squared	-0.0001	[0.059]*
household size	-0.123	[0.000]***
1 child	0.132	[0.001]***
2 children	0.170	[0.001]***
3 or more children	0.379	[0.000]***
years of education	0.000	[0.980]
living with parents when 16	-0.002	[0.962]
log of monthly household income	0.393	[0.000]***
log of reference income	-0.149	[0.063]*
log of monthly household income 3 years before	-0.033	[0.067]*
at least monthly attending to cultural events	0.103	[0.000]***
at least monthly attending to cinema, pop concerts and similar activities	0.063	[0.001]***
at least monthly actively participating in sports	0.068	[0.000]***
at least monthly volunteering	-0.005	[0.767]
at least monthly participating in social gatherings	0.221	[0.000]***
at least monthly helping out friends	0.071	[0.000]***
at least monthly participating in local political activities	-0.018	[0.475]
unemployed	-0.571	[0.000]***
student	0.065	[0.163]
not working for other reasons	-0.075	[0.006]***
retired	0.015	[0.717]
doing military or civil service	6.559	[0.000]***
Year dummies	yes	.
Lander dummies	yes	.
constant	6.490	[0.000]
Number of observations	80337	
Overall R-square	0.029	
F-stat	44.410	Prob < 0.000

OLS regression with robust standard errors and fixed effects. The omitted categories are: employed, living in East Germany, without children, and single. Year and Lander dummies included. First column shows the coefficients from the regression (* means significant at 10%, ** means significant at 5%, *** means significant at 1%.). The last column reports the p-value.

Table 4.6: The SWB regression for Westerns only

The only remaining differences which are worth mention come from work status, and income variables. Unemployment is still the most important among work status variables, but now, in place of civil/military service, results suggest that being retired or not working are important. For what concerns income, I observe a smaller size of coefficients (in absolute value). In particular, reference income is sensibly smaller with the result that the overall contribution of income growth to SWB might be greater than what observed in my baseline estimation. Indeed, the sum of the coefficients of reference income and past income is only about one half of the coefficient of absolute income, while in my baseline regression they sum up to about four fifths of absolute income.

Since I changed both sample and time period, calculating again predicted changes of SWB is a good robustness check for my previous findings. I report this check in tab. 4.7. In the period considered the SWB of Westerns decreased substantially more - almost twice as much - than Germany's average SWB during 1996-2007. Of this decrease, my estimates predict about half. This is a good enough prediction, especially in the light of the fact that I miss the indicator for religious activities that, as shown in my baseline predictions, has been decreasing.

Variables	**Significant Coefficients**	**Δ 1988-2007**	**Predicted Δ*SWB***		
			all	**partial sums**	**total**
life satisfaction (observed)		**-0,130**			
married	0,127	-0,033	-0,0042		
separated	-0,460	0,002	-0,0011	**Marital status**	
widowed	-0,337	0,001	-0,0002	-0,005	
age	-0,022	4,964	-0,1102	**Age**	
age squared	-0,0001	451,431	-0,0479	-0,158	
household size	-0,123	-0,333	0,0410		
1 child	0,132	-0,061	-0,0080	**Household**	
2 children	0,170	0,004	0,0007	**characteristics**	
3 or more children	0,379	-0,001	-0,0004	0,033	
log monthly income	0,393	0,039	0,0153		
log reference income	-0,149	0,090	-0,0133	**Income**	
log income 3 years before	-0,033	0,147	-0,0049	-0,003	
monthly at culture events	0,103	0,134	0,0138		
monthly at cinema	0,063	0,118	0,0075		
monthly playing sport	0,068	0,174	0,0119		
monthly at social gathering	0,221	0,033	0,0074	**Sociability**	
monthly helping friends	0,071	0,137	0,0097	0,051	
unemployed	-0,571	-0,001	0,0007		
not working for other reasons	-0,075	-0,087	0,0065	**Work status**	
doing military or civil service	-0,272	-0,006	0,0017	0,009	**-0,073**

Table 4.7: Predicting the evolution of life satisfaction in West Germany, partial sums

Turning our attention to marital status, age, and household characteristics, we see that, depite some differences, our results are substantially in line with what seen for the baseline predictions. An interesting difference is that the change in house-

hold characteristics predict a larger increase in SWB. I believe this is due to the fact that during the period considered Westerns experienced a more marked change in household characteristics. A similar argument applies to the slightly more negative prediction due to marital status.

Coming to income variables, the net prediction is negative. This is due to the fact that reference income grew substantially more than absolute income. Further investigation suggests that this is a result of a change in reference groups which progressively become composed of high income households. This might explain the more marked decline in SWB. Once more sociability indicators come out as the main predictor of a positive change in SWB. In this case, however, the predicted change is much greater. One reason is certainly the absence of the indicator of participation to religious activities. Another reason is that Westerns have been experiencing a more intense rise in sociability than Easterns. At any rate, these figures suggest that West Germany have been experiencing a constant and fruitful rise in sociability during the last twenty years.

Finally, the prediction associated with work status does not appear to deserve any special comment.

4.3 Lagged and average social capital

One potential issue in my baseline estimation of eq. 4.2 is that sociability indicators may be endogenous to SWB. Indeed, there is now some supporting evidence that the causal relationship between sociability and SWB might go both ways (Becchetti et. al, 2008).

I stress that such a potential endogeneity problem does not make my predictions useless. The co-movements that I document are independent from a causal interpretation. However, it would greatly extend the scope of my findings if I could provide some evidence in favor of a causal relationship going from sociability to SWB. To this aim I investigate an alternative specification of my baseline eq. 4.2 in which I replace current individual-level sociability indicators with 1-year lag individual-level sociability indicators. Formally, I estimate the eq. 4.4 in which the only difference with eq. 4.2 is represented by the index of $SC_{i,t-1}$ standing for a 1-year lag of the sociability proxies.

$$SWB^{R}_{i,t} = \alpha + \beta_1 \cdot X^{d}_{i,t} + \gamma_1 \cdot ln(y_{i,t}) + \gamma_2 \cdot ln(\bar{y}_{i,t}) + \gamma_3 \cdot ln(y_{i,t-k}) + \delta \cdot SC_{i,t-1} + e_{i,t} \quad (4.4)$$

Estimates are reported in tab. 4.8 and show a remarkably invariance with respect to my baseline regression. The only relevant difference is that helping out friends becomes insignificant while volunteering becomes both positive and significant. It appears that volunteering affects SWB more persistently than just helping out friends. At any rate, the overall picture that comes out of this check strongly supports the hypothesis that sociability causes SWB.

OLS with individual fixed effects, Years 1996-2007, East + West Germans

Dependent variable: Life satisfaction (1-10)	Coeff	p-value
married	0,058	[0.218]
separated	-0,239	[0.007]***
divorced	-0,048	[0.478]
widowed	-0,297	[0.001]***
age	-0,014	[0.050]**
age squared	-0,0004	[0.000]***
household size	-0,095	[0.000]***
1 child	0,077	[0.097]*
2 children	0,100	[0.084]*
3 or more children	0,149	[0.057]*
years of education	0,025	[0.005]***
living with parents when 16	-0,063	[0.174]
log of monthly household income	0,393	[0.000]***
log of reference income	-0,116	[0.146]
log of monthly household income 3 years before	-0,063	[0.003]***
last year at least monthly attending to religious events	0,044	[0.052]*
last year at least monthly attending to cultural events	0,042	[0.033]**
last year at least monthly attending to cinema, pop concerts, etc	-0,001	[0.966]
last year at least monthly actively participating in sports	0,059	[0.002]***
last year at least monthly volunteering	0,043	[0.034]**
last year at least monthly participating in social gatherings	0,049	[0.014]**
last year at least monthly helping out friends	0,013	[0.419]
last year at least monthly participating in local political activities	-0,031	[0.242]
unemployed	-0,603	[0.000]***
student	0,089	[0.139]
not working for other reasons	-0,038	[0.256]
retired	0,061	[0.199]
doing military or civil service	-0,183	[0.138]
Year dummies	yes	.
Lander dummies	yes	.
constant	7,133	[0.000]***
Number of observations	53929,000	
Overall R-square	0,022	
F-stat	26,880	Prob < 0.000

OLS regression with robust standard errors and fixed effects. The omitted categories are: employed, living in East Germany, without children, and single. Year and Lander dummies included. First column shows the coefficients from the regression (* means significant at 10%, ** means significant at 5%, *** means significant at 1%.). The last column reports the p-value.

Table 4.8: The SWB regression with one-year lagged indicators of sociability

A further issue is that sociability might be relevant to SWB not only at the individual level, but also at the aggregate level. To investigate this I estimated a further specification of eq. 4.2 where individual-level sociability indicators are replaced by Land-level indicators, namely the Land averages of sociability indicators. In this case I estimate the following equation:

$$SWB^{R}_{i,t} = \alpha + \beta_1 \cdot X^{d}_{i,t} + \gamma_1 \cdot ln(y_{i,t}) + \gamma_2 \cdot ln(\bar{y}_{i,t}) + \gamma_3 \cdot ln(y_{i,t-k}) + \delta \cdot \bar{SC}_{i,t} + e_{i,t} \quad (4.5)$$

where $\bar{SC}_{i,t}$ stands for the Land averages of sociability proxies. Estimates are reported in tab. 4.9. As we can see, Land averages work almost as well as individual level indicators suggesting that spillovers and relational environment might be playing an important role. The only exception is participating in sport activities, which seems to be irrelevant at the aggregate level. In conclusion, I have to admit that estimates don't allow me to make a clear point on whether sociability is more relevant at the individual or aggregate level.

OLS with individual fixed effects, Years 1996-2007, East + West Germans

Dependent variable: Life satisfaction (1-10)	Coeff	p-value
married	0,074	[0.078]*
separated	-0,336	[0.000]***
divorced	-0,023	[0.726]
widowed	-0,215	[0.008]***
age	-0,018	[0.002]***
age squared	-0,0003	[0.000]***
household size	-0,136	[0.000]***
1 child	0,122	[0.004]***
2 children	0,160	[0.002]***
3 or more children	0,393	[0.000]***
years of education	0,009	[0.264]
living with parents when 16	-0,011	[0.797]
log of monthly household income	0,426	[0.000]***
log of reference income	-0,309	[0.000]***
log of monthly household income 3 years before	-0,073	[0.000]***
average at least monthly attending to religious events	0,058	[0.024]**
average at least monthly attending to cultural events	0,101	[0.000]***
average at least monthly attending to cinema, pop concerts, etc	-0,021	[0.466]
average at least monthly actively participating in sports	0,020	[0.438]
average at least monthly volunteering	-0,043	[0.119]
average at least monthly participating in social gatherings	0,197	[0.000]***
average at least monthly helping out friends	0,076	[0.001]***
average at least monthly participating in local political activities	-0,044	[0.272]
unemployed	-0,549	[0.000]***
student	0,034	[0.509]
not working for other reasons	-0,035	[0.250]
retired	0,046	[0.270]
doing military or civil service	-0,187	[0.137]
Year dummies	yes	.
Lander dummies	yes	.
constant	8,423	[0.000]***
Number of observations	60692,0	
Overall R-square	0,022	
F-stat	33,890	Prob < 0.000

OLS regression with robust standard errors and fixed effects. The omitted categories are: employed, living in East Germany, without children, and single. Year and Lander dummies included. First column shows the coefficients from the regression (* means significant at 10%, ** means significant at 5%, *** means significant at 1%.). The last column reports the p-value.

Table 4.9: The SWB regression with local averages of sociability indicators

5 Conclusions

In this paper I quantified the extent to which the main correlates of SWB predict its evolution in Germany over the period 1996-2007. In particular, I focused on four forces that can potentially be responsible for the SWB trend: the growth of absolute income, income adaptation, income comparisons, and sociability. I used GSOEP database since it provides sociability indicators and, moreover, has a longitudinal structure that allows me to control for unobservable individual fixed effects.

The SWB trend in Germany between 1996 and 2007 is slightly negative, even considering Westerns and Easterns separately. My findings are consistent with the hypothesis that all four forces mentioned above have played an important role in such a decline. In particular, this trend might have been the result of contrasting tendencies on different life domains.

More precisely, my estimates suggest that income growth is beneficial, but only to a limited extent. Indeed, four fifths of the benefits of income growth might have been lost due to comparisons and adaptation. Since I consider a ten-year time span I can not speak of long run correlation between growth and SWB (Stevenson and Wolfers, 2008; Angelescu and Easterlin, 2009). Nevertheless, my findings go in the direction of supporting a positive role of income growth per se, although very limited.

Furthermore, sociability appears to be very relevant to SWB. Sociability indicators turn out to be the largest positive predictor of SWB in Germany between 1996 and 2007. The moderate increase in social relations, or relational goods, have gone with a substantial increase in SWB.

Finally, the data suggest that aging of the population might have been the principal source of the reduction in life satisfaction over the period considered. This result appears to crucially hinge on the loss of satisfaction experienced beyond age 65.

Appendix: Tables

Variable	Obs	Mean	Std. Dev.	Min	Max
life satisfaction	338757	6.96	1.84	0	10
married	338757	0.62	0.49	0	1
separated	338757	0.02	0.13	0	1
divorced	338757	0.06	0.24	0	1
widowed	338757	0.06	0.24	0	1
age	338757	44.84	17.29	14	100
household size	338757	2.91	1.38	1	17
1 child	338757	0.19	0.39	0	1
2 children	338757	0.13	0.34	0	1
3 or more children	338757	0.05	0.22	0	1
years of education	327098	11.49	2.58	7	18
living with parents at 16	338730	1.65	0.48	1	2
monthly at church	185066	0.39	0.49	0	1
monthly at culture events	215958	0.48	0.5	0	1
monthly at cinema	215769	0.53	0.5	0	1
monthly sport activities	215148	0.47	0.5	0	1
monthly at social gathering	159673	0.78	0.41	0	1
monthly help from friends	159378	0.4	0.49	0	1
monthly volunteering	215353	0.23	0.42	0	1
monthly local political participation	215135	0.07	0.26	0	1
unemployed	338757	0.05	0.23	0	1
student	338757	0.04	0.2	0	1
non working	338757	0.13	0.34	0	1
retired	338757	0.14	0.34	0	1
military/civil service	338757	0	0.05	0	1
west	338757	0.78	0.41	0	1

Table 4.10: Descriptive statistics

Francesco Sarracino, *Social capital, economic growth and well-being*, ISBN 978-88-6655-277-2 (online)

happy	10 if respondent declares to be "completely satisfied" – 0 if respondent declares to be "completely dissatisfied" (GSOEP source variable: p1110107)
married	1 if respondent reports to be currently married (GSOEP source variable: d1110407)
separated	1 if respondent reports to be currently separated (GSOEP source variable: d1110407)
divorced	1 if respondent reports to be currently divorced (GSOEP source variable: d1110407)
widowed	1 if respondent reports to be currently widowed (GSOEP source variable: d1110407)
female	1 if subject is female (GSOEP source variable: d11102ll)
age	number of years since born (GSOEP source variable: d1110107)
age2	age to the power of 2 (GSOEP source variable: d1110107)
household size	number of reported household members (GSOEP source variable: d1110607)
1 child	1 if in the household there is one child (GSOEP source variable: d1110707)
2 children	1 if in the household there is two children (GSOEP source variable: d1110707)
3 or more children	1 if in the household there is three or more children (GSOEP source variable: d1110707)
years of education	number of years the respondent declared to have attended school (GSOEP source variable: d1110907)
living with parents at 16	1 if respondent declares to be living with own parents at 16 years old (GSOEP source variable: xh61)
Absolute income	natural logarithm of Adjusted Monthly Household Net Income (Euro 2000) as provided in the GSOEP (variable name: ahinc07)
Relative income	natural logarithm of average Adjusted Monthly Household Net Income (Euro 2000) for a reference group as provided in the GSOEP (variable name: ahinc07)
Absolute income Lag3	Three years temporal lag of the natural logarithm of Adjusted Monthly Household Net Income (Euro 2000) as provided in the GSOEP (variable name: ahinc07)
monthly at church	1 if respondent reports to attend at least once a month church or religious institutions (GSOEP source variable: xp0309)
monthly at culture events	1 if respondent reports to attend at least once a month cultural events (GSOEP source variable: xp0301)
monthly at cinema	1 if respondent reports to go at least once a month to the cinema (GSOEP source variable: xp0302)
monthly sport activities	1 if respondent reports to participate at least once a month to sport activities (GSOEP source variable: xp0303)
monthly at social gathering	1 if respondent reports to visit at least once a month friends, relatives or neighbours (GSOEP source variable: xp0305)
monthly helping friends	1 if respondent reports to help at least once a month friends, relatives or neighbours (GSOEP source variable: xp0306)
monthly volunteering	1 if respondent perform volunteer work at least once a month in clubs, associations or social services(GSOEP source variable: xp0307)
monthly local political participation	1 if respondent reports to participate at least once a month in citizens' action groups, political parties, local government (GSOEP source variable: xp0308)
unemployed	1 if respondent declares to be unemployed (GSS source variable:lfs07)
student	1 if respondent declares to be student (GSS source variable:lfs07)
non working	1 if respondent declares to be non-working (GSS source variable:lfs07)
retired	1 if respondent declares to be retired (GSS source variable:lfs07)
military/civil service	1 if respondent declares to be in military of civil service (GSS source variable:lfs07)
west	1 if respondent declares to live in West Germany (GSOEP source variable: l1110207)

Table 4.11: Definition of variables

Chapter 5

Sociability Predicts Happiness in Nations: Some World-Wide Evidence

1 Introduction

It is now well documented that trends of subjective-well-being (SWB) show a substantial heterogeneity across countries and need not to be stationary over the long term (Stevenson and Wolfers, 2008; Inglehart, 2009). In particular, cosidering the last thirty years and more we know that SWB increased in some countries and decreased in others, varying at different paces.

What does predict such international differences? Income growth does not. Income is related to SWB in cross-sectional data but not in long time series. Evidence based on microdata show that individuals with higher income than others report, at any given point in time, higher levels of happiness. Moreover, evidence from cross-country data shows that countries with higher income report higher levels of happiness (Deaton, 2008; Stevenson and Wolfers, 2008; Easterlin and Angelescu, 2009; Inglehart, 2009; Frey and Stutzer, 2002).

However, in long time series income growth and SWB turn out to be unrelated (Easterlin and Angelescu, 2009): on average people do not become happier when a country's income increases.

The contrast between the evidence from cross-sections and the evidence from long time series is the essence of the so-called Easterlin paradox. The paradox is certainly one fundamental reason for the scientific (and mediatic) popularity of the happiness literature.

However, time series deserve a special attention since they seem more likely than cross-sections to provide an answer to "what people (...) want to know (...): How far is general income growth (beyond income levels already achieved) likely to increase average happiness? This is a question about *time series* relationships" (Layard et al., 2009, p. 1).

The most comprehensive studies on the relationship between the time series of SWB and income has been provided by Stevenson and Wolfers (2008) and Easterlin

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and Angelescu (2009). These two influential papers use the same approach based on bivariate analysis, but they reach constrasting conclusions. Income and SWB are positively and significantly related over time for Stevenson and Wolfers (2008), while they are unrelated for Easterlin and Angelescu (2009). The reason for this difference lies in the time span. Stevenson and Wolfers' sample includes countries with long and short time series. In particular, the positive and significant relation that they estimate seems to be entirely generated by the inclusion of a small sample of transition countries with short time series. Easterlin and Angelescu (2009) show that if these transition countries are excluded from the sample - thus focusing the analysis on the long term - the Easterlin paradox re-emerges.

If GDP growth does *not* predict the observed international differences in long term trends of well-being, what does predict them? There is a number of potential candidates all of which would require a detailed analysis of long time series, e.g., social tolerance, political freedom, religiosity, health (Inglehart, 2009; Deaton, 2008). Besides these there is social capital (SC).

Several papers have documented that SC is strongly correlated with SWB (see the pioneering studies of Helliwell (2001, 2006); Helliwell and Putnam (2004); see also Bruni and Stanca (2008); Becchetti et al. (2008)). Becchetti et al. (2009) provided a causal analysis showing that SC has a strong effect on SWB. Moreover, even the positive association between religiosity and SWB may be due to SC, as suggested by Lim and Putnam (2009), which find that religious people are more satisfied with their lives because they regularly attend religious service and build social networks in their congregations.

It has also been recently shown that the long term evolution of SC is a powerful predictor of SWB, in US and Germany. Bartolini et al. (2008), using micro data from the US General Social Survey for the period 1975-2004, show that a large portion of the declining happiness trend in the US is predicted by the decline in SC. The predictive potential of SC for SWB trends is confirmed by the analysis of micro data from the German Socio-Economic Panel (see chapter 4).

In this paper I extend the available evidence on the relationship between SWB and SC by investigating their long term correlation. To this aim I use the same bivariate technique which has been applied to analyze the relationship between SWB and GDP growth (Stevenson and Wolfers, 2008; Easterlin and Angelescu, 2009). I find that the trends of SC are strong predictors of the long term trends of SWB in the sample of all sizeable developed and developing countries for which there exist long run time series of SC. Thus, the same type of analysis that has drawn to the conclusion that SWB is unrelated to income in the long run also documents that long term changes in well-being are strongly related to long term changes in SC. In addition, I replicate the analysis of Easterlin and Angelescu (2009) in my sample, substantially confirming their results.

The chapter is organized as follows. Section 2 discusses concepts and data, while section 3 presents the adopted methodology. Section 4 presents the results and section 5 exposes several robustness checks of the main results. Section 6 concludes.

2 Concepts and data

I use two indexes of SWB. The first is reported happiness, measured by the answer to the question: "Taking all things together, would you say you are: very happy, quite happy, not very happy, not at all happy?" The second is overall life satisfaction, the response to the question "All things considered, how satisfied are you with your life as a whole these days?"

SC is a vague concept encompassing very different measures, such as trust among individuals, trust towards institutions, social interactions, civic engagement, electoral participation, etc. In this paper I focus on social interactions, which several contributions showed to be related with SWB (Helliwell (2006), Bruni and Stanca (2008), Becchetti, Pelloni, Rossetti (2008), Bartolini, Bilancini and Pugno (2008))[1].

In providing a long-term analysis of social interactions one faces a number of severe limitations in the available data. First of all, there exists only one data-set that provides comparable data on social interactions for a large number of countries, namely the World Values Survey (WVS)[2]. In particular, the WVS provides data on social contacts (time spent with relatives, friends neighbours, etc.) and membership in groups or associations for many developed and developing countries. Unfortunately, long time series are available only for group membership and only for a quite small sample of countries.

Moreover, time series on membership in groups and associations are limited in time and space. Data are mainly concentrated in rich countries. Very few countries (8) provide at least 20-years long time series and they are all developed. In order to obtain a reasonably large sample of countries (19) which includes at least a few developing countries (5), the analysis must be extended to countries with time series of 15 years or more. Moreover, no transition country can be included in the sample.

A further limitation is that WVS data are collected only once every about five years. Therefore, the risk of biases due to shocks and/or measurement errors in the years in which the waves take place is relatively high compared to surveys with more frequent waves of observations. This risk is particularly high when the time series are based only on the first and last waves of the period considered. In order to reduce this risk, I included in my sample only those countries for which at least three waves are available.

[1] Descriptive statistics are available from tab.5.4 to tab.5.10 in the appendix.

[2] For more details on World Values Survey, please, refer to section 4 in chapter 2.

Furthermore, in order to avoid the risk of over-sampling, I exclude countries with very low population[3].
Summarizing, my sample is defined according to the following three criteria: i) countries that have a time series at least 15-years long; ii) countries for which at least three waves are available; iii) countries with a sufficiently large population size.

Finally, I note that, while in the case of the relationship between GDP growth and SWB the sample is limited by the availability of SWB long time series, in my case the binding constraint is the lenght of SC time series. Therefore, my sample turns out to be considerably reduced compared to the one used by Easterlin and Angelescu (2009). I consider a total of 19 countries (14 developed, 5 developing), while Easterlin and Angelescu consider 37 countries (17 developed, 11 transition and 9 developing countries)(see tab. 5.11 in the appendix).

I am not claiming that my data are faultless. However, in spite of its limitations, it is worth to use the available evidence, since it seems to document that SC trends are a major predictor of the trends of SWB.

3 Methods

Generalizations about the relationship between economic growth and SWB over time have typically been based on bivariate analysis of national measures of SWB and per capita income (Stevenson and Wolfers, 2008; Easterlin and Angelescu, 2009). A simple way to test the long run relationship between SC and SWB is to use the same methodology, where of course we substitute for income with SC. In particular, I employ a bivariate analysis considering long run changes of SC and SWB.

In order to easily compare how income and SC are related with SWB, I also replicate on my sample the bivariate regressions of SWB trend and the rate of change of per-capita GDP[4], as provided by Easterlin and Angelescu (2009) and Stevenson and Wolfers (2008). Furthermore, since SC and GDP may affect each other in several ways, bringing a high risk of spurious correlation in bivariate analysis, I also provide trivariate regressions of SWB on both per capita GDP growth and SC. As I will argue in the following, results of bivariate analysis are substantially confirmed.

I follow a two-steps estimation strategy. First, I regress my proxies of SWB and SC on time (Happiness, 1 - 4 scale; Life Satisfaction, 1 - 10 scale; Membership: fraction of population member of at least 1 association). Coefficients of the time variable represent the estimated average annual growth for a given country, period, and variable of interest.

Second, the time coefficient of SWB is regressed on the time coefficient of SC.

[3] In this case I exclude Malta and Iceland.

[4] GDP data are drawn from World Development Indicators 2008 (http://web.worldbank.org) and are expressed in constant 2000 US$.

Formally, I estimate the following relationships:

$$H_{ij} = \alpha_j^H + \beta_j^H \cdot TIME_{ij} + \mu_{ij}^H \tag{5.1}$$

$$LS_{ij} = \alpha_j^{LS} + \beta_j^{LS} \cdot TIME_{ij} + \mu_{ij}^{LS} \tag{5.2}$$

where H and LS identifies alternatively happiness and life satisfaction variables, *TIME* is the time variable containing the years in which each dependent variable has been observed, μ is the error term and the indexes j and i stands for countries and individuals respectively. The coefficient of *TIME* is estimated with and OLS model with robust standard errors and represents the average annual growth rate of the dependent variable. Since my SC variable takes value either 1 or 0 at the individual level, I find it convenient to estimate its long run average change using a probit model. Formally, I estimate:

$$Pr(Membership_{ij} = 1|TIME) = \phi(\alpha_j^{Memb} + \beta_j^{Memb} \cdot TIME_{ij}) \tag{5.3}$$

where again indexes j and i stands for countries and individuals, respectively. The coefficients to be used in step two are obtained via marginal effects on eq. 5.3 evaluated at the middle point of the period considered. Intuitively, this provides an "average" estimated change per year in the probability of being member of a group or an association. Next, I estimate the following equation with an OLS:

$$\dot{Z}_j = \alpha_j^{\dot{Z}} + \beta_j^{\dot{Z}} \cdot MEMBER_j + \mu_j^{\dot{Z}} \tag{5.4}$$

where $\dot{Z}$ stands for the estimated growth rate of, alternatively, happiness or life satisfaction and *MEMBER* is the estimated probability of being member of at least one group or association as determined by eq.5.3. Again, μ is the error term and index j refers to the countries.

4 Results

Changes over time in happiness and SC are strongly and positively related in all the samples considered. The estimated coefficient of eq.5.4 turns out to be large and significant when we consider the 14 developed countries, the 5 developing ones as well as all countries together (please, refer to fig.5.1, fig.5.2 and fig.5.3 in the appendix).

Changes over time in life satisfaction and SC provide similar results when developing countries and all countries together are considered (see fig.5.5 and fig.5.6 in the appendix). However, we find no significant long run relationship between SWB and SC for developed countries (see fig.5.4 in the appendix).

Taken together these results suggest two important things. First, the long term trends of SC are strong predictors of the long term trends of SWB. In particular,

cross-country variability observed in SC trends well predicts cross-country variability in SWB trends. Second, long term changes in SWB seem to be more tightly related to long term changes in happiness than to long term changes in life satisfaction. This is consistent with the idea that measures of happiness and life satisfaction capture different aspects of SWB and, more precisely, that happiness is more about social aspects of life which tend to become relatively more important when basic needs are satisfied.

Turning our attention to the relationship between long term changes in SWB and GDP, we find that the Easterlin paradox holds. Regressing either happiness or life satisfaction on per capita GDP growth gives significant and close to zero coefficients, in all samples considered.

We emphasize that the difference between the long-term changes in SC and per capita GDP as predictors of changes in SWB is striking. The growth of membership in groups and associations is a major predictor of changes in SWB. Instead, the growth rate of GDP does not predict any change in SWB.

5 Robustness checks

5.1 Trivariate analysis

There are several possible relationships between GDP and SC variations over time. Part of the economic literature focuses on the role of SC for income and economic growth (Barro, 1996; Knack et al., 1997; Antoci et al., 2002; Rodrik, 1997; Whiteley, 2000). Putnam et al. (1993) clearly show some of the paths through which SC fosters economic growth. However, a long standing tradition emphasizes that economic growth may damage SC evolution over time (Polanyi, 1971; Hirsch, 1991; see also Bartolini and Bonatti, 2008).

Althought I get no evidence of a long term relationship between GDP growth and SWB, there exists the concrete possibility that co-movements of SC and GDP generate a spurious correlation between SWB and SC. Bivariate analysis, obviously, cannot distinguish whether this is the case or not. However, one may suppose that multivariate regressions of SWB trends on long term changes in both SC and GDP may give some insight in this regard.

Table 5.1 shows the results of trivariate OLS regressions relative to the following model:

$$Z_j = \alpha_j^Z + \beta_{1,j}^Z \cdot MEMBER_j + \beta_{2,j}^Z \cdot \dot{GDP}_j + \mu_j^Z \tag{5.5}$$

As mentioned above, Z stands for the proxies of SWB, *MEMBER* represents SC, $\dot{GDP}$ is the growth rate of GDP, μ is the error term and j is an index for the different countries.

Regressions substantially confirm the results of the bivariate analysis. Again, the hypothesis of the Easterlin paradox is not rejected. The coefficients of $\dot{GDP}$ are very

close to zero and non significant in both happiness and life satisfaction regressions. Somewhat surprisingly, the $G\dot{D}P$ coefficient in the happiness regression for developed countries is slightly negative and significant.

	Developed countries		Developing countries		All countries	
	Growth rate of GDP	Annual change of SC	Growth rate of GDP	Annual change of SC	Growth rate of GDP	Annual change of SC
happiness	-0.003	+0.340	+0.009	+1.44	+0.003	+0.908
	(-2.00)	(4.67)	(0.81)	(1.53)	(0.87)	(1.92)
life satisfaction	+0.011	-0.126	+0.034	+4.304	+0.001	+1.540
	(1.55)	(-0.22)	(2.40)	(4.46)	(0.12)	(1.82)

t-stat in parentheses.

Table 5.1: Trivariate OLS regression with robust standard errors

Similarly, the results concerning SC are substantially confirmed. The trends of happiness and SC are positively related when either developed countries or all countries are considered. The only exception is the coefficient for the sample of developing countries, which remains large and positive but becomes non significant. Happiness and SC remain positively and significantly correlated when, respectively developed and all countries are considered. Results on the relationship between the trends in life satisfaction and SC are confirmed.

5.2 Sub-period

In my sample, 8 out of 14 developed countries have at least 20 years of observations of SC. Therefore, it is possible to check the robustness of the results obtained for developed countries in the subset of countries with longer time series. Charts from fig.5.7 to fig.5.10 show results from bivariate regressions of SWB on GDP or SC. They show that all results obtained on the whole sample of developed countries are confirmed. In particular:

1. GDP growth rate and SWB trend are unrelated for both happiness and life satisfaction. The coefficients are close to zero and non significant;
2. trends in membership and happiness are related. The coefficient is large, positive and significant;
3. changes in membership and life satisfaction seem to be unrelated. The coefficient is positive and large, but non significant.

5.3 Changing the specification of the GDP variable

Following Easterlin and Angelescu (2009) and Stevenson and Wolfers (2008), I regressed the estimated average annual growth of SWB on the average growth rate of GDP per capita. This is in line with the general presumption of decreasing marginal utility of income and, in particular, of the logarithmic dependency of SWB on income.

However, a linear dependency might be in place with potential serious consequences for the unbiasedness of my estimates. For instance, I note that passing from growth rate of GDP to absolute GDP growth implies a radical change of the position of China, which scores very high in growth rate and low in absolute growth of GDP.

Moreover, the use of the growth rate in place of absolute growth of GDP per capita is not without drawbacks. More precisely, it imposes to restrict the use of available information to the extreme points of the period considered. This makes estimates relatively more exposed to the risk of biases due to shocks and/or measurement errors. The actual trend of GDP may well differ from the average growth rate calculated between the two most distant observations.

Therefore, it is interesting to check whether the results on the relationship between SWB and income are robust to a different specification of GDP changes. I use - both in bivariate and trivariate regressions - the average annual growth of GDP, estimated by regressing on time all the GDP observations available in the period. Results obtained are robust also to this different specification (see tab.5.2 and tab.5.3).

	Developed countries	Developing countries	All countries
	Annual change in GDP per capita	Annual change in GDP per capita	Annual change in GDP per capita
happiness	-0.000002 (-0.27)	-0.000022 (-0.54)	-0.000017 (-0.93)
life satisfaction	-0.000002 (-0.08)	-0.000148 (-1.77)	-0.00002 (-0.61)

t-stat in parentheses.

Table 5.2: Bivariate OLS regressions of SWB trend on annual change in GDP per capita

The coefficients of GDP change remain negative and non significant for developed, developing and all countries together, in both bivariate and trivariate regressions of happiness or life satisfaction.

	Developed countries		Developing countries		All countries	
	Growth rate of GDP	Annual change of SC	Growth rate of GDP	Annual change of SC	Growth rate of GDP	Annual change of SC
happiness	-0.000004	+0.389	+0.000006	+0.904	-0.00001	+0.726
	(-1.09)	(7.32)	(0.25)	(2.05)	(-1.42)	(2.80)
life satisfaction	-0.000001	-0.267	-0.00008	+1.977	-0.00002	+1.467
	(-0.03)	(-0.45)	(-2.01)	(5.00)	(-0.77)	(3.51)

t-stat in parentheses.

Table 5.3: Trivariate OLS regressions of SWB trends on both GDP and social capital annual changes

6 Conclusion

In this paper I investigated the long term relationships among the trends of SC, SWB, and per capita income, taking a cross-country perspective. In accordance with both the largely debated Easterlin paradox and the new evidence about the correlation between social capital and happiness, my findings suggest that SC and per capita income perform very differently in predicting the evolution of SWB in the long run: whereas SC is a good predictor, income growth definitely is not. This contrast is quite striking, and not only in the light of standard economic wisdom.

More precisely, I found that long term changes in SC are strong predictors of long term changes in SWB. I also showed that this result is robust to a control for long term GDP growth as well as to the restriction to a sub-sample of countries with longer time series available. On the other hand, I found that long term growth of GDP does not predict long term changes in SWB. In this regard, I also showed that Easterlin and Angelescu (2009)'s result survive to several robustness checks, although in smaller sample of countries: including a control for SC trends, adopting a different specification of GDP variations, changing the time span, and changing the measure of SWB variable: happiness rather than life satisfaction.

Appendix: Tables

	Happiness				
Country\Wave	1	2	3	4	5
Italy	2.879154	2.99036		2.951899	3.070577
Spain	2.976434	3.049104	3.047225	3.060657	3.047739
France	3.111111	3.162814		3.238332	3.242485
Belgium	3.263545	3.314698		3.310454	
Netherlands	3.308787	3.385222		3.403194	3.35148
Germany		3.006248	2.966034	2.970426	2.973487
Denmark	3.26087	3.360078		3.394297	
Sweden	3.240642	3.364162	3.34002	3.286561	3.381618
Finland		3.086268	3.151795	3.138566	3.199408
Great Britain	3.33104	3.24559	3.211732		3.425409
Ireland	3.360851	3.359184		3.380952	
Canada	3.316506	3.045455		3.406736	
Japan	2.979261	3.001055	3.228104	3.17184	3.177298
USA	3.216616	3.278271	3.397135	3.331376	3.276442
Argentina	2.942857	3.066937	3.100187	3.120472	3.167339
Chile		3.033647	3.072289	3.159262	3.134269
Mexico		2.946866	2.918814	3.490479	3.487773
China		2.945529	3.052314	2.868474	2.93903
Korea Rep.		2.862679	2.997596	2.955833	3.009167

Table 5.4: Descriptive statistics: average happiness per wave

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Satisfaction with life					
Country\Wave	1	2	3	4	5
Italy	6.647368	7.30005	-	7.170535	6.887674
Spain	6.589666	7.149891	6.610973	7.033628	7.313808
France	6.707215	6.783484	-	7.006231	6.864
Belgium	7.378182	7.596798	-	7.425409	-
Netherlands	7.726131	7.767945	-	7.849452	7.72164
Germany	-	7.024905	6.931784	7.416419	6.922927
Denmark	8.21617	8.162927	-	8.240394	-
Sweden	8.01056	7.972249	7.772592	7.639328	7.721557
Finland	-	7.681109	7.77823	7.866409	7.83925
Great Britain	7.563149	7.490169	7.581502	7.39596	7.552987
Ireland	7.817204	7.875	-	8.202783	-
Canada	7.816653	7.887731	-	7.849145	-
Japan	6.579316	6.526262	6.608358	6.484043	6.990741
USA	7.658895	7.731189	7.666232	7.663333	7.261886
Argentina	6.770021	7.253024	6.92658	7.298896	7.700503
Chile	-	7.554144	6.91675	7.119866	7.243952
Mexico	-	7.410832	7.536648	8.143426	8.226852
China	-	7.292169	6.833445	6.529768	6.762634
Korea Rep.	5.33475	6.685971	-	6.213981	6.390142

Table 5.5: Descriptive statistics: average life satisfaction per wave

Group membership					
Country\Wave	1	2	3	4	5
Italy	0.244065	0.335976	-	0.4205	0.619662
Spain	0.311333	0.229081	-	0.289332	0.386989
France	0.265833	0.37525	-	0.393808	0.539461
Belgium	0.412227	0.57414	-	0.651674	-
Netherlands	0.607699	0.838741	-	0.924227	0.766667
Germany	-	0.735525	-	0.465619	0.645318
Denmark	0.64044	0.808738	-	0.843597	-
Sweden	0.668763	0.850048	-	0.95665	0.957129
Finland	-	0.765306	-	0.800578	0.926036
Great Britain	0.521851	0.518194	-	0.336	0.752161
Ireland	0.51931	0.487	-	0.571146	-
Canada	0.566188	0.639884	-	0.737442	-
Japan	-	0.301682	-	0.43025	0.588725
USA	0.71914	0.709081	-	0.896667	0.870266
Argentina	-	0.232535	-	0.424219	0.52495
Chile	-	0.45	-	0.500833	0.619
Mexico	-	0.357936	-	0.464495	0.827454
China	-	0.628	-	0.253	0.366218
Korea Rep.	-	0.71223	-	0.719167	0.727653

Table 5.6: Descriptive statistics: average group membership per wave

developed countries					
	1	2	3	4	5
label	percent				
belong to social welfare service for elderly	7.65	.	7.19	9.26	.
belong to religious organizations	21.96	15.65	.	20.72	37.27
belong to education,arts,music or cultural activities	8.61	12.10	.	15.72	19.45
belong to political parties	15.79	16.80	.	15.44	20.53
belong to labour unions	6.13	6.37	.	5.50	12.81
belong to local political actions	.	2.91	.	4.40	.
belong to human rights	2.31	3.24	.	5.24	.
membership of charitable/humanitarian organization	.	.	.	.	19.29
belong to conservation, the environment, ecology, animal rights	3.95	.	.	7.76	10.06
belong to conservation, the environment, ecology	.	5.71	.	.	.
belong to animal rights	.	3.58		.	.
belong to professional association	7.78	8.14	.	8.64	14.25
belong to youth work	7.25	5.41	.	6.32	.
belong to sports or recreation	.	19.39	.	21.71	32.21
belong to women's group	.	4.51	.	4.53	.
belong to peace movement	.	1.53	.	1.50	.
belong to organization concerned with health	.	4.63	.	5.57	.
belong to consumer groups	2.08	.	.	.	9.16
belong to other groups	.	7.25	.	8.70	.

Table 5.7: percentage of people partecipating in associations in developed countries

developing countries					
	1	2	3	4	5
label			percent		
belong to social welfare service for elderly	.	4.41	.	6.39	.
belong to religious organizations	.	16.66	.	21.83	39.29
belong to education,arts,music or cultural activities	.	9.33	.	10.02	20.81
belong to political parties	.	4.28	.	4.96	12.80
belong to labour unions	.	10.66	.	4.36	13.17
belong to local political actions	.	4.84	.	4.41	.
belong to human rights	.	1.18	.	1.64	.
membership of charitable/humanitarian organization	.	.	.	.	14.97
belong to conservation, the environment, ecology, animal rights	.	.	.	3.59	10.94
belong to conservation, the environment, ecology	.	1.65	.	.	.
belong to animal rights	.	0.84	.	.	.
belong to professional association	.	8.42	.	3.91	11.51
belong to youth work	.	5.46	.	3.75	.
belong to sports or recreation	.	9.95	.	12.41	26.35
belong to women's group	.	2.39	.	3.30	.
belong to peace movement	.	1.05	.	1.51	.
belong to organization concerned with health	.	4.50	.	5.05	.
belong to consumer groups	.	.	.	.	10.78
belong to other groups	.	2.90	.	1.73	.

Table 5.8: percentage of people partecipating in associations in developing countries

developed countries						
wave	1	2	3	4	5	overall
n. of groups	percentage of membership					
0	54.01	45.6	.	41.82	54.42	53.54
1	27.86	22.8	.	23.18	26.3	21.93
2	10.48	14.53	.	14.4	11.5	11.67
3	4.41	7.54	.	8.49	4.82	5.94
4	1.86	4.28	.	5.24	1.88	3.22
5	0.81	2.44	.	3.16	0.71	1.78
6	0.32	1.14	.	1.8	0.26	0.89
7	0.1	0.7	.	0.79	0.08	0.44
8	0.07	0.42	.	0.53	0.03	0.27
9	0.02	0.26	.	0.19	.	0.13
10	0.05	0.12	.	0.14	.	0.08
11	.	0.05	.	0.12	.	0.04
12	.	0.04	.	0.06	.	0.03
13	.	0.02	.	0.03	.	0.01
14	.	0.01	.	0.01	.	0
15	.	0.02	.	0.04	.	0.02
16	.	0.01	.	.	.	0

Table 5.9: percentage of people partecipating in more than 1 group in developed countries

developing countries						
wave	1	2	3	4	5	overall
n. of groups	percentage of membership					
0	.	52.66	.	52.16	62.56	70.17
1	.	27.59	.	27.9	21.41	17.29
2	.	10.44	.	10.35	8.79	6.66
3	.	4.69	.	4.39	3.85	2.91
4	.	2.08	.	2.57	1.58	1.4
5	.	1.16	.	1.22	0.77	0.71
6	.	0.59	.	0.61	0.65	0.42
7	.	0.35	.	0.35	0.24	0.21
8	.	0.19	.	0.16	0.09	0.1
9	.	0.1	.	0.08	0.06	0.05
10	.	0.03	.	0.08	.	0.02
11	.	0.03	.	0.05	.	0.02
12	.	0.02	.	0.02	.	0.01
13	.	0.03	.	0.03	.	0.01
14	.	0.02	.	.	.	0
15	.	0.02	.	0.02	.	0.01

Table 5.10: percentage of people partecipating in more than 1 group in developing countries

Appendix: Figures

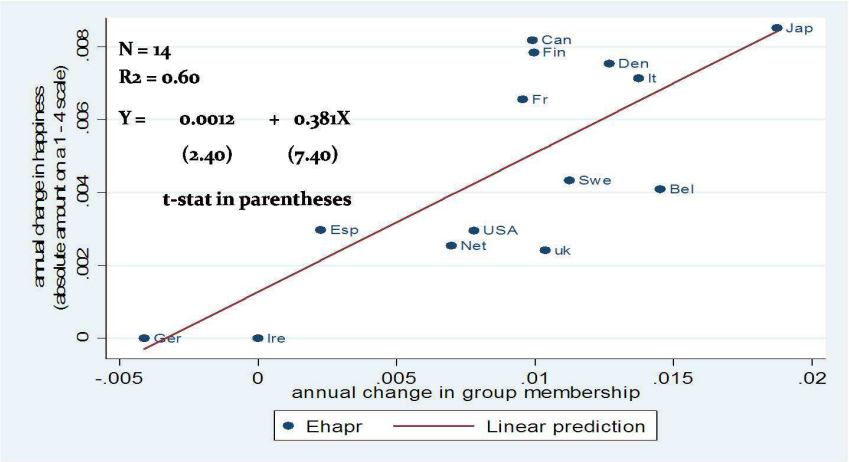

Figure 5.1: Happiness and social capital in 14 developed countries

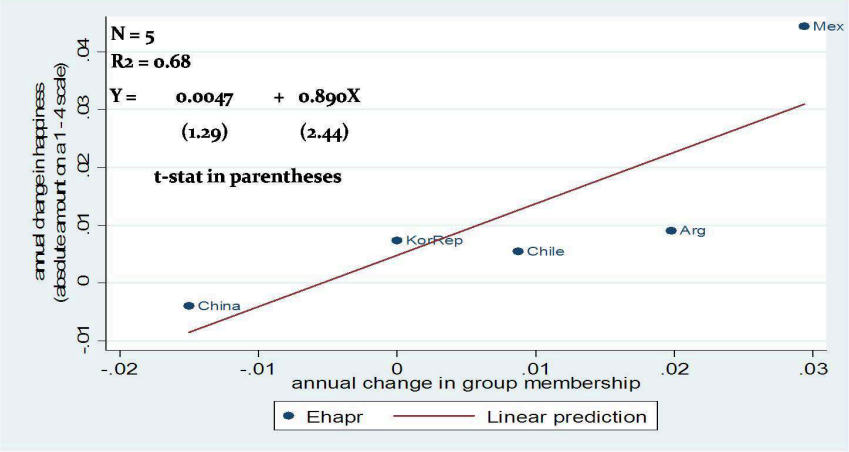

Figure 5.2: Happiness and social capital in 5 developing countries

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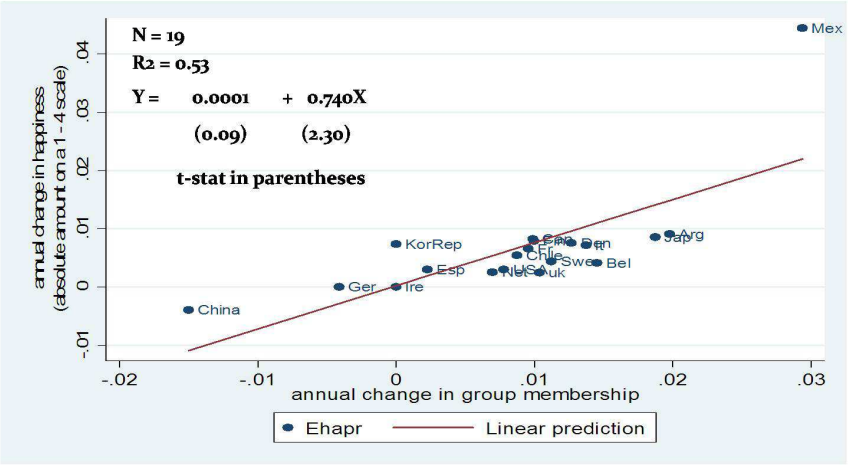

Figure 5.3: Happiness and social capital in 19 developed and developing countries

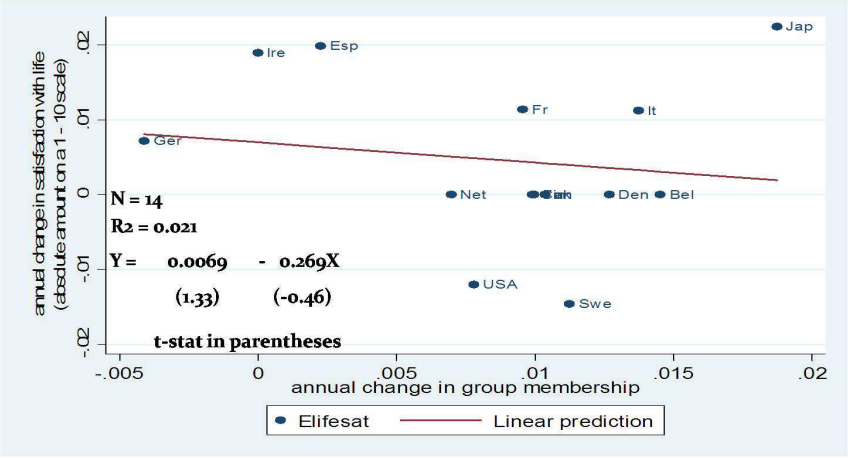

Figure 5.4: Life satisfaction and social capital in 14 developed countries

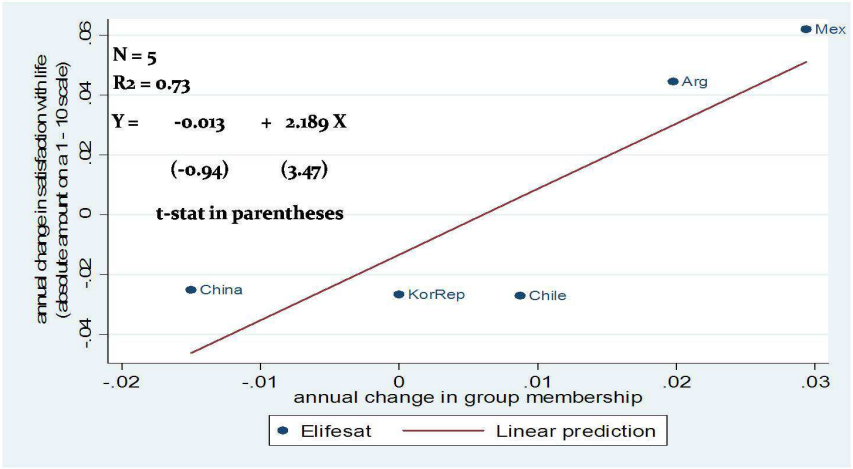

Figure 5.5: Life satisfaction and social capital in 5 developing countries

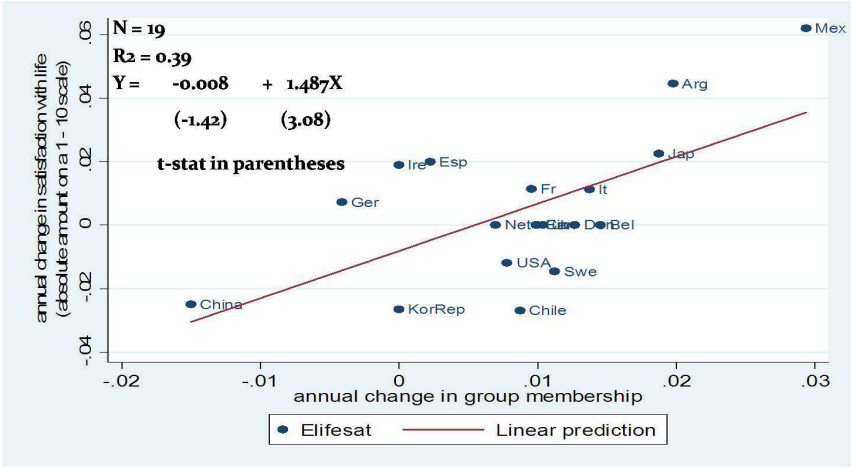

Figure 5.6: Life satisfaction and social capital in 19 developed and developing countries

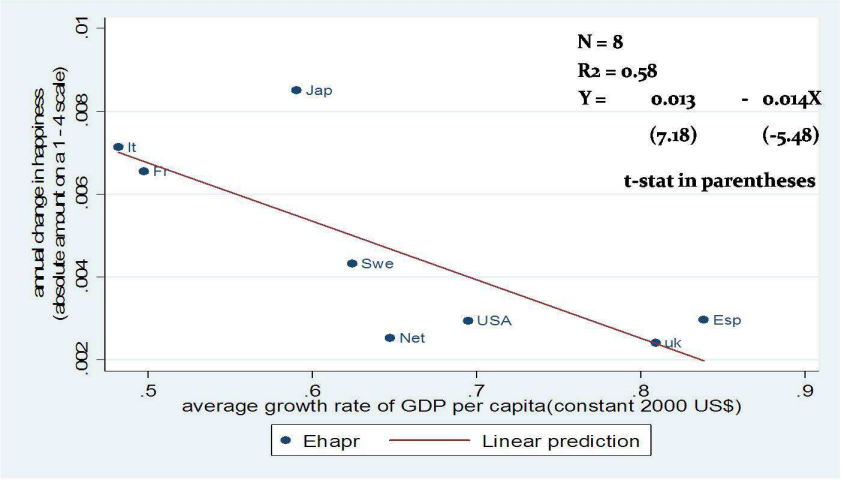

Figure 5.7: Happiness and GDP in 8 developed countries

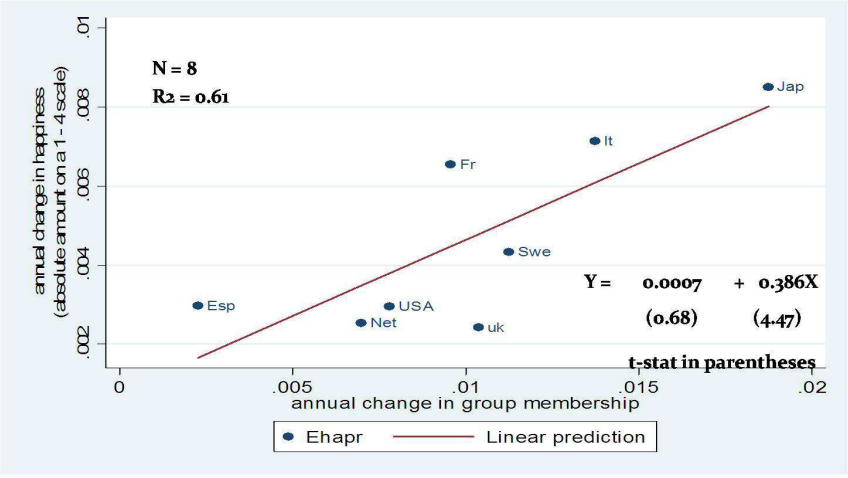

Figure 5.8: Happiness and social capital in 8 developed countries

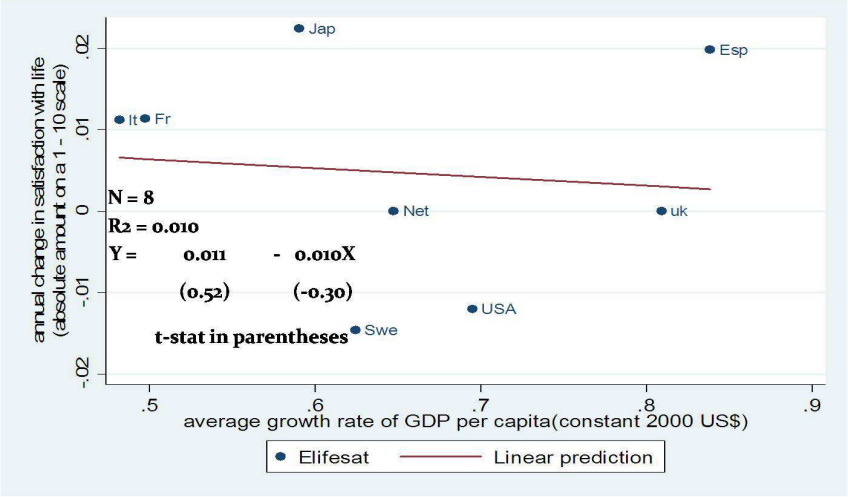

Figure 5.9: Life satisfaction and GDP in 8 developed countries

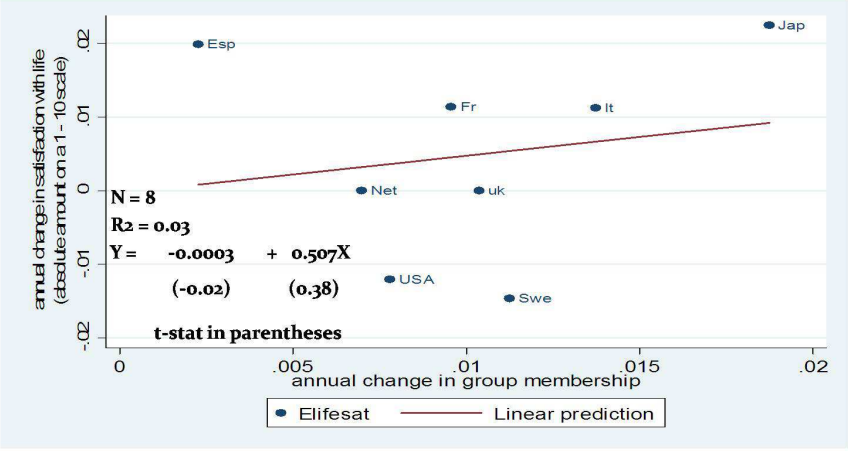

Figure 5.10: Life satisfaction and social capital in 8 developed countries

List of Countries

8 Rich countries (5 waves):
Italy, France, Spain, United Kingdom, USA, Japan, Sweden and Netherlands

14 Rich countries (4 waves):
Germany, Denmark, Finland, Ireland, Belgium, Canada and previous 8 countries

5 Poor countries (4 waves):
Mexico, Argentina, Chile, China,Korea Rep.

Table 5.11: List of countries included in my sample

Chapter 6

Conclusions

Present research is set in the wider stream of economic research committed in exploring and re-considering the meaning of the term "well-being", which aspects are considered as important by people for their well-being and how to improve it.

The myth that economic growth is all we need to have a better life is showing its constraints. More opulence doesn't necessarily bring more well-being. The empirical evidence confirms this observation (Easterlin and Angelescu, 2009). But if income is not all that we need, on what should we focus our efforts to improve the human condition?

Answering this question is a dilemma for economists who are historically interested in people's well-being and in its maximization. At the same time, answering this question also means setting the basis of a different cultural, economic and political organization of modern societies.

Suggestions proposed so far to explain what is important for people's well-being aid a more detailed knowledge of what subjective well-being (SWB) is, but they can not explain international differences in SWB trends. Why does SWB grow up more in some countries than in others? Why do individual well-being stagnates in particular countries? This is the case, for example, of the richest economy in the world: USA. For those who are used to look at GDP as a good indicator of the level of well-being of a society this evidence is striking.

In the light of some recent contributions suggesting *sociability* as an important correlate of SWB, I tested the hypothesis that social capital (SC), in particular relational goods, help to explain well-being variations across time in both micro and macro perspective.

My contributions confirm previous results on the role of adaptation and social comparisons in explaining SWB and they document that SC is an important determinant of well-being. Above all, my results suggest that SC is largely responsible for the international differences in the evolution of well-being over the long run.

My research first dealt with the analysis of the relationship among SWB and a wide range of explanatory variables in two groups of countries: low and high income

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ones. The comparison of "happiness equations" in the two contexts suggests that people have a similar set of determinants for their well-being and, ceteris paribus, SC and relational goods have a positive and significant relationship with SWB. This means that what people consider as important for their well-being doesn't significantly vary across countries and, in particular, it is independent from the level of development. This result confirms previous works on the unicity of the happiness equations and suggests that cross-cultural differences have a minor role in explaining the different trends of SWB across countries.

Successively, I considered the international differences in SWB and SC trends. The case of USA, with decreasing trends of SWB and SC despite economic growth, poses a crucial question: is the erosion of SC a general feature of more modern and richer societies or is it a key feature of only some of them? Are the trends of SC consistent with the trends of SWB in different countries? In other words, is there a relationship between SC and SWB trends? This research was also motivated by the fact that so far the scarcity of data constrained the availability of empirical evidence on the trends of SC in countries other than USA. Hence, I focused on eleven western European countries for which the World Values Survey (WVS) has enough information to draw SC and SWB trends. Notwithstanding the cross-sectional nature of this data-set, it is one of the best available sources of information to analyse the evolution of values and well-being in time. Results point out that the considered European countries are not following the same American pattern: many western European countries between 1980 and 2000 experienced an improvement in both their SWB and relational SC. Hence, although some exceptions exist, this result suggests that we can not discard the hypothesis that the trend of SC can help explaining the trend of SWB.

In order to further explore my hypothesis, I focused on micro data from Germany to quantify the extent to which the main correlates of SWB predict its variations over time. Using the German Socio-Economic Panel allowed me to control for a large set of independent variables testing and accounting the weight of some of the theories explaining SWB trends. Hence, the effect of economic growth for SWB has been considered together with the role of adaptation, social comparisons and social capital. The quality of the available data allow to quantify the variation that each determinant had on the overall variation of SWB in time. Results confirm the positive role of income and the negative impact of adaptation and social comparisons for the trend of well-being: these three forces act in contrasting directions offsetting their effects. On the other hand, SC positively and significantly contributed to the German SWB moderating the negative effects of income variables. This analysis confirms that SC is important for individual's well-being and that it has an important role in explaining the variation of SWB in time.

The last step looks for further evidence to support the explanatory power of SC for SWB trends in a macro perspective. Easterlin and Angelescu (2009) recently rediscovered the Easterlin paradox finding out that, in the long run, GDP and SWB

variations are unrelated. Adopting the same bivariate methodology and using data from WVS and "World Development Indicators" (WDI), I find out that there is a positive and significant relationship between the trends of SC and SWB. The relevance of this result stands in the fact that the same methodology suggesting no relationship between SWB and GDP variations over time, confirms the significant role of SC. Furthermore, this result holds for both developed and developing countries and is robust to different specifications of variables, different samples of countries and to the inclusion of changes in GDP as explanatory variables.

Overall, the role of SC as determinant of SWB is confirmed and the evidence provided supports the hypothesis that the international differences in SWB are linked to different trends in SC.

Thus, what message should we draw from these results? Economic growth has an important role for well-being, but its effects are much more widespread and multifaceted than what is expected. A large part of the positive effects on well-being due to economic growth are frustrated by mechanisms of adaptation and social comparison. Moreover both cross-country and cross-individual comparisons show that the positive impact of income on well-being is strongly decreasing as income grows. In short, income is important for poor people and nations, much less so for wealthy ones.

On the other hand, the evidence I provided confirms that *sociability* is extremely relevant for well-being across countries. This means that economic prosperity works in favor of well-being if it has not been obtained at the price of the destruction of sociability. What comes out to be important for people's well-being is not economic development per se, but its social quality.

In conclusion, these results suggest that rich countries shouldn't expect substantial increase in well-being by economic growth and should rather re-orient their efforts to increase well-being towards some other priority: sociability. On the other hand, developing countries can expect much more in terms of well-being from economic growth compared to developed ones, but only if this growth is obtained with a great attention to the containment of its social costs.

This work gives SC a new role in the economic and policy agenda: it is no more simply a set of shared values and common rules improving the relationships between economic agents. My results highlight the important role of social relationships for individual's well-being and suggest that current and present development policies should consider SC as a policy goal per se if they aim at improving SWB. New scenarios are available for policies aimed at increasing well-being: urban organization, educational system, labour market, health systems are only some of the fields in which re-considering the role of SC can significantly improve people's experience with their lives.

PREMIO RICERCA «CITTÀ DI FIRENZE»

Titoli pubblicati

1. Romolini M., *Commento a La bufera e altro di Montale*, 2011
2. Venturini F., *Profili di contrattualizzazione a finalità successoria*, 2011
3. Lucchesi F., *Contratti a lungo termine e rimedi correttivi*, 2011
4. Sarracino F., *Social capital, economic growth and well-being*, 2011