Europe in Times of Distress:

Assessing Life Satisfaction from 2002 to 2012

Katarzyna Kucaba

Doctor of Philosophy (Ph.D.)

Department of Sociology

University of Leicester

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Abstract

This thesis explores the complex economic conditions under which life satisfaction can flourish or be thwarted. It identifies three trends in life satisfaction in Europe - rising, stagnant, and declining – a theme which has been the subject of a long- standing debate focusing upon the Easterlin paradox. I measure the relationship between life satisfaction and income-related factors in 24 European countries from 2002 to 2012 using European Social Survey data. Results of pooled OLS CLSE regression analysis show that income is significantly correlated with life satisfaction, but only up to the point at which financial distress is included in the analysis. The negative effect of financial distress on life satisfaction is mitigated by national wealth and (to an extent) type of social policy. In addition, the 'tunnel effect' was found to be still present in CEE nations in the years 2002-2012 despite the end of their transition period, and in the north of Europe status comparisons prevailed. But this effect was only relevant for people with higher levels of income. Therefore, the thesis confirms Veenhoven's basic needs theory emphasizing the importance of the livability of the society for those less well- off. The 'tunnel effect' recorded in CEE countries compensates for lower standards of living as it enables the toleration of income inequality in the context of rising living standards for all. Conversely, the negative effect of income comparison on subjective well-being in the north of Europe can be moderated by the already very high and growing livability of the society. I conclude that the livability of a society makes the Easterlin paradox an illusion for some countries in Europe, while for others it makes it a reality.

Keywords: life satisfaction, national wealth, Easterlin paradox, relative income, financial distress, recession

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List of Abbreviations

CEE –Central Eastern Europe

ESS –European Social Survey

EU –European Union

FD – Financial Distress

LS –Life Satisfaction

NE –Northern Europe

OLS CLSE – ordinary least squares clustered standard errors

PC –Post-Communist

SE –Southern Europe

SWB –Subjective Well-Being

WE –Western Europe

WVS –World Values Survey

List of Country Abbreviations:

BE – Belgium

BG – Bulgaria

CH – Switzerland

CY – Cyprus

CZE –Czech Republic

DE – Germany

DK – Denmark

EE –Estonia

ES – Spain

FI - Finland

FR – France

GB– Great Britain

GR – Greece

HU -Hungary

IE – Ireland

LUX - Luxemburg

NL – Netherlands

NO - Norway

PL – Poland

PT – Portugal

RU –Russia

SI –Slovenia

SE – Sweden

SK -Slovakia

UA –Ukraine

Introduction

The growth in interest in measuring happiness in recent decades can paradoxically be explained by the worsening economic situation in the developed world culminating in 2008 with a crisis undermining the ideology of increased wealth as a source of satisfaction with life. In addition, it led to the exposure of discrepancies in the economies of European nations and their ability to manage national wealth and development. This led to government calls to measure happiness and life satisfaction alongside economic initiatives to establish levels of national development and growth (Cameron 2010, Sarkozy 2012). At least in the UK, they were part of the proposed national well-being policy (O'Donnell and Oswald 2015). Despite seeming like novel and provocative, such measures have a long tradition reaching back to the US constitution of 1779 and Benthamite utilitarianism in 18th century Britain (Jugureanu *et al.* 2014). Here I will discuss the main approaches to well-being and its measurement together with a general overview of the research to date. The section will focus upon subjective well-being studies conducted in the Western world as theoretically relevant to my project, while other dominant approaches will also be briefly mentioned. Moreover, in the second part of this section I will address issues of financial insecurity during the 2008 crisis and the context of the country as mediating agent in the process of assessing subjective well-being.

1 The meaning of subjective well-being and studies to date

2.5.1 Definition

Subjective well-being is one of the many terms used to describe the elusive, magical, and personal concept as understood by some, or the emotional/cognitive evaluation of one's own life as understood by others (Thin 2012). Notions such as quality of life, well-being, and more specifically, objective and subjective well-being, happiness, life satisfaction, eudaimonia, hedonism, fulfilment, pleasure, utility, and welfare are all used in the literature that addresses this topic. Some terms are often used interchangeably although there are important differences between them in the theoretical, practical, and methodological aspects succinctly summarized by Bartram (2012).

Well-being is defined as the optimal functioning of a person (Ryan and Deci 2001), while subjective well-being refers to self-assessed well-being. It is a complementary measure to the objective indicators of economic security, health, freedoms etc. advocated most prominently by Sen (1999), but with a long tradition of serving as national indicators in most national and international databases. 'Happiness' refers mostly to the affective state, hence it is connected with the hedonistic approach to measuring well-being developed by Kahneman *et al.* (2003). Life satisfaction is recognized as more a cognitive notion related to being fulfilled with life defined first by Aristotle as 'eudaimonia', another term that is often used in the literature (Nagel 1972, Jugureanu *et al.* 2014). The notions, although capturing slightly different aspects of well-being, show similar patterns over time (Waterman 1993) and correlate well with more detailed measures, such as positive and negative affect, frequency of smiling, brain waves typical for a happy mood etc. A list of the correlates of self-reported happy moods is presented by Gardner and Oswald (2001). 'Quality of life' is a more holistic term preferred by big databases conducting yearly reports and usually including objective and subjective measures of well-being. Utility and welfare are used in the academic fields of economics and sociology/social policy, but they reflect the nature of the discipline rather than substantial methodological or conceptual differences. In my project I will use the terms 'well-being', 'subjective well-being', 'happiness', and 'life satisfaction' interchangeably to refer to the concept being measured, although I acknowledge that there are important differences between them underlined above.

2.5.2 Determinants

A succinct summary of factors correlated with happiness is presented by Bartram (2012), who divides them into spheres in which satisfaction with life is influenced by individual characteristics such as employment status, income, and health among others, and higher level factors such as country characteristics, the quality of governance, freedom, and culture. They directly or indirectly correlate with self-reported satisfaction. Other comprehensive studies accounting for micro-, meso, and macro-level indicators of well-being point mainly to the same results as more focused studies (Diener *et al.* 1999, Helliwell 2003, Graham 2009). Although most studies use a

quantitative approach and employ different variations of regression analysis, few projects focusing upon qualitative inquiries into well-being add rich and insightful information on the nature of happiness and its determinants (Cieslik 2015). A broader discussion of happiness correlates is presented in Chapter 3.

Despite many studies pointing to different correlates of well-being belonging to only a few spheres of life (family, health, and economic security having the highest impact), important differentiation between approaches to analysing happiness is required. Despite calls to measure well-being and incorporate it into national accounts around 2010 in Europe, the question of subjective feelings of happiness has been part of socio-economic datasets for many years (e.g. WVS, ESS, EVS, Eurobarometer, Gallup Poll). This has enabled comparisons among countries as to levels of national well-being as well as tracking changes over time. For the purpose of this thesis, it is important to differentiate between these two different measures and account for their varying dynamics.

2.5.3 Ranks of well-being

So- called 'rankings of happiness' have been widely used for many years and can be found in literature discussing happiness levels worldwide or in certain parts of the world. Thanks to advanced technology and sophisticated statistical tools, it is easy to acquire data, at least from the West, and arrive at relevant statistics resulting in simple rankings for required indicators. Hence it is widely known that in Europe the highest scores in life satisfaction are recorded in Scandinavia, while the lowest are characteristic of the post-communist countries of Eastern Europe. Western Europe scores just behind Scandinavia while the Mediterranean region is next in line. Despite differences in average national happiness, it is worthwhile remembering that that in almost all European countries levels of satisfaction are usually above the median, which means that on average they are happy nations. Worldwide there is also a trend for certain nations to be at the top while others remain lower down. The highest scores are recorded in Western Europe, the US, and Australia, with Latin American countries being in second place. Next in the league are Asian nations, followed by Middle Eastern and African countries (Helliwell and Wang 2012). Of course, the disparities among countries are very wide and result in nations that on average report

unhappiness, as they are below the median. Since the scores are recorded over time, it is also possible to track changes that take place in life satisfaction levels, which can be indicative of economic, political, and social changes taking place in a country. Hence happiness trajectories are as indicative of the situation a country and individuals are in as their position in the well-being rankings.

2.5.4 Changes in well-being

The change in happiness scores over time recorded both on the individual and national levels informs us of important tendencies. If the position of a country in a ranking indicates the average happiness among the individuals at certain moment, the change in average happiness scores over time tells a lot about subjective well-being distribution. When the average satisfaction score increases over time, we may say that more and more people are becoming happier over time. This is good news as it results in more satisfaction in a country. It can be illustrated by two processes: the negative extreme of happiness distribution is diminishing, or happiness of the greater majority of people is increasing. In other words, it could be that people who reported being unhappy before consider themselves happy now. Or that previously happy people now report being very or even extremely happy.

The dynamic of change in life satisfaction is a separate subject of study from the static happiness score observed across countries. The research carried within this area has led to the formulation of the Easterlin paradox juxtaposing national subjective well-being measures at one point in time versus their trajectory over time. It is used alongside other measures of national prosperity, namely wealth measured as GDP per capita. Its creator, Richard Easterlin, expressed the results of his research in a now famous statement: "*the increase of income of all, does not increase the happiness of all*" (Easterlin 1974). More specifically, Easterlin showed that, despite richer people and countries being happier than poor ones, over time happiness does not increase with the increase of income (Easterlin 1995). He explained the paradox using adaptation and social comparison processes that make people adjust their expectations to current living standards and forget their earlier expectations. At the same time, they compare themselves with others who are in a similar position. This process results in new expectations being formed based on the reference group as

well as one's current stance in society resulting in very little change to happiness in the long term despite the initial boost. The paradox has long been the subject of heated debate and many opponents have disproved it, while others proved its existence again. A closer look at the current findings regarding the Easterlin paradox is presented in chapter 1.

2.5.5 Long-term and short-term satisfaction

The Easterlin paradox shows an interesting tendency in the appraisal of life satisfaction but an important observation needs to be made. The paradox is concerned with long-term changes in happiness that, as Easterlin himself notes, should last at least 10 years (Easterlin 2001). In other words, short-term fluctuations in self-reported happiness are observable, but in the long – term of 10 or more years there is a tendency for them to return to previous levels. It is a phenomenon that Easterlin explains using the adaptation process and comparisons with other people (Easterlin 1974). Naturally, this tendency is recorded in studies concerned with individual levels of happiness and its fluctuation as well as in studies across countries, since they are based on aggregates of individual scores.

Despite long-term happiness research informing about certain tendencies, measures of short-term well-being are equally important for two main reasons. Firstly, they inform us of reactions to events occurring on the individual, societal, or national levels, and the effects they have on satisfaction with life and functioning. In this way they enable registration of events that have detrimental effect on humans, as well as those that are beneficial for happiness. Even if processes of adaptation or social comparison can eliminate the effects of these events in the long run, their short-term influence has a significant effect on human life. This leads to the second important reason. Short-term levels of happiness play an important role in human functioning and self-image in everyday life. Even if individual happiness measured at the beginning and the end of 10 or more years is similar, the scores recorded annually during that time can be substantially different. As such, they are equally important and informative about a person's mood and life circumstances. For example, if an individual was unemployed for some period of time, resulting in self-reported unhappiness for two or three years, this fact would be of interest to the researcher as the functioning and self-image of the

person during that time would worsen. Moreover, any periods of unhappiness are harmful to the individual and make them miserable, which in turn means that they might need help to regain their well-being. And since people are social beings, the mood and behaviour of one affects those nearby, in the first instance family and friends, but then also colleagues, neighbours, community, and society as a whole, especially if there are large numbers of unhappy people recorded on a national level. Hence even if eventually these scores level out, measuring evaluation of life in terms of well-being in the shorter period of time would seem morally required in order to help people reach at least moderate levels of satisfaction with life. In conclusion, it was established that happy people function better in daily life and contribute to better functioning of society as a whole (Veenhoven 1988, Wright and Cropanzano 2000, Lyubomirsky *et al.* 2005, Pressman and Cohen 2005, Meier and Stutzer 2008). Therefore, aiming for a high number of happy people at any one time improves the lives of all. And in order to do this, evaluations of short-term life satisfaction are required.

2.5.6 Other approaches to measuring well-being

As mentioned above, self-reported happiness is just one way of assessing human flourishing. It is certainly the most democratic method as it takes into account an individual's own evaluation of their state of well-being and does not provide any definitions of the concept of satisfaction or well-being. It enables the person to decide what well-being means for them and, based on that, ascribe a score to it. However, the method has its weaknesses. Graham (2009) states that high levels of happiness in some "problematic" regions such as South America should not be conducive with contentment with the status quo. Since people are able to adapt to any circumstances, they can also learn to live with high crime rates diminishing their safety, income inequalities resulting in poverty for many and enormous wealth for a few, as well as gender inequalities that place a subordinate role on women. Hence subjective measures of well-being should be always portrayed in the context of more objective measures assessing safety, prosperity, equality, and health. The most famous proponent of the alternative approach to assessing well-being, Amartya Sen, developed a "capability approach" in order to measure the flourishing of individuals in

the context of their national and cultural environment (Sen 1999). His approach focuses upon opportunities offered by the society or country that enable individuals to fulfil their potential and live meaningful lives, as well as an individual's own ability to make use of existing possibilities. He defines well-being as referring to an individual's achievement of their well- being, while he uses the concept of advantage to refer to opportunities that one has in comparison with others. Hence a different configurations of these two concepts becomes possible, that is, a person can have many advantages but not use them to achieve well-being or fail to do so, or an individual can sacrifice their well-being for different goals, which Sen calls the: "freedom to achieve well-being" (Sen 1999). Sen and Nussbaum define the functioning of a person as "beings and doings", and so as states and activities (Nussbaum and Sen 1993). These indeed refer to opportunities available to people as well as their achievement of them, and the freedom to do so (Sen 2001).

In the context of my project, the capabilities approach serves an important function despite its different theoretical stance vis-à-vis subjective well-being measures. The approach points to the context of everyday life as important in enabling people the opportunity to live an optimally happy life of their choice. In this sense, the country one lives in and its characteristics play a vital role in assessing wider conditions of self-reported satisfaction with life as a whole. Hence, despite focusing upon subjective measures of well-being, namely satisfaction with life, the project also takes into account objective measures of optimal functioning, expressed in terms of prosperity, safety, social security, equality, social respect, and national trust. Some these indicators are aggregated at the national level in chapter 2 referring to the objective level of well-being in each nation in the sample over time. Furthermore, they enable comparisons across countries in seemingly homogeneous wealthy Europe and point to existing inequalities, which although minor in comparison with the wider world, still persist on this highly developed and industrialized continent. Moreover, their existence was maintained and perhaps became even more prominent as the economic crisis of 2008 and its consequences altered the economic landscape existing on the European continent for many decades until now. This dramatic event will be examined more closely in chapters 4 and 5 of my thesis when I will assess the effect of the

recession manifested through income comparisons and rising financial distress alongside more common indicators of satisfaction.

2.5.7 Economic security and crisis

Crises of different kinds, such as unemployment, financial crisis, accidents or divorce have a negative effect on individual well-being and functioning. Here the process of adaptation plays an important role as after the initial shock of the news of the event, people adapt to their new circumstances and learn to cope with it. This in turn can mean that their happiness will return to previous levels after some time. However, this widely held view has been challenged by research focusing upon processes of adaptation to different life events, such as long-term unemployment (Clark and Oswald 1994, Winkelmann and Winkelmann 1998), changes in marital status (Lucas *et al.* 2003), and disability (Oswald and Powdthavee 2008). A meta-analysis of different life events and their short- and long-term impacts on well-being indicates that they have a more substantial impact on cognitive well-being (i.e. life satisfaction) than on affective well-being (i.e. happiness), but this process depends upon a life event studied (Luhmann *et al.* 2012).

Adaptation to difficult situations is a coping mechanism but studies point to its limiting effect in returning life satisfaction to baseline levels. Hence each life event - individual, societal or national - needs to be explored on a case-by-case basis as its effect on optimal functioning and well-being can vary depending upon personal and contextual circumstances. Since my project focuses upon life satisfaction trajectories and their relation to income security in the context of the 2008 recession, I will inspect findings related to individual adaptation to the news of recession.

Economic shocks result in great decline in SWB owing to income losses and increased insecurity (Graham 2009). More extended discussion of the occurrence of economic shocks in Europe and their effect on well-being forms a part of the literature review in Chapter 4. But a preliminary view of the consequences of recession for SWB leads to the assertion that, during the economic crisis, levels of happiness went down at the beginning, owing to the uncertainty it created as much as to the actual drop in income, but after the crisis they eventually returned to previous levels (Graham 2009).

Moreover, people distinguish between their general satisfaction and satisfaction with how the government performed during the crisis. These findings were confirmed when national crises were inspected, but the global recession of 2008 may challenge this view. The inter-connectedness of the world markets means that many countries experience different symptoms of economic meltdown and have various means at their disposal to deal with it. As such, it is hard to predict when the crisis will end. Will it be when the countries start recording economic growth again? Will it be when they deal with the financial abuse that occurred in their countries and take charge? Or will it be when the consequences of the recession are finally be dealt with? Regardless of how the crisis will end, it is predicted that living standards enjoyed until now will not return and so people will need to adapt their lifestyles to the new reality. But uncertainty remains as to how successful they will be in doing so, and if it will have an impact upon their well-being. Moreover, it is essential to establish if the country context can provide some help or relief in that process.

2.5.8 Research question and hypotheses

This project aims to address the question of whether levels of subjective well-being in 24 European countries changed over time from 2002 to 2012, given the context of the 2008 economic crisis, and what factors correlate with the SWB over time. More specifically, the project will assess if there is a variation in happiness trajectories on the continent, i.e. if levels of national satisfaction show homogeneous trends of growth, decrease, or stagnation, or if these trends differ cross-nationally. This will form the content of Chapter 1 that will serve as a rationale for further analysis. The underlying hypothesis in this part of the thesis is that there is indeed variation in satisfaction trends in Europe. This result was already hinted at by Easterlin himself (1995) and other researchers who dispute the Easterlin paradox (Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Stevenson and Wolfers 2008, Sacks *et al.* 2010, Sacks *et al.* 2012, Sacks *et al.* 2013), but it was largely ignored and unexplored.

The second part of the question concerning factors underlying different trends in Europe will be explored in different steps. Firstly, I will assess it by looking at aggregate measures of national life satisfaction and national level indicators in order to produce

analysis coherent with research to date but set in a European context only for the years 2002 to 2012. Secondly, I will broaden the analysis to include individual level indicators that may correlate will life satisfaction in different years showing as a result the change in significance of those factors that were conducive to happiness at the beginning of the millennium and a decade after. This will form the content of chapters 2 and 3 respectively.

Based on previous research, it is expected that national life satisfaction scores will correlate positively with per capita GDP PPP and its growth, and with decreasing corruption and crime rates. These hypotheses will be tested in Chapter 2. The analysis in Chapter 3 is largely exploratory hence the hypotheses relate mainly to economic security, social capital, and contextual factors which are predicted to significantly explain variation in life satisfaction trends in Europe.

Since the period of the project lasts from 2002 to 2012, the economic crisis of 2008 and its repercussions need to be accounted for. Omitting this factor would ignore a significant event that has had major negative impact on the well-being of people both directly and indirectly affected by it. Here the concept will be operationalized using financial distress variables as well as reference income comparisons to show how they moderated the relationship between income and life satisfaction in the context of the 2008 recession. Furthermore, financial distress as a more salient issue in the context of economic crisis will be interacted with national wealth measured in per capita GDP PPP, and welfare state type in order to investigate the mediating effect of the state in alleviating the effects of economic crisis on life satisfaction in Europe. These problems will be explored in chapters 4 and 5 respectively.

In chapter 4 it is hypothesized that the effect of relative income of life satisfaction will vary depending upon the motivational orientation dominant in the country. Hence the informational aspect of reference income will have a positive effect on well-being in eastern and southern Europe where social mobility is high and economies are less secure. In more wealthy but socially immobile western and northern Europe relative income will exert negative influence on well-being owing to its strict comparative nature. In addition, it is hypothesized that financial distress has a highly detrimental

effect on well—being regardless of region, which is more significant for evaluations of life satisfaction than actual income earned.

The effect of financial distress on life satisfaction pre and post-recession can be moderated by the context of the country. This assumption forms the basis of hypotheses in Chapter 5. The work is exploratory hence two sub-hypotheses are formed. One presupposes that the context of living in a wealthy nation results in less financial distress owing to higher living standards than in poorer nations. Another hypothesis assumes that those who experience grave financial distress and live in a wealthy nation will suffer more loss to their well-being owing to the social comparison effect than people who live in poorer nations and also experience high income distress. This hypothesis is based on the similarity-dissimilarity dimension that directs the effect of income worry on life satisfaction. It is also predicted that more generous welfare policies help to alleviate the detrimental effects of financial distress on subjective well-being.

2 Theoretical background

In the context of happiness studies, few theoretical perspectives on happiness levels and their dynamics over time need to be discussed in order to present debates that dominate the field and underlie the research, especially in reference to the influence of economic factors on self-reported well-being.

Set-point theory of happiness argues that happiness has a baseline level determined by genes and personality that cannot be changed or altered which is a result of habituation processes (Brickman and Campbell 1971, Diener and Diener 1996). Even if some events alter this point, the change is only temporary as after some time the happiness levels return to the baseline, a point sometimes inappropriately called the neutral level. This view was challenged by several researchers, most notably Diener *et al.* (2006), Easterlin (2004), Boyce *et al.* (2012), Veenhoven (1994) and Lucas *et al.* (2004), whose findings indicate that the set point of life satisfaction alters during a lifetime. Events such as changes in marital status, health, and employment in particular lead to a long-term increase or decrease of subjective well-being.

As regards the relationship between life satisfaction and other aspects of life, relative income matters in wealthy countries because people compare their current experiences with past experiences. This results in adaptation to change and rising aspirations as income and living standards rise, a factor described in the literature as hedonic treadmill (Eysenck and Eysenck 1994, Easterlin 2001, Diener *et al.* 2006, Graham 2009). In addition, people compare themselves with others, known as social comparison theory. The result of this comparison provides important feedback about one's social, material, and personal situation in relation to the context affecting the way they judge their life satisfaction as a whole (Easterlin 1995). As living standards rise, 'norms of living' also develop and rise, becoming an ever-changing point of reference for people when assessing their own wealth, position and standard of living. Because norms change in order to reflect current standards of living, in effect aspirations rise following norm adjustment and assessment of individual subjective well-being is based on current desires and goals. This results in the lack of growth in happiness ratings over time and illusory confirmation of set-point theory of happiness levels (Easterlin 1995).

On the other hand, alternative theories of happiness argue that happiness is a direct function of livability of society, one of its criteria being habitability in a society. The level of livability is a: "degree to which society's requirements and provisions fit the needs and capacities of their members"(Veenhoven 1993). According to the author, stability, productivity, and expression of ideals are all vital to society and construct the concept of livability of society. Gratification of needs is one of the most important obligations of society and when through economic growth the needs are fulfilled, the happiness of individuals is set to rise (Veenhoven 1991). Standards of living change and develop, enabling people to compare them with others as postulated by social comparison theory, but needs cannot be learnt and so their provision depends upon actual living conditions, making happiness a non-arbitrary concept.

3 Methods

2.5.9 The analytical approach

This project will assess life satisfaction and its trends in Europe through quantitative analysis. More specifically, the project identifies regression analysis as the best statistical method to approach the subject and it is widely used in the literature. Because the individuals in the survey are clustered within particular countries, I will apply pooled clustered regression accounting for clustering on the level of countries as the higher units of analysis with both individual and country level factors correlated with dependent variable. Although dependent variable, life satisfaction is ordinal by nature, research carried out to test the correct analytical approach pointed to no differences in results when the variable if treated as cardinal or ordinal (Ferrer-i-Carbonell and Frijters 2004, Van Praag and Ferrer-i-Carbonell 2008). Hence, throughout the thesis pooled OLS regression is used which assumes the response variable is a continuous interval variable with equal differences between categories on the scale. An alternative kind of analysis, ordered probit regression assumes that values on the Likert satisfaction scale are put in order and the intervals are not treated equally, i.e. the difference between categories 1 and 2 is not necessarily the same as between 8 and 9. The two approaches have been used widely in analyses of subjective well-being to date with many studies pointing to similar results (Ferrer-i-Carbonell 2005, Dolan *et al.* 2008).

The detailed approach used in the analysis of each research question is discussed in each of the chapters that address it in order to account for specificity related to the analysis and the sample structure. More generally, the inferential analysis in each chapter (except Chapter 1) is preceded by exploratory analysis that compares the average scores and/or frequencies of independent variables in each country and discusses them in the context of the study. This approach is also consistent with the "capability approach" discussed in the introduction that investigates objective indicators of national performance in order to account for opportunities available to people that help them achieve optimum functioning, hence the best most satisfactory level of well-being.

Each empirical chapter will be structured in the same way. They will all begin with an introduction to the topic followed by a more detailed discussion of the research addressing the problem, which will provide a rationale for carrying out the analysis. At the end of each relevant section, detailed hypotheses will be formulated. Furthermore, short descriptions of methodological aspects of sampling, variables, and analysis will be discussed relevant to the specificity of the analysis in the chapter. Results will be discussed preceded by exploratory analysis that provides national contexts for the study. At the end, discussion of the findings will link them with problems posed in the literature review.

2.5.10 Variables

Life satisfaction is a dependent variable and is formulated in the dataset asking: *All things considered, how satisfied are you with your life as a whole?* The answers range from 0 with "extremely dissatisfied" to 10 with "extremely satisfied" on the Likert scale (ESS 2012). The choice of dependent variable was dictated by previous research showing that cognitive evaluations of well-being are more related to economic conditions such as employment, income, and financial distress than affective measure of well-being such as happiness (Kahneman and Deaton 2010). Since this project aims to assess variations in well-being taking into account individual economic situation and the global recession of 2008, it seems plausible to focus upon the measure that is most closely related to economic factors. A range of individual and country- level variables is used to investigate predictors of life satisfaction and they are discussed accordingly in each of the chapters.

2.5.11 Data

The dataset for this project derives from the European Social Survey (ESS) measuring biannually life satisfaction in around 30 European countries as well as a number of other factors. ESS measures attitudes, beliefs, and behaviour in a number of social areas, such as the media, trust in institutions, political engagement, socio-political values, moral and social values, social capital, subjective well-being, social exclusion, national/ethnic/religious identity, health and security, and demographic factors such as demographic composition, education, occupation, financial and household circumstances (ESS 2012). In addition, ESS provides contextual data for each country

forming the sample that are collected from major international databases such as Eurostat, United Nations, World Data Bank, the World Health Organization, and the Transparency Index. The data was first collected in 2002 and the last fully available data comes from 2012*. Hence this project will look at the time span of 10 years of the survey with six different data points for 2002, 2004, 2006, 2008, 2010, and 2012.

2.5.12 Sample

The availability of the data in the dataset and its consistency were the final criterion for the selection of specific countries. Not all countries participate consistently in all waves of the ESS. Therefore the sample will consist of Finland, Sweden, Denmark, Norway, the United Kingdom, Ireland, Belgium, the Netherlands, France, Germany, Switzerland, Portugal, Greece, Spain, Cyprus, Hungary, Poland, Slovakia, the Czech Republic, Slovenia, Estonia, Bulgaria, Russia, and Ukraine. These nations show the most consistent participation in the dataset across all six waves of the survey (except Estonia, Slovakia, Ukraine, Greece, and the Czech Republic that missed one wave and Bulgaria, Cyprus, and Russia that missed two waves), a consideration which assists with obtaining reliable findings for the analysis and facilitates comparisons among nations. In addition, the inclusion of countries participating in at least four waves of the survey helps to increase the time span of the data covering, in their case, seven years. Finally, all countries in the sample have participated in the survey since at least 2006 and provide scores for dependant and independent variables in the times preceding the global economic crisis. The sample size in each country for each round is a minimum of 1000 adults age 16-75. Since the sample of countries is large, the sampling frame and method differ depending upon the context of the country. Closer scrutiny of country participation in the survey and sample size is available in the Appendix in Table 6.

*at the time of finishing this project

I Life satisfaction trends in Europe

Introduction

Although it is widely accepted that happiness trends change little over time (Blanchflower and Oswald 2004), some researchers even establishing a correlation between subjective well-being levels in several European nations and migrants in the US whose ancestors came from these countries (Rice and Steele 2004), some studies point out that national subjective well-being has in fact grown steadily in the last 30 years, particularly in the West (Inglehart *et al.* 2008). This result was also positively tested by Ehrhardt *et al.* (2000) who found that major life changes and personality dispositions almost equally influence consistency in happiness results . At the same time, Graham (2009) shows that, even after periods of economic turmoil and major financial recession, national happiness levels returned to pre-crisis levels once the economy recovered. These conflicting findings beg a final answer to the dilemma of stagnant versus evolving subjective well-being levels.

1.1 Origins of the Easterlin paradox

In recent decades observed growth in happiness was not as rapid as the growth in wealth around the world. Despite this finding, rich people are still happier than the poor which has become known as the Easterlin paradox. Richard Easterlin was the first economist researching happiness who discovered that, although most countries in the West recorded substantial growth in national wealth, subjective well-being there did not increase as dramatically (RA Easterlin 1974). However, important differentiation between absolute and relative income is required. Comparison of levels of absolute income among countries reveals their strong links with self-reported happiness (Stevenson and Wolfers 2008). Absolute income matters more where basic needs are unmet (Graham 2004) which contributes to significant differences in happiness levels among nations. Relative income comparisons are less important among cross-country happiness rankings but offer explanations for low within - country change of subjective well-being over time (Easterlin 2001, Clark *et al.* 2008a).

Despite substantial economic growth measured in the increase of real GDP per capita and the widespread purchase of many technological advances of the time such as washing machines, refrigerators, and TV sets paired with the increase in automobile sales, original study by Richard Easterlin postulated flat happiness levels in the USA for the period 1946 – 1970 (RA Easterlin 1974).] However, further studies in this area comprising a broader pool of developed, transitional, and developing economies presented opposing results. The strongest critique of Easterlin's findings is Stevenson and Wolfers' whose study showed that 62 out of the 89 world economies reported a significant relationship between national GDP and subjective well-being (Stevenson and Wolfers 2008). Whilst they reconfirmed Easterlin's point about the flat trend in happiness in the USA for an even longer period of time, 1972-2006, their findings for Japan and six of the nine countries they studied in Europe showed significant happiness trends that followed changes in the country's GDP. An earlier study from 1995 demonstrated similar findings but for four out of nine European nations (Easterlin 1995).

Easterlin (1995), Stevenson and Wolfers (2008), and Sacks *et al.* (2010) report significant changes in subjective well-being following changes in national economic growth (four countries in Easterlin's study and six in Stevenson and Wolfers') in almost half of the European countries they analysed through the Eurobarometer surveys of 1973-2002. However, none explore this issue further with Easterlin re-asserting even a flat trend in happiness despite economic growth. When Clarks, Frijters, and Shields discuss the Easterlin paradox again in their paper from 2008 (Clark *et al.* 2008a) they mention flat happiness trends in only five out of nine European countries. Therefore, again the other four countries which enjoyed significant happiness changes over time remain unexplored (countries with flat trends are Italy, France, Germany, the Netherlands, and the United Kingdom). Sadly, Stevenson and Wolfers (2008) and Sacks et al. (2010) do not mention the European countries that recorded significant changes in SWB but their findings are important. They can be used to hypothesize that, although the US has flat happiness trends despite huge economic growth, some European countries are more prone to exhibit significant income-happiness relationships.

The most recent studies of the income - happiness relationship still seem to point stubbornly at the existence of the Easterlin paradox in modern- day economies despite their level of growth (Easterlin *et al.* 2010, Easterlin *et al.* 2012, Easterlin 2013a), but I will criticize them on several grounds. First of all, the authors oppose the short-term comparisons in Stevenson and Wolfers (2008) and Sacks *et al.* (2010), defining them as measuring changes over five to six years. In fact, the authors also performed a long-term analysis of the association between happiness and income from the World Values Survey 1981 – 2004, pulling European data for 23 years (Stevenson and Wolfers 2008, Fig.15, p.39), for the period 1970-2002 from Eurobarometer surveys (Stevenson and Wolfers 2008, fig. 16, p.43) and for Japan for the period 1958 -2007 (Stevenson and Wolfers 2008, fig.18, p.53) which all showed happiness scores following GDP trends.

Findings from Easterlin's studies in China (Easterlin *et al.* 2012) are supported by similar results from other transitional economies such as Russia and specific Eastern European economies (as discussed by the authors). They in fact reconfirm that the declining trend in happiness in transitional economies contrasts with their economic growth. These results are well supported by other research too that offers reasonable explanations of this phenomena (Bălţătescu 2007, Hayo 2007, Lora and Chaparro 2008, Guriev and Zhuravskaya 2009, Selezneva 2011). In other words, these studies do not reinforce the Easterlin paradox but on the contrary they undermine it, as a declining, rather than a flat, happiness trend is clearly present in transitional economies.

Since this thesis focuses upon Europe, further discussion of happiness results and their relation to income will revolve around countries on the European continent. I will explore the problem of income-happiness relations in Europe because, although key scholars in the field have studied it, each interprets it differently (Easterlin 1995, Oswald 1997, Stevenson and Wolfers 2008, Sacks *et al.* 2010). The novelty of my research lies in exploring the relationship between life satisfaction and income in European countries that have shown different patterns in satisfaction trends in former influential studies that are enriched by my analysis by more recent countries joining the European Union. The project also sheds light on regional tendencies in life

satisfaction scores in Europe that point to the long-standing divide between Eastern Europe and the rest of the continent, as well as a more recent SWB discrepancy between southern Europe and the affluent west and north.

3.2 Debate about the Easterlin paradox

The Easterlin paradox was explored by many researchers seeking to confirm the usefulness of current governmental polices orientated towards economic growth as an instigator of greater happiness. As we have seen, the following authors -Veenhoven and Hagerty, Diener, Deaton, Fischer , and more recently Stevenson, Wolfers, and Sacks - dispute the paradox pointing to only partial confirmation of the importance of relative income to SWB changes over time (Veenhoven 1991, Diener *et al.* 1993, Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Deaton 2007, Fischer 2008, Stevenson and Wolfers 2008, Sacks *et al.* 2010, Sacks *et al.* 2012, Sacks *et al.* 2013, Veenhoven and Vergunst 2013). In the overall discussion of the Easterlin paradox the main source of discrepancies between findings from different research groups are caused by:

- the designation of time period used in research with Easterlin postulating a minimum of 12 years of uninterrupted time- frame and other researchers defining a long term as 10 or even fewer years
- splitting the overall period into several shorter periods by research groups that measure cyclical changes in life satisfaction and not overall trends ,a tendency criticized by Easterlin (2010) when discussing research by Stevenson and Wolfers (2008)
- using a definition of independent variables related to income and country GDP (real versus log GDP per capita, household income, individual income)
- different stages of economic development among the sampled countries, some of the countries going through the period of transformation that has a well-known negative impact on life satisfaction levels of its inhabitants (Lora 2008, Selezneva 2011)
- a different approach to statistical analysis and the importance of findings, namely focusing upon overall trends whilst ignoring statistical significance (p-

value) by some research groups (Stevenson and Wolfers 2008, Sacks et al. 2010, 2012, 2013) and emphasis on the p-value by others (Easterlin 1995, 2010)

- differences between survey scales used to measure life satisfaction and income (Veenhoven 1991)
- findings from cross-sectional analysis being taken as an argument for confirming the time- series relationship (Deaton 2007, Veenhoven 2013)

Authors of the aforementioned studies are concerned with the relationship between income and life satisfaction in developed and transitional countries on an aggregate level but rarely engage in a deeper discussion of their findings that might explore possible explanations for various relationships. For example, of all the researchers who used Eurobarometer surveys for time-series analyses that confirm disparate trends in Europe, none provides an in-depth analysis of the possible reasons for these trends. Neither do they investigate the relationship between happiness and income in the context of other explanatory variables which may depend upon national income but may also have a separate influence on it (Veenhoven 1991, Veenhoven 1993, Veenhoven 1994, Easterlin 1995, Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Bjørnskov *et al.* 2008, Stevenson and Wolfers 2008, Pittau *et al.* 2010, Sacks *et al.* 2010, Sacks *et al.* 2012, Sacks *et al.* 2013, Veenhoven and Vergunst 2013).

Most researchers in the field recorded increasing happiness in some European nations consistent with their economic growth, but in other countries the trend in happiness was flat despite economic advancement. However, this observation was not analysed further. A coherent analysis of trends in life satisfaction in Europe will fill this gap in the research and point to possible explanations of stagnant trends in some countries and rising/declining ones in the others while taking into account other variables alongside economic growth.

3.2.1 Happiness trends in Europe

In research to date, several EU countries where the analysis spanned from 1973 onwards record no changes in SWB despite economic development. The most consistent lack of any change is reported for the United Kingdom and Ireland in almost

all of the discussed studies, followed by Germany, France, and Norway in about a third of the studies (see Table 1 in Appendix). Interestingly, the first global happiness research conducted by Cantril has shown that the percentage of unhappy people decreased significantly between 1948 and 1975 in France, Germany, the Netherlands, and the United Kingdom (Cantril 1965). These results indicate a substantial change in life satisfaction scores for the most unhappy individuals, therefore a rise in aggregate subjective well-being (Veenhoven 1991). This result can explain the lack of significant change in happiness in later years once the economic boom ended and the countries became economically stable.

Another consistent trend is the decreasing happiness in Belgium reported in many studies. Hagerty and Veenhoven (2003) point to rising unemployment rates from 1980 until 1987 that are responsible for a U-shaped function of happiness there, but a significantly lower happiness score at the beginning of the millennium than in 1973. Authors indicate that decreasing happiness contradicted the growing GDP in the country but this growth occurred because the government increased temporarily deficit –spending thus obtained false indicators of economic growth. Additionally, in the 1980s Belgium changed its political system from a state to a federation which led to a decrease in subjective well-being as transition of political system tend to do (Inglehart *et al.* 2008).

Growing happiness following increases in GDP was observed most regularly in Denmark and Italy. Germany, France, Luxembourg, and the Netherlands enjoy increasing life satisfaction in half of the studies from 1973 until the 1990s/mid-2000s and flat trends in the other studies. These contradictory results can be a consequence of the nature of the dataset used in research, the definition of income variables, focusing up on overall trend and not on statistical significance (Stevenson and Wolfers 2008, Sacks *et al.* 2010, Sacks *et al.* 2012, Sacks *et al.* 2013), the choice of dependant variable – life satisfaction rather than happiness (Inglehart *et al.* 2008), or disparities in happiness and income scales (Veenhoven 1991). These factors can all play a role in the analysis and lead to different results.

As a result, consistent findings about national SWB trends across different studies from the 1970s until the late- 2000s are available only for five of the eight European countries with the longest time-series analysis that fulfils the postulates advocated by Easterlin (2013a). Moreover, the authors often focused up on selecting the broadest and largest sample of countries in order to confirm hypotheses. Instead, narrowing the sample to a smaller number of nations could result in a more in-depth analysis enriched further by the discussion of the findings in a broader economic, social, and political context. This helps not only to confirm the relationship between income rise and change in SWB but also to determine why this relationship exists in some countries while in others it does not.

3.2.2 Comparisons of life satisfaction: over-time but still cross-country

In the most recent studies from 2013 (Sacks *et al.* 2013, Veenhoven and Vergunst 2013, Easterlin 2013b) the evident lack of interest in deeper analysis of the relationship between growing economic wealth and subjective well-being is even more pronounced. Authors of the aforementioned studies do not name the countries where the trends in SWB changed or not but refer to the pool of countries as a whole describing a general tendency. This lack of detailed analysis can obscure some methodological faux pas, being the cause of differences between different research findings, and can actually result in unsound inferences about the Easterlin paradox.

For example, in Veenhoven and Vergunst (2013) study the long-term time trends between GDP growth and happiness growth describe a relationship spanning over 40 years but this relationship is a cross-country one (Figure 1c in Appendix B). A closer look at the diagram reveals that in most of the countries the data represents just one point in time (PL, DO, BR, PA, IN, IL, EG, SI, FI, NG, HR), while more frequent observations for the USA point to the declining trend in happiness as American GDP grows. This observation is consonant with Easterlin's original findings from 1974 (Richard A Easterlin 1974).

Similar oversight can be observed in Figures 1a-b (in the Appendix) describing short-term relations between economic growth and evolving happiness. There, more countries are included as the longitudinal data is more easily obtained for shorter time

spans, but the same pattern of one- point in time country data juxtaposed with multiple observations for other countries leads the authors to confirm the existence of a positive over-time trend in happiness. However, they again describe cross-sectional global happiness trends over time despite the existence of clear varied happiness trends in different countries. Using a time span between 20 and 40 years, in Figure 1b a positive relationship between GDP growth and happiness can be noticed for the UK. It reaches the satiation point at $800 and then starts to decline slightly. Linear positive growth can be recorded for DK, ZA, LU, IE and MX, a flat trend is present in FI, AU and NL, and a declining relationship is observable in KP, JP, IT and the USA. Similar contradictory results for different countries are present in Figure 1a describing time trends between 10 and 20 years and containing a pool of even more countries in the sample (Veenhoven and Vergunst 2013, p.34).

An analogous line of thought can be found in recent studies by Easterlin's most prominent critics Sacks, Stevenson and Wolfers (Sacks *et al.* 2012, Sacks *et al.* 2013) who describe rising happiness levels following growing worldwide wealth. In their data from WVS they use multiple waves to show a positive trend in happiness. However, the data shows a time trend across different countries and not within it. Furthermore, for the period between 1982-2005 the trend declined as the GDP grows once a clear outlier - KOR - is removed. In figures 3 and 5 in SSW 2013b illustrating time trends of happiness in eight worldwide surveys, authors again plot all countries on one time axis concluding with the confirmation of a positive time trend in happiness. But they fail to mention that the charts in fact depict cross-sectional country data.

A simple solution to this repeated misinterpretation would be to plot time-series data for each country separately. Studies from 1974 until 2008 conducted this type of assessment for Europe and clear within-country long-term trends in happiness were recorded there. This sort of analysis helps to assess the general direction in which the happiness of nations is heading. Furthermore, calculating the ratio of positive trends in happiness versus negative and flat ones provides a more detailed picture of happiness and its trends around the world. A detailed analysis of particular countries or regions that share similar trends in subjective well-being despite different levels of economic

growth would enrich the field of sociology of happiness with the addition of new insight.

A general analysis of this sort was attempted by Veenhoven and Vergunst (2013) who calculated a ratio of 1.6 for general rising happiness across nations. But again they did not present a more detailed picture of the countries or regions in the world that experience it. Nor did they engage in a discussion about the reasons why in some countries happiness grows over time when economic wealth rises, while other countries experience a decline in happiness despite observable GDP growth. According to the authors, the "consistent-paradox" ratio of the rise in GDP and happiness is 2.2. Hence, twice as many countries experience a change in happiness that is congruent with the change in their GDP. However, there exist many cases in which this relationship is contradictory, which suggests that other variables must also play a role there.

In conclusion, studies discussed in this section show that analysis of the highest possible level of aggregation which attempts to negate or confirm the existence of the Easterlin paradox is fraught with contradictory findings. They seem to be the result of various assumptions that researchers have when designing the study, which then serves as a starting point for yet another rebuttal by the author of the paradox (Easterlin 2013b), fuelling the debate between different academics (Sacks *et al.* 2012, Sacks *et al.* 2013, Veenhoven and Vergunst 2013, Easterlin 2013b) without contributing anything new to the field. The fact that most recent studies aim to use the broadest sample possible through longer time spans employing more sophisticated statistical analyses, yet are unable to resolve the paradox of economic growth and its role in achieving greater happiness suggests that this line of research has reached its limit and is unable to offer anything new to the debate. Rather, studies such as my project that investigates a smaller pool of seemingly homogeneous countries displaying different happiness trends across time despite similar economic growth, can offer more insight and novelty into the nature of the relation between wealth and well-being because they conduct a more profound analysis incorporating individual and country- level indicators.

3.2.3 GDP rise and SWB rise: any relationship?

In the past 60 years most countries experienced economic growth as measured by real GDP per capita. This assumption is based on the study conducted by Veenhoven and Vergunst (2013) that concluded that across 199 time- series data for 67 nations worldwide, 196 series recorded an economic rise while only three series recorded GDP decline. Although this information does not offer an exact number of countries that became wealthier over time, it is safe to assume that most, if not all the 67 nations in the featured study experienced an overall economic increase. The statement about growing wealth around the world was repeated in a number of studies assessing the impact of growing economic wealth on happiness (Bjørnskov *et al.* 2008, Layard *et al.* 2010, Pfaff and Hirata 2013, Sacks *et al.* 2013, Veenhoven and Vergunst 2013, Easterlin 2013b).

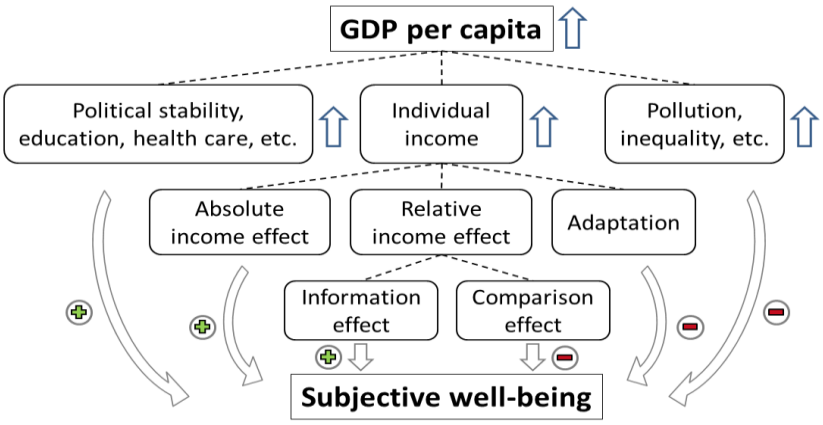
In the same study the time- series was assessed with the authors observing growth in happiness for 133 time- series and decline for 66. On a country level, this equals a rise in happiness in 41 nations and a decline in 25 (Veenhoven and Vergunst 2013). Assuming that for all 67 nations in the study economic wealth grew, this suggests a very low probability that the decline in SWB affected only one country in a repeated time- series. If this assumption is fulfilled, then in 25 out of 67 nations where the economy grew over time happiness declined, which gives a paradox ratio of 1.64. There the change in national happiness was inconsistent with national economic growth. The study does not include data from all countries around the world but only the most advanced nations.

The paradox ratio of 1.64 is a puzzle for researchers who focus only on the relation between income and happiness both on a global and a national scale (Layard *et al.* 2010, Deaton and Stone 2013, Pfaff and Hirata 2013). Despite narrowing the sample to industrialized nations, there still seems to be a discrepancy in the relationship between wealth and happiness growth. This points to the need to refocus the debate about the Easterlin paradox from: <u>does</u> economic growth improve the human lot? posed originally by Easterlin in his seminal paper (Richard A Easterlin 1974) to: <u>why</u> does economic growth improve the human lot… in some countries while in others it does not?

In order to ask this question, I will conduct a two-step analysis. Firstly, I will perform a more robust analysis of country variation using GDP per capita as a measure of economic growth but combining it with other variables that are related to increasing national wealth signifying social and cultural transformation. Secondly, I will narrow the sample to a pool of homogeneous economically advanced countries that record different trends in life satisfaction. Such analysis will provide a rich picture of various channels through which GDP and other variables can affect the life satisfaction of individuals following the advice of other researchers assessing SWB trends over time.

According to the model in Figure 1 by Pfaff and Hirata (2013), income affects subjective well-being through various channels. It can have a positive or negative effect through the mediation of socio-psychological processes such as adaptation, social comparison, and fulfilment of basic needs. In a broad global sample, the influence of income runs through one of these channels owing to different levels of economic wealth which often, but not always, lead to social and political advancement that in turn has an effect on the subjective well-being of individuals. Hence it seems that the uniform global confirmation or rejection of the Easterlin paradox is an unfeasible task for a researcher investigating countries as diverse as, for example, Sweden and Nigeria. Therefore, I will focus upon a small sample of Western nations where the level of economic wealth is above the threshold defined in the literature as 'developed countries' that share similar democratic systems, and have designed a set of social safety measures for its citizens.

Figure 1 Positive and negative channel effects of GDP pc on SWB.

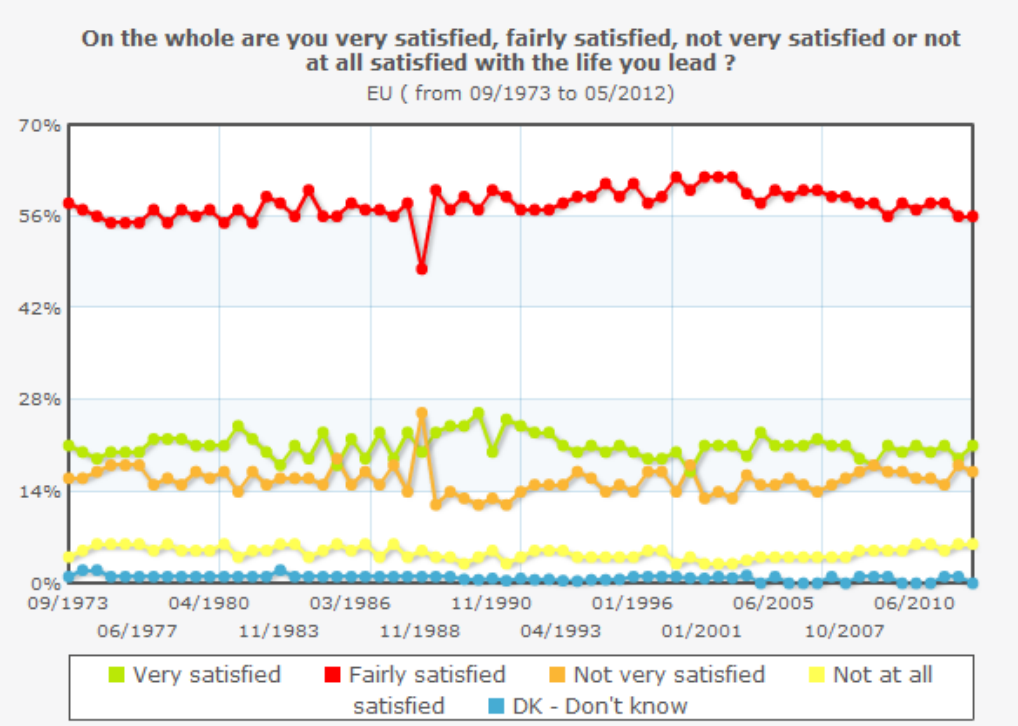


Source: Pfaff and Hirata (2013).

3.2.4 Satisfaction scores in Europe: why cross- country analysis cannot show real trends in satisfaction

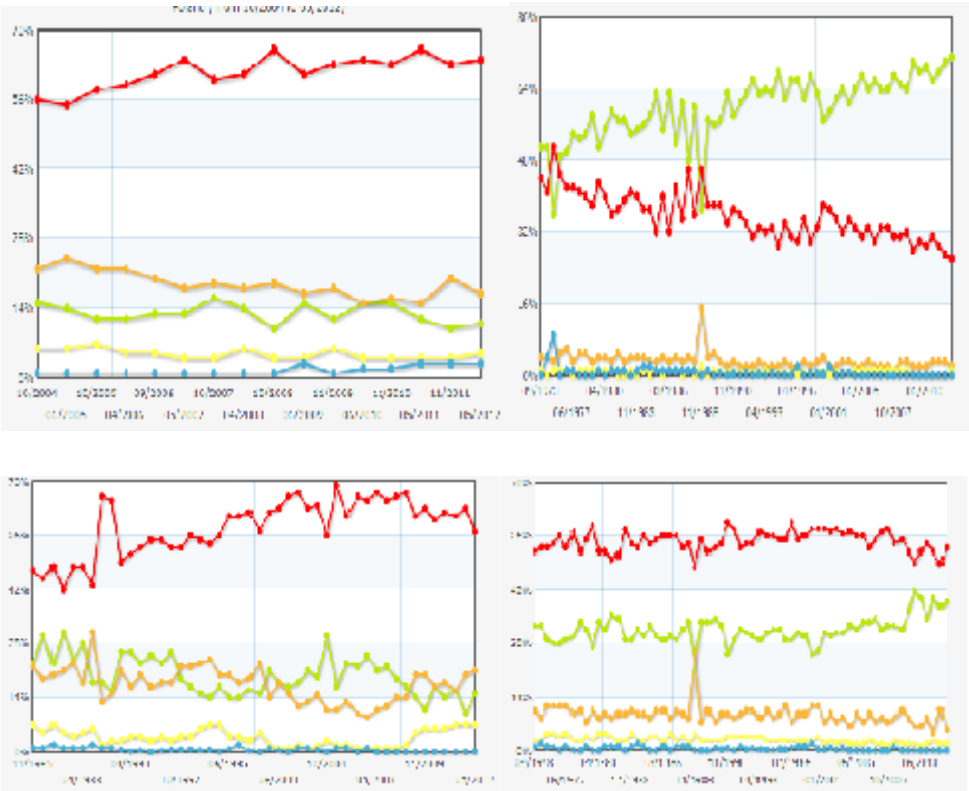
The first studies of life satisfaction in Europe were carried out in 1973 by the European Union (EU) as the Eurobarometer surveys that bi- annually measure public opinion in the EU countries. The first pool included the first nine members (Belgium, Luxemburg, France, West Germany, Denmark, Italy, the Netherlands, Ireland, and the UK). It then expanded to include Greece in 1981, Spain and Portugal in 1986, Austria, Finland, and Sweden in 1995, and finally in 2004 and 2007 twelve new countries, mainly from the former communist bloc (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Cyprus, Malta, Bulgaria, and Romania). As a result of this initiative, life-satisfaction scores are available for countries dating as far back as the 1970s. They became the basis for exploring a long-term relationship between country GDP and subjective well-being in many studies assessing the existence of the Easterlin paradox in Europe (Easterlin 1995, Oswald 1997, Stevenson and Wolfers 2008, Sacks et al. 2010). However, plotting time- series for life satisfaction using Eurobarometer surveys for the EU as a whole (fig. 2), and individual countries representing specific European regions (Fig. 3) makes for some interesting observations.

Figure 2 Life satisfaction chart for the EU.



Source: Eurobarometer 1973-2012.

Figure 3 Life satisfaction charts for Poland, Denmark, Spain, and the UK (left to right).



Source: Eurobarometer surveys 1973-2012.

First of all, the observed overall flat trend of life satisfaction in the EU can be explained by the mutual averaging of levels of national life satisfaction in individual countries with high and low scores. Furthermore, the entrance to the EU of several new member states usually reporting lower subjective well-being than the rest of EU adds to this flat plotline, even though the new member states are expected to catch up with the rest of Europe (Bălţătescu 2007). Secondly, the individual trends in four of the chosen countries seem to be on the rise for people fairly satisfied with life in Poland and Spain, and very satisfied in Denmark and the UK. To support this statement, Table 1 presents changes in proportions of people with different life satisfaction scores in selected countries.

Table 1 Life satisfaction scores change over time in DK, the UK, ES and PL (% of population).

Date	Very	Fairly	Not very	Not at all
		Denmark		
Sep-73	51%	44%	4%	1%
May-12	71%	26%	2%	1%
39 years	**20% up**	**18% down**	**2% down**	**const.**
		United Kingdom		
Sep-73	33%	52%	11%	3%
May-12	39%	53%	6%	2%
39 years	**6% up**	**1% down**	**5% down**	**1% down**
		Spain		
Nov-85	23%	47%	22%	7%
May-12	15%	57%	21%	7%
27 years	**8% down**	**10% up**	**1% down**	**const.**
		Poland		
Oct-04	15%	56%	22%	6%
May-12	11%	64%	17%	5%
8 years	**4% down**	**8% up**	**5% down**	**1% down**

Source: European Union, 1995-2010.

These exemplary figures point to the conclusion that life satisfaction in individual nations can be on the rise or in decline both in terms of the mean of national life satisfaction as well as in the proportion of people who become happier over time. However, combining these individual national trends leads to a flat plot line for aggregate life satisfaction in the whole of the EU, which results in erroneous inferences about the lack of change in life satisfaction in the long run. Aggregate measures by definition will lead to more centred scores and flat lines since the dips and peaks tend to even out. Therefore, time- series research into life satisfaction requires careful analysis of the trends in separate national units, which will deliver more informative results about stable and unstable well-being. Existing research discussed in previous sections has already pointed to some discrepancies in happiness time trends but more detailed and consistent analysis is needed in order to establish a clear picture of life satisfaction changes in Europe over time.

3.2.5 Life satisfaction trends in Europe identified by existing research

The novelty of my research lies in exploring the relationship between happiness and income in European countries that have different SWB trends in former influential studies, which is enriched by analysis of countries joining the EU at a later stage. The selection of countries presented in this section reflects contrasting findings in happiness studies in cross-country comparisons and is listed in Table 1 in the Appendix. Two countries showing consistent stable levels of life satisfaction belong to the English -speaking cluster in Europe, that is, Ireland and the UK. There the lack of happiness change was confirmed in almost all studies. Another very consistent result was a negative trend of happiness in Belgium since 1973. For the rest of countries in the original European sample from 1973, namely Denmark, France, West Germany, Italy, Luxemburg and the Netherlands, happiness trends were on the rise coinciding with economic growth. Later, Spain recorded the most pronounced growth in life satisfaction in the years 1981-2007, while Portugal's happiness decreased modestly during that time (Inglehart 2008). Additionally, life satisfaction also decreased in Greece, but Cyprus recorded small positive growth in life satisfaction although the data covers only a short time span (Anderson et al. 2012).

Further analysis was followed by the very modest deterioration of happiness in the Nordic countries in the years 1981-2006 (apart from Norway where it remained flat), but Austrian life satisfaction grew moderately in the period 1990-1999 (Inglehart 2008). In countries entering the EU survey at a later stage, mostly post-communist states, negative trends were observed in Hungary, Latvia, and Lithuania in the 1990s. No significant change in happiness over that period was registered in Estonia and Slovakia. Life satisfaction grew most prominently in the Ukraine and Slovenia in the years 1992-2005 but Poland, Russia, and the Czech Republic also recorded a significant rise in life satisfaction during that time. In Bulgaria life satisfaction also increased modestly (Inglehart 2008). A summary of the existing trends in happiness in the enlarged Europe is presented in table 2. They are mostly confirmed by other studies but some discrepancies are present too. For example, Baltatescu (2006) argues that life satisfaction in Bulgaria and Poland decreased during 1989-2005, while it remained largely the same in Lithuania. But data on long-term changes in life satisfaction in CEE

is scarce.

Table 2 Life satisfaction trends in Europe in the years 1981-2006

	Negative trend	**Flat trend**	**Positive trend**
1980-2006 (varied period for each country but at least 9 years)	PT, GR (4Y), SE, FI, HU, LV, BE, CH,	GB, IE, EE, SK, NO	DK, FR, GE, NL, LUX, IT, ES, AT, SI, CZ, UA, RU, CY (4Y)
Contradictory results in the literature:	LT, PL , BG	LT	PL , BG

Source: Easterlin (1995), Inglehart (2008), Baltatescu (2007) and Anderson (2012).

Research aims

In the light of all the factors discussed, the main objectives of this part of the research are to explore variation in European life satisfaction trends acknowledged in many studies in the field but which require further investigation, and to use a homogeneous country sample of developed economies that shows different satisfaction trends over time. In order to achieve the aims of the research, the following research question is posed: Is there a variation in life satisfaction trends over time in Europe?

The following hypothesis is formulated:

Hypothesis 1. Based on research to date, it is hypothesized that life satisfaction trends varied in Europe from 2002 to 2012.

Methodology

3.3 Proposed analysis

The theoretical basis of my project assumes that, owing to many income-related variables that influence SWB along with other non-income related variables it would be very difficult to obtain unambiguous results for a diverse pool of countries characterized by a context of high or low economic growth. As such, the analysis will explore the Easterlin paradox on a more homogeneous level using countries that are advanced economically but show various trends in life satisfaction. By implementing this approach, I hope to provide a rich picture of various channels through which GDP and other related variables affect subjective well-being in Europe in the new millennium. Following Pfaff et al. (2013) observation that "*the true dynamic*

relationship (time- series) is revealed when only the within-variation is used, which can be achieved with macro data by adding country dummies to the model", this study tests the Easterlin paradox on a country level in order to answer the original postulate: Does economic growth improve the human lot? Descriptive statistics and visual assessment of graphs will provide preliminary answers to this question. In the second step I will investigate the level of significance of changes and their effects as an indicator of substantial change in life satisfaction over time in each country. In order to test the significance of the changes between life satisfaction scores in each period of the survey, I will conduct t-test using SPSS software applying design weights.

3.4 Dataset

In order to answer the research question, I use data from six rounds of the biannual European Social Survey (ESS) which is available freely online. The survey has a cross-sectional design as it aims to measure attitude change across nations over time. The six rounds cover the period from 2002 until 2012 using a 10-year time span. Whilst this time span does not seem to fulfil Easterlin's minimum time length postulate of 12 years (Easterlin 2013a), consistent participation of all countries in all rounds of the survey that asked standardized life satisfaction questions remains a unique feature among other surveys like Eurobarometer, World Values Survey, and European Values Survey where not all the countries took part or the time frame of surveys differed significantly and was too short. The life satisfaction question in ESS is worded as follows, "All things considered, how satisfied are you with your life as a whole nowadays?" with the scale running from 0 to 10 where 0 denotes "extremely dissatisfied" and 10 denotes "extremely satisfied" (European Social Survey 2012).

Results

3.5 Trends in national life satisfaction

Descriptive statistics show that in all countries apart from Bulgaria, Cyprus, Spain, Greece, Ireland, and Belgium, life satisfaction increased between 2002 and 2012 (see Table 2 in Appendix for mean life satisfaction in each year of the survey by country). In Belgium the life satisfaction trend was flat and in the remaining countries overall

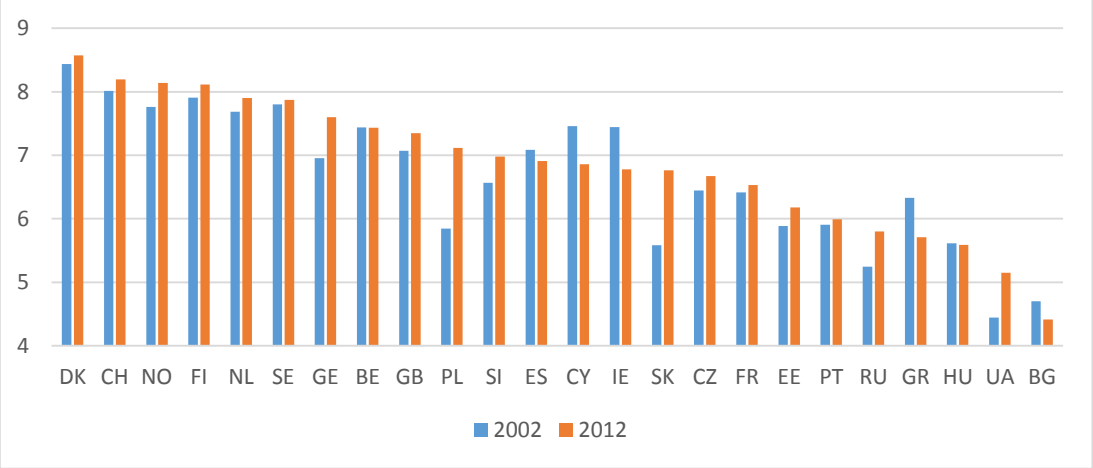
satisfaction declined. Overall, out of the 24 countries in the sample, life satisfaction grew in 18, decreased in 5, and remained flat in only one country. In the majority of nations in the sample, the mean life satisfaction score was above the middle response (category 5) ranging from 5.25 to 8.57, except for two countries - Ukraine with 4.44 in 2004 but 5.15 in 2012, and Bulgaria with 4.70 in 2006 and 4.42 in 2012. In 2002 the country with the lowest score was Ukraine with 4.44, followed by Bulgaria with 4.70 and Russia with 5.25. The highest score in the same year was recorded in Denmark which, scoring 8.44, was well above the rest. It was followed by Switzerland with 8.01 and Finland with 7.91. In 2012 the highest life satisfaction score was recorded again for Denmark, with Switzerland in second place, scoring 8.57 and 8.19 respectively. The third position was taken by Norway with 8.14. At the lower end of the ranking were Bulgaria, Ukraine, and Hungary scoring 4.42, 5.15, and 5.59 respectively (Table 3).

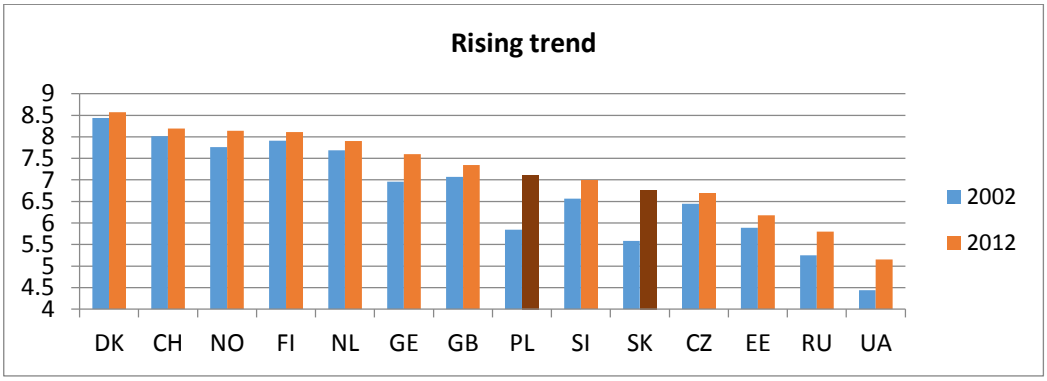
Table 3 Mean life satisfaction by country and ESS round.

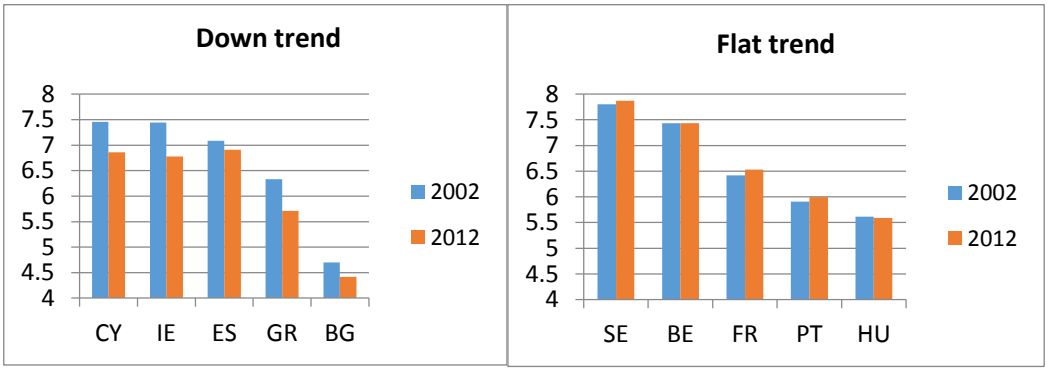
Descriptive Statistics					
Country		**N**	**Mean**	**SD**	**Mean difference**
Belgium	1	1882	7.44	1.936	0
	6	1868	7.44	1.758	
Bulgaria	3	1389	4.70	2.688	-0.28
	6	2250	4.42	2.671	
Switzerland	1	2037	8.01	1.707	0.18
	6	1491	8.19	1.665	
Cyprus	3	995	7.46	1.659	-0.6
	6	1111	6.86	2.405	
Czech Republic	1	1350	6.45	2.162	0.22
	6	1978	6.67	2.122	
Germany	1	2915	6.96	2.245	0.64
	6	2956	7.60	2.003	
Denmark	1	1494	8.44	1.577	0.13
	6	1648	8.57	1.505	
Estonia	2	1985	5.89	2.241	0.29
	6	2373	6.18	2.381	
Spain	1	1705	7.08	1.893	-0.16
	6	1884	6.91	2.326	
Finland	1	1999	7.91	1.651	0.20

	6	2194	8.11	1.395	
France	1	1499	6.42	2.555	0.11
	6	1968	6.53	2.444	
United Kingdom	1	2046	7.07	2.106	0.28
	6	2270	7.35	2.014	
Greece	1	2558	6.33	2.379	-.062
	5	2706	5.71	2.347	
Hungary	1	1668	5.61	2.482	-0.02
	6	1996	5.59	2.429	
Ireland	1	2027	7.44	2.066	0.66
	6	2618	6.78	2.228	
Netherlands	1	2358	7.69	1.591	0.21
	6	1845	7.90	1.468	
Norway	1	2036	7.76	1.692	0.38
	6	1622	8.14	1.567	
Poland	1	2092	5.85	2.627	1.27
	6	1887	7.12	2.255	
Portugal	1	1498	5.91	2.161	0.08
	6	2137	5.99	2.092	
Russia	3	2419	5.25	2.554	0.55
	6	2459	5.80	2.318	
Sweden	1	1994	7.80	1.728	0.07
	6	1844	7.87	1.698	
Slovenia	1	1497	6.57	2.381	0.41
	6	1253	6.98	2.192	
Slovakia	2	1496	5.58	2.573	1.18
	6	1839	6.76	2.130	
Ukraine	2	1997	4.44	2.389	0.71
	6	2125	5.15	2.507	

Figure 4 Life satisfaction trends in 2002 and 2012 (according to the p-value).







Source: Author's own calculations.

3.6 National life satisfaction by size of change

Because the position of a country in the ranking is relative to the position of other countries, it is difficult to infer from it whether the country became more satisfied over time, and on what scale. Assessing mean differences in each nation individually is more useful when evaluating changes in life satisfaction over time, the size of the difference offering more information about the actual increase or decrease of subjective well-being. However, in order to test if the observed differences in life

satisfaction are significant, a t-test for independent samples that compares mean scores for life satisfaction between the first and last wave of the survey for each country needs to be undertaken.

3.6.1 Statistical significance

Table 4 shows that significant differences in levels of life satisfaction exist in 18 of 24 countries for which the data available spans the years from 2002 to 2012. The non-significant scores for life satisfaction are present in Belgium, France, Hungary, Portugal, and Sweden, where satisfaction trends were stagnant (Belgium) or the difference in scores was very small. For the rest of the countries in the sample, the reported changes in satisfaction reached significant levels.

Table 4 T - test results for comparing means of life satisfaction.

Independent Samples Test									
Country	**Rounds**	**t-test for Equality of Means**							
		t	**df**	**Sig. (2-tailed)**	**Mean Diff**	**Std. Error Diff**	**95% CI of the Difference**		**Effect size Cohen d**
							Lower	Upper	
Belgium	1 and 6	.026	3718	.980	.002	.060	-.117	.120	0
Bulgaria	3 and 6	3.134	3637	**.002*** **	.286	.091	.107	.465	0.104
Switzerland	1 and 6	-3.126	3526	**.002*** **	-.180	.058	-.293	-.067	0.105
Cyprus	3 and 6	6.681	1979	**.000*** **	.597	.089	.421	.772	0.3
Czech Republic	1 and 6	-3.001	3325	**.003*** **	-.227	.075	-.375	-.079	0.104
Germany	1 and 6	-11.581	5775	**.000*** **	-.643	.056	-.752	-.535	0.305
Denmark	1 and 6	-2.442	3075	**.015** **	-.135	.055	-.243	-.027	0.088
Estonia	2 and 6	-4.166	4295	**.000*** **	-.292	.070	-.430	-.155	0.127
Spain	1 and 6	2.442	3547	**.015** **	.172	.071	.034	.310	0.082

Finland	1 and 6	-4.306	3928	**.000*** **	-.204	.047	-.297	-.111	0.137
France	1 and 6	-1.334	3149	.182	-.115	.086	-.283	.054	0.047
United Kingdom	1 and 6	-4.461	4314	**.000*** **	-.280	.063	-.403	-.157	0.136
Greece	1 and 5	9.519	5262	**.000*** **	.620	.065	.493	.748	0.262
Hungary	1 and 6	.290	3662	.772	.024	.081	-.136	.183	0.009
Ireland	1 and 6	10.493	4495	**.000*** **	.664	.063	.540	.788	0.313
Netherlands	1 and 6	-4.603	4088	**.000*** **	-.218	.047	-.311	-.125	0.144
Norway	1 and 6	-7.004	3574	**.000*** **	-.378	.054	-.484	-.273	0.234
Poland	1 and 6	-16.395	3967	**.000*** **	-1.269	.077	-1.421	-1.118	**0.520**
Portugal	1 and 6	-1.212	3633	.226	-.087	.071	-.227	.054	0.04
Russia	3 and 6	-7.937	4814	**.000*** **	-.555	.070	-.692	-.418	0.229
Sweden	1 and 6	-1.292	3836	.196	-.072	.055	-.180	.037	0.042
Slovakia	2 and 6	-14.235	2895	**.000*** **	-1.182	.083	-1.344	-1.019	**0.529**
Slovenia	1 and 6	-4.775	2723	**.000*** **	-.417	.087	-.588	-.246	0.183
Ukraine	2 and 6	-9.297	4120	**.000*** **	-.710	.076	-.860	-.560	0.29

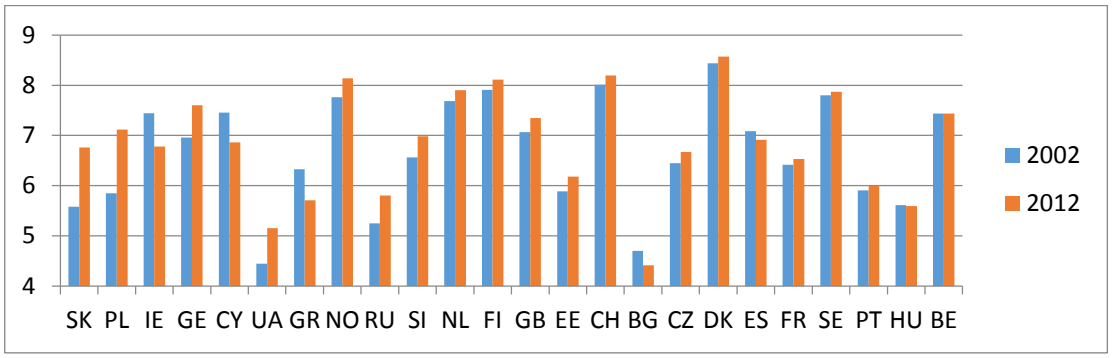
* Mean calculated between the first and last round by country.

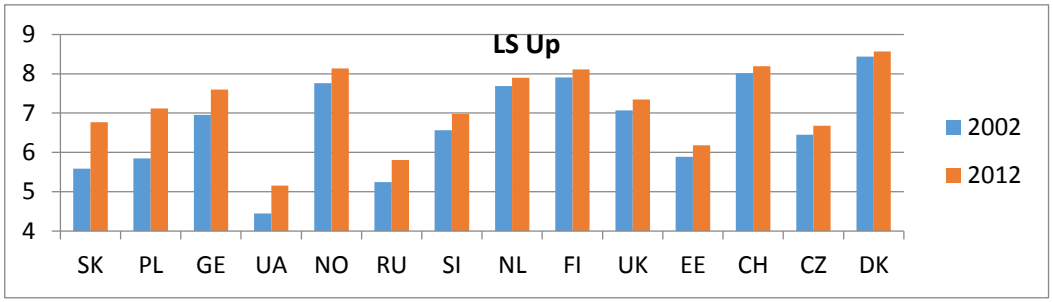
3.6.2 Substantial significance

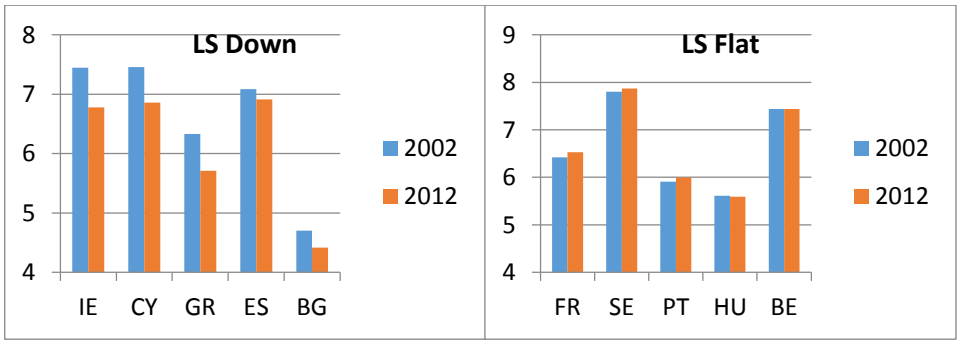
Since statistical significance is an arbitrary measure, it is also necessary to assess the size of the change in 'real' terms, that is, to assess if the result is big enough to mean something. The best indicator to serve this purpose is Cohen's d (also known as effect size) which calculates the substantial significance of the change. Effect sizes for most of the countries in the sample with significant scores were mainly very small, ranging from 0.082 (Spain) to 0.183 (Slovenia) and can even be called trivial as a score below 0.2 is classified by Cohen as insignificant (Cohen 1977). However Germany, Cyprus, Ireland, Greece, Norway, Russia, and Ukraine recorded a small effect size between 0.2 and 0.35, while only Poland and Slovakia recorded a medium effect size with scores

above 0.5. These scores need to be put in context in order to assess their real importance.

Figure 5 Histogram of mean life satisfaction (Cohen's d size).







* Between 2002 and 2012 by country.

Small effect size is quite common in the social sciences owing to the subtlety of the issues studied and the generality of the measures employed (Cohen 1977 p. 13). According to the author, a small effect size can be compared to the mean height differences between 15 and 16-year old girls. Subsequently, medium effect size can be visible with the naked eye and is comparable to the mean height differences between 14 and 18-year old girls while large effect size is the mean height difference between 13 and 18-year old girls (Cohen 1977 p. 26-27). Alternatively, large effect sizes can be understood in terms of the mean IQ difference between PhD students and average

college freshmen while medium effect size is the mean IQ difference between professional and semi-skilled workers. However, Cohen (1977) emphasizes that even these differences need to be assessed in terms of their importance in the context of the field of studies and previous research done in the area.

In previous research about life satisfaction change over time the differences in mean national happiness were not very large in the minimum 10- year period. However, as we have seen, in many studies the analysis was conducted on a pooled cross-sectional sample. And pooling together average scores in many countries leads to a centred plot line without many fluctuations as described in the section discussing happiness trends in Europe. It is a result of grouping different responses from many individuals in each nation and adding the scores to create one general trend. This averaged trend for each nation will be predominantly small as the ups and downs even out. In the context of my project the small size effect recorded in most countries is meaningful for the time analysis, indicating that national life satisfaction does change over time in some of the European nations. Moreover, medium size effect in two nations in my project can be interpreted as observable with the naked eye. Therefore, the change in life satisfaction there may be noted in high numbers of people who became more satisfied with life over time. This change is described in more detail in the next section by using frequency scores for the three nations where the change in life satisfaction was the largest when measured using Cohen's *d* effect size.

3.6.3 Summary

The statistical measures discussed in the previous section show that changes in life satisfaction, although significant for most of the countries in the sample, are in effect small or very small (trivial). This result agrees with most of the findings about life satisfaction that report very small changes of subjective well-being in the long time span. In only two countries in the whole sample the change in happiness during the 10 years reached medium size and none obtained a large effect. Owing to this very small size, some researchers such as Easterlin may be right to postulate that overall life satisfaction levels did not change in Europe over a long period of time.

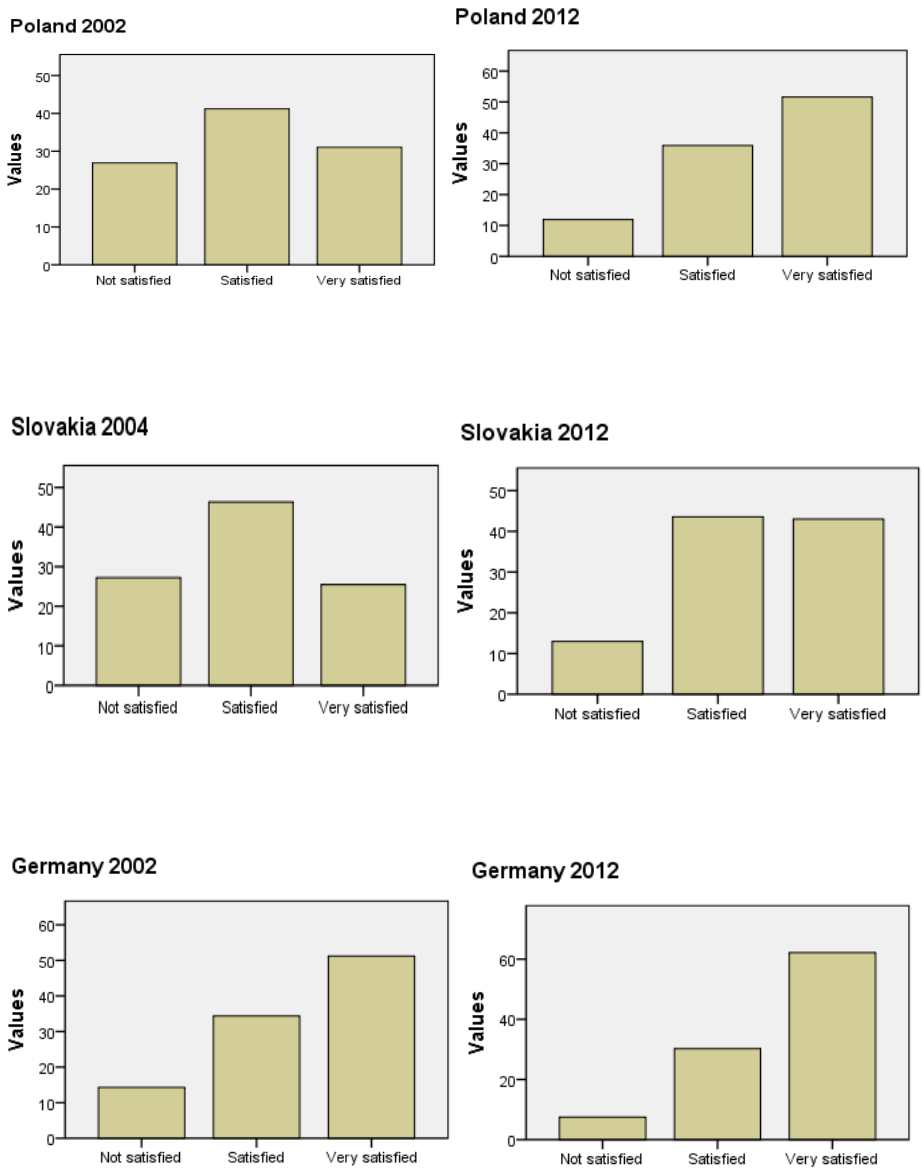
3.6.4 Frequencies

Two countries where the change in life satisfaction score was most visible in the effect size were Poland and Slovakia. The percentage of people who in 10 years of participating in the ESS survey became very satisfied with their lives increased by 20.5% in Poland and 17.5% in Slovakia (Table 5). Additionally, the percentage of satisfied people decreased modestly, but the percentage of unsatisfied individuals decreased substantially in each country by 15% and 14% respectively. Both countries are part of the post-communist sample in which economic growth was more pronounced than in the wealthier but more stable rest of Europe. Germany also noted an increase in life satisfaction that, according to effect size calculations, can be described as small but is nevertheless bigger than in the rest of the countries in the sample. The percentage of very satisfied people increased by 11% from 2002 to 2012, while the group of unsatisfied people decreased by almost 7% (Fig. 6).

Table 5 Frequencies for countries with the largest change in LS.

Rounds / Years total	**% of individuals in each country**		
	Poland		
	not satisfied	satisfied	very satisfied
1	26.9	41.2	31.1
6	11.9	35.9	51.6
10 years	-15	-0.1	20.50
	Slovakia		
2	27.2	46.3	25.5
6	13	43.6	43
8 years	-14.2	-2.7	17.5
	Germany		
1	14.3	34.4	51.2
6	7.5	30.3	62.2
10 years	-6.8	-4.1	11

Figure 6 Histogram of LS change in Poland, Slovakia, and Germany.



Discussion

The results of the analysis confirm Hypothesis 1, pointing to substantial change in life satisfaction observable with the naked eye in two post-communist nations- Poland and Slovakia. Furthermore, in Germany, Cyprus, Ireland, Greece, Norway, Russia, and Ukraine the small change in national life satisfaction was meaningful. In only five out of the 24 nations in the sample (Belgium, France, Hungary, Portugal, and Sweden) satisfaction did not change over time. Hence in the 19 countries it did change. The

relationship between satisfaction and national economic wealth, which forms the basis of the Easterlin paradox, will be the subject of further exploration in the next chapter.

The results can be interpreted in two ways that follow both Easterlin's argument and that of his opponents. In absolute terms, the change in life satisfaction was recorded in 19 of the 24 countries in Europe from 2002 to 2012, which supports proponents of the dynamic approach to life satisfaction in the long-term period. In relative terms, however, the mostly trivial or very small substantial change in national life satisfaction assessed using Cohen's d in 10 of the 19 countries follows the line of thought developed by Easterlin. Easterlin pointed to the largely stagnant trend in life satisfaction that contradicts the accelerating wealth of the nations, resulting in formulation of the Easterlin paradox. Hence, despite some nations, or even regions, of Europe being on the trajectory of growth/ decline in subjective well-being since 2002, the definite answer to the research question depends upon the side in the Easterlin paradox debate and the line of argument that follows it.

I adopt the approach that sees changes in life satisfaction in different nations as meaningful despite their differing substantial levels of change. In this way, whilst the clusters of life satisfaction trends consist mainly of very different nations in Europe, further explorations of the reasons behind the clustering is warranted. In addition, some generalizations about the causes of variation can be made relating to the predictions formulated by past studies. More specifically, subjective well-being in post-communist nations seems to be on the rise, confirming the findings of Bălţătescu (2007). In particular, the Central Eastern European nations of Slovenia, Poland, and the Czech Republic were expected to catch up with the rest of Europe, but the findings were not so optimistic for Hungary and Bulgaria. My results differed markedly with Bălţătescu's in respect to Slovakia, which recorded the highest rise in life satisfaction in my project. The period under investigation is most probably responsible for this difference in results (2001-2005 in Bălţătescu's study and 2002-2012 in this project). However, it would be naïve to conclude that post-communist nations completed the process of SWB growth and caught up with the rest of Europe.

Over two decades after the fall of communism, overall happiness scores are still much lower in post-communist nations than in the rest of Europe, especially in comparison with the west and the north. Hence the more cautious approach suggested by Delhey seems to be consonant with my findings for the CEE nations. Delhey (2001) shows that successful integration into the EU can be beneficial to the well-being of the prospective member states, but this integration can only facilitate the process of attaining happiness and does not guarantee it. As predicted by Delhey, some post-communist nations have already caught up with less happy European nations (most notably the Mediterranean nations) in their levels of life satisfaction, but they still have not reached the European average. Hence, the EU enlargements of 2004 and 2007 contributed positively to the increase in life satisfaction in the ex-communist bloc owing to a number of factors, but there is definitely more room for improvement.

As regards the group of countries with declining life satisfaction, the example of southern European nations following their accession to the EU can be useful in understanding the happiness trend there. Delhey provides a summary of Mediterranean nations and the rest of Europe in terms of growing economic wealth and life satisfaction scores. In his study, the nations that joined the EU in the 1980s showed strong cross-national and between-indicators variation in catching up with the rest of the EU. Life satisfaction scores showed almost no change from joining the EU in the 1980s to 2000 in all of the nations, while the attainment in national income and social spending ratio varied. Therefore, these results confirm the Easterlin paradox with rising economic prosperity not being mirrored by rising life satisfaction. On the other hand, the time- frame of my study encompasses a different period of development for southern nations when their life satisfaction declined significantly. It is possible that major global events such as the 2008 recession might distort the stagnant trends in life satisfaction in the "1980s EU group" and contribute to its decline. This line of thought will be explored in chapters 4 and 5.

In summary, the clusters of life satisfaction trends in Europe in the period 2002-2012 document meaningful changes in national well-being even if they are only minor in size according to the substantial significance score. As a result of the trend inspection, I conclude that they are helpful in understanding important processes that took place

in Europe and position the countries on an axis of rising well-being versus rising misery in the context of the 2004/2007 EU enlargement and the 2008 recession. Was economic development an accelerator of happiness in most nations that joined the European open market and benefited from its generosity? And was it a deterrent in nations that were affected most by the 2008 crisis? Are there any other factors that help us to understand the relationship between income and well-being, and subsequently provide a tentative answer to the Easterlin paradox? In the next chapters I will attempt to explore these questions. I will use several macro and micro variables to explain different happiness trajectories in Europe. First, however, an important generalization regarding the regional differentiation in LS clusters needs to be made, which at the same time needs to be acknowledged as a limitation of the project.

3.7 How to approach the LS clusters

Trajectories of life satisfaction: rise, decline, and level out, divide countries into three different clusters that cannot be perfectly grouped according to many of the available criteria such as economic prosperity, welfare state type, cultural background, and EU membership. Some attempts, however, are made in order to allow for statistical modelling to capture the variation in life satisfaction in Europe. It is extremely difficult to devise a dimension that would capture the relevant satisfaction with life trajectories fully, but the best approximation seems to be achieved by the regional factor. This grouping will be used in further stages of the analysis when the moderating variables will be taken into account. The regional factor is related to two important events that took place in Europe during the period of the study.

The EU enlargement of 2004 resulted in CEE nations joining in common political and economic union with the rest of Europe, while the other event, the 2008 financial crisis, affected the whole of Europe but to a different degree in each nation. In Table 6 I present a classification of the countries in the sample according to their life satisfaction trend and the aforementioned factor. Although the grouping has its limitations, as it does not always fit perfectly with the clusters of happiness trends in Europe, it is useful in analysing the factors correlated with evolving well-being on the

European continent. The regional classification follows the common approach found frequently in the literature.

Table 6 Classification of life satisfaction trends according to European regions.

LS clusters/ **European region**	**West**	**East**	**North**	**South**
Rising	**DE** NL GB CH	**SK PL UA RU** SI EE CZ	**NO** FI DK	
Declining	**IE**	BG		**CY GR** ES
Flat	FR BE	HU	SE	PT

In the following grouping, the region of eastern European nations that recorded medium (PL, SK) and small (RU, UA) increases in life satisfaction from 2002 to 2012 emerges as the most homogeneous when substantial changes in satisfaction scores are analysed. Similarly, the southern region with CY and GR recording small but significant decline in life satisfaction emerges as the most coherent. In the group in which changes in satisfaction were not significant over time, the western nations of FR and BE seem to fit into one region, but the rest of the nations belong to very different regions. This is also the case in other LS clusters, except the southern region in the rising LS trend and the northern region in the declining LS group that have no representative countries .

Conclusion

In conclusion, the results in this chapter support findings reported in the influential studies by important researchers such as Easterlin, Stevens and Wolfers, and Oswald and Clark. Despite the authors conducting their analyses on a small sample of western European countries with data available from 1973 onwards, they all indicate that life satisfaction changed in about half of the countries (Easterlin 1995, SW 2008, Clark and Oswald 1997). This part of my research embraced their findings and aimed to expand them in two ways, firstly, by broadening the analysis to the greatest number of European nations with coherent surveys of life satisfaction conducted for many time periods. Hence more data was available to re-examine the Easterlin paradox.

Secondly, by plotting the change over time in life satisfaction for each of the countries separately and assessing the overall change by using two different measures, that is, statistical significance and effect size. Hence a statistical and a 'real' change in national life satisfaction have been assessed.

II Macro factors related to national life satisfaction

Introduction

Since almost all nations registered economic growth (Veenhoven and Vergunst 2013), they should also become more satisfied over time under review owing to rising standards of living. Indeed, in most European countries happiness rose along with economic growth as confirmed by the analysis in Chapter 1 and other studies in the field (Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Stevenson and Wolfers 2008, Sacks *et al.* 2010). In Europe economic development has a long tradition beginning with the Industrial Revolution in the 19th century, putting Europe at the forefront of global economies. Although this development was unequal in Europe with some countries dominating the scene while others lagged behind, Europe as a whole became very wealthy. This contributed to the emancipation of culture paired with a change of values, political systems, and civic freedoms. This advancement, together with the most liberal and human- oriented ideology, still places Europe at the forefront of economically and culturally advanced nations. However, this homogeneous picture reveals some cracks and discrepancies that, although modest in comparison with other nations, are still worth investigating.

Research questions

This chapter poses important questions regarding the supposedly homogeneous trends of subjective well-being in Europe. We tend to evaluate similar things when assessing life satisfaction with a similar "structure of concerns" (Andrews and Inglehart 1979). Therefore, comparing societies on different dimensions can offer meaningful answers to the question: Why are there still notable differences in life satisfaction between countries in Europe?

In most countries happiness levels grew over time but the pace of that growth differed markedly and cannot be explained merely by a different pace of economic development. For example, in previous studies in the field countries such as the UK and IE recorded no significant increase in life satisfaction over time and Belgium had a negative trend for life satisfaction despite economic growth, sharing advanced

policies, and social and cultural structures common to most westernized Europe (Easterlin 1995, Stevenson and Wolfers 2008, Sacks et al. 2010, Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Oswald 1997, Pittau 2010). Hence this chapter asks:

1. What is the relationship between life satisfaction and economic productivity in Europe over time?
2. What factors other than economic wealth correlate with national life satisfaction over time?

In order to answer these questions, this chapter discusses important literature in the field that addresses them while enriched by my proposition that additional factors may be correlated with satisfaction trends and economic development. This analysis has an exploratory nature as the problem of variation in SWB and national wealth has not been addressed in the literature on the subject so far. Hence my project adds a novel and meaningful contribution to this field of knowledge. Several theories about happiness and income have been discussed already but this project does not aim to validate them and select a particular theory, but rather to extend and explore factors that may be important for explaining life satisfaction and its trajectory over time.

In the following sections of this chapter I will discuss the effects of economic wealth, unemployment, trust and safety on life satisfaction. I will emphasize the differences between European countries in relation to the aforementioned factors in the effort to justify the selection of variables and sample. The results will be set out as follows: firstly, the chapter looks at the long-term changes in main indicators and juxtaposes them with national satisfaction trends in order to assess any similarities. Secondly, the chapter moves on to examine national life satisfaction in Europe and its covariates, in order to answer the research questions posed at the beginning of the chapter.

2.1 Economic development in European countries

Preliminary reading of the literature shows that, whilst all countries in Europe are constantly developing, regional differences are present, resulting in clusters of countries where economic growth is faster or slower than in the rest of Europe. Several indicators of economic growth can be taken into account here but for the

purpose of my project GDP per capita adjusted for price levels across countries using purchasing power parity indicators will be applied (p/c GDP PPP). This variable indicates most strongly the rate of development in European countries, pointing to real disparities among them in the standards of living that contribute significantly to subjective well-being. According to Paci (1997), in the 1980s differences in income show no convergence syndrome across 12 European countries despite convergence in productivity levels. This suggests that standards of living across Europe are uneven while national productivity levels continue to grow.

The ranking of countries according to their GDP per capita (PPP) in Table 7 indicate a regional split of affluence in Europe. What is immediately obvious is that the wealthier countries that are above the EU mean are represented mostly by northern and western Europe, while southern and eastern regions of the EU have lower than median per capita GDP PPP. A similar trend in wealth was recorded in 2009 (Gasic and Kurkowiak 2012). Upon examining figures from 2008 and 2007, a similar pattern can be observed. The lower half of p/c GDP mean In Europe consists of southern countries that often fall just below the EU average (Italy, Spain, later Greece and Portugal) while eastern countries tend to dominate the bottom of the scale with only Slovenia and the Czech Republic performing better than the two poorest southern countries. This trend for the two CEE countries seems to have been persistent since 2006 but they outpaced Greece only in 2011.

Previous research shows that, among countries with a flat trend in happiness over time, three belong to the richest in Europe - Norway, Ireland and Great Britain - while the rest represents the poorest zone –Estonia and Slovakia (Table 7). Nations where happiness declined through time also follow this pattern with Sweden, Finland, Switzerland, and Belgium representing the wealthy countries, and Portugal, Greece, Hungary, and Bulgaria belonging to the poorer group. Since the first two groups showing happiness trends are almost evenly split between more and less economically affluent countries, it is evident that the last cluster of nations with a positive happiness trend will follow the dichotomy. The wealthy countries in this group are Luxemburg, Denmark, Germany, France, and the Netherlands, while the poorer countries are Spain, Slovenia, Cyprus, the Czech Republic, and Poland. The data for Russia and

Ukraine is not available but it is safe to assume that they belong to the countries with slower economic growth despite rising life satisfaction.

Table 7 GDP per capita PPP in 2011 and life satisfaction trends in Europe.

Life satisfaction trend			
Literature to date (various time frames)			
	Negative	Flat	Positive
Above EU median	SE FI BE CH	GB IE NO	DK FR DE NL
Below EU median	PT GR HU BG	EE SK	ES SI CY CZ PL UA RU
Results from chapter 1 (2002-2012)			
	Negative	Flat	Positive
Above EU median	IE	SE BE FR	DK CH NO FI NL GE GB
Below EU median	CY ES GR BG	PT HU	PL SI SK CZ EE RU UA

Source: Eurostat (2012) and author's own calculations (Chapter 1).

A similar tendency is observed when the findings from Chapter 1 are examined. There is an even split of countries with rising life satisfaction over time according to their level of wealth. In clusters in which happiness declined over time, the majority of countries belong to the poorer nations below the EU median with only Ireland recording above EU median income. Group of nations with stagnant satisfaction includes three countries in the wealthier group and two in the poorer. Hence again it is an almost even split. Overall, the comparison of national economic wealth and subjective well-being reveals that the level of national affluence alone is not useful as an indication of satisfaction trends. Therefore, other factors should be investigated in order to disentangle the relationship between national wealth and SWB.

2.1.1 National wealth trends

National wealth can be assessed using different economic indicators. In general, Gross Domestic Product per capita is a common measure for assessing economic performance. It refers to the total output of a country taking GDP and dividing it by the number of people in the country. It is calculated by adding the value of all final goods and services produced in the country or by adding the income of the entire

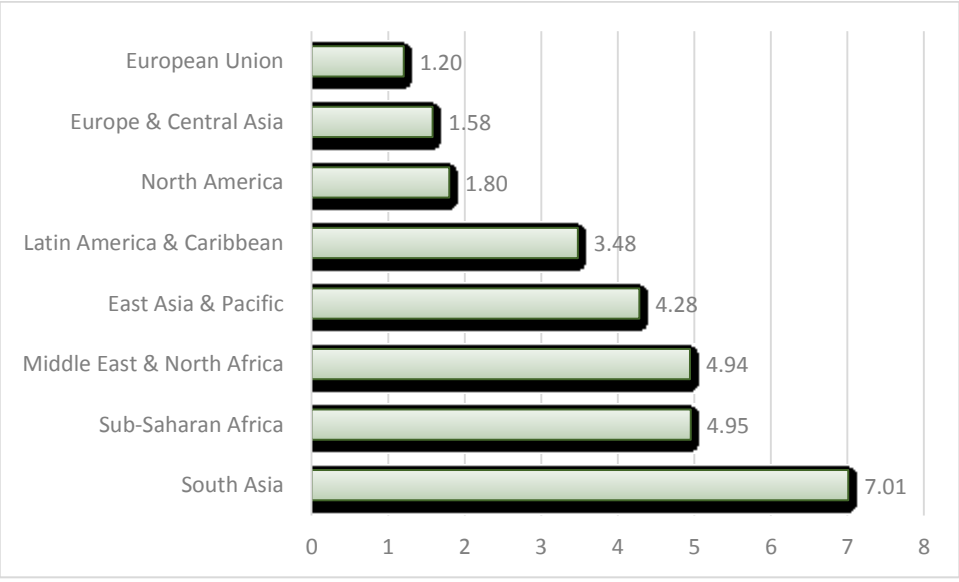
working population per year. The measure of per capita GDP is especially useful in cross-country comparisons because it shows the relative performance of the countries. It is also used as an indicator of standards of living with higher GDP per capita signifying higher standards of living. A rise in GDP per capita signals growth in the economy that can be interpreted as an increase in its productivity.

Per capita GDP expressed in purchasing power parity (PPP) is a measure of national economic wealth that uses exchange rate adjustments. In this way an identical product in two different countries costs the same when expressed in the same currency. GDP PPP re-calculates the cost of basic goods in a country comparing it to their value in another country, usually the US. Then it compares the exchange rates and again compares the price. As a result, the price of basic goods can be compared between countries using the same currency indicating the purchasing power of money earned in each country. Furthermore, this helps to evaluate the wealth of the country as experienced by its inhabitants. Because per capita GDP (PPP) describes the relationship between incomes and cost it is more relevant to people's lives. As such, it should be correlated with life satisfaction. Hence, per capita GDP (PPP) has real implications for people's purchasing power of all basic goods, which in turn translates into economic security and contentment once the basic needs are fulfilled. For this reason adjusted GDP per capita in PPP is recommended for evaluating the standards of living and in cross-country comparisons (Eurostat 2016a). Therefore most happiness researchers who investigate the Easterlin paradox should use this kind of data.

Many authors point to growing inequalities in Western societies where the beneficiaries of growing national prosperity are a narrow group of privileged people while the majority feel no real benefit (Van Praag and Carbonell 2009), which might explain why life satisfaction trends are stagnant. Some literature discussing the Easterlin paradox shows that changes in p/c GDP PPP over time are not followed by changes in life satisfaction scores (Richard A Easterlin 1974, Easterlin 1995, Clark *et al.* 2008b), while other studies show that they are (Stevenson and Wolfers 2008, Sacks et al. 2010). Lora and Chaparro (2008) proclaim even the "unhappy growth paradox" with economic growth reducing life satisfaction rather than increasing it. This relationship holds for wealthy and poor nations alike, but when the rate of economic growth is

assessed, the negative correlation with life satisfaction is present only in countries with a high rate of economic growth, that is, above the median. Therefore, in comparison with the rest of the world, most European nations are not in this group (see Fig. 7). This correlation confirms other research assessing SWB levels in transitional economies that offers an explanation of this process (see Selezneva 2011 for review). As the transitional period often begins with reforms of the market and social policies that lead to increased uncertainty and lack of security, as well as increased expectations and aspirations, it leads to a negative impact on subjective well-being. However, once the period of transition is over, subjective well-being seems to increase again and even return to previous levels of satisfaction (Stevenson and Wolfers 2008, (Easterlin *et al.* 2012). Hence a U-shaped relationship between economic growth and life satisfaction is usually acknowledged in happiness research. Since my project uses a sample that is composed of well- developed economies in a time- frame that goes beyond the transitory period of CEE economies, the negative effect of economic growth should not appear in my study. And in order to relate measures of static and dynamic national wealth to national life satisfaction changes, the following hypothesis is formulated.

Figure 7 GDP growth rate in percentage change on previous year by region, average 2002-2012.



Source: Author's own calculations based on World Bank figures (2016).

Hypothesis 2*. Both the national wealth <u>level</u> and <u>growth</u> are relevant to national life satisfaction. This relationship is predicted to be significant and positive. Changes in*

national p/c GDP (PPP) are predicted to correlate with changes in national life satisfaction from 2002 to 2012, while the overall effect of growth rates in the same time- frame will have a positive impact on life satisfaction because all economies in the sample are advanced rather than transitory.

2.2 The effect of unemployment rates on life satisfaction

Unemployment has persistent negative effect and leads to lower life satisfaction in later life, even after being re-employed (Lucas *et al.* 2004, Bell and Blanchflower 2009). In addition, Gudmundsdottir (2011) found that unemployment is more likely to correlate negatively with happiness during a financial crisis but is less likely for other variables such as social relationships, health, and financial difficulties. And In the long-term habituation processes are stronger for loss of income than for loss of status (Di Tella *et al.* 2010). This suggests that people adapt more quickly to changes in income than to changes in social status hence being unemployed affects well-being for a much longer period than financial difficulties associated with joblessness. However, the effect of social comparison plays an important role here, that is, in countries with high unemployment rates, the effect of lost status on life satisfaction owing to unemployment is smaller than in countries with low unemployment rates (Clark 2003, Anderson 2009). The rise in long-term unemployment rates is linked with the rise in crime and suicide rates, lower life expectancy, worsening physical and mental health (low self-esteem, depression, heart attacks in later life) as well as with the loss of skills, leading to hopelessness and a decrease in general life satisfaction (Bell and Blanchflower 2009). Moreover, high unemployment rates impede the happiness of all individuals and not only those who are directly affected by it (Winkelmann and Winkelmann 1998).

There is also evidence that a rise in national unemployment rates continues for longer than the financial crisis, even when the economy begins to grow again (Verick 2009). The decrease of GDP from the highest point to the lowest takes on average 1.9 years (peak-to-trough statistics) while unemployment reaches its peak in 4.8 years from the lowest point before the crisis (Reinhart and Rogoff 2009), which is more than twice as long. Examining data from the “Big 5 Crises” (Norway, Sweden, Spain, Japan, and

Finland between 1977 and 1992), Verick (2009) confirms that the unemployment rate rose for up to 11 years after the economy recovered. Because non-pecuniary costs of unemployment are much higher than those associated with income, they explain why happiness trends are shown to follow unemployment rates but not economic changes over time (Winkelmann and Winkelmann 1998, Easterlin 2012). Because the negative relationship between joblessness and SWB is well- established, unemployment rates will be used only as a control variable in my project.

2.3 Corruption and homicide rates

High levels of national trust measured using the corruption indicator, and national safety measured by the homicide rate contribute to higher national well-being, particularly in the transition countries (Rodríguez-Pose and Maslauskaite 2012).2010). Helliwell (2003) goes as far as to state: *"Those who have the highest levels of subjective well-being are not those who live in the richest countries, but those who live where social and political institutions are effective, where mutual trust is high, and corruption is low".* Furthermore, the importance of social and institutional trust is especially pronounced for transitional nations in CEE (Helliwell *et al.* 2014), while in the rest of Europe national wealth measured in log GDP is positively correlated with changes in subjective well-being. Finally, studies to date also show that the fear of violent crime is one of the main deterrents of happiness, with increases in this type of crime reducing well-being significantly (Di Tella and MacCulloch 2008). Based on the studies discussed, the following hypothesis is formulated.

Hypothesis 3. *Based on findings from previous studies, it is expected that national life satisfaction will correlate positively with diminishing corruption and homicide rates.*

Methodology

2.4.1 Data

Most of the data for this part of the project derives from the European Social Survey Multilevel Data database with contextual indicators for each country (ESS Multilevel Data 2014). When the data needed to be expanded to include recent years, it was taken from the original source referred to by the ESS. As such, unemployment rates by

all ages in percentages for 2012 were taken from the Eurostat database while the United Nations database provided scores for homicide rates for the same year (UN 2014). The data for GDP growth was taken directly from the Eurostat database (Eurostat 2014) and GDP PPP measured in US dollars from 2011 was taken from the World Bank Data dataset (World Bank Data 2014). Dependent variable, national life satisfaction score was calculated from individual responses to the ESS in each country forming the sample that were then averaged by country and wave using STATA software. Design weights were used at this stage.

2.4.2 Sample

Because the original data was unbalanced owing to varying participation of countries in different years (see Table 8), certain modifications were implemented to ensure the most suitable structure for panel data analysis in this chapter. Only a handful of countries did not participate in the first and last rounds of the survey, which are the anchor dates for my project. The missing life satisfaction means were replaced with the mean satisfaction score from the next available round. This factor needs to be taken into account when interpreting the results.

Table 8 Mean life satisfaction per country and year (design weights).

Country	2002	2004	2006	2008	2010	2012
BE	7.44	7.43	7.41	7.27	7.51	7.44
BG			4.7	4.41	4.88	4.42
CH	8.01	8.06	8.1	7.96	8.14	8.19
CY			7.46	7.08	7.14	6.86
CZ	6.45	6.54		6.65	6.41	6.67
DE	6.96	6.79	6.83	6.95	7.25	7.6
DK	8.44	8.46	8.48	8.52	8.35	8.57
EE		5.89	6.38	6.2	6.52	6.18
ES	7.08	7.13	7.44	7.31	7.3	6.91
FI	7.91	8	7.99	7.94	7.94	8.11
FR	6.42	6.44	6.42	6.35	6.34	6.53
GB	7.07	7.12	7.23	7.08	7.17	7.35
GR	6.33	6.42		6.06	5.71	
HU	5.61	5.69	5.42	5.29	5.83	5.59

IE	7.44	7.72	7.54	7.12	6.59	6.78
NL	7.69	7.57	7.55	7.69	7.77	7.9
NO	7.76	7.66	7.76	7.89	7.93	8.14
PL	5.85	6.24	6.69	6.87	7	7.12
PT	5.91	5.68	5.52	5.72	5.93	5.99
RU			5.25	5.47	5.7	5.8
SE	7.8	7.84	7.82	7.86	7.91	7.87
SI	6.57	6.9	6.97	6.93	6.97	6.98
SK		5.58	6.08	6.51	6.56	6.76
UA		4.44	4.39	4.19	4.82	5.15

2.4.3 Explanatory variables

Inspection of nearly 50 articles describing cross-national life satisfaction and country-related variables points to five groups of variables. These are:

1. Economic variables such as unadjusted GDP per capita, GINI coefficient, real GDP growth in % change, p/c GDP in PPP, mean wage, household income, unemployment rates, inflation rates, reference income
2. Political variables such as level of democracy, political stability, government size, support for revolutionary change, freedom of the press, political violence and protest, peace, efficient institutions, regulations
3. Welfare state indicators such as social expenditure, decommodification score from Scruggs indicators indicating the generosity of benefits provision based on the typology described by Esping-Andersen
4. Cultural variables such as religion and religiosity levels, church attendance, social equality such as social security and women's emancipation, gender equality, individualism, national pride, cultural homogeneity, corruption levels, interpersonal trust
5. National demographics such as life expectancy, literacy rates, education levels, environment and pollution, human rights, crime rate

As this study focuses upon Europe, which is contrary to most of the studies in the field looking at global happiness, many of the variables will be at a similar level. For example, European nations are all democracies with constitutional freedoms inscribed

in their constitutions and enjoying high levels of political and civic freedoms. In Europe national demographic variables such as life expectancy, literacy rates, education levels, and human rights scores are all homogeneous and high in comparison to the rest of the world. Culturally, Europe is the most individualized region in the world, maintaining very high levels of gender equality and women's emancipation in comparison to other parts of the world. As such, I will exclude these variables from the analysis. Moreover, because the analysis in this chapter is based on national aggregates, other variables such as interpersonal trust and household income will also be excluded. But they will form part of the analysis in Chapter 3 which focuses upon individual covariates of life satisfaction.

Explanatory variables used in this chapter are primarily economic but also include corruption levels and homicide rates. Per capita GDP PPP is a gross domestic product converted into international dollars using PPP rates. International dollar has the same purchasing power for GDP as the US dollar has in the US. The real GDP growth rate reflects the percentage change in economic growth as compared with the previous year. Price movements will not inflate this growth rate because when GDP growth rate is measured in percentages, GDP at current prices is valued using the previous year's prices thus the computed volume changes are imposed on the level of a reference year, which is called a chain-index (Eurostat 2014). This change enables comparisons of the dynamics of economic development both over time and between economies of different sizes. Unemployment rates reflect total unemployment among adults 15-74 years old and are measured in percentages of the whole population.

Indicators of institutional aggregate trust and safety are defined by the corruption perceptions score and national homicide rates. The corruption score was compiled by Transparency International and is based on public perceptions of corruption existing among politicians and public officials. It takes scores between 0 and 10, the lower score signifying higher perceptions of corruption and less transparency (ESS 2014). Homicide statistics are based on the homicide rate compiled by the United Nations and represent the number of homicides per 100, 000 population captured by international and national statistics collected by the criminal justice system and the

public health system (ESS 2014). The higher the crime rate, the more homicides are committed in the country, hence the less safe it is for the inhabitants. Comparisons between countries need to be cautioned as the legal definition of homicide may vary among nations and not include, for example, euthanasia or assistance with suicide.

Results

2.5.13 Exploratory analysis

Exploratory analysis focuses mainly on the visual inspection of changes in explanatory variables and life satisfaction trends. But first, national averages for variables used in the analysis in Table 9 are used to describe disparities still existing in Europe.

Per capita GDP measured in PPP ranges from $7,958 in Ukraine to $63,146 in Norway, which is an 800% difference. GDP growth measured according to the percentage change recorded the previous year ranges from 0.39% in Portugal in an average year to 5.3% in Russia. National unemployment is the highest in Spain with 14.5% on average per year and the lowest in Norway with almost 3.5%. The most transparent governments measured using the corruption score are found in Scandinavia and in Switzerland and the Netherlands, while the most corrupt governments are in Russia, Ukraine, and Bulgaria. Homicide rates are the highest in the former Soviet Union with Russia leading the group with a score of 11.58 signifying 11.58 homicides per 100, 000 population, and Ukraine and Estonia with the score above 6. The lowest crime rate is recorded in Norway, Denmark, Switzerland, Germany, Slovenia, and Sweden (below 1 homicide per 100, 000 population).

Table 9 Descriptive statistics for explanatory variables per country across all years.

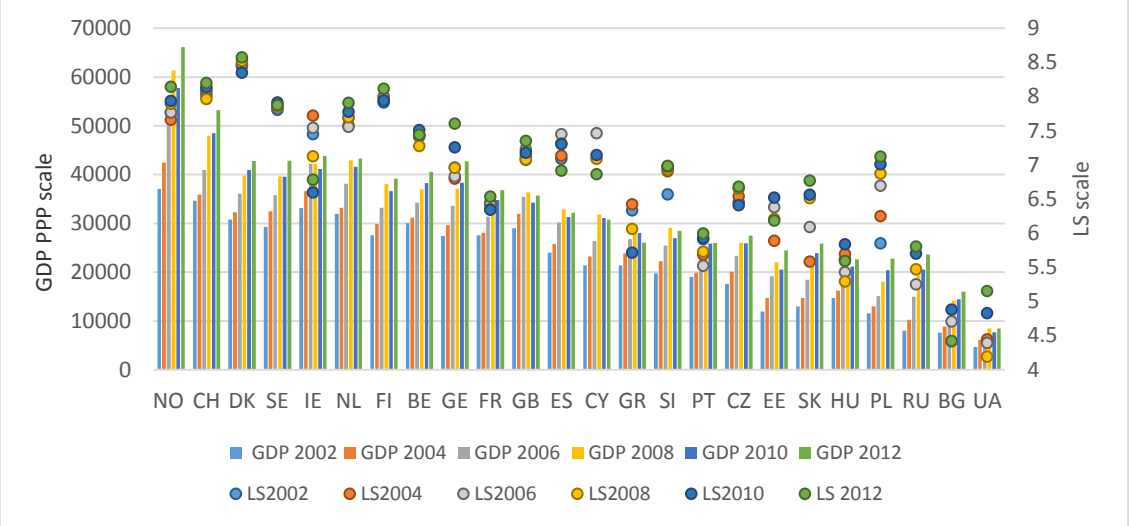
Country	GDP PPP	GDP growth %	UR %	Corruption score	Crime rate
DK	43543.25	1.02	5.39	9.33	0.82
CH	52603.37	2.07	3.83	8.84	0.91
NO	63146.27	1.92	3.46	8.54	0.77
FI	39127.96	2.06	8.11	9.35	2.31
NL	44629.22	1.25	3.94	8.79	1.11
SE	41768.49	2.89	6.81	9.16	0.99
DE	39868.98	1.8	8.22	7.86	0.97

BE	40190.92	1.75	7.82	7.33	2.16
GB	36313.77	1.52	6.15	8.07	1.48
PL	18883.49	3.83	13.48	4.49	1.45
SI	27439.49	2.83	6.5	6.26	0.97
ES	33076.44	1.44	14.51	6.66	1.02
CY	33953.29	1.63	4.76	6.25	1.1
IE	45987.22	1.86	8.49	7.4	1.16
SK	22809.09	5.05	13.76	4.53	1.74
CZ	26350.81	2.53	6.98	4.54	1.64
FR	36650.04	1.23	9.21	6.96	1.38
EE	22985.28	3.73	9.8	6.42	6.24
PT	26886.63	0.39	9.14	6.26	1.25
HU	21836.36	2.07	8.33	5.05	1.63
RU	21782.05	5.3	6.53	2.37	11.58
GR	29403.95	0.57	10.41	4.14	1.19
UA	7958.96	5.2	7.54	2.5	6.52
BG	14731.05	3.03	8.19	3.8	2.1

Per capita GDP PPP

Per capita GDP (PPP) rose consistently over time in most of the countries (Eurostat 2016b). However, some nations recorded a dip in p/c GDP (PPP) at the beginning of 2008. The general tendency of 'rich and happy' on the national level was maintained as Easterlin indicated in his pioneering study (Easterlin 1974). But Ukraine was still 7.5 times poorer in 2012 than the richest country in the sample – Norway - even though items cost more in Norway than in Ukraine. Many countries recorded a slide in their national prosperity after the 2008 economic crisis. Apart from Poland, Slovakia, Germany, Russia, and Bulgaria, all nations recorded lower levels of p/c GDP (PPP) in 2012 than at the peak of their economic prosperity, usually in 2008. What it means in lay terms is that the purchasing power of money there has diminished and people can afford less for the same amount of money. In order to inspect if this trend was mirrored by diminishing life satisfaction in those nations, and if other countries recorded increased satisfaction owing to increased purchasing power , detailed graphs dividing the sample according to their overall life satisfaction trends are plotted in figs. 8 - 11.

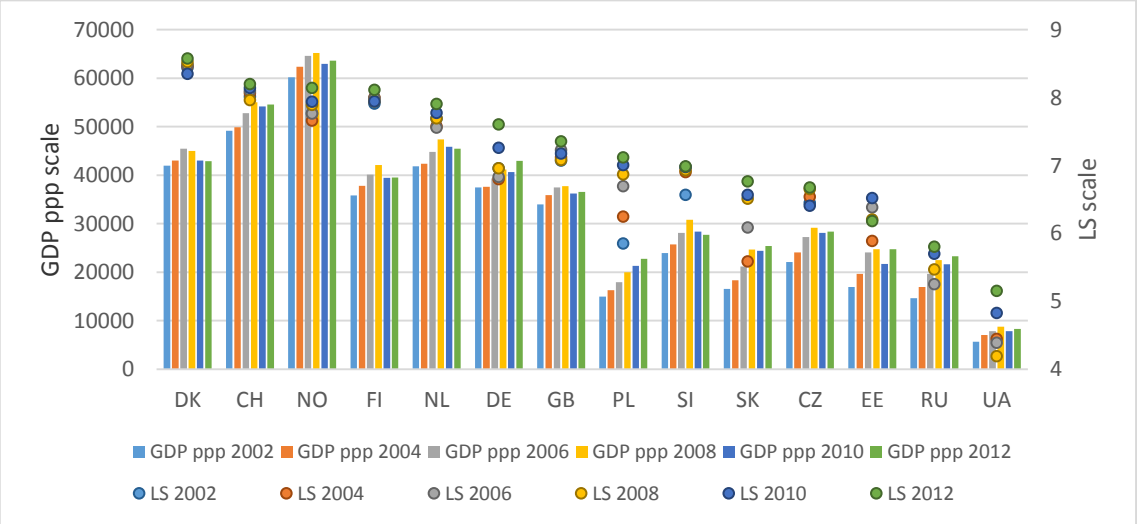
Figure 8 Per Capita GDP PPP and national life satisfaction in Europe, 2002-2012.



Rising LS sample

Comparison of life satisfaction and p/c GDP PPP in the subset of countries where life satisfaction rose from 2002 to 2012 leads to optimistic results. Rising economic prosperity measured in terms of purchasing power can be paired with a mainly consistent rise in life satisfaction for most of the nations in this sub-sample until 2008 (fig. 9). Most of the countries recorded a dip in satisfaction around the beginning of the recession in 2008 coinciding with the decline in p/c GDP PPP. Overall, this group of nations shows patterns of life satisfaction that mirror changes in p/c GDP PPP. But inferential analysis is needed to establish whether indeed this relationship can be confirmed.

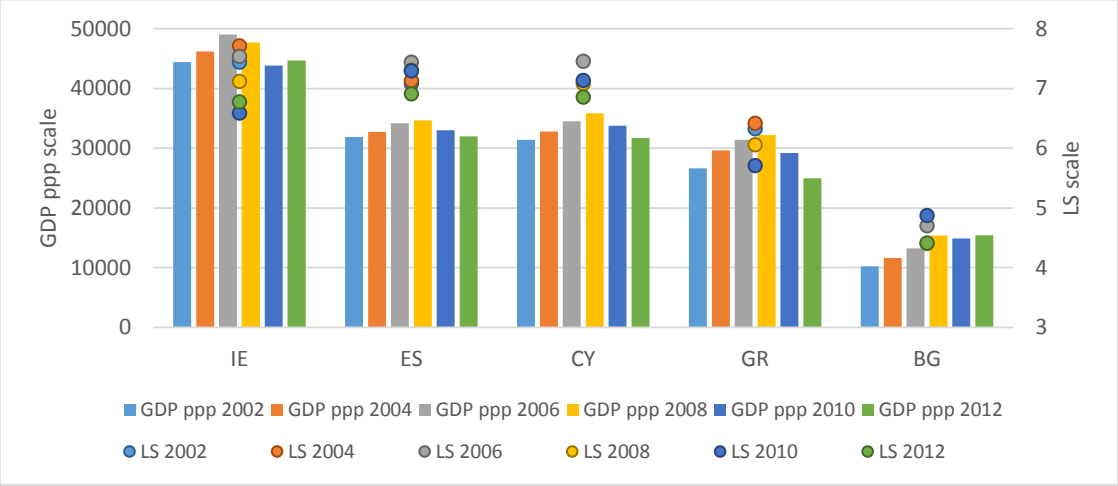
Figure 9 Per Capita GDP PPP and national life satisfaction in Rising LS Cluster, 2002-2012.



Declining LS sample

At first sight, the overall p/c GDP PPP in the sample of countries with a decline in SWB also decreased over time (fig. 10). A comparison of 2002 and 2012 levels of economic wealth re-affirms this observation. After 2008 growth plummeted in all nations apart from Bulgaria where it slowed down and stabilized. In Ireland this decline has only been observed since 2006. But LS trends do not always coincide with these changes. In five countries where satisfaction declined over time, the decline began in 2006 or even in 2004 in the case of Ireland. This is two years before the drop in national productivity and a global crisis beginning in 2007/2008. Over time, the scores for SWB dropped even more in Greece, Spain, and Cyprus to their lowest levels ever. Satisfaction began to recover slightly in Ireland in 2010, which is when the p/c GDP PPP began to rise again. In Bulgaria happiness indicators have a zigzag shape with peaks in 2006 and 2010 at almost the same level and dips in 2008 and 2012. Bulgarian GDP PPP, however, shows consistent linear growth, which levelled out from 2008 to 2012. Overall, the trend in life satisfaction coincides with changes in p/c GDP PPP in this sub-sample but it remains necessary to examine other factors that may be related to the decline in happiness there.

Figure 10 Per Capita GDP PPP and national life satisfaction in Declining LS Cluster, 2002-2012.

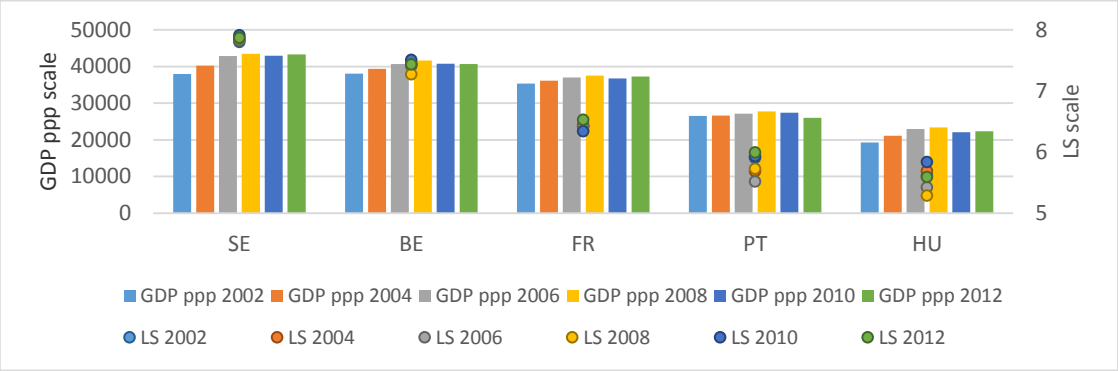


Flat LS sample

In the sample of five countries with no significant changes in life satisfaction between 2002 and 2012, p/c GDP PPP rose for the same period of time (Fig. 11). But it showed

some signs of slowing down after 2008. However, it seems that this growth did not affect happiness levels there, as they remained the same despite some minor fluctuations. Most countries recorded a slight drop in well-being around the time of the recession but there were cross-national differences present. Happiness in Portugal plummeted in 2006 but then recovered very quickly and continued to rise despite declining p/c GDP PPP. In 2008 Belgium and Hungary recorded a dip in satisfaction but managed to recover. France reached the lowest point in 2010 but SWB began to rise again. Therefore, the beginning of the recession in 2008, which was characterized by national productivity slowing down, can be matched with some recession in life satisfaction in this sample.

Figure 11 Per Capita GDP PPP and national life satisfaction in Flat LS Cluster, 2002-2012.



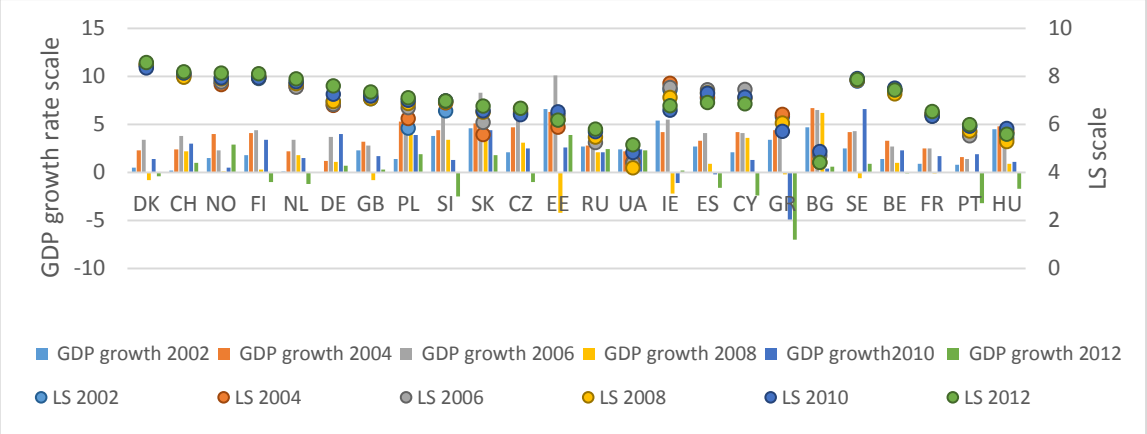
Real GDP growth rate

Real GDP growth rates express the change in national economic productivity from a previous year in percentages (Eurostat 2012). They are already a second derivative of a first phenomenon – gross domestic product - and are adjusted for inflation. Hence they are real growth rates and can be thought of in terms of purchasing power. Therefore, the changes in growth rate shown in this section are directly linked to levels of national GDP PPP presented in the previous section. However, for the purpose of my analysis it is still worthwhile presenting a separate summary of growth rate trends from 2002 to 2012, with a special focus up on three distinct life satisfaction clusters.

Overall, most countries in Europe recorded a fall in GDP growth rates over time, especially around the 2008 recession (Fig. 12). Most nations remained on the positive side of the growth rate but there were a few instances in which GDP growth reached a

negative rate resulting in a large decline in national productivity. More detailed accounts of the changes in growth rate is given for each of the life satisfaction cluster in order to point to the possible patterns that might affect these changes in well-being.

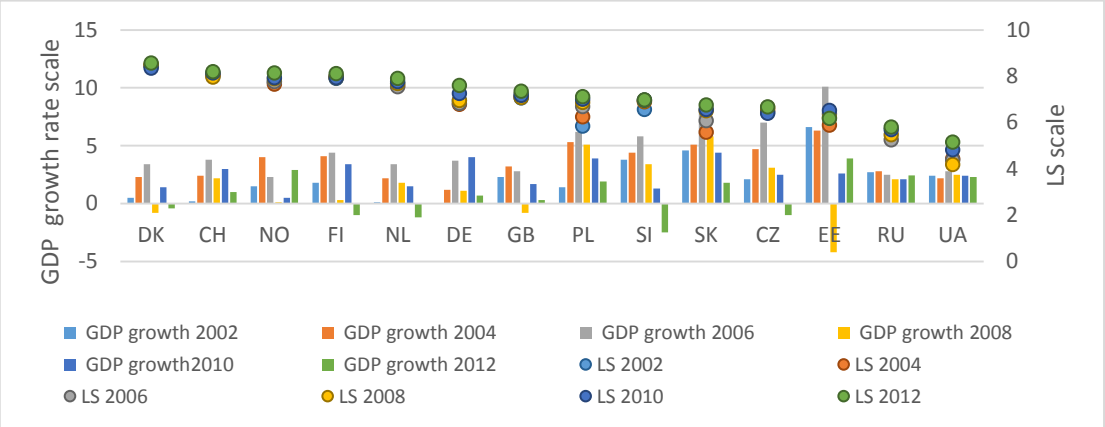
Figure 12 Real GDP growth rate and national life satisfaction in Europe, 2002-2012.



Rising LS cluster

In the rising LS cluster the tendency of growth rates to diminish following the 2008 recession remains, but very few nations reached negative growth rate (Fig. 13). Only six countries did so and usually only in one year of the survey when the recession began. In 2008 they were DK, the UK, and EE, and almost at the end of recession in 2010 and 2012 they were FI, NL, and SI. The countries that recorded the highest rise in well-being, SK and PL, recorded on average the highest GDP growth rates in the sample, remaining on the positive side of economic growth despite some decline following the 2008 recession. Overall, the poorer countries in the sample, mostly from CEE, have higher rates of economic growth in comparison with the wealthy nations of western and northern Europe.

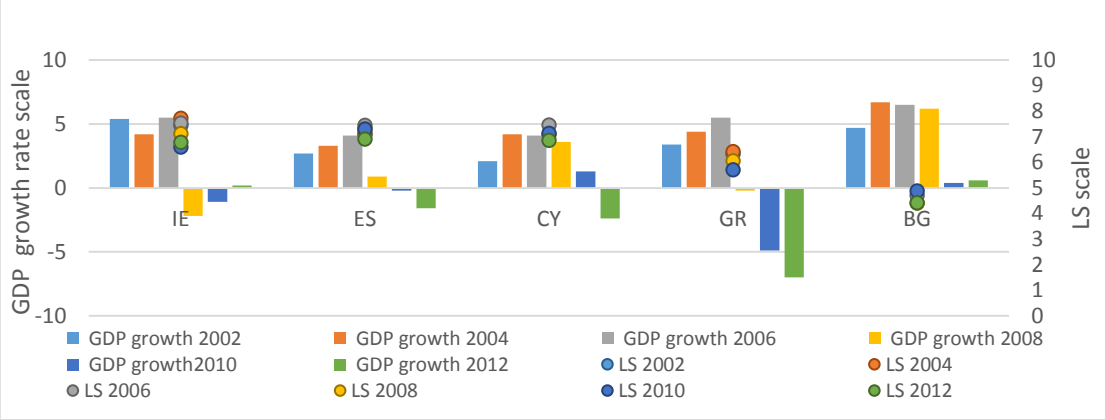
Figure 13 Real GDP growth rate and national life satisfaction in Rising LS Cluster, 2002-2012.



Declining LS cluster

Most nations in this cluster record negative growth rates that coincide with the 2008 recession (Fig. 14). Special cases include GR, IE, and ES that recorded negative national production for a few years in a row. Only BG remained on the positive side of economic growth, however, the fall in productivity was substantial in 2010 in comparison with that in 2008.

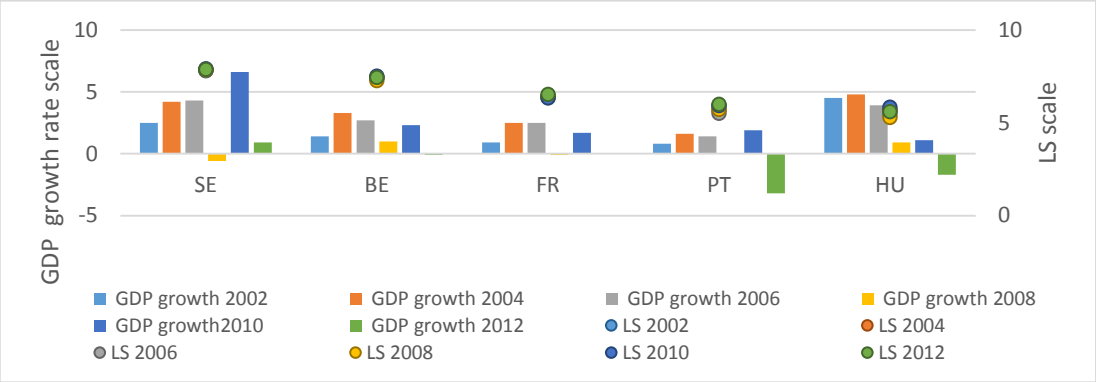
Figure 14 Real GDP growth rate and national life satisfaction in Declining LS Cluster, 2002-2012.



Flat LS cluster

In the flat LS cluster the growth rate was maintained on the plus side for most of the time, except the year of the recession - 2008 in SE, and 2012 in PT, BE, and HU (Fig. 15). HU and FR have shown a steady decline in national productivity since 2008 but in other nations in this sample they occasionally increase.

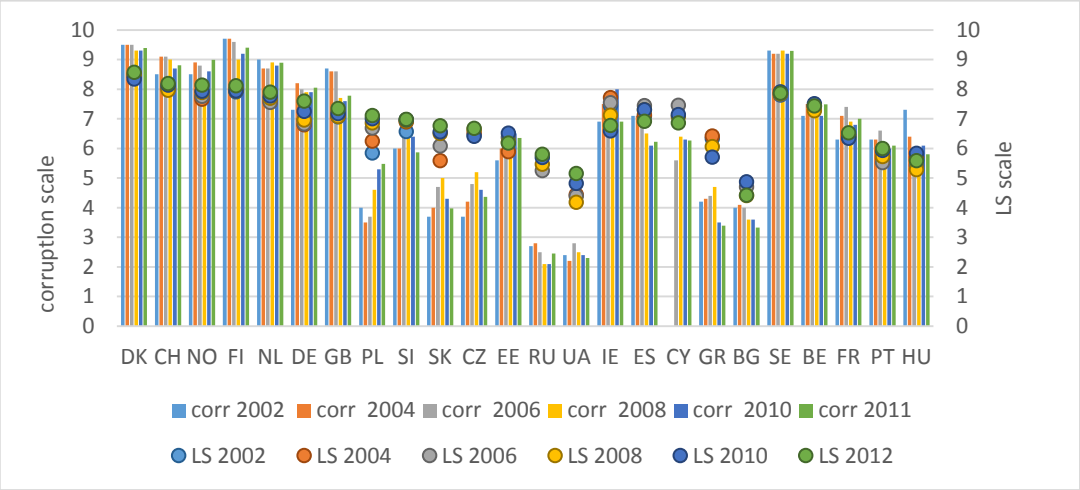
Figure 15 Real GDP growth rate and national life satisfaction in Flat LS Cluster, 2002-2012.



Corruption score

Examining corruption scores in Europe, calculated using the Transparency Index based on public perceptions of corruption among politicians and public officials, indicates large discrepancies between many Eastern European countries and the rest of the continent (Fig. 16). With higher scores indicating a less corrupt, hence a more transparent government, the Nordic countries lead, followed by those in the west and south of Europe. The most transparently governed nations score well above 8 points and reach almost the maximum score in the cases of Finland and Denmark. However, the score diminishes, suggesting that the respective publics perceived them to be more corrupt over time. The worst performers in the sample, the ex-USSR countries of Russia and Ukraine, barely reach 3 points on the scale with the score diminishing even further since 2002. Most CEE countries and Greece record the highest score at around 5 points which starts to decrease around 2008. Only Poland displays growth over time, resulting in more governmental transparency in the eyes of the public. Belonging to the post-communist bloc, Hungary, Slovenia, and Estonia, together with the Mediterranean countries, display higher average transparency scores at around 6.5 -7 points. But they also show a decline in transparency over time. Western nations score relatively high on the transparency scale displaying various corruption trends.

Figure 16 Corruption score and national life satisfaction in Europe, 2002-2011.

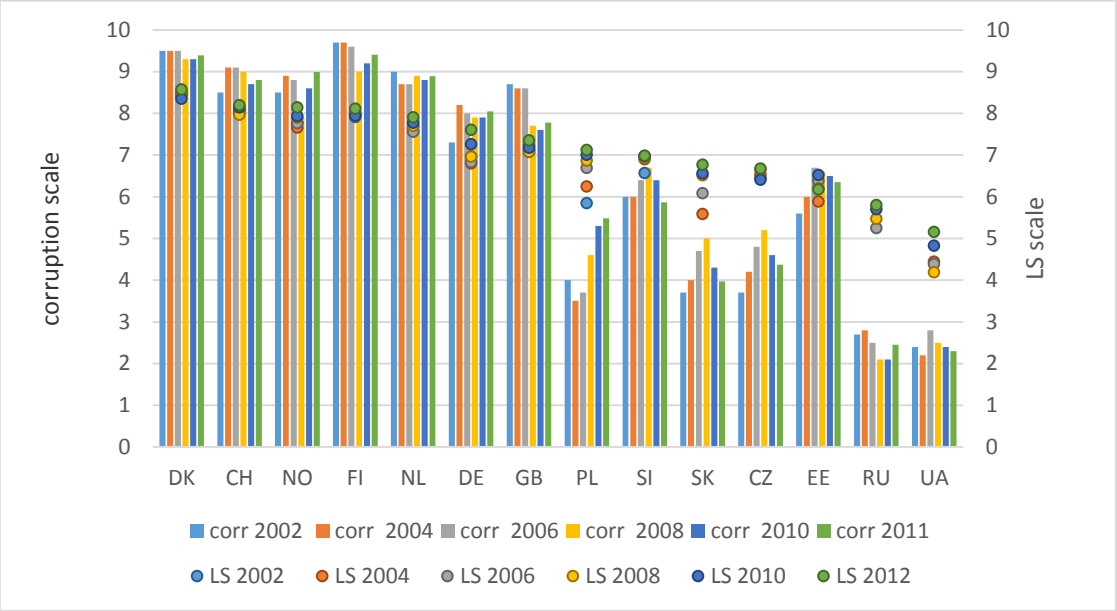


Rising LS cluster

In the rising LS cluster, the countries scoring high on the life satisfaction scale also have the least corrupt governments as perceived by the public (Fig. 17). This relationship holds for most of the countries but there are some exceptions. Estonia scores near the bottom of the life satisfaction rankings, and yet its transparency levels considerably surpass those from most CEE nations, being closer to the scores achieved by Western and Nordic countries. Overall, the nations with the least transparent governments are also those with the lowest national happiness. Here Russia and Ukraine lag considerably behind other nations on both scales.

In most countries the transparency score diminished after the beginning of the 2008 recession or just before. However, the size of the decline seems very small. The overall trend for most nations in this cluster resembles a U-shape with the lowest point marking the beginning of the financial crisis of 2008. This suggests that, following the beginning of the economic crisis, the public perceived politicians and public officials as more corrupt than before the crisis. However, public trust in government officials seemed to recover in 2012 in the western and northern regions of Europe, but it continued to decline in the eastern region. Surprisingly, in Poland perceived government transparency rose continuously from 2004 until 2012, slowing down only in 2010.

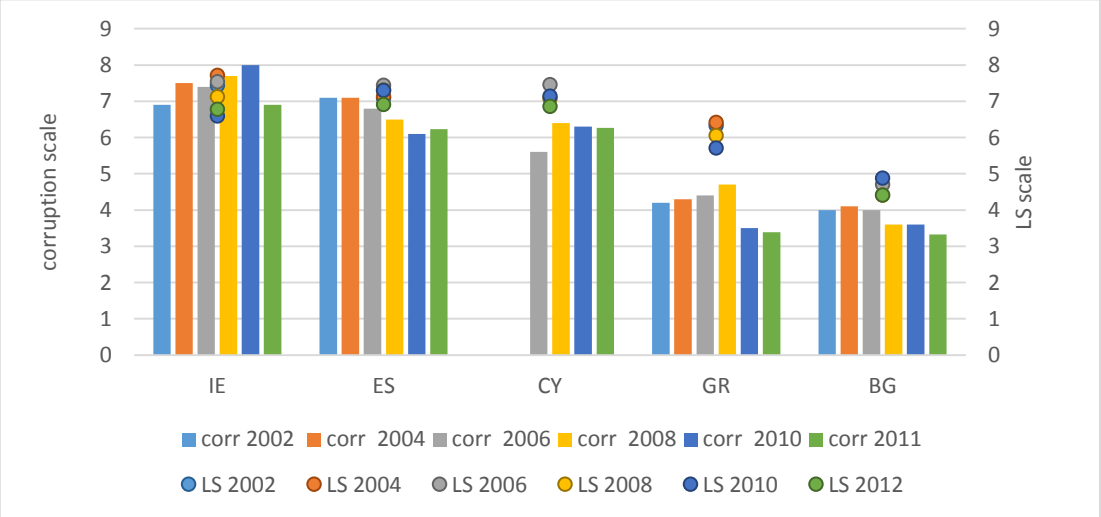
Figure 17 Corruption score and national life satisfaction in Rising LS Cluster, 2002-2011.



Declining LS cluster

In the cluster with decreasing life satisfaction the relationship less corrupt government- more satisfaction' can be observed (Fig. 18). Following the 2008 recession, perceived government corruption increased in all nations in this sample, except Ireland where it grew only until 2010. It is probable that the beginning of the economic crisis which caused lower national productivity and higher unemployment also led to higher public perceptions of institutional corruption which in turn led to lower life satisfaction there.

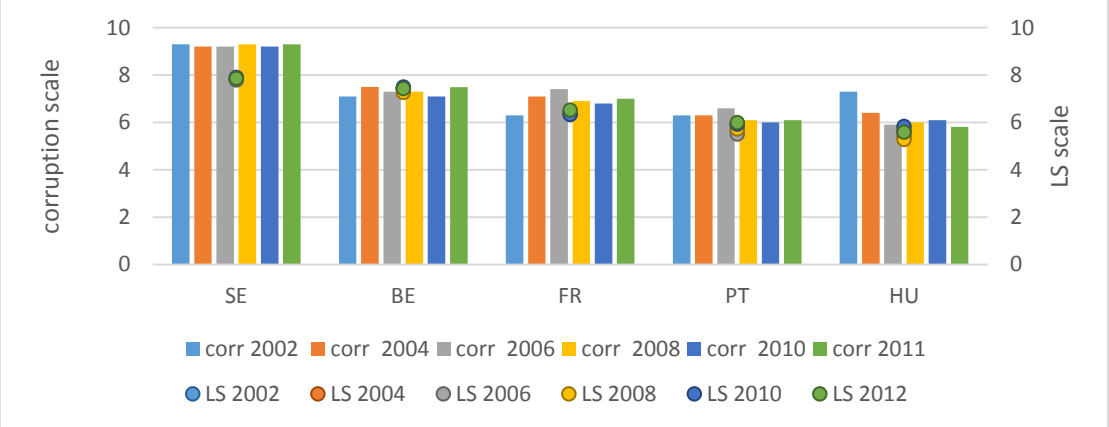
Figure 18 Corruption score and national life satisfaction in Declining LS Cluster, 2002-2011.



Flat LS cluster

In the cluster with unchanging happiness levels over time corruption trends were fairly flat, being best illustrated by the scores in Sweden and Belgium (Fig. 19). Increasing corruption in France since 2006 seems to have led to a minor decrease in SWB there and its recovery in 2010 when corruption declined. But in Portugal life satisfaction rose substantially after 2006 despite rising perceptions of corruption. Perceptions of corruption among Hungarian public officials have risen since 2002 but national happiness was unchanged. In general, it seems that the perceived institutional corruption in this sub-sample has no significant impact on long- term happiness. However, as in previous sub-samples, countries with higher life satisfaction scores also have more transparent governments.

Figure 19 Corruption score and national life satisfaction in Flat LS Cluster, 2002-2011.



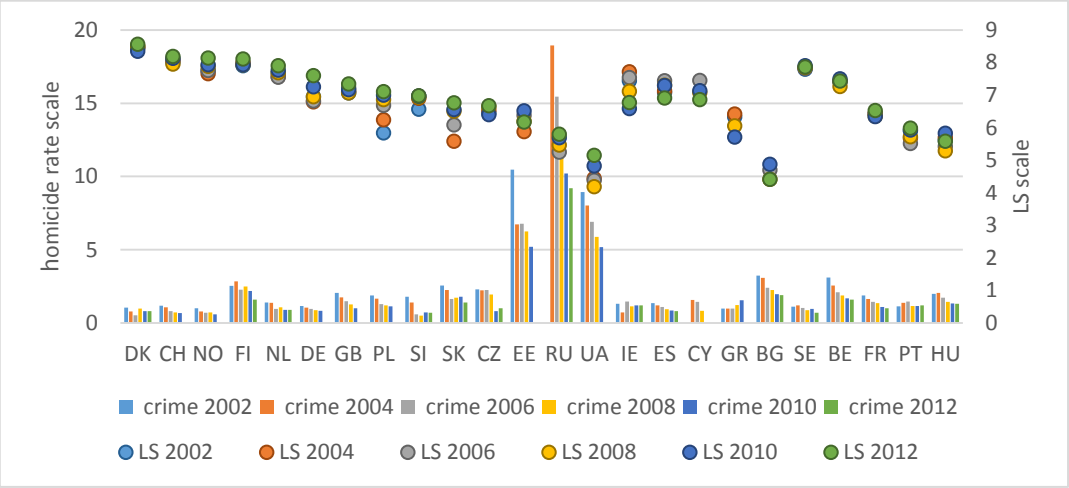
In conclusion, the relationship between high life satisfaction and more transparent government, and vice versa, is supported by the visual examination of data. However the direction of this relationship cannot be established as it is hard to distinguish if less perceived corruption leads to higher levels of life satisfaction, or if happier individuals display more trust and perceive their governments to be less corrupt. Examination of time trends in each country leads to the conclusion that in most European countries the public perception of corruption has increased since the beginning of the recession or in 2006 but this rise was not mirrored by falling happiness levels. The largest consistency between factors was observed in countries with declining satisfaction, which also coincided with the beginning of the economic crisis, rising unemployment, and lower national productivity measured in GDP per capita. Inferential analysis

presented in later parts of this chapter will help to establish if perceptions of corruption are indeed relevant to national satisfaction.

Homicide rates

Homicide rates in this project represent the number of homicides per 100,000 population captured by international and national statistics from the criminal justice and public health systems. The inspection of general rates points to relatively low levels of crime in Europe (on average 2 per 100, 000) with the exception of the ex-USSR countries Russia, Ukraine, and Estonia where the rate was three times higher in 2012 (Fig. 20). A closer look at the homicide trends in each LS cluster will help to establish its relationship with life satisfaction.

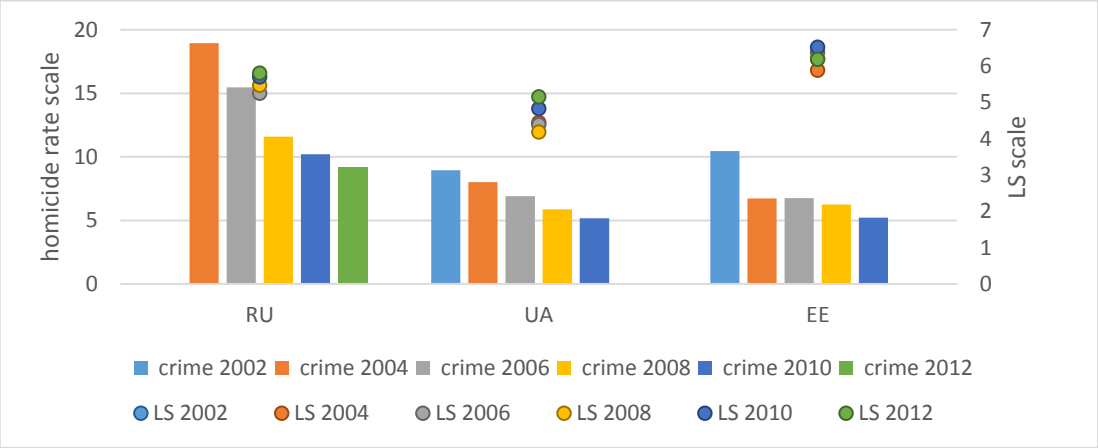
Figure 20 Homicide rates and national life satisfaction in Europe, 2002-2012.

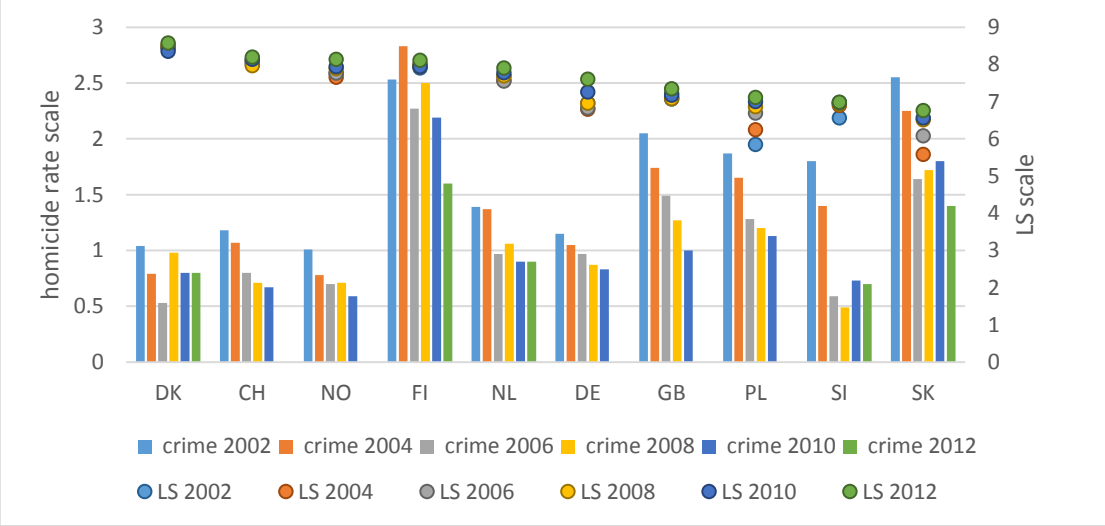


Rising LS cluster

In the sample with rising satisfaction the number of homicides per 100,000 population decreased over time (Fig. 21). This trend helps to explain increasing satisfaction with life in those countries alongside the increased feeling of security essential for well-being. Generally, countries with higher happiness had a lower number of homicides over time. One exception is Finland which had the highest crime rate in the group (except ex-USSR nations) but one of the highest levels of life satisfaction in the sample.

Figure 21 Homicide rates and national life satisfaction in Rising LS Cluster (ex-USSR and the rest of the sample), 2002-2012.

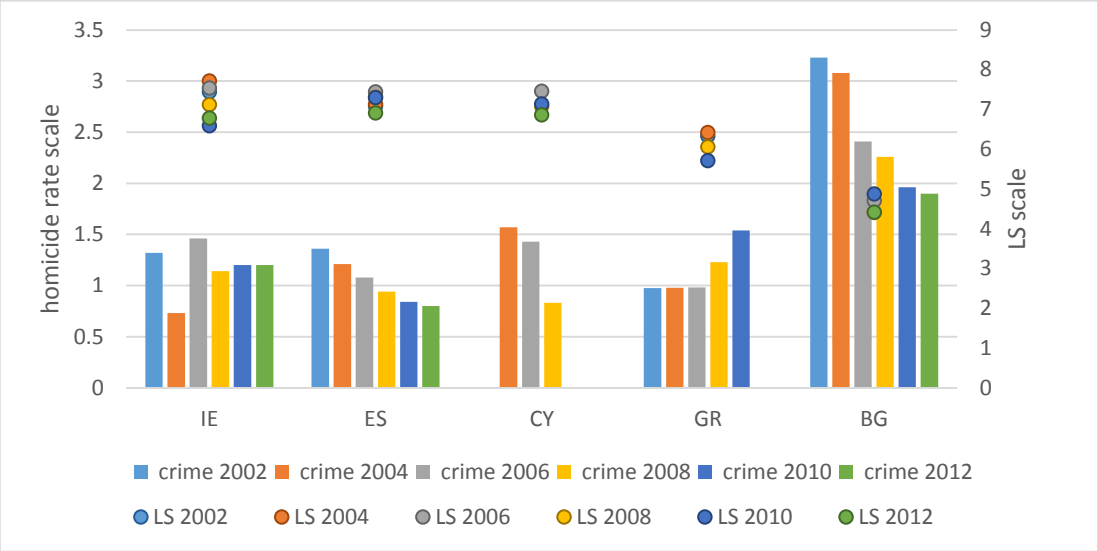




Declining LS cluster

As we see in the cases of Bulgaria, Spain, and Cyprus countries with declining happiness over time display declining trends in the number of homicides per 100,000 (Fig. 22). In Greece the homicide rate increased after 2006 and in Ireland after 2004, which coincides with the drop in happiness there. In other nations, however, there does not seem to be any relationship between changes in the homicide rate and declining life satisfaction, although the relationship 'low homicide score-higher happiness score' is maintained.

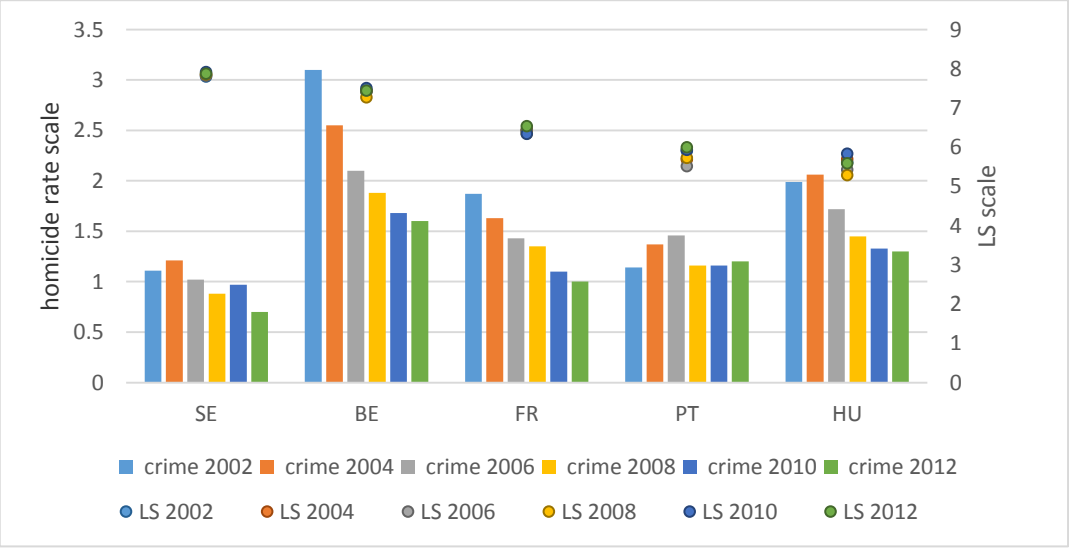
Figure 22 Homicide rates and national life satisfaction in Declining LS Cluster, 2002-2012.



Flat LS cluster

Diminishing crime rates are also present in the cluster of countries with unchanging life satisfaction, which indicates a lack of any correlation (Fig. 23). Belgium has the most diminished homicide rate yet relatively high life satisfaction compared to other countries in the sample. Portugal, with one of the lowest homicide levels in the group, has at the same time quite a low satisfaction score over time.

Figure 23 Homicide rates and national life satisfaction in Flat LS Cluster, 2002-2012.



Overall, homicide rates seem to be diminishing in European countries. Happy nations are those with low homicide rates. Moreover, a decline in the number of homicides

can be paired with increasing satisfaction but only in countries where satisfaction grew. In other clusters there is no congruence between changes in the number of homicides and changes in subjective well-being.

Summary of common national trends

We may draw three important conclusions from results comparing life satisfaction trends with other important country-level indicators of national prosperity and social capital.

First of all, increasing GDP per capita (PPP) is not a strong predictor of happiness trends, although its slowdown at the beginning of the recession results in shallow life satisfaction trend line in many countries displaying an increase in SWB over time. The decline in economic productivity measured in p/c GDP PPP coincides with the decline in happiness in five nations but this decline often precedes a drop in national wealth. However, declining p/c GDP PPP has no impact in the countries where satisfaction remains unchanged or is rising. Hence it provides inconclusive results by supporting partially the hypothesis 2 only in the cluster of nations where happiness declined over time. This suggests that in order to truly assess the impact of national wealth on well-being the analysis needs to be carried out taking into account individual variables in the context of living in a wealthy or a poor nation. Hopefully, this analysis will help to indicate the social groups that gain most life satisfaction from increased national productivity.

Secondly, countries with high satisfaction levels are safer because the number of homicides is lower, and they have more transparent institutions than countries with lower well-being. However, the decline in homicide rates and levels of corruption observed over time is not always paired with a similar satisfaction trend. Since 2006, in most of the countries the transparency score decreased, suggesting increased corruption. Yet this trend is not reflected in the decline of national satisfaction in most nations, apart from a few Mediterranean countries. Congruence between rising happiness and a decline in homicide rates is present in the rising LS cluster. A slight increase in the number of homicides in Greece and Ireland is also reflected in declining well-being. But for other nations this relationship does not hold.

In conclusion, visual inspection of the trajectories of country indicators and aggregate life satisfaction showed that no single factor has the most important impact on life satisfaction although national wealth measured in GDP PPP is a strong candidate. However, it became clear that around 2008 or just before many trends began to change or slow down. This date coincided with the beginning of the global recession that threatened financial security, challenged social mobility, undermined social order, and led to re-assessment of public trust in national leaders. All these factors are most likely to be correlated with societal SWB in times of great economic uncertainty. The results of regression analysis that focuses upon these macro indicators and their relationship with national life satisfaction will be presented in the next section of this chapter.

2.5.14 Regression analysis

Analysis with p/c GDP PPP only

Here I present results for different estimation methods (Model 1 in Table 10). Because the data contains varying scores for different countries measured at various points in time, they can be treated as a cross-sectional time-series. Hence also standard errors (SEs) are clustered at the level of countries being a panel variable in this setting. In the next chapter, which uses individual-level analysis, I will switch to OLS with clustered SEs (OLS CLSE) at the country level in order not to lose time-constant effect such as gender. The analysis uses macro indicators as independent variables and aggregate life satisfaction scores in each country as dependent variables in order to refer the findings to those discussed by researchers debating the Easterlin paradox (Easterlin 1974, 1995, Stevenson and Wolfers 2008, Sacks et al. 2010).

Following Stevenson and Wolfers (2008) and Opfinger (2015), who calculate the national average for life satisfaction in their studies, I take the same approach. I use a log of p/c GDP PPP as an explanatory variable in the first stage of the analysis. Later, I add other variables that show the relationship with life satisfaction on the national level. The first analysis uses pooled OLS regression with standard errors clustered at the country level. In other analyses, I account for the panel structure of the data and model it at first using random and fixed effects for comparison only, as Hausman test

results point to the use of fixed effects modelling (prob>chi 2=0.0077). So in the two last models I account for country- fixed effects and later also country- and wave- fixed effects.

Table 10 Regression analyses with p/c GDP PPP.

Variables	**Model 1**			
	OLS CLSE	**RE**	**Country FE**	**Country year FE**
	B (SE)	**B (SE)**	**B(SE)**	**B(SE)**
Constant	-13.598*** (-2.3)	-9.205*** (-1.63)	-5.268* (-2.19)	-12.029*** (-3.03)
Log p/c GDP ppp	1.981*** (-0.22)	1.554*** (-0.16)	1.199*** (-0.21)	1.851*** (-0.29)
R squared	0.74		0.964	0.969
Year dummies	Yes	No	No	No
N clusters	24	24	24	24
N observations	144	144	144	144

* p<0.05, ** p<0.01, *** p<0.001

In all analyses in Model 1, log p/c GDP PPP is significant and positively correlated with life satisfaction. These results confirm Hypothesis 2 concerning the strong influence of GDP PPP for national satisfaction from 2002 to 2012 in Europe, which is consonant with other research undertaken by Deaton (2007), Stevenson and Wolfers (2008), Sacks *et al.* (2010), and Opfinger (2015). In the pooled model the size of the coefficients is 1.981 at a 99.99% confidence level. Accounting for panel structure in the random effects model lowered the coefficient size to 1.554, and using fixed effects with country effect lowered it to 1.199. However, adding the year effects to the country effect in the last column raised the coefficient size to that in a pooled model in column 1 with 1.851. All correlations were significant at p<0.001.

In order to test the remaining part of the second hypothesis, the analysis needs to be broadened and include other factors connected with economic productivity, that is, GDP growth rate and other economic and social capital indicators.

Analysis with other explanatory variables

Adding explanatory variables to the analysis provides a broader picture of the relationship between national life satisfaction and macro indicators. Because the

result of the Hausman test point to a preference for pooled OLS analysis with year dummies and a random effects model (fixed effects vs. random effects prob>chi2=3434, it is not possible to conduct a Hausman test for pooled OLS with clustered SE but the results match a random effects model that works on the same assumption for consistency, hence they are reported (StatsExchange 2016). The results of these two models will be discussed, although the findings for the fixed effects model are also reported in Table 11.

In the model with explanatory country indicators, unemployment and homicide rates were not significant to national life satisfaction but the positive effect of national wealth is maintained with a similar coefficient size in both regressions (0. 832 and 0.759). GDP growth and corruption scores were both significant in predicting national life satisfaction at $p< 0.01$ giving 99% confidence that the results are significantly different from 0. Changes in GDP growth were correlated with increases in life satisfaction of 0.088 and 0.033 in pooled OLS and random effects models respectively. The corruption score also had a positive effect on national well-being, changing it by 0.178 and 0.099 points in the two analyses. Since in most nations the corruption score followed a U-shape with the highest dip in 2008 when the global recession began, it seems that the recovery of trust in public officials may be associated with improvements in national well-being. However, not all nations recovered their levels of trust in public officials. In many CEE and southern countries government transparency continued to decline. It is important to adjust for these regional effects and examine their impact of life satisfaction. Hence Table 12 presents regional differences in corruption scores and their effect on national well-being. Similarly, regional differences in GDP growth are also modelled to further disentangle their effect on national satisfaction score.

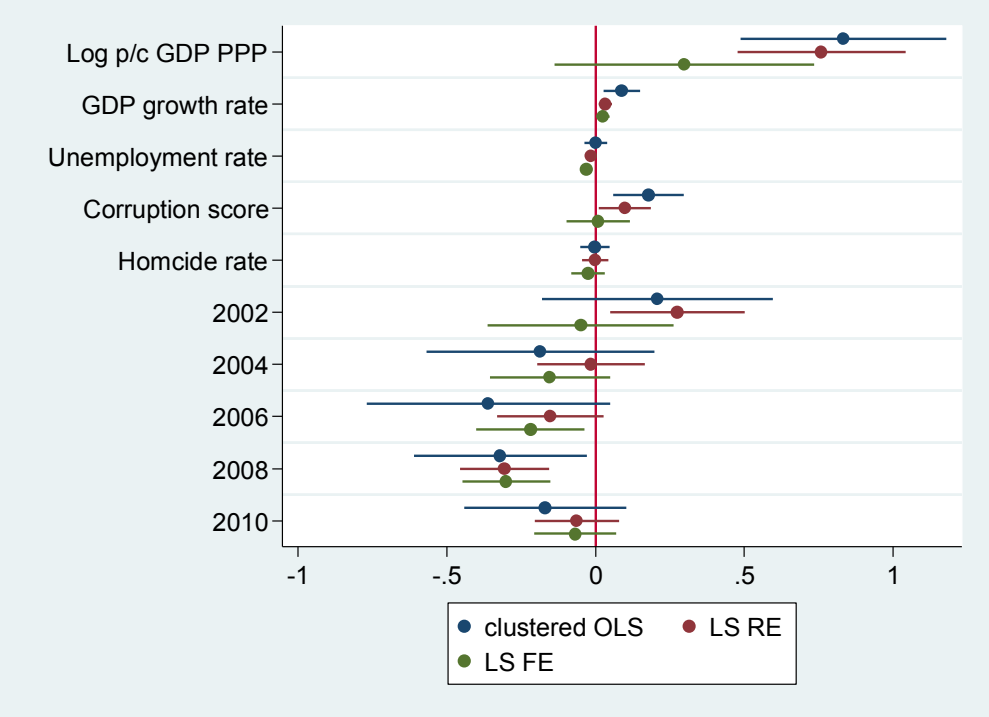
Table 11 Regression analyses with GDP PPP and other country covariates.

Variables	Model 2					
	OLS CLSE		RE		FE	
	B (SE)		B (SE)		B (SE)	
Constant	-2.792	(-1.67)	-1.372	(-1.38)	4.11	(-2.29)
Log GDP PPP	0.832***	(-0.17)	0.759***	(-0.14)	0.298	(-0.22)
GDP growth rate	0.088**	(-0.03)	0.033**	(-0.01)	0.025*	(-0.01)
Unemployment rate	0.001	(-0.02)	-0.014	(-0.01)	-0.031**	(-0.01)
Corruption score	0.178**	(-0.06)	0.099*	(-0.04)	0.009	(-0.05)
Homicide rate	-0.002	(-0.02)	0	(-0.02)	-0.025	(-0.03)
R squared	0.836		0.783		0.583	
Year dummies	Yes		Yes		Yes	
N clusters	24		24		24	
N observations	132		132		132	

* p<0.05, ** p<0.01, *** p<0.001

Overall, the positive effect of GDP growth in Hypothesis 2 was confirmed. Concerning declining corruption and homicide rates, Hypothesis 3 was partially confirmed with only the corruption score being significantly correlated with national life satisfaction. Despite evidence that rising unemployment and the financial crisis resulted in increased discontent and tend to lead to rise in crime rates (Bell and Blanchflower 2009), both unemployment rates and homicide rates did not prove significant in any of the analyses.

Figure 24 Regression coefficients from model 2.



Regional analysis

The results of the analysis show that GDP growth rates had a positive impact on life satisfaction in all regions of Europe when compared to the northern reference category, (Model 3 Table 12). In the south, the change in GDP growth rate contributed to a 0.142 increase in life satisfaction, followed by the east with 0.108 and the west with 0.083. The national wealth and corruption score retained its positive significant association with national subjective well-being with 1.392 and 0.236 coefficient sizes respectively. Plotting the margins helped to investigate significant differences between regions in Europe and assess the predicted trends in life satisfaction that were correlated with growth rates and regional effects in Europe (Fig. 25).

Holding other macro-indicators constant, institutional transparency proved to be detrimental to life satisfaction in the east and south of Europe in comparison with the north which was seen to be the least corrupt by the public and is used as a reference category in Model 4 (Table 12). The coefficients for the two significant regions were similar in size with -0.686 in the east and -0.623 in the south of Europe. Hence rising perceptions of corruption in eastern and southern Europe began around the beginning of the 2008 recession (see Fig. 16). Since they are detrimental to SWB, they led to the

decline in life satisfaction in Spain, Greece, and Cyprus. But they did not have a similar effect in CEE countries where life satisfaction continued to grow (SK, PL, CZ, EE, RU, and UA). Plotting predicted margins is helpful in assessing the differences between regions and can explain different life satisfaction trends that exist despite similar trends in perceived institutional transparency (fig. 26). As in the previous model, national wealth measured using log GDP PPP, and corruption scores remained positively correlated with national life satisfaction with 1.658 and 0.805 coefficient sizes respectively. In addition, GDP growth rates had a positive relationship with national SWB with a 0.061 coefficient score.

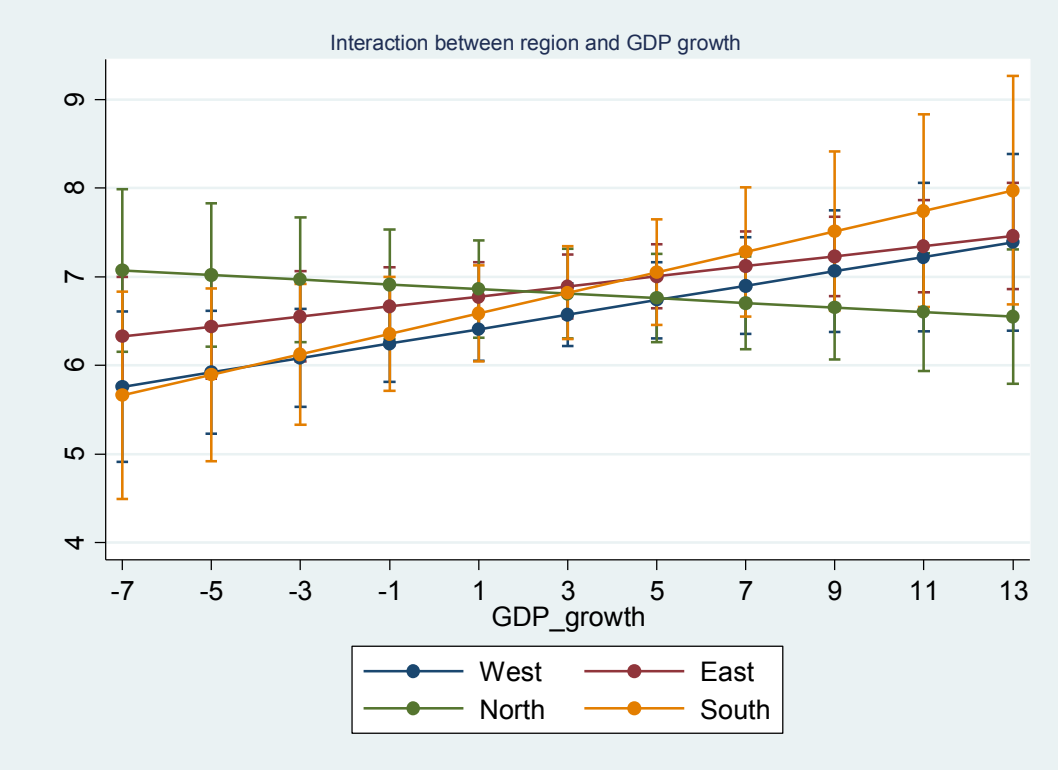
Table 12 Pooled OLS CLSE analysis with the interaction effect for regional differences in GDP growth and corruption rates.

Variables	**Model 3 Region and GDP growth rate**		**Variables**	**Model 4 Region and corruption score**	
	B (SE)			**B (SE)**	
constant	-8.833*	(-3.9)		-16.968**	(-4.98)
Log GDP PPP	1.392**	(-0.37)		1.658***	(-0.37)
GDP growth rate	-0.026	(-0.03)		0.061*	(-0.02)
Corruption score	0.236**	(-0.07)		0.805***	(-0.19)
Unemployment rate	0.007	(-0.02)		0.003	(-0.02)
Homicide rate	-0.012	(-0.03)		-0.025	(-0.03)
European region reference category = North					
West	-0.560*	(-0.27)		3.895	(-2.01)
East	-0.167	(-0.36)		5.978**	(-1.93)
South	-0.416	(-0.43)		5.476*	(-1.96)
European region and GDP growth rate reference category = North*GDP growth rate (continuous)			**European region and corruption score reference category = North*corruption score (continuous)**		
West *GDP growth	0.108*	(-0.04)	**West*corruption**	-0.445	(-0.23)
East *GDP growth	0.083*	(-0.04)	**East*corruption**	-0.686**	(-0.21)
South*GDP growth	0.142*	(-0.06)	**South*corruption**	-0.623*	(-0.24)
Year dummies	Yes			Yes	
R-squared	0.848			0.854	
N clusters	24			24	
N observations	132			132	

* p<0.05, ** p<0.01, *** p<0.001; Method: pooled OLS regression clustered SE (CLSE) at the country level.

Moving on to the effect of GDP growth rates on life satisfaction given the differentiation between European regions, Figure 25 plots the margins for the interaction between European regions and GDP growth rate in percentage change from the previous year. Here the overall trend was positive in the west, east, and south of Europe but negative in the north. This suggests that as the growth rate increased there were gains to life satisfaction in all regions of Europe except the north. There, accelerating growth rates resulted in the decline in national life satisfaction. The steepness of the plots was similar in all regions but the eastern region recorded a slightly flatter trajectory than other regions. Inspecting the differences between regions led to not finding any significant differences between them at the 95% level (see Table 3 in the Appendix).

Figure 25 Predictive margins for regional differences in the effect of GDP growth rate on LS.

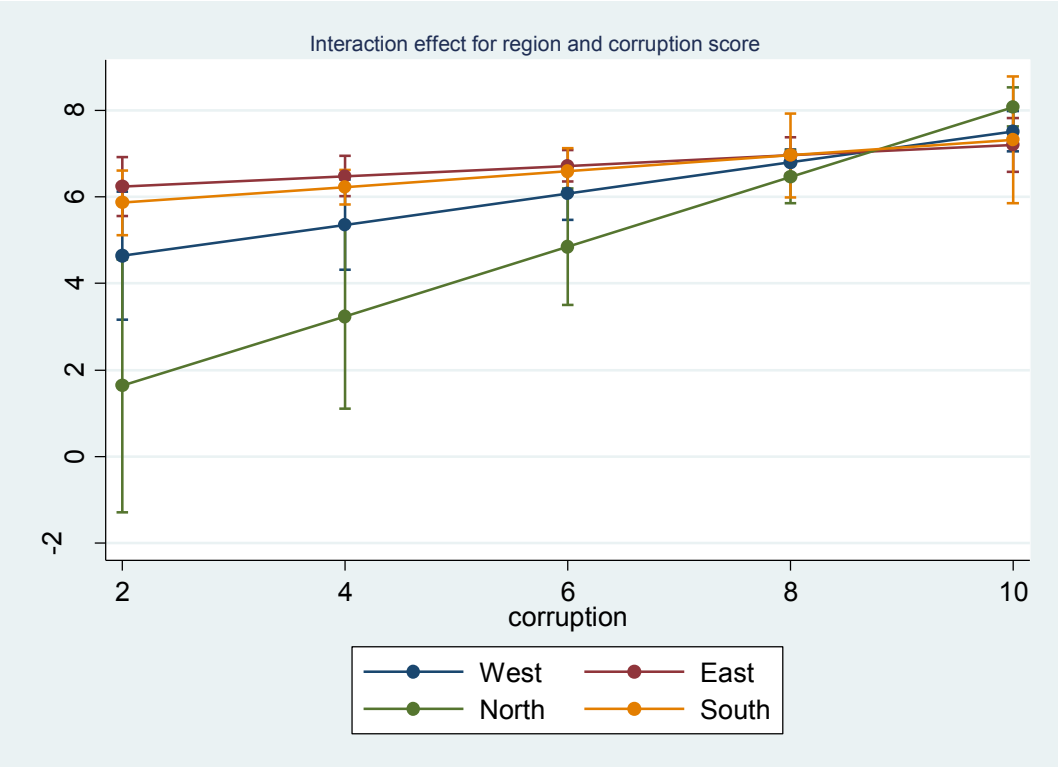


Regarding the corruption score, the overall trend in Figure 26 shows that the higher the transparency score the more benefit to national life satisfaction in all regions of Europe. The prediction line was the steepest in the north of Europe, suggesting that less government corruption is associated with more gains in well-being. Similarly, in the west there were substantial benefits to satisfaction with the growth of the

perceived transparency of public officials. In the south and east of Europe, the lines were the flattest, pointing to a mild effect on national life satisfaction derived from perceiving public officials as less corrupt, and seeing the government as more transparent.

More detailed inspection of margin plots in Figure 26 shows that lower levels of 2, 4, and 6 points of perceived institutional transparency coincided with significant differences in life satisfaction between the north of Europe and the east and south where less government transparency is prevalent (see margin scores in Table 4 in the Appendix for significant differences between the regions). This confirmed the results from the regression analysis. However, when the corruption score increased to 8 and 10 there were no significant differences between the regions but these higher transparency scores dominated in the west and north of Europe. This suggests that as governments became perceived by the public as less corrupt, the regional effect in Europe disappeared and had no influence on national well-being.

Figure 26 Predictive margins for regional differences in the effect of corruption score on LS.



Discussion

This chapter asks two questions: What is the relationship between life satisfaction and economic productivity in different trend clusters? And what factors other than economic wealth correlate with national life satisfaction? The broader aim was to explain variations in national life satisfaction that exist in Europe. Results from the analysis provided answers to these questions, at least in respect to some of the nations in the sample.

2.5.15 National wealth

National economic productivity measured in PPP and GDP growth rate was positively related to life satisfaction over time in 24 European countries. This suggests that national wealth, both static (in log GDP PPP) and dynamic (GDP growth rate) is important for national well-being regardless of the level of wealth and its trajectory. These results confirm most research to date in regard to the level of income measured using per capita GDP PPP (Deaton 2007, Stevenson and Wolfers 2008, Sacks *et al.* 2010, Opfinger 2015), but findings relating to the positive effect of economic growth on life satisfaction contradict some studies.

Rising per capita GDP PPP was linked with lower happiness in CEE countries during their transition period (Sanfey and Teksoz 2007) and in other transitory/growing economies (Lora and Chaparro 2008). However, the positive correlation between the rate of economic growth and national SWB confirmed in this project sheds new light on this relationship in advanced and economically stable regions of the world. The positive relationship between growth rates and national SWB in all European nations in the sample suggests that expectations and adaptation to standards of living are unharmed even when growth rates are low or negative as they have been in most European nations since the 2008 recession or even before that. This is contrary to the period of transition to capitalism or rapid growth of the economy when rising expectations together with the enhanced uncertainty of rapid transformation take a negative toll on human happiness (Lora and Chaparro 2009, Selezneva 2007, Sanfey and Teksoz 2007). It is possible that, even when economic growth declines in affluent nations, it can still send an optimistic and reassuring message to the people

concerning their financial security and overall stability because the level of national wealth can accommodate it.

The lack of differentiation among European regions that experience various rates of economic growth suggest that this factor is not directly helpful in explaining different life satisfaction trends in Europe from 2002 to 2012. But its usefulness regarding the variation in trends should not be disregarded too hastily. Perhaps the fact that the dynamic aspect of national wealth is not useful in the aggregate analysis of well-being indicate that the more static version which uses levels of national wealth as indicators of economic productivity and development is more useful. The assumption that it matters more if you live in a rich or poor country than in a country whose wealth is growing faster or slower seems plausible in the light of Ruut Veenhoven's livability theory. According to this theory, people have needs that stable, productive, and free societies provide for, given the capacities of particular individuals. Hence the experience of living in a wealthy European economy offers more stability and freedom to satisfy one's needs than do less affluent but rapidly developing societies that undergo many transformations as a result of rapid economic growth.

Because the measure of the level of national wealth in per capita GDP (PPP) is a symbol of the economic productivity of the society and is significantly correlated with life satisfaction in 24 European countries in this project, it is safe to assert that it translates directly into the experience of wealth. It is also helpful in explaining the variation in national life satisfaction trends observed in Chapter 1. In countries that exhibit rising levels of happiness, p/c GDP PPP remained at a similar level or increased. The nations recording the most prominent increase in happiness since 2002 to 2012 also recorded an undisturbed increase in p/c GDP PPP from 2002 to 2012 (see Fig. 9). In nations with declining life satisfaction trends, purchasing power measured in p/c GDP PPP decreased significantly in the same period (except Bulgaria). And in the cluster of nations with flat well-being p/c GDP PPP remained at a similar level at least from 2006 to 2012 despite some dips in 2008 or 2010 (other than Portugal where it decreased markedly in 2010 following the recession).

In conclusion, Hypothesis 2 was confirmed. Moreover, despite the relationship between national wealth and life satisfaction being well-documented in other research in regard to transition countries with rising life satisfaction (Rodríguez-Pose and Maslauskaite 2012), my analysis extends this relationship to other nations in Europe where life satisfaction has been on the rise since 2002. This group of countries consisted also of some western and northern European nations such as Denmark, Switzerland, Norway, Finland, the Netherlands, Germany, and the United Kingdom. Hence the findings add a new perspective on the importance of national wealth measured in PPP in already very advanced and stable European economies.

2.5.16 National trust

The corruption score was a significant predictor of national life satisfaction in the sample. Its positive contribution to SWB confirms the importance of national trust to happiness established by previous researchers (Helliwell 2003, Portela *et al.* 2013, Abbott and Wallace 2014, Habibov and Afandi 2015). Furthermore, the relevance of overall perceived transparency of government to national life satisfaction as well as its regional effect is also present. The north of Europe derived a more positive contribution to national SWB as transparency increased, while the east and south of Europe the least. What this suggests is that the effect of corruption on national life satisfaction does not depend only on the level of perceived corruption, but on the region of Europe and the corruption score there. Hence inhabiting regions with less perceived government transparency, such as the south and east of Europe, results in fewer benefits to life satisfaction with a change of the corruption score than inhabiting the west and north of Europe.

When the European regions were compared, in the south and east of Europe government corruption scores significantly influenced life satisfaction in comparison with the less corrupt north of Europe, but only when public officials were perceived as more corrupt. This relationship disappeared when perceptions of the transparency of government officials increased. This result suggests that when the public perceive public officials to be less corrupt, the effect of living in a particular region of Europe disappeared, which was most likely related to lower transparency scores recorded in many CEE nations and in some southern ones (Fig. 16). Despite the overall increase in

corruption scores in most European nations in the sample following the 2008 recession, the changes were mostly trivial or very small. In general, corruption scores followed a U-shape with most nations being on the path to recovery in their transparency index. This might explain the positive effect of greater institutional transparency on national subjective well-being in all regions of Europe.

Western Europe was not significantly different from other parts of Europe as regards national levels of institutional trust, which confirms the results of Helliwell *et al.* (2014) in the context of the 2008 recession. There institutional trust was not correlated with life satisfaction in non-transitional economies in western Europe or in the north and south. My study shows that regional differences are present in Europe, however not on the axis of transitional and non-transitional economies, but there is a divide between the north of Europe versus the east and south. Hence more detailed analysis of regional differences in Europe enables us to disentangle the effect of institutional trust on national subjective well-being in the context of the 2008 recession.

Regional differences in government transparency provide a very tentative explanation of the variation in life satisfaction from 2002 to 2012. High transparency scores and U-shaped transparency trends in the west and north of Europe can be associated with high and growing life satisfaction there, an observation illustrated also by the very steep slope of predicted margins in northern Europe and relatively high margins in western Europe. Low transparency scores and its shallow slopes in the east and south of Europe suggest that the benefits to life satisfaction stemming from government transparency are not as important there. Perhaps the most favourable impact on national well-being of institutional credibility was achieved at least for the CEE region in the decade following the fall of communism in the 1990s and during the transition period, while a decade later these results have stabilized and showed less influence of SWB. A similar process could have occurred in the southern nations in the 1980s following their accession to the EU.

To summarize, Hypothesis 3 concerning the significant association between falling corruption and homicide rates and life satisfaction was partially confirmed. Only

increasing government transparency recorded in European countries had a positive and significant effect on national subjective well-being. This variable helps to explain different life satisfaction trends in Europe from 2002 to 2012.

Conclusion

I conclude this chapter by stating that the variation in national life satisfaction trends in Europe cannot be explained by economic performance alone. This assumption has been researched in many studies investigating in particular the Easterlin paradox (Veenhoven 1991, Diener *et al.* 1993, Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Deaton 2007, Fischer 2008, Stevenson and Wolfers 2008, Sacks *et al.* 2010, Sacks *et al.* 2012, Sacks *et al.* 2013, Veenhoven and Vergunst 2013). Perceived corruption of public officials matters too, but not the homicide rate, which confirms in part Hypothesis 3. Nevertheless, economic productivity measured in GDP purchasing power and its growth rate is associated with subjective well-being in different countries. The decline in purchasing power correlates with the decline in life satisfaction in five nations. However, in some nations a substantial rise in life satisfaction was paired with continually growing purchasing power (namely Slovakia, Poland, Germany, and Russia), showing that this factor has a powerful influence on life satisfaction. Hence Hypothesis 2 was confirmed. Further research that also includes individual-level covariates is needed to establish other individual-level factors that explain happiness trend variation in Europe.

Certain limitations of the study need to be mentioned before moving on to Chapter 3. More macro factors could have been included in the analysis to test their effect on national life satisfaction. But assumption checking revealed that some needed to be excluded owing to multicollinearity. Therefore, based on the findings of the literature to date, and the theoretical implication of the study, I decided to exclude some of them. It is, however, very probable that analysis containing greater number of macro indicators would lead to different results.

III The main drivers of individual life satisfaction in Europe

Introduction

The previous chapter leads us to the conclusion that more research assessing life satisfaction trends in relation to both individual and contextual factors is required. Inspection of the congruence between economic changes and life satisfaction over time in each country did not lead to any clear patterns that could then be generalized to confirm or reject the existence of the Easterlin paradox in Europe 2002-2012. The results reinforced the need to investigate individual life satisfaction in each country in conjunction with micro and macro factors. Therefore in this chapter, regression analysis of individual life satisfaction aims to provide more insight into the findings presented in Chapter 2. There I discussed the impact of country level indicators on national life satisfaction in Europe in the long term.

National indicators helped to explain trajectories of happiness in European countries reinforcing the conclusion that life satisfaction has evolved in most countries in Europe, contradicting the Easterlin paradox. Moreover, in the majority of European cases SWB changed for the better which is a positive contribution to national well-being. Clearly, when aggregate well-being scores rise it sends a message that the entities that make up the aggregate categories, in this case countries, became happier over time. Alternatively, it can mean that the number of people who move up the ladder of life satisfaction is on the rise.

However, in order to explain these trajectories and relate them to the individual experiences of people answering the question about life satisfaction it is necessary to ask whether individual and country -level variables have a significant impact there. In this chapter I will begin the analysis using contextual factors from Chapter 2. Then I will add economic security indicators pertaining to employment status and level of income together with social capital variables such as the presence of social networks and levels of social and institutional trust. Controls will include socio-demographic variables commonly found in the literature. The overall selection of relevant variables in this chapter follows literature in the field and I will discuss them in the context of research on subjective well-being.

Research question

While in Chapter 2 the focus of the study relied upon macro indicators and their relationship with national life satisfaction, here both macro and micro factors are included in order to provide a full picture of the covariates responsible for variation in individual life satisfaction scores over time in Europe. The research questions are as follows:

1. What variables predict individual life satisfaction in European countries over time, with special emphasis on contextual factors, economic security, social capital, and the context of the current recession?
2. Can they explain the variation that exists in happiness trends there?

3.1 Macro correlates of individual life satisfaction

National wealth and its growth are the most popular macro indicators used in research concerned with the Easterlin paradox. But analyses have resulted in contradictory conclusions leading to long and unresolved debates about the impact of wealth on subjective well-being (Veenhoven 1991, Veenhoven 1993, Veenhoven 1994, Easterlin 1995, Hagerty and Veenhoven 2003, Veenhoven and Hagerty 2006, Bjørnskov *et al.* 2008, Stevenson and Wolfers 2008, Pittau *et al.* 2010, Sacks *et al.* 2010, Sacks *et al.* 2012, Sacks *et al.* 2013, Veenhoven and Vergunst 2013). Nevertheless, other national level indicators have been seen to have a significant impact on life satisfaction. Levels of unemployment, safety, and national trust are the most popular in the literature and two of them (safety and national trust) were confirmed to be significant to national SWB by my analysis in Chapter 2. As discussed in the previous chapter, high unemployment rates impede the happiness of all individuals, not only those directly affected by it (Winkelmann and Winkelmann 1998). High levels of national trust measured using the corruption indicator and feelings of safety measured by the homicide rate contribute to higher national well-being, particularly in the transition countries (Rodríguez-Pose and Maslauskaite 2012). Hence I will use these factors again to investigate their effect on individual life satisfaction in my project.

3.2 Cantril's Ladder of needs

Pioneering research by Hadley Cantril in 1965 asked respondents from 14 developed and developing countries to rate the aspirations and concerns in life that they could imagine for themselves (Cantril 1965). As a result, a pattern of human aspirations and concerns emerged that, surprisingly, was the same for those representing different social classes and ethnicities, political systems, and rates of economic growth. The top three concerns were classified as: economic concerns comprising decent standards of living; owning a house or land; job security; health concerns for oneself and one's family, and a happy family life. It is understandable that these three categories have the biggest influence on long-term subjective well-being. They can exercise a positive or negative influence, altering the stable points of life satisfaction throughout one's lifetime. In the following sections of this chapter findings from recent studies are discussed in reference to these categories, with special emphasis placed on economic security, social capital, and the country context that facilitates these.

3.3 Economic correlates of individual life satisfaction

3.3.1 The importance of economic security

Economic security is vital for human well-being. This notion had already found support in the work of Cantril where it was cited as one of the most important needs for the quality of life. Economic security such as ensuring access to food and providing shelter is also the first and most important human need defined by Maslow in his hierarchy of basic human needs (Maslow 1943). It is not surprising, therefore, that almost all the studies that seek to define correlates of the satisfied life include economic factors such as income levels, employment status, benefit's provision, household expenses, and at the country level, indicators of national wealth such as GDP PPP, GDP growth, GINI coefficient, and unemployment rates among many (Clark *et al.* 2008b, Dolan *et al.* 2008, Stutzer and Frey 2012). Additionally, these factors are relatively easy to measure, the data having been collected for many decades around the world prior to social attitude surveys. Hence it is understandable that Easterlin and other economists that followed him sought to examine the relationship between national income and life satisfaction, and its evolution in as many countries as possible. They correctly

recognized that the need for economic security is directly linked to the resources and wealth that individuals and countries possess (Easterlin 1974, Veenhoven and Hagerty 2006).

European economic security was severely challenged by the 2008 recession. Despite a very long period of economic stability (Goodhart 2008, Reinhart and Rogoff 2008b), the events of recent years have significantly undermined the efficiency of western democratic economies faced with the vicissitudes of the international banking system. Financial crises are a recurrent feature of national and, nowadays, global economies, but a relatively long period of economic stability in the West in the post-Second World War era gave a strong sense of security supported by false perception that it would last without interruption. Recent global events have challenged that view and undermined this universal sense of security and stability.

The influence of past national or global recessions on individual satisfaction remained unexplored while they were actually occurring. But the current recession gives an unprecedented opportunity to measure the effect of deteriorating financial security on subjective well-being before the crisis, while was unveiling on the continent, until it reached the plateau and started to fade. During this process most economies around the world experienced decline or at least in an impaired state (Guillén 2009). Investigating the influence of the 2008 recession on individual life satisfaction is one of the aims of my project.

3.3.2 The negative effect of unemployment

The detrimental effect of unemployment on life satisfaction is well documented in research into subjective well-being (Clark and Oswald 1994, Lucas *et al.* 2004, Bell and Blanchflower 2009, Gudmundsdottir 2011). Long-term unemployment affects the likelihood of future employment and carries wage penalties, particularly among young people, many of whom are likely to have known unemployment by the age of 23. What is more important, research by Bell and Blanchflower (2009) suggests that in the UK youth unemployment leaves permanent marks leading to lower life and job satisfaction, lower health ratings, and lower weekly wages more than two decades later. However, in the long term, habituation processes are stronger for income than for status (Di Tella *et al.* 2010). Employed people reporting past unemployment have

significantly lower life satisfaction than those employed with no past experience of joblessness. Hence comparisons with others do not lead to matching life satisfaction scores once the unemployed enter the labour force again, although their life satisfaction generally increases (Winkelmann and Winkelmann 1998). However, the effect of social comparison plays an important role here. In countries with high unemployment rates the impact of lost status on life satisfaction owing to unemployment is smaller than in countries with low unemployment rates (Clark 2003, Anderson 2009, Caporale *et al.* 2009).

3.3.3 Income and happiness

Research to date confirms that people need a certain level of financial security in order to satisfy basic needs and focus upon attaining desired goals. Changes in income matter more for people in poor countries but even in rich nations the lack of resources makes it difficult for people to express themselves, pursue interests, and maintain relationships (Diener and Biswas-Diener 2002). The provision of income expressed as individual salary, household income, or financial benefits from the state are assigned in the literature to the absolute income group. The importance of absolute income for happiness is confirmed in many influential studies with rich people being happier than the poor (Di Tella *et al.* 2001, Easterlin 2001, Frey and Stutzer 2002b, Blanchflower and Oswald 2004, Caporale *et al.* 2009). But the importance of absolute income holds only for the lower end of the income spectrum (Frey and Stutzer 2000, Argyle 2003), which is consistent with the view that income fluctuation is more important for the poor than for the rich.

Since people adapt to existing conditions and compare themselves with others in all areas of life, it seems plausible to assume that the same occurs in the financial sphere. It leads to investigations into the effect of social comparisons on the importance of income and subsequently on subjective well-being. Empirical research shows that the relationship between absolute income and satisfaction is weakened by comparing one's income with that of others from the relevant reference groups (Duesenberry 1949). This theory, known as the relative income theory, suggests that relative income determines individual life satisfaction in addition to absolute income. A growing body of evidence confirms this theory. Comparing one's own income with the reference

group similar to the individual in terms of profession, age, education, and region is as important to life satisfaction as individual income measured in absolute terms (Clark and Oswald 1996, McBride 2001, Ferrer-i-Carbonell 2005, Senik 2008).

Adaptation to income leads to rising aspirations and standards of living while the level of income stays the same, which may result in lowering life satisfaction. As outlined in the introduction, humans are on the hedonic treadmill, adapting to changes and developing new aspirations (Easterlin 2001, Diener *et al.* 2006), causing them to seek new reference groups for new income comparisons. In this chapter I will test the predictive power of income on life satisfaction. And I will discuss this topic more broadly in the next chapter that focuses on factors moderating the effect of income on life satisfaction.

Hypothesis 4. Economic security variables such as household income and employment status are significant predictors of individual life satisfaction in Europe with less economic security leading to a decline in life satisfaction.

3.4 Social capital correlates of individual life satisfaction

The social capital concept dates back to Bourdieu (1986) and Coleman (1994). Bourdieu defined it as "network(s) of more or less institutionalized relationships", the empirical indicators including social networks, social norms, and social trust (Portela *et al.* 2013). As regards the effect of social capital on national life satisfaction, social trust matters the most (Bjørnskov 2006). Among the three components of social capital, social relations and social trust are the strongest predictors of individual happiness (Portela *et al.* 2013). This study will focus solely upon them. Furthermore, it is not only the number of social relations but their depth and quality that matters most for subjective well-being (Ryan and Deci 2001). Here the caveat of reciprocity needs to be mentioned. Research shows that it is unclear whether higher social capital contributes to higher well – being or vice versa (Diener *et al.* 1999). For example, it was shown that satisfied people have more social relations and higher levels of trust than unsatisfied people (Veenhoven and Jonkers 1984).

3.4.1 Social networks

Extended social networks that last a lifetime refer to relations with family and friends, neighbours, participation in the community, membership in organizations, and volunteering. Membership in voluntary associations is correlated with higher well-being for those who do it but it also has "spillover" effects for the nation with high rates of volunteering (Helliwell 2003). The number of friends and, more importantly, the strength and depth of these connections has been seen to be largely significant in enhancing subjective well-being (Ryan and Deci 2001, Haller and Hadler 2004). The frequency of social activities and meetings with friends, as well as intimacy in relations with others, all form a social isolation indicator that, in conjunction with cohabitation status and social trust, are used in this project to account for the social capital factor.

3.4.2 Social trust

In this study social trust is divided into two factors - interpersonal trust and trust in institutions. Both of these covariates significantly predict individual life satisfaction in research to date (Helliwell 2003, Portela et al. 2013). As mentioned in Chapter 2, some researchers state that the happiest people are those who live in countries with low levels of corruption and well-functioning democracies but not necessarily the richest (Helliwell 2003). Following the literature on levels of social capital in Europe, three clusters are established: high social capital in Belgium, Denmark, Finland, France, Germany, Ireland, the Netherlands, Norway, Sweden, Switzerland, and the UK; medium social capital in Cyprus, Estonia, Greece, Romania, Slovakia, Slovenia, and Spain, and low social capital in Bulgaria, Hungary, Poland, Portugal, the Czech Republic, Russia, and Ukraine (Portela *et al.* 2013). The indicators for this distinction include institutional and social trust, political and social networks, and civic-social engagement. The typology is helpful when examining the effect of social capital on individual life satisfaction in times of economic recession. Helliwell *et al.* (2014) examined the relationship between social capital and economic crisis in the US, concluding that high levels of trust and social capital help to deal with the crisis more effectively and contribute to maintaining higher levels of happiness. Similar research in the European context is needed to compare the findings with the American example.

Hypothesis 5. Social capital significantly predicts individual life satisfaction with greater social capital leading to the rise of life satisfaction in Europe.

3.5 Social demographic correlates of individual life satisfaction

3.5.1 Gender

Gender differences in happiness are a disputable issue, with different research pointing to contradictory findings. Some find no significant differences between the sexes even though women admit more instances of negative feelings (Fujita *et al.* 1991), but other studies attribute higher well –being to women than men (Haller and Hadler 2006). Nolen-Hoeksema and Rusting (1999) found that, although women tend to have higher level of happiness than men, they also experience more symptoms of depression and negative moods owing to being socialized to express more emotional feeling and to develop internalized coping strategies. On the other hand, Haring *et al.* (1984) cite men as significantly happier than women but with gender accounting for only 1% of the variance in subjective well-being. The matter remains unresolved and what seems to be at the heart of the dispute is the context of the study and the role gender plays.

In employment research women's happiness does not suffer as much as men's when economic conditions deteriorate (Clark 2003). However, an important observation needs to be made, especially in the context of economic recessions. It is often men who are the first hit by rising unemployment and the loss of income which are both prominent features of economic crises. However, in the long run it is actually women who bear the burden of recession owing to austerity measures that limit social and childcare benefits, loss of employment in downsizing companies, and reductions of salary in debt- stricken economies. The theory known as 'he-crisis she-austerity' focuses upon the different time-lapse of the consequences that economic crisis represents for the two genders (Karamessini and Rubery 2013).

3.5.2 Age

The differences between various age groups in well-being studies have been confirmed. Most studies, beginning with the pioneering work of Blanchflower and Oswald (2008), conclude that happiness follows a U-trajectory over the life span (Frey

and Stutzer 2002a, Helliwell 2003). This means that we are happiest in our youth and at the end of life, while middle age is the most difficult in terms of achieved satisfaction (Blanchflower and Oswald 2008). Triandis (2000) restates Campbell et al. (1976), arguing that, while young people score high on the well-being scale owing to being optimistic and full of aspirations, older people also score highly on the well-being scale reflecting on the fact that they have achieved their aspirations or become reconciled to not achieving (at least some of) them. It seems that people in middle age (around 40) are still in the process of acquiring the status, goods, or fulfilment they dreamt of when they were younger but are not yet at the point where they can evaluate it. They are also the age group that works the hardest to support the family and they themselves see little benefit yet. Therefore, age matters for life satisfaction but it is not the only factor that affects it.

3.5.3 Health

Another very important feature for life satisfaction is health, more importantly, good health (Ryan and Deci 2001, Helliwell 2003). It is one of the priorities on Cantril's ladder of needs, being mentioned the most by respondents of his pioneering research (Cantril 1965). Other research confirms that deteriorating health status is paired with decreasing happiness. And even though cancer sufferers or victims of accidents seem to recover their levels of happiness after some time, they do not often achieve the levels they knew before the accident or illness (Diener *et al.* 2006).

3.5.4 Education

As with gender, education level generates contradictory findings in the literature. In some studies it is a significant variable for life satisfaction (Bonini 2008) while in others it is only relevant as a predictor of future income and job status rather than being significant in its own right (Helliwell 2003).

3.5.5 Marital status

Married people are considered to be the happiest among other groups such as never married, divorced, and widowed, the effect being pronounced for both men and women (Helliwell 2003). However, the gap between the happiness of single and married people tends to diminish in the US which can be explained by the growing

number of cohabiting people and the rising number of marriages for people with histories of divorce (Diener *et al.* 1999). Cohabitation is in fact on the rise in most Western societies and is thought to have a positive impact on subjective well-being, particularly for women since they are not subjected to the same gender roles and expectations as in marriage (Lee and Ono 2012). Diener *et al.* (2000) found that significant differences between cohabiting and married couples have existed in collectivist cultures but not in the individualist cultures prevailing in the West. This finding has an important implication for the current project since the study is focused upon Europe only. Hence the variable 'marital status' will be replaced by 'living with partner', combining both married and cohabiting people, which should not provide different results for life satisfaction than the marital status indicator alone.

Methodology

3.6 Key variables

The data taken from the ESS measures life satisfaction by asking the question: All things considered, how satisfied are you with your life as a whole nowadays? The scale runs from 0 to 10 where 0 denotes 'extremely dissatisfied' and 10 denotes 'extremely satisfied' (European Social Survey 2012). The ESS collects the data biannually with the first round beginning in 2002 and the last in 2012. As a result, six waves of the survey will be used in the analysis of 24 European countries but not all countries took part consistently in each wave of the survey. Country participation in the survey and sample size is listed in Table 6 in the Appendix.

Key explanatory variables are detailed in Table 7 in the Appendix but here I set out a quick overview. As detailed in Table 8 in Appendix, employment status and household income were recoded to cluster the categories that are relevant to the project. In the case of household income, transformations were also necessary to account for different scales of income used in rounds 1 to 3 and 4 to 6 of ESS. In the first three rounds the income variable had specified monetary categories that were universal for all the countries. Essentially, this resulted in skewed distribution of income in some countries since the mean household income in Bulgaria is not the same as in Switzerland. Therefore, in further rounds income variable was created by asking about

the “household's total income, after tax and compulsory deductions, from all sources?”, the answers divided into 10 income ranges, each corresponding broadly to deciles of the actual household income range in each country. In order to compare incomes among all six waves, the variable had to be unified in respect to the categories of income. Hence the household income variable from rounds 1-3 was transformed using user-created syntax (Talk Stats 2014). First, the values for lower and upper cut-off points were defined, then values between the upper and lower cut offs were grouped into deciles for each country and round of the survey. This resulted in an income variable with 10 categories that were later recoded into separate variables. Finally, these ten categories of income were grouped to create five levels of household income used in the project.

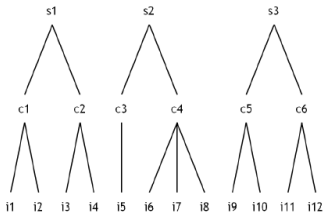
The social trust score was calculated by adding the scores for three variables measuring interpersonal trust asking the questions: “most people can be trusted or you can't be too careful”; “most people try to take advantage of you, or try to be fair”; “most of the time people are helpful or mostly looking out for themselves”, and then dividing by the number of variables, that is, three. The social relations score was captured by the transformation of two variables asking: “how often do you meet socially with friends, relatives or colleagues?”(sociability) and “do you have anyone to discuss intimate and personal matters with?” (social inclusion). These questions take account of the frequency (quantity) and intensity (quality) of social interactions with more intimate and frequent social relations resulting in a higher score on this factor. In order to create the social relations score, the “ sociability” answers were multiplied by two if the respondent answered ‘yes’ to the “social inclusion” question, resulting in scores from 1 to 14. Next, the binary value of social relations was assigned to respondents, resulting in scores on combined variables ranging from 1 to 4 that were described as “isolated”, while respondents with answers 5 and higher were assigned a “not isolated” category. In practice, the first value – “isolated” - refers to people who either socialize up to “several times a month” but do not have intimate confidants, or have intimate confidants but socialize once a month or less (syntax by D. Bartram 2014).

Among the macro variables, the economic and social factors were taken from the ESS multilevel dataset (ESS Multilevel Data 2014). This data was collated from the main economic social databases such as Eurostat and the United Nations. When recent data was not available from the ESS, it was added using the original source used by the researchers. Per capita GDP PPP was described in Chapter 2 as well as the GDP growth rate that reflects the percentage change in economic growth as compared to the previous year. The unemployment rate reflects total unemployment among adults age 15-74 years old and is measured as a percentage of the whole population. Indicators of institutional aggregate safety and trust are defined by national homicide rate and public perception of corruption that are also described in Chapter 2.

3.7 Data structure

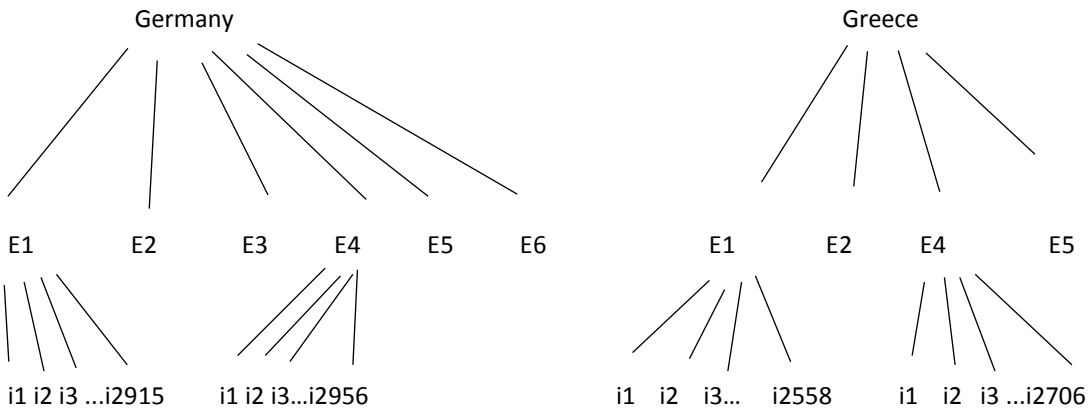
The dataset contains three levels, that is, individuals, wave of the survey (wave), and country. Graphic illustration of the dataset in Figure 27 refers to the three hierarchies that structure the sample.

Figure 27 Unit diagram for the three-level data.



Following Figure 27, the exemplary graph for individual countries in the sample appears as in Figure 28.

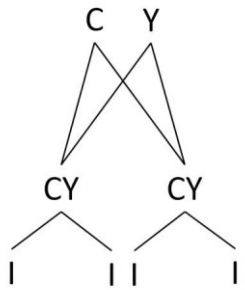
Figure 28 Exemplary unit diagrams for three-level data from ESS.



The data is hierarchical as each unit belongs to only one higher unit – there are no cross- interactions between the units at each level, i.e. there are no individuals who took part in different waves of the survey or undertook the survey in different countries. Additionally, the data in the sample is unbalanced as the number of individuals in each ESS round for each country is different. For example, in Germany the data is unbalanced on level 2 as the number of individuals per country-year varies across years. Moreover, the data is also unbalanced on level 3 as the number of waves in each country-wave varies across countries (see Table 6 in the Appendix).

This simple structure is complicated by the fact that the data is cross-sectional since, for each wave in each country, a different set of individuals was selected following cluster sampling. The lowest level consists of individuals who are nested within ESS rounds which in turn are located within each country (Fig. 29). Therefore, more precise description of the data that follows Schmidt-Catran and Fairbrother (2015) states that individuals are nested within 132 country-waves, and country –waves are cross-classified in 24 countries and in six ESS waves. This is the most complex model which may have convergence problems. Therefore, another structure may be more feasible to apply in the context of this study.

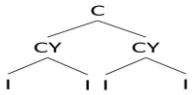
Figure 29 Classification diagram for the most complex three-level data structure.



The less complex structure (Fig. 30) still represents a three-level model but the country-waves are nested within countries only because: “each state-year is a single observation of a state that is observed many times” (Fairbrother and Martin 2013). Individuals are also still nested within country-waves as each individual is observed in one specific country at one specific time. In the ideal case, the most complex model

(Fig. 29) would be applied to the data but owing to the limitations of the method a less complex model (Fig. 30) can be used.

Figure 30 Classification diagram for a less complex three-level ESS data structure.



Nesting of individuals within country-waves and countries is indicative of the hierarchical structure of the data and requires the use of a method that can account for that. The best choice is a multilevel analysis that accounts for nested structure and enables adequate modelling (Snijders 2011). This method of analysis is gaining more and more popularity in research focusing upon individuals within states. Therefore, as a first step, an empty model is introduced that assesses the need for using a hierarchical structure in the analysis (Table 12).

3.7.1 The unconditional 'empty' model

The unconditional 'empty' model specifies no fixed predictor variables but it enables higher-level units to have random intercepts. As such, the variance attributed to each of the three levels used in the analysis can be calculated. The sequence of the levels in the command means that waves are nested within the countries, being true for the data I use in this project. It is the most basic model with specified random simultaneous effects for country and wave without any predictors.

Table 12 Unconditional models with two (M1 and M2) and three (M3) levels.

	Model 1	**Model 2**	**Model 3**
Coefficient (SE)	6.712***(0.212)	6.767***(0.052)	6.716*** (0.212)
	Random		
Between-country variance σ_v^2	1.08 (N=24)	-	1.073 (N=24)
Between-wave within-country variance σ_u^2	-	0.016 (N=6)	0.056 (N=132)
Between-individuals within country-wave variance σ_e^2	4.522	5.521	4.473
Likelihood ratio	552693.6	-577980	-551466
Chi^2	51221.48***	648.59***	53676.75***
LR two vs. three levels	2455.27***	53028.16***	

*** p<0.001, N*i*= 254242

Model 3 is fitted to 132 waves nested within 24 countries and the number of individuals per country ranges from 4,382 to 17,415 across all waves, while the number of individuals per country - wave ranges from 995 to 3,027. The total number of respondents is 254,242 individuals. In the three-level model the intercept is 6.716 with a standard error of 0.212. As a result, the average individual is predicted to score 6.716 out of 10 on the life satisfaction scale. Between- country variance is estimated at 1.073, while within-country-between- waves variance is 0.0566. Within- wave - between-individuals variance is estimated at 4.473. The between-country variance σ_v^2measures the differences between countries which endure over time (i.e. across waves), while within-country between-wave variance σ_u^2 measures the two- year difference in life satisfaction scores. The individual variance σ_e^2measures how variable individuals are within their country -waves. (Leckie 2013a, p. 13).

Based on the Chi square statistics, this more complex model (Model 3) is preferable to the simpler model as the likelihood ratio test statistics comparing the current model to the single-level model without country and wave effects reports a p-value of zero (chi2 = 53676.75, p<0.001). This shows that the three-level model offers a significantly better fit with the data than the single-level model. As such, I conclude that individuals in the sample do not act as independent observers, but rather they are clustered by countries and waves.

Comparisons of the three-level model with more simple two-level models, individuals –within-countries (chi2 = 2455.27, p<0.001) in Model 1 and individuals-within- waves (chi2 =53028.16, p<0.001) in Model 2 confirm that both the country variance and wave variance are each significant. But the more complex three-level model is still preferable over the two-level models. Therefore, individuals living in the same country are significantly more alike in their life satisfaction scores than individuals living in different countries. Similarly, people interviewed in the same country- waves are significantly more similar in their life satisfaction responses than people interviewed in different country- waves. Therefore, individual life satisfaction scores vary significantly across countries and across waves. It is worth noting here that the simpler models assess the variance separately for each unit, i.e. variance among waves is measured for all countries together hence the number of units here is six (N=6).

Variance among countries is measured for all waves of the survey conducted in each nation (N=24) as in the more complex model because waves are nested within each country in the dataset. Hence the three-level model is also preferred over the two-level models since it accounts for nesting of the waves of the survey within each country, which results in 24 countries but 132 country-waves.

3.7.1.1 The Variance Partition Coefficient

The variance partition coefficient (VPC) relates to the variance that can be attributed to each unit of the analysis: "reporting the proportion of the observed response variation that lies at each level of the model hierarchy" (Leckie 2013b, p. 21). It helps to identify the relative importance of each unit of analysis as a source of variation. In the case of my research it is the importance of countries, waves and individuals as the sources of variation in individual life satisfaction scores. The equations for the VPC for country (v), waves (u), and individuals (e) are as follows:

$$VPC_v = \sigma_v^2 / \sigma_v^2 + \sigma_u^2 + \sigma_e^2$$

$$VPC_u = \sigma_u^2 / \sigma_v^2 + \sigma_u^2 + \sigma_e^2$$

$$VPC_e = \sigma_e^2 / \sigma_v^2 + \sigma_u^2 + \sigma_e^2$$

The analysis conducted on the 'empty' model reveals that the highest VPC of life satisfaction scores can be attributed to the individual level variable equalling 80% (high), then to country characteristics with almost 19% variance (medium), and finally to the time variation between ESS rounds at 1% (very small). Therefore, there is a substantial variation between countries but relatively little variation between country-waves.

Based on the VPC calculations, we see that 19% of the variation in life satisfaction scores lies between countries, 1% lies within countries between different country-waves, while the remaining 80% lies within country- waves between individuals. This means that there is a substantial variation between countries but relatively little variation from one country- wave to the next. In addition, more than three- quarters of the response variation is attributable to the individuals themselves.

In summary, the VPC shows that there are moderate levels of data clustering between countries and relatively high levels between ESS rounds in my sample. Country -level differences in life satisfaction are medium but wave- level differences are very small. However, the model with three-levels was significantly preferred to the single -level model and to the two-level model, either with country or waves. These scores suggest that changes over time measured by ESS round variables can be treated as fixed in the more complex models while the spatial unit -country should be treated as random.

3.7.1.2 Intraclass Correlation

Intraclass correlation statistics measure: "the expected degree of similarity (or homogeneity) between responses within a given cluster (e.g. country)" (Leckie 2013a, p. 20). Equations for ICC are as follows:

$$ICC_v = \sigma_v^2 / \sigma_v^2 + \sigma_u^2 + \sigma_e^2$$

$$ICC_u = \sigma_v^2 + \sigma_u^2 / \sigma_v^2 + \sigma_u^2 + \sigma_e^2$$

$$ICC_e = \sigma_v^2 + \sigma_u^2 + \sigma_e^2 / \sigma_v^2 + \sigma_u^2 + \sigma_e^2 = 0$$

The country- level ICC is the correlation between two individuals from the same country but from different waves. Hence in this model the country ICC coincides with the country VPC. Individual ICC between two people from different countries and different waves is assumed to be 0 (see the equation) while the country ICC is 0.191 and the country - wave ICC is 0.201. Thus the life satisfaction scores of two people in the same country but from different waves are somewhat correlated, while the satisfaction scores of two people from the same country and the same wave are somewhat more correlated. In other words, people from the same country are similar in their satisfaction scores, while people from the same country- wave are even more similar in their SWB scores. As Leckie (2013a, p.20) states: "the greater the difference between the countries, the more similar individuals will appear within their countries." People living in the same country at the same time (essround) score slightly more similarly on the life satisfaction scale than people living in the adjacent (neighbouring, meaning the next or previous) country-wave (Leckie 2013a, p. 25). This means that around 19% of variation in life satisfaction comes from between countries and there is

no match correlation owing to international shocks such as a global recession. It also means that the rest of the variation, around 80%, comes from within countries.

3.7.1.3 Correlations between waves within countries:

$$Corr\left(v_k + u_{jk}, v'_k + u'_{jk}\right) = \sigma_v^2 / \sigma_v^2 + \sigma_u^2 = 1.073/1.073 + 0.0567 = 0.65$$

The estimated correlation is 0.65 which means that countries scoring high on SWB for one wave tend to score moderately high on SWB for other waves. Country performance on life satisfaction seems to be moderately stable over time. But Leckie (2013a) states that the model follows an unrealistic assumption that the correlation between two country- waves is the same regardless of how far apart the waves are in time, but in reality the further they are, the weaker the correlation. This correlation provides an estimate of the stability of national life satisfaction scores over time.

3.7.1.4 Predicting country and wave effects

In a single- level model, a single set of residuals is assigned to the individual-level unit. In a multilevel setting the residuals are called' group effects' and are assumed to follow normal distribution. The estimates for higher units are called empirical Bayes estimates or shrunken residuals since they derive from the total residual v_k+u_j+e_{ijk} that is separated into estimates for v_k, u_j, and e_{ijk} (Steele 2008a, p.10). The estimates are then ranked in order to reveal the lowest and highest performing cases within each unit. As a result of this ranking, with a score of -2.219, Ukraine is predicted to be the lowest scoring country while Denmark, with a score of 1.737, is predicted to be the highest scoring country on the life satisfaction scale (Table 13). The difference between the lowest and the highest countries is around four points which is fairly sizeable given that the life satisfaction scale ranges from 0 to 10. It is important to note that this comparison is cross-sectional as it compiles data across all ESS rounds and compares life satisfaction scores between countries.

Table 13 Rankings for Bayes estimates of life satisfaction by country.

Rank	Country	Country effect	Country SE
1	UA	-2.219	0.108
2	BG	-2.177	0.121
3	RU	-1.220	0.120
4	HU	-1.156	0.099
5	PT	-0.998	0.099
6	GR	-0.634	0.120
7	SK	-0.510	0.108
8	EE	-0.479	0.108
9	FR	-0.395	0.099
10	CZ	-0.294	0.108
11	PL	-0.096	0.099
12	SI	0.168	0.099
13	DE	0.225	0.098
14	GB	0.378	0.098
15	CY	0.397	0.122
16	IE	0.437	0.099
17	ES	0.441	0.099
18	BE	0.693	0.099
19	NL	0.886	0.099
20	SE	1.124	0.099
21	NO	1.130	0.099
22	FI	1.252	0.099
23	CH	1.311	0.099
24	DK	1.737	0.099

The range of life satisfaction across different rounds varies from -0.13 for the fourth wave to 0.0931 for the fifth wave (Table 14). In other words, surveys from 2008 are predicted to have the lowest scores on life satisfaction across all countries, while the surveys from 2010 are predicted to have the highest life satisfaction scores across all countries in the sample. The difference between the extreme waves is 0.2, which is very small given that the life satisfaction scale ranges from 0 to 10. The comparison looks at change over time but it adds data for all the countries hence it does not

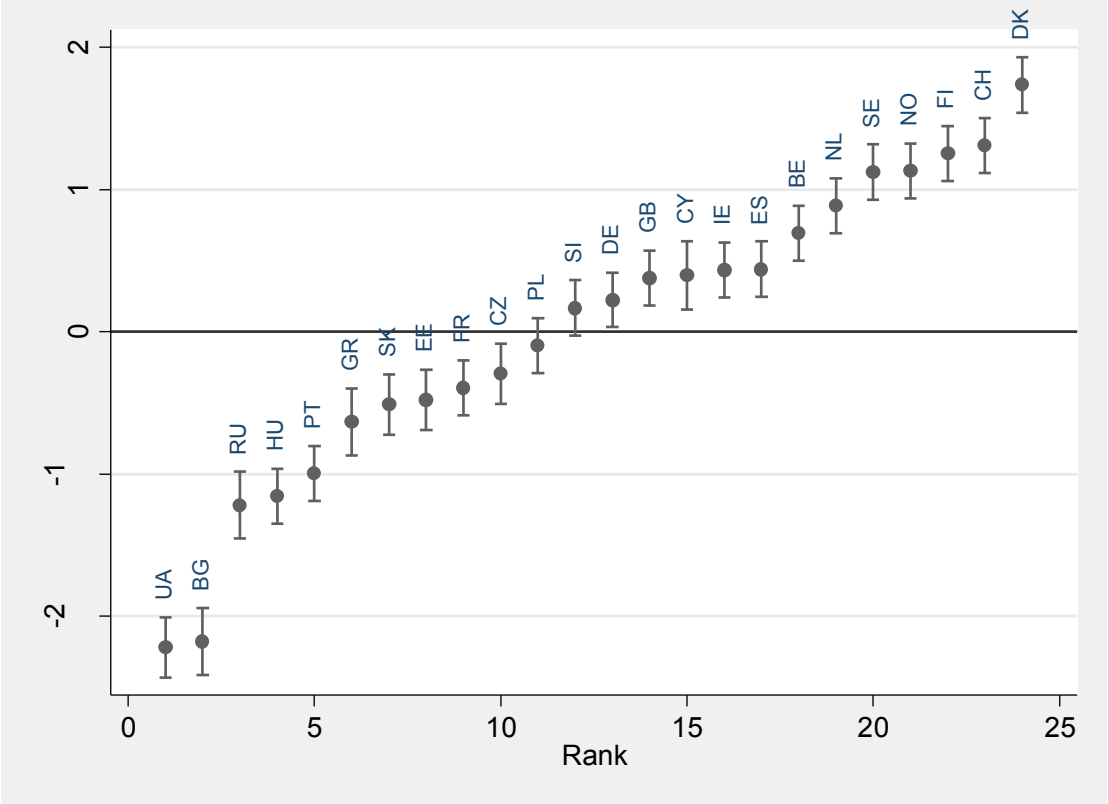
distinguish between how life satisfaction scores are predicted to change over time within a particular country.

Table 14 Rankings for Bayes estimates of life satisfaction by year.

Rank	Year	ESS round effect	ESS round SE
1	2008	-0.1307	0.106683
2	2006	-3.5E-05	0.10652
3	2004	0.021172	0.106593
4	2012	0.025722	0.106238
5	2002	0.027209	0.106187
6	2010	0.093188	0.106911

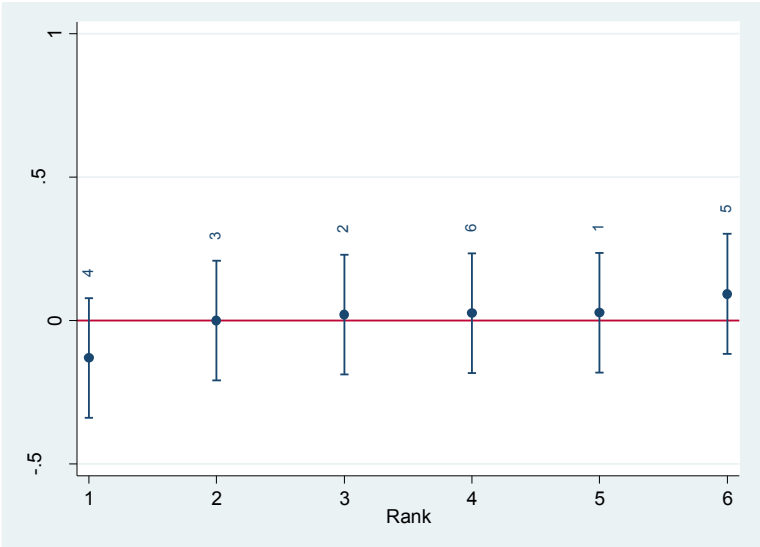
In order to examine the magnitude of country effects, and to see how many countries differ significantly from the average country, the 'caterpillar plot' is presented in Figure 31. The average country with mean life satisfaction is represented by the horizontal line. The countries where the confidence intervals do not cross it are those that significantly differ from mean life satisfaction. In my sample, 22 out of 24 countries differ significantly from the average. Ten countries score significantly lower on life satisfaction and 12 countries score higher than the average. The direction of scores ranges from Ukraine scoring the lowest to Denmark scoring the highest on life satisfaction, which is significantly different from the average country at 5% level. The residuals also show 95% confidence intervals whose width depends upon the standard error of the country's residual estimate which is inversely related to the sample size (Steele 2008a, p. 12). Here the intervals are of similar widths since the sample size was large and similar in the countries across all ESS rounds.

Figure 31 Plot for the country position against average national life satisfaction.



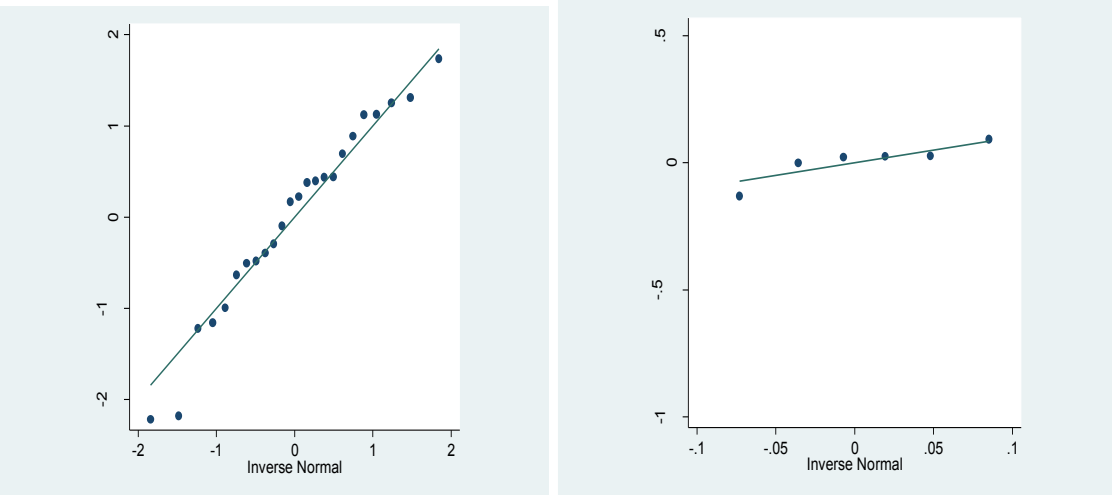
The same is plotted for the ESS round effect. Because the 95% confidence intervals for wave unit overlap the average line for all years from 2002 to 2012, this suggests that life satisfaction scores across different ESS waves do not differ significantly from average yearly life satisfaction across all countries (Fig. 32).

Figure 32 Plot for the wave (year) position against average year life satisfaction.



Creating a graph for the estimates confirms that they are normally distributed, which fulfils one of the assumptions of regression modelling (Fig. 33).

Figure 33 Distribution of separate random effects for country and wave (year).



3.7.1.5 Centring time variable

In order to establish 0 level to which results from previous and later rounds can be compared centring at round 4 in 2008 is performed for ESS round variable. This process does not seem to alter substantially the results of the model, but it helps to explain the results and to compare it to the baseline. The coding is as follows:

Rounds	Centring	Year
1	-3	2002
2	-2	2004
3	-1	2006
4	0	2008
5	1	2010
6	2	2012

3.7.1.6 Random slopes model

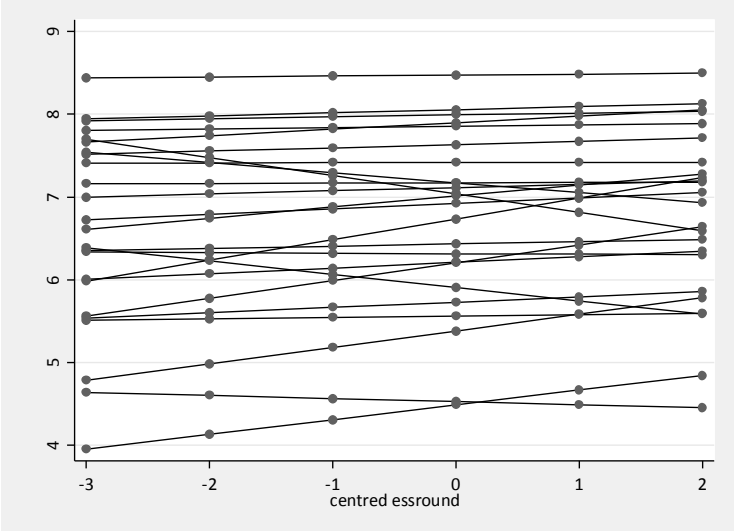
Following this procedure, I fit an empty model with random slopes for the centred time variable and random intercepts for countries. The results show that the intercept variance is 1.11 and the slope variance is 0.012. Covariance between the intercept and the slope is -0.02. Testing for random slope using the likelihood ratio reveals that there

is very strong evidence that the time effect differs across countries (LR = 2 (551792.61 – (-552588.39)) = -1591. 56 on 2 d.f.).

The time effect for country j is estimated as 0.038 + u_{1j}, and between-country variance in these slopes is estimated as 0.012. Hence, for the average country, I predict an increase of 0.038 points in the satisfaction score for every two successive years. The 95% coverage (confidence) interval for the country slopes is estimated as 0.038+-1.96√0.012 = -0.18 to 0.25. Thus, assuming normal distribution, I would expect the middle 95% of countries to have a slope between -0.18 and 0.25. As the value range includes 0, I cannot be 95% confident that the country time slope is non-zero. The intercept variance of 1.11 is interpreted as the between-country variance when time =0, i.e. for 2008.

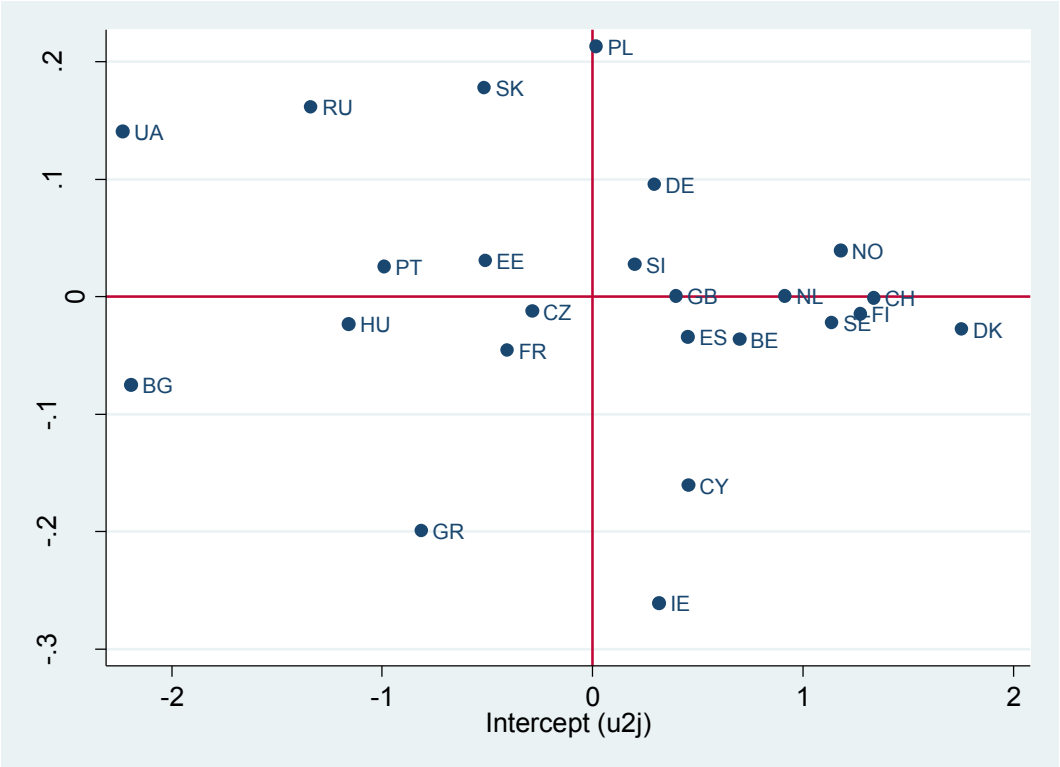
Countries with high intercept (above average life satisfaction in 2008) tend to have a flatter than average slope owing to the negative covariance estimate of -0.02. Similarly, countries with a low intercept (below average life satisfaction in 2008) tend to have seen a more marked change in satisfaction with time (above-average-slope). The random slope model implies that the between-country variance in life satisfaction is a function of time. It means that the amount of between-country variance differs over time (Fig. 34). Effectively, this graph estimates the regression line in each country.

Figure 34 Plot of centred time and predicted life satisfaction (random slopes and intercepts).



Another plot identifies predicted life satisfaction scores over time, taking into account their current life satisfaction levels (Fig. 35). Firstly, the top left quadrant shows countries with lower than average LS in 2008 but a better than average two- year improvement, while the bottom-left quadrant shows countries with a lower than average LS score in 2008 and lower than average slopes, meaning that they continued at the low level. On the other hand, the top- right quadrant shows countries with higher than average LS in 2008 and better than average two- year improvement, but the bottom –right shows countries with higher than average LS in 2008 but lower than average two- year improvement. Overall, the number of countries with high life satisfaction and a faster than average rate of improvement is the smallest, with most countries still recording high levels of satisfaction but slower improvements. Ten countries with lower than average happiness are divided equally among those where life satisfaction improved faster than average and those that have stalled. Worth noticing is the observation that more countries have higher than average life satisfaction (14) and among those where it is lower than average, five are improving at a faster than average rate.

Figure 35 Scatter plot of country slopes versus country intercepts.



In addition, based on the level -2 variance calculations, the variation in life satisfaction decreased over time among countries:

$$Var\left(u_{0j} + u_{1j}x_{ij}\right) = \sigma_{u0}^2 + 2\sigma_{u01}x_{ij} + \sigma_{u1}^2 x_{ij}^2$$

Thus the equation: between-country variance = 1.11-0.4cessround+0.12essround2

Cessround	Year	Between-country variance
-2	2004	1.11 – (0.4 x -2) + [0.12 x (-2)2] =1.11 – (-0.8)+(0.12 x4)=2.39
0	2008	1.11
2	2012	1.11 – (0.4 x2) +[0.12x(2)2]=1.11-0.8+0.48= 0.79

Based on the calculations, we see that over time countries became more similar in their life satisfaction scores as the variance decreased from 1.11 in 2008 to 0.79 in 2012. In 2004 the variation in life satisfaction between countries reached 2.39 which is more than twice as much as in 2008. This calculation suggests that satisfaction levels in Europe were becoming more homogenized as the economy loomed.

3.7.1.7 Summary

In sum, VPC and ICC statistics show that the majority of variation in individual life satisfaction lies at the individual level (80%) and there is a moderate degree of clustering at the country level in my sample. The variation in subjective well-being between ESS rounds is minimal at 1% while that between countries reaches a medium level of 19%. The model with three levels - country, country- wave, and individual - is still preferred over the simpler models with only one or two levels, but small -wave variance suggests that this unit should be treated as fixed while the higher unit country should be treated as random. Estimates that predict group effects indicate that in the majority of countries in the sample individual life satisfaction is significantly different than in the average country, but across different waves there are no significant differences from the average wave. These findings confirm that the variation in individual life satisfaction lies mostly at the country level rather than the wave level, but these effects have been estimated separately.

Adding random slopes to the model confirms minimal changes in life satisfaction over time across countries but it nevertheless indicates that time effects differ across countries. For countries with higher than average satisfaction, the rate of change is slower than for those with lower than average satisfaction. Most countries have higher than average satisfaction, even though most do not manage to alter at a faster than average rate. Among those that score lower than average on life satisfaction, only five show slower than average change over time. Finally, over time countries became more homogeneous in their life satisfaction score with between-country variance diminishing from 2.39 in 2004 to 1.11 in 2008 and 0.79 in 2012. The highest decrease is for the years 2004-2008, that is, in the run-up to recession.

3.7.2 Regression analysis

Based on recommendations by Bryan and Jenkins (2013) regarding sample size in hierarchical models, I will implement a simple yet robust method that will provide reliable estimators for both individual and country-level predictors. Following Habibov and Afandi (2015), I will use pooled ordinary least squares regression with clustered standard errors (OLS CLSE) to account for the cross-sectional time –series of the data. This method will also enable the standard errors to be calculated based on the aggregate scores for 24 countries since these country -level scores should be independent (UCLA 2016). It is possible that when there is a very small number of clusters compared to the overall sample size, then standard errors could be larger than the OLS results. However, the size of the coefficients should not change dramatically and the estimates should remain reliable since the nested structure of the data is accounted for.

Results

3.8 Descriptive statistics

Descriptive statistics of independent variables show that large discrepancies between countries are still present in Europe (tables 15 and 16). Regarding the composition of the sample, the average age in the whole sample is 47- years- old and the ratio of women to men is 54% across all nations. The unemployed consist of 8% of the sample in Bulgaria and 1.7% in Switzerland with an average of 4% across all countries. The

economically inactive variable includes unemployed people not looking for work, the sick or disabled, those in military or community service, and those doing housework and bringing up children, making up on average of 13% of the sample. The highest ratio of economically inactive at over 20% is present in Ireland, the Netherlands, Spain, and Greece. The lowest, with less than 7.5%, is present in the Scandinavian nations: Finland, Sweden, and Denmark. The retired and people in education (and other, i.e. unspecified) make up on average 34% of the sample across all nations with the lowest percentage in the Netherlands (27%) and the highest in Ukraine and Slovenia (over 41%). Around 60% of respondents live with their partner/spouse and the ratio ranges from 48% in Russia to 67% in Denmark.

As regards employment status, comparison of the average scores in each life satisfaction trend cluster points to substantial differences between them. In the rising LS groups unemployment affects, on average, 3.3 % while in the sample with declining happiness this rate is almost twice as high with 6%. Similarly, economic inactivity reaches 19% in the declining LS sample, while in the other two clusters they reach around 11%. On the other hand, the percentage of students and retired people is higher in rising and flat LS groups with 35%, while in the declining sample this number is 29%.

Table 15 Descriptive statistics for categorical explanatory variables (%).

Country	Female	Cohabiting	Work	Unemployment	Economic inactivity	Other (in education and retirement)
			RISING LS TREND			
SK	57.15	59.92	47.78	5.49	10.83	35.9
PL	51.97	59.06	45.49	4.83	11	38.68
DE	50	61.9	48.06	4.65	13.06	34.23
UA	62.63	54.22	39.97	4.14	13.95	41.95
NO	47.62	65.56	61.57	1.88	9.99	26.56
RU	60.24	48.12	52.79	2.33	9.46	35.43
SI	53.74	59.77	43.65	3.37	11.78	41.19
NL	55.08	60.73	49.25	1.8	21.95	27
FI	51.68	62.31	50.97	3	6.3	39.72

GB	55.18	52.76	49.53	3.34	14.4	32.74
EE	58.2	55.1	51.41	3.37	8.47	36.76
CH	52.93	57.93	56.03	1.67	14.48	27.81
CZ	51.58	55.64	50.32	3.42	9.63	36.63
DK	50.01	66.97	56.93	2.97	7.36	32.74
AVERAGE	**54.14**	**58.57**	**50.27**	**3.3**	**11.62**	**34.81**
			DECLINING LS TREND			
IE	54.19	54.96	44.57	6.5	23.25	25.69
CY	53.17	66.32	51.57	4.19	18.08	26.15
GR	56	60.08	43.03	5.18	20.42	31.37
ES	51.54	60.46	49.24	5.94	20.51	24.31
BG	57.4	60.82	41.25	8.13	14.19	36.43
AVERAGE	**54.46**	**60.528**	**45.932**	**5.988**	**19.29**	**28.79**
			FLAT LS TREND			
FR	54.14	59.55	49.67	4.34	9.52	36.46
SE	49.93	63.22	58.16	3.07	6.14	32.63
PT	60.25	58.64	42.18	5.44	13.36	39.01
HU	55.17	57.07	43.89	4.05	14.05	38
BE	51.09	62.07	48.9	3.16	15.88	32.06
AVERAGE	**54.12**	**60.11**	**48.56**	**4.01**	**11.79**	**35.63**

*Statistics are calculated per country across all years 2002-2012 as a % according to LS trends identified in Chapter 1

Among social capital variables, higher average scores of institutional and social trust are again recorded in the rising and flat LS clusters with 4.7 and 5 points respectively. In the declining LS group these scores are lower with 4.2 and 4.4. Because the rising LS sample consists of few post-communist nations that historically have very low levels of trust, then is it necessary to compare regional trust scores in Europe. These regions have different historical and economic heritages, a factor which can be useful in explaining varying happiness trends in Europe. The lowest levels of institutional trust in governments, the police, and legal systems are found in post- communist countries (on average 3.5) whilst in Scandinavia and Switzerland they are the highest (on average 6.2). The discrepancy ranges from 2.36 in Ukraine to 6. 71 in Denmark, that is, an almost threefold difference. Scores for aggregate social trust (trust in other people) range from 3.6 in Greece to 6.78 in Denmark, being almost a twofold increase. But

they are less dispersed among countries with lower scores, oscillating mostly around 4.4 in post-communist nations while around 6.3 in Scandinavia.

Sociability score measured by having friends and someone to share intimate matters is the most equally distributed among the three LS clusters. The higher the sociability score, the more intimate or frequent social relations are. In the sample this score ranges from 9 in the declining LS group to 9.7 in the flat LS trend group. This suggests that individuals in flat LS group form more or deeper social networks than in declining groups, which contradicts the stereotype of sociable Mediterranean nations that make up the declining LS cluster. A quick inspection of regional differences shows that countries that score the highest (over 10) on sociability in the sample belong to very different regions and consist of some Mediterranean (Portugal, Spain) and some Scandinavian (Norway, Denmark, Sweden) nations, as well as Switzerland and the Netherlands. The lower end of the scale consists of the post-communist nations Hungary, Poland, and Estonia as well as Greece and Cyprus from the Mediterranean region.

Table 16 Descriptive statistics for continuous explanatory variables (mean).

Country	Age	Self-rated health	Sociability score	Institutional trust score	Social trust score
			RISING LS TREND		
SK	45.75	2.33	9.11	3.7	4.3
PL	43.68	2.4	8.18	3.51	4.1
DE	47.25	2.34	9.46	5.09	5.21
UA	46.61	2.88	8.61	2.36	4.26
NO	45.63	1.97	11.01	6.05	6.56
RU	43.66	2.74	8.6	3.46	4.45
SI	46.07	2.4	8.88	3.87	4.51
NL	46.99	2.14	10.54	5.54	5.87
FI	47.6	2.19	9.87	6.41	6.37
GB	46.67	2.04	9.7	4.81	5.53
EE	47.81	2.59	8.36	4.6	5.37
CH	46.18	1.86	10.31	5.99	5.87
CZ	45.31	2.26	8.59	3.69	4.66
DK	47.96	1.91	10.45	6.71	6.78
AVERAGE			**9.405**	**4.699**	**5.27**

DECLINING LS TREND					
IE	44.38	1.76	9.26	4.8	5.76
CY	45.65	1.83	8.31	4.91	4.14
GR	46.02	1.82	7.7	4.23	3.6
ES	45.83	2.29	10.47	4.51	4.95
BG	50.02	2.36	9.12	2.44	3.66
AVERAGE			**8.972**	**4.178**	**4.422**
FLAT LS TREND					
FR	46.56	2.22	9.92	4.59	4.9
SE	46.97	1.97	10.42	5.8	6.27
PT	48.72	2.53	11.16	3.65	4.22
HU	46.86	2.57	7.21	4.05	4.49
BE	45.79	2.05	9.87	4.93	5.11
AVERAGE			**9.716**	**4.604**	**4.998**

* Statistics are calculated per country across all years 2002-2012 according to LS trends identified in Chapter 1

3.9 Regression analysis

The results of pooled ordinary least squares regression with clustered standard errors (OLS CLSE) at the country level are reported in Table 17. Here the dependant variable is individual life satisfaction measured using the whole sample of 24 countries across all years and correlated with national indicators in a first step, then expanded including individual level variables. This sequence of analysis helps to build on findings already observed in Chapter 2 when national life satisfaction was a dependent variable.

Per capita GDP PPP, the GDP growth rate, and the corruption rate were positively correlated with individual life satisfaction (Model 5 in Table 17). A point change in log p/c GDP PPP increased life satisfaction of 1.190 point, in a national corruption score of 0.239, and in GDP growth rate of 0.081 point. The results suggest that the level of national wealth is not the only factor that matters for individual well-being, but also its growth rate. Furthermore, perceived institutional transparency is related to self-evaluations of life satisfaction. Compared with 2012, in previous years of the survey as, apart from 2002, life satisfaction scores were lower. In 2006 life satisfaction scores were -0.521 lower than after the crisis in 2012, while in 2004 they were -0.372 lower.

Following the beginning of the economic crisis of 2008, the scores of self-reported well- being started to recover slowly with -0.294 and -0.207 in 2008 and 2010 respectively, as compared with 2012. The results of the year covariates suggest that once the shock of the recession had passed, individual life satisfaction began to recover slowly. The Model explains the 15% of variation in individual life satisfaction in the sample.

Table 17 Pooled OLS CLSE of individual life satisfaction and country covariates.

Variables	**Model 5**	
	B(SE)	
Constant	-6.988**	(-2.44)
Log p/c GDP PPP	1.190***	(-0.23)
GDP growth rate	0.081**	(-0.03)
Unemployment rate	0.005	(-0.02)
Corruption score	0.239***	(-0.05)
Crime rate	-0.016	(-0.03)
Year reference category = 2012		
2002	-0.168	(-0.11)
2004	-0.372*	(-0.14)
2006	-0.521**	(-0.16)
2008	-0.294*	(-0.13)
2010	-0.207*	(-0.1)
R squared	0.15	
N clusters	24	
N observations	156,563	

* p<0.05, ** p<0.01, *** p<0.001

Adding individual- level indicators to the analysis resulted in national wealth measured in log p/c GDP PPP losing its significance for individual life satisfaction (Model 6 in table 18). The positive impact of the corruption score halved, but nevertheless remained significant and positive with 0.120 of a point. Similarly, GDP growth rate remained significant to life satisfaction with an almost unchanged coefficient size of 0.079. The new results suggest that when individual level variables are taken into account in the self-assessment of life satisfaction, the level of national wealth measured in per capita GDP PPP is no longer important, but its growth rate is at almost

the same level. In addition, individual covariates of SWB including trust in other people and in public institutions are more relevant to evaluating life satisfaction than the aggregate measure of the trust - corruption score, since its importance diminished by 50%.

Table 18 Pooled OLS CLSE of individual life satisfaction and country and individual-level covariates.

Variables	**Model 6**	
	B(SE)	
Constant	0.159	(-2.68)
Log p/c GDP PPP	0.456	(-0.25)
GDP growth rate	0.079**	(-0.03)
Unemployment rate	0.014	(-0.02)
Corruption score	0.120***	(-0.03)
Crime rate	-0.03	(-0.02)
Gender reference category = male		
Female	0.112***	(-0.02)
Age reference category = 14-24		
Age 25 -34	-0.278***	(-0.04)
Age 35-44	-0.439***	(-0.07)
Age 45-54	-0.434***	(-0.07)
Age 55-64	-0.225*	(-0.09)
Age > 65	0.123	(-0.1)
Health	-0.544***	(-0.03)
Education	0.011	(-0.01)
Cohabitation status reference category = cohabiting		
Not cohabiting	-0.437***	(-0.03)
Employment status reference category = in paid work		
Unemployed *ref cat: work*	-0.908***	(-0.07)
Economically inactive	-0.099**	(-0.03)
Other	0.124***	(-0.02)
Household income reference category = household income quintile 1		
Household income quintile 2	0.243***	(-0.03)
Household income quintile 3	0.361***	(-0.04)
Household income quintile 4	0.476***	(-0.05)
Household income quintile 5	0.597***	(-0.06)

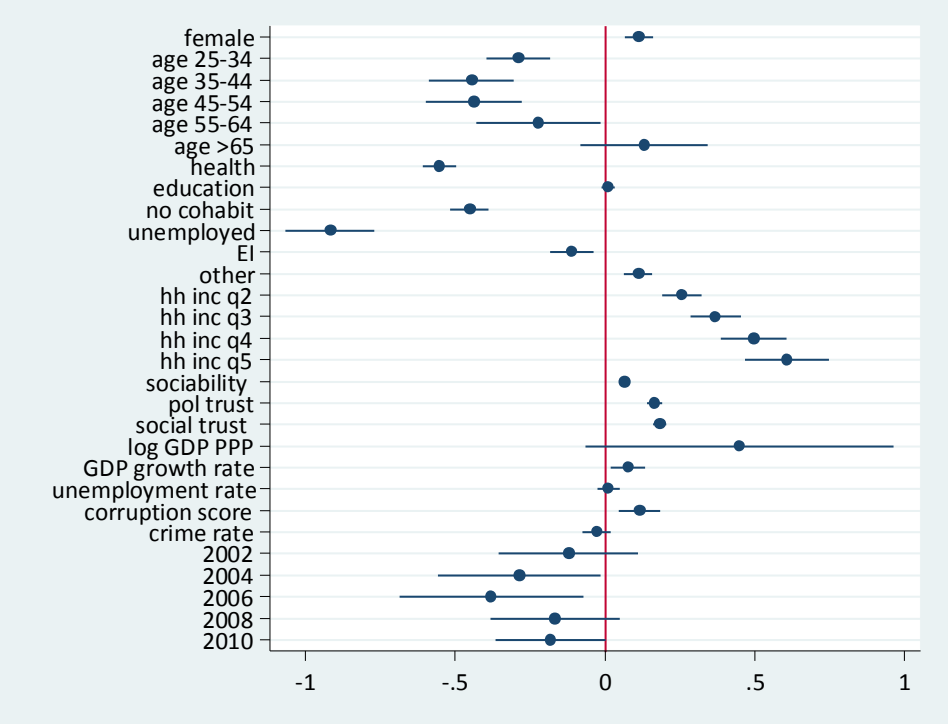
Sociability	0.066***	(-0.01)
Trust in institutions	0.164***	(-0.01)
Social trust	0.178***	(-0.01)
Year reference category = 2012		
2002	-0.107	(-0.11)
2004	-0.291*	(-0.13)
2006	-0.377*	(-0.15)
2008	-0.161	(-0.1)
2010	-0.182	(-0.09)
R squared	0.32	
N clusters	24	
N observations	156,563	

* p<0.05, ** p<0.01, *** p<0.001

Among the individual level variables, unemployment, bad health, and living without a partner/spouse negatively correlate with life satisfaction (-0.908, -0.544 and -0.437 respectively). Relative income is positively correlated with life satisfaction among people who earn more who are being subsequently happier than for those who earn less (from 0.243 in quintile 2 to 0.597 in quintile 5 as compared with the lowest quintile). Women are slightly happier than men with 0.112 but as people get older they become less satisfied with life, with the lowest levels of satisfaction being between 45-54 years old. In addition, no U-shape is observed in the sample as the results for people over 65 are not significant. Education is not a significant predictor of life satisfaction. People who are economically inactive are slightly less satisfied than the working group (-0.099) but the "other" category (retired and students) are happier in comparison with the reference category of 0.124. Trust in other people and in institutions positively contributes to life satisfaction with 0.178 and 0.164 respectively, and having friends is also positively associated with increased life satisfaction although the size of the coefficient is much lower with 0.066. Among years from 2002 to 2012, interestingly, life satisfaction was significantly lower only in 2004 and 2006 as compared with 2012. The coefficient was the highest in 2006, just before the beginning of the economic crisis, which is the same result as in Model 5. However, in comparison with Model 5 without the individual- level covariates, the significant negative effect of years 2008 and 2010 disappeared. This suggests that it was the

lead- up to the recession that took the highest toll on well-being. Once the crisis set in and the shock of the recession passed, it does not seem to be a significant actor in evaluating individual well-being. Altogether the factors explain 32% of variation in life satisfaction scores across Europe, which is a twofold increase in comparison with the model without individual- level variables.

Figure 36 Plotted regression coefficients for Model 6 with 95% CIs.



Discussion

This chapter asked: What are the factors that help to predict individual life satisfaction scores in Europe? It focused especially upon economic security, social capital, and country context. The second question asked if these factors explain the variation that exists in happiness trends in Europe in the new millennium. This aim was achieved in reference to the first research question and partially for the second one.

Regarding the first research question, the hypothesized groups of variables had a significant relationship with individual life satisfaction. The results concerning the importance of economic security to life satisfaction formulated as Hypothesis 4 are in accordance with the literature in the field about the significance of income and the detrimental effect of unemployment on life satisfaction (Clark and Oswald 1994,

Winkelmann and Winkelmann 1998). The novelty of my findings lies in assessing this adverse effect for people who are economically inactive. They could be affected by the recession that undermined the feeling of financial security in Europe. I will test this hypothesis in Chapter 4 where financial distress variables will be modelled. The importance of social capital to happiness formulated as Hypothesis 5 was confirmed. This is in accordance with the findings of Helliwell *et al.* (2014) who examined the group of European countries most affected by the 2008 recession that corresponds to the composition of the declining LS cluster in my project. In addition, the positive correlation between perceived corruption and well-being confirmed the findings of Rodríguez-Pose and Maslauskaite (2012), Abbott and Wallace (2014) and Habibov and Afandi (2015) in the transitional countries, and those of Abbott and Wallace (2012) in the rest of Europe.

Regarding the second research question, the results of the analysis were partially successful in explaining existing life satisfaction variations in Europe. Employment variables, whose levels in different LS clusters were analysed, showed significant influence on SWB, which was confirmed by the regression model. The highest difference in scores was observed between the declining LS cluster and the two other groups in which frequencies were quite similar. More specifically, unemployment status and economic inactivity was much higher in the countries where life satisfaction declined over time, their contribution to life satisfaction being significantly negative in the analysis. Conversely, the "other" employment status including people in education and retirees was positively correlated with life satisfaction showing the lowest frequency in the declining LS group, while it was around 20% higher in the other two LS clusters. The average scores for social capital variables that are positively correlated with well-being show a similar pattern. The scores were lower in the declining LS cluster, and higher and more levelled out in the other two clusters of rising and flat life satisfaction. Hence both factors - economic security and social capital - are helpful to explain variations in life satisfaction trends in Europe from 2002 to 2012. However, the context of the 2008 recession enables us to understand the results as in the course of its duration Europe became a less stable economy, which could lead to shifting the importance of factors during life satisfaction evaluations. As such, it is also important

to consider the effect of other economic variables that may moderate and influence these findings further. The rationale and results of this attempt will be presented in Chapter 4.

Conclusion

In cconclusion, this chapter established significant correlates of individual life satisfaction. Social capital, measured by trust in other people and in institutions as well as the presence of social networks, was an important contributor to life satisfaction. Joblessness was one of the most important inhibitors of life satisfaction together with economic inactivity .

In reference to the analysis of the sample, certain limitations need to be addressed. As the data is collected over time in different countries there is a certain amount of information missing. First of all, not all countries participated in all waves of the survey which resulted in an unbalanced panel. Secondly, missing information regarding household income and employment status was also mainly present in some countries for certain years (FR, EE, HU), which diminished the size of the sample. This difference could have an impact on the analysis and influence the results.

IV Moderators of the income-life satisfaction relationship

Introduction

Findings from the previous chapter point to similarities in life satisfaction covariates in 24 European countries, despite different trajectories of happiness that they display over time. Three different trends - rising, stagnant, and declining - were confirmed in Europe between 2002 and 2012. The majority of the countries recorded growth in well-being over time with 14 countries representing different levels of national wealth, type of social policy, location in the European region, and the degree to which they were affected by recession. Flat and declining LS clusters comprised five nations each but again they all differed in respect to the aforementioned factors. The results from the previous chapter also point to the stable influence of social capital unharmed by the current economic crisis. It confirms the results of the study by Helliwell *et al.* (2014) who examined nations in Europe affected the most by the 2008 recession. Finally, country context was relevant to life satisfaction only as regards corruption levels and GDP growth rate.

Owing to the period under inspection - 2002 to 2012 - major political and economic events need to be accounted for in the analysis. And since the study sample consists of nations from each region of Europe, two major events occurring between 2002 and 2012 need to be discussed when assessing life satisfaction trends in Europe. The first is the enlargement of the EU that took place in 2004 and 2007, resulting in the post-communist nations and Cyprus joining the EU (Poland, Slovakia, Czech Republic, Slovenia, Estonia, Hungary, and Bulgaria among many). The second event is a global crisis that began in 2007-2008 and badly affected Greece, Spain, Ireland, Portugal and Cyprus, but also changed the economic and social policy landscape in the rest of Europe and the world. These two events played a major role in shaping life satisfaction trends during the time they occurred. They help us to understand the influence of not only individual and national-level factors that affect subjective well-being, but also international factors affecting people living in an increasingly more connected global world.

These events are related mainly to the economy and finance, that is, the main spheres of transformation in the 2000s. The changes in Europe in the 1990s were also economic as Eastern Europe revolted against the communist system and joined the capitalist societies of the West in the quest for wealth, development, and growth. But that decade was also marked by increasing freedoms in the political, civil, and cultural spheres tied to growing social capital in the post-communist nations. This left its mark in terms of increased social and institutional trust, establishing a democratic political system and allowing for freedom of expression in journalism, art, and culture, areas in the past heavily censored by the state and its oppressive communist ideology. The 2000s began with well-established freedoms in all aspects of public and private life. Hence the main focus became growth and the establishment of economic security in large parts of Europe that not so long ago had faced poverty and lack of financial development.

The accession of post-communist nations to the EU in 2004 contributed to the improved rate of employment owing to the free movement of workers across the EU, hence increasing income. This event also improved the general wealth of the new member states as they received subsidies and investment from the EU and companies trading with it. However, economic recession led to lessening stability in the financial sphere, threatening income security in most developed economies around the world. These contradictory consequences of such differing international events can be helpful in explaining different life satisfaction trends recorded in Europe between 2002 and 2012. Therefore, this chapter will add new factors to the analysis in Chapter 3 in order to explain variations in happiness trends in Europe.

Research question

The importance of economic security was confirmed in the previous chapter and pointed to the importance of secure employment and income for well-being. Earning more money was paired with an increase in life satisfaction as compared with the lowest income group. The aim of this chapter is to look for the underlying factors that mediate the relationship between life satisfaction and income over time. They may be useful in explaining the variation in happiness trends on the European continent. As

discussed in the introduction, the undisputed influence of EU enlargement and global recession needs to be accounted for. Since economy has proven to be so fragile since 2008, it is only fitting to limit the pool of factors that may mediate the wealth-satisfaction relationship to those connected to financial stability.

The relationship between income and life satisfaction has been puzzling researchers for a long time. The debate over this relationship is far from conclusive and so further research is needed. Since aggregate indicators are by definition an average of national factors, the correlation between them and life satisfaction does not give enough meaningful information about the state of well-being of individuals in Chapter 2. Hence further analysis in Chapter 3 looked in more detail at factors contributing to individual happiness, taking into account both the personal and national characteristics that determine it. Its results did not provide complete answers to the variation in happiness trends in Europe either. However, analysis there directed the research towards another angle that analyses latent factors moderating the relationship between other, more overt, variables. Hence this chapter asks: What factors associated with income moderate the relationship between wealth and life satisfaction in European countries? Two independent contenders will be examined more closely here, taking into account the context of economic crisis, that is, motivation in the social comparison of relative income and financial distress.

4.1 The economic crisis of 2008

Rising unemployment and debts, lack of financial security, and national bankruptcies all have a major impact on people's lives and challenge customary ways of thinking embedded for a long time. Crises can have a positive effect and enforce long-needed change. The role of the current crisis cannot be undermined as it has steered national governments in a new direction and contributed towards:

- starting a discussion about happiness, its definition and meaning for individuals
- drafting multidisciplinary plans to measure happiness (or its broader term: 'subjective well-being') in a more coherent and organized way at national and international levels
- reflecting on economic growth that occurred around the world and critically

evaluating its positive and negative effects on individuals and their well-being

- showing cultural differences between countries in Europe when handling problems in national finance and generally responding to the global crisis.

In order to better understand the economic context for life satisfaction findings, Table 19 presents the degrees of crisis in the countries in the sample. The first column shows countries that faced severe financial difficulties and asked European banks for a loan in order to overcome them. In some cases, they openly declared bankruptcy (GR, IR) while in others they were on the verge of bankruptcy (PT, SP, CY). The next column lists countries that were in recession, their governments often acknowledging it openly. In all the countries, appropriate policies that helped to steer them towards rapid recovery and avoid drowning in deeper crisis were quickly drafted. The next group of countries was in borderline recession but through expedient and efficient government action they managed to avoid it. Finally, the last group consists of nations largely unscathed by the financial crisis which were mere observers of events unveiling in the rest of Europe (Laeven and Valencia 2013).

Table 19 The degree of recent banking crisis in European countries.

Bankruptcy	**Crisis**	**Borderline of crisis**	**Not affected**
GR	UK	FR	FI
IE	BE	HU	NO
PT	NL	RU	PL
ES	DK	SI	CZE
CY	DE	SE	SK
	UA	CH	EE
			BG

Source: Laeven & Valencia 2013.

Out of the bankrupt countries, four belong to the declining LS cluster identified in Chapter 1 (GR, IE, ES, and CY), while PT is placed in the flat LS cluster. In the nations where crisis was recorded, the majority are placed in the rising LS cluster, with the exception of BE belonging to a stable well-being cluster. Countries on the borderline of crisis are split between those with flat LS trends (FR, HU, and SE), and those with rising LS (RU, SI, CH). The group of countries where crisis was not observed belong almost

entirely to the rising LS cluster, with the exception of BG recording a decline in LS over time. Hence it can be noted that extreme impact of the 2008 economic recession or the lack of it align with a strong connection with declining or rising life satisfaction trends. On the other hand, the looming danger of crisis seems to be paired with stable or even rising life satisfaction over time, while the mere presence of recession in a nation does not interrupt rising subjective well-being. Therefore, the event of recession may not in itself be a factor that influences the life satisfaction trajectory, but the extreme dimension of it can.

The 2008 recession is the first time in history when it is possible to conduct consistent surveys of subjective well-being with new developments happening all the time. Some observers even predicted new economic lows that have yet to occur in many countries. Similarly, while it was possible to trace past economic downturns up to the 14th century (Reinhart & Rogoff 2008b), accounts of people who experienced them were not investigated and recorded. This is not surprising as interest in subjective well-being measures began only 50 years ago. My project helps to fill this gap. Crisis can lead us to re-evaluate current policies, regulations, dominant values, methods of doing things, and ways of thinking about the world and ourselves. It offers this possibility as it makes people stop and think about fundamental issues affecting their lives. Therefore, measuring subjective well-being levels in Europe during the 2008 recession and investigating ways in which variables mediate it can help to shed light on satisfaction trends in Europe. Furthermore, it can explain the reasons for its relative stability or change identified by different researchers in the field.

4.1.1 The historic view and its implications for the present

A panoramic view of crises in Europe going back to the 14th century composed by Reinhart and Rogoff (2008b) shows that periods of relative economic lull are usually followed by default periods during which most of the world's emerging economies experienced financial problems. From the beginning of the 19th century, the authors listed five major international defaults each lasting approximately 20 years when sometimes half of the world's countries were in default (during the crisis of the 1820s and Great Depression of the 1930s).

Among European countries, Spain defaulted a record 14 times from the 16th until the 19th century, followed by Portugal and France with nine defaults, and Germany and Austria - Hungary with eight. However, Greece has spent over 50% of its existence as an independent state in default, counting five episodes of default since its independence in 1829 (see Table 20).

Table 20 European countries in financial default since the Fifteenth century.

Country	Number of defaults	First and last default dates	Share of years (%) in defaults since independence or 1800
Spain	**14**	1557 - 1882	23.7
Portugal	9	1560 - 1890	10.6
France	9	1558 - 1812	0.0
Germany	8	1683 - 1939	13.0
Austria- Hungary	8	1796 - 1941	37.1 HU, 17.4 AU
Greece	5	1826 - 1932	**50.6**
Russia	5	1839 - 1998	39.1
Poland	3	1936 - 1981	32.6
Romania	3	1933 - 1986	23.3

Source: Reinhart & Rogoff 2008b

Differences in dates of default are the result of European politics and territorial conquests spanning centuries, creating different political entities, notably Austria – Hungary from 1867 until 1918, and the annexation of Poland by Russia, Germany, and Austria – Hungary until 1918. In short, serial defaults have occurred in Europe since the beginning of the 16th century as new markets emerged in the economic arena. Similar situation took place also in Asia, Latin America, and Africa (Reinhart and Rogoff 2008b).

What is important to learn from this historic perspective of economic crises in Europe is that, first of all, economic recessions are a stable trait of global market functioning and are often preceded by periods of economic stability. This has also been the case in the 2008 crisis as the 1990s were described as the Golden Age of stability in developed countries (Goodhart 2008). Unfortunately, these periods of lull give rise to a deluded sense of security, resulting in under- rating risk and overspending, leading inevitably to another crisis. Furthermore, in many cases business ties between countries result in

spreading financial problems to the rest of the continent, as in the cases of Spain and France until 1800, or Austria- Hungary until the 20th century. As the development of global trade continued, the Great Depression affected most of the developed countries in the world – nine in Europe, as well as emerging markets in China, India, Brazil, Argentina, and Mexico (Reinhart and Rogoff 2008c). The 2008 crisis spread even more widely around the globe owing to the increased financial domination of the United States.

Finally, some European countries have very extensive experience of recessions, notably Spain, Portugal, and Greece which, coincidentally, are suffering from the 2008 recession the most as well. It may seem that the protective umbrella of the EU assisted them to achieve a period of relative stability and modernization since they joined in the 1980s (1986 for Portugal and Spain, and 1981 for Greece). However, the emergence of deep financial problems only 30 years later suggests that efficient and scrutinized economic governance has to be implemented by central governments through its policies and cannot be externally co-ordinated by international bodies such as the EU, especially in cases of 'serial offenders' from southern Europe. After World War II only a few countries, mainly from the communist bloc, suffered from sovereign defaults, suggesting that European economies moved towards stabilization and economic prosperity where standards of living were on the rise, macroeconomic policies secured controlled growth, and countries co-operated with each other in order to strengthen trade.

4.2 Relative income as a moderator between income and life satisfaction

4.2.1 Relative income and motivational orientation

Income is one of the main determinates of life satisfaction, with higher income being associated with higher subjective well-being (Frey and Stutzer 2002a, Frijters *et al.* 2004, Radcliff 2013). Both absolute and relative income play an important role in self-assessments of happiness with some authors arguing that relative income plays a more prominent role in this process (Senik 2005, Frey and Stutzer 2010). In addition, income distribution, referred to most commonly as income inequality, is an influential factor in subjective perception research. Subjective point of view posits that a gap

between one's own income and that of the relevant other is a source of comparison directly correlated with subjective well-being (Senik 2008). Similarly, the distribution of aggregate income usually measured by the Gini coefficient is associated with national life satisfaction (Rözer and Kraaykamp 2013), although in my project individual income comparisons are investigated.

Cross- country research shows that, as regards income, most specifically relative income, the same variable has either positive or negative effects depending upon the motivation driving people. Study by Caporale *et al.* (2009) found that both absolute and relative income significantly contributed to life satisfaction, with absolute income displaying a positive correlation and reference income exerting a negative influence on life satisfaction in 19 European countries. However, when the sample was separated into different regions relative income was positively correlated with a variable representing CEE countries. But it had the most negative impact on life satisfaction in Southern Europe and the least, albeit still negative, in Scandinavia. These tendencies can be mediated by the influence of the state and its welfare policies.

The authors hypothesized the confirmation of the so-called 'tunnel effect' when in negative or uncertain situations any positive signs of progress among others are interpreted as indicators of one's own future improvement. Their findings agree with Senik (2008) who postulated that ambition (seeking information) and not jealousy (comparing with others) could be a driving force in uncertain and more income-mobile economies, for example in Central Eastern Europe (see Table 21). The term 'tunnel' refers to a two-way tunnel that the author of the concept, Albert Hirschman, uses as a metaphor to illustrate tolerance of income inequality during periods of economic development (Hirschman and Rothschild 1973). He postulated correctly that since wellbeing rises in accordance with present and future income when the financial situation of others improves, the individual will interpret this a sign of their own future financial improvement and gain gratification from it. It is this initial feeling of gratification that Hirschman dubbed the "tunnel effect".

Similarly, variability in general happiness scores can suit different purposes. Oishi *et al.* (2007) found that very happy people have excellent social relations and are more likely

to volunteer but those with moderate happiness levels perform better in the job market, earn more money, and are more politically active. As such, moderate happiness levels were more optimal for people oriented towards achievement and driven by ambition, while high levels of happiness were connected with values related to maintaining close relationships and volunteering. Hence different well-being levels: of slight dissatisfaction with the current state when the person is only moderately and not completely happy, and of complete contentment facilitate different values-ambition or idealism, involved in high performance in two distinct fields.

These findings support the ambition versus jealousy motivational division in which evaluating information gained from comparing one's own income with that of others can be a source of positive or negative influence on life satisfaction. Moreover, these attitude dispositions can be an indicator of the phase which the country is experiencing at a given moment. Transitory CEE economies put more value on financial attainment and achieving life standards observed in the West while western countries that are already enjoying economic security focus their attention on maintaining and developing relationships (Selezneva 2011). Although the World Bank announced in 2008 that the CEE countries completed their transition to capitalism (Alam 2008), it is still worthwhile to inspect if there was an income attitudes change that moderated subjective well-being evaluations.

Observations gleaned from regional studies about relative income and its influence mediated by motivational disposition in Europe can help to shed light on explanations concerning the Easterlin paradox and contradictory findings for satisfaction trends in European countries. Easterlin postulated that people are on a hedonic treadmill of aspirations that rise with better standards of living. Hence life satisfaction adjusts to an evolving point of reference, resulting in flat happiness trends across long periods of time (Easterlin 2001). However, what needs to be noted in the light of Senik (2008) and Caporale *et al.* (2009) research is that being on such a treadmill can also have a positive effect on subjective well-being if it feeds ambition and is congruent with life goals. This may be another reason why some European countries recorded an increase in subjective well-being following economic growth, feeding their orientation towards success, while in others the happiness trend was flat regardless of economic growth as

they were oriented towards a different goal of comparing themselves with others. This assertion forms the basis of Hypothesis 6 that will be tested in this chapter.

Table 21 Different effects of relative income on life satisfaction in different countries.

Social mobility	**Social comparison**		**Secure economy**
	Information seeking	**Comparing with others**	
High	*Positive influence of reference income on life satisfaction, e.g. CEE*		Low
Low		*Negative influence of reference income on life satisfaction, e.g. NE, WE*	High

Owing to variance in social mobility and economic stability in different countries, the relationship between reference group income and life satisfaction will vary between different regions in Europe.

Hypothesis 6. Based on previous research discussed in this chapter, I hypothesize that in countries where income comparisons focused upon current status as a prevalent motivation, such as western and northern Europe, reference group income has a negative impact on the life satisfaction level. However, in economies that focus upon the informational aspect of reference income, such as CEE nations, life satisfaction scores correlate positively with it. Furthermore, research points to a negative effect of reference income in Southern Europe but the recession of 2008 might have affected this result. The recession led to less economic security, which in turn increases social mobility in economically insecure times. Hence the motivation behind comparing incomes might serve to infer information about one's future progress and lead to a positive influence on life satisfaction in the context of the economic crisis of 2008. This part of the hypothesis is purely exploratory.

To summarize, it was established that social comparison serves two functions that is, seeking information and comparison with others. The independent findings of Senik and Caporale from 2002 and 2004 suggest confirmation of the 'tunnel effect' for CEE countries at least. The recession might have expanded this effect to other countries

but, in order to place the discussion of motivational orientation and its importance for the income-happiness relation in a broader context, social comparison theory needs to be briefly discussed.

4.2.2 Social comparison and security levels

According to Leon Festinger (1954), comparisons with others in similar situations are described by the author as “maximally informative” and the similarity of the situation usually refers to the aspect under evaluation. Schachter (1965) expanded this description, adding that in situations under threat people seek comparisons with others in order to assess the appropriateness of their emotional responses to the threat and provide a rationale for their reactions. Schachter developed the theory by adding other motives in order to explain different directions of comparison with others. He distinguished upward comparisons that serve to increase hope and gain information, identify oneself with those better off and self- improve. On the other hand, downward comparisons led to self-enhancement and increased subjective well-being when comparing one’s position with those worse off. Overall, comparisons with those in similar positions serve the purpose of self-evaluation (Thornton and Arrowood 1966, Wheeler 1966, Taylor and Lobel 1989, Wood 1989).

As suggested by Taylor and Lobel (1989), the three purposes of social comparison, namely self-evaluation, affiliation, and information- seeking were treated as interchangeable in the literature. However, the study of subjects under threat (cancer patients) revealed that they preferred contact with those worse off in order to explicitly evaluate their own situation and enhance their own subjective well-being, while simultaneously they sought contact with those who survived the disease or coped better in order to gain information and increase their motivation and hope. They constantly compared themselves with others in similar situations but where this kind of comparison was not possible, the subjects invented comparison groups referring to a broadly unidentified sample described as “those others” who were not coping well with the disease (Taylor and Lobel 1989, page 572). The authors concluded that patients were seeking upward contacts and downward evaluations in order to cope with a threatening situation.

The sample in the above study was limited to cancer patients who were in a particularly threatening position. This means that the findings of Taylor and Lobel (1989) cannot be generalized to those in other difficult circumstances. But it would be useful to broaden the pool of situations that can be classified as threatening. Most dangerous health conditions would surely be in this category, but other life events such as unemployment, divorce, or economic crisis can be understood as putting individuals in a vulnerable position in which the rule of seeking "upward contacts and downward evaluations" can be confirmed. It has already been shown that unemployed people report higher life satisfaction in areas where joblessness is prevalent than in areas with low unemployment rates, and when unemployment is common among peers that serve as a reference group (Clark and Oswald 1994, Anderson 2009). Similarly, married people are happier in societies with higher religiosity that promote marriage and offer greater institutional and social support, married women being significantly happier there than those who merely cohabit with their partner (Lee and Ono 2012).

Social comparison encourages subjectivity as people can respond to their emotional and cognitive needs by seeking information from reference groups especially when objective information is scarce, and the choice of reference group plays a particular role here. Depending upon the motivation behind comparing oneself with others, people can infer different information from their reference group in order to achieve the results they want. The most common point of reference are those in a similar position with whom we share common environments or backgrounds, for example, work colleagues occupying similar positions in a company, neighbours, or college peers. But when people wish to raise their subjective well-being then they actively seek comparisons with others worse off, while they turn towards those who succeeded and are better off so they can identify with them and feel closer to achieving their own goals.

Methodology

4.3 Variables

Reference group income

The creation of the reference group variable followed the example of Caporale *et al* (2009). It resulted in the creation of the reference income category for people who are from the same country, the same year of the survey, gender, education, and age group five years younger and five years older than the individual. This approach is frequently used in the literature that studies the importance of relative income and reference groups (McBride 2001, Ferrer-i-Carbonell 2005). The detailed steps taken in the creation of reference income implement suggestions made by Gould (2015) and consist of creating in the first step an age reference group called 'cohort of people' that are five years older and younger. The second step is to create reference income, which is a mean of household incomes of those that come from the same *country x year*, are of the same gender, and represent similar levels of education (international ISCED97 classification). Then they also share the same 'cohort group'. This is then modelled as an explanatory variable in order to test its correlation with the dependent variable. Note that the reference group is created using individual specifications but the comparison is made using household rather than individual income. Despite some researchers pointing to the necessity of comparing only individual incomes when testing motivation orientation across groups (Senik 2008), other researchers successfully use household income when assessing the importance of reference income to life satisfaction (Ferrer-i-Carbonell 2005, Caporale *et al.* 2009).

Results

4.3.1 Descriptive statistics

Reference group income oscillates around the medium of income scale (which ranges from 1 to 10 as discussed in Chapter 3) and shows some tendencies to change over time (Table 22). In most countries the level of reference group income fell over time, especially following the global recessions of 2008 and 2010. Large reductions took place in all five countries affected strongly by recession (CY, ES, GR, IE, and PT). However, reference income increased from 2002 to 2012 in 11 countries in the

sample. Countries that maintained relatively stable levels of reference income over time, such as the Czech Republic and Germany, recorded a significant dip at the beginning of the recession in 2008. Owing to the nature of the variable, which is directly linked with household income, these trends in reference group income are predictable and conform to the overall economic situation in Europe that affected wealth on both the individual and national level.

Table 22 Mean of reference income by country and year.

Country	1	2	3	4	5	6	Change 2012-2002
				RISING LS TREND			
SK		5.4	5.53		6.09	5.26	-0.14
PL	5.42	5.22	5.47	6.34	5.08	5.14	-0.28
DE	5.56	5.37	5.24	4.59	5.35	5.4	-0.16
UA				4.27	4.43	4.6	0.33
NO	5.57	5.65	5.57	6.56	5.05	5.32	-0.25
RU			5.53	4.86	5.34	6.36	0.83
SI	5.5	5.34	5.22	5.05	4.65	4.59	-0.91
NL	5.54	5.54	5.53	6.04	5.53	5.9	0.36
FI	5.35	5.42	5.38	5.77	5.42	5.85	0.5
GB	5.41	5.49	5.43	5.3	4.9	5.08	-0.33
EE				5.99	5.61	5.8	-0.19
CH	5.33	5.47	5.43	5.38	5.62	5.41	0.08
CZ	5.54	5.57		3.37	5.34	5.77	0.23
DK	5.5	5.41	5.4	5.87	5.88	5.87	0.37
AVERAGE	**5.47**	**5.44**	**5.43**	**5.34**	**5.31**	**5.45**	**0.031**
				DECLINING LS TREND			
IE		5.51	5.52	4.52	3.24	3.87	-1.64
CY			5.52		4	3.76	-1.76
GR	5.59	5.6		5.68	4.45		-1.14
ES	5.45	5.23	5.32	4.81	5.14	4.4	-1.05
BG			5.55		4.17	4.4	4.4
AVERAGE	**5.52**	**5.45**	**5.48**	**5**	**4.2**	**4.1**	**-0.238**
				FLAT LS TREND			
FR		5.47	5.54	5.81	4.65	6.07	0.6
SE	5.4	5.41	5.28	6.84	6.12	6.06	0.66

PT	5.6	5.59	5.63	4.18		3.4	-2.2
HU		5.8		5.12	4.99	5.2	-0.6
BE	5.41	5.41	5.47	7.5	5.96	5.63	0.22
AVERAGE	**5.47**	**5.54**	**5.48**	**5.89**	**5.43**	**5.27**	**-0.264**

4.3.2 Regression analysis

The importance of reference group income to life satisfaction is tested in two stages, first on its own to verify if it contributes independently to individual well-being, and second in interaction with European regions following the 'tunnel hypothesis' confirmed independently by Senik (2008) and Caporale *et al.* (2009) for CEE nations in the 1990s and at the beginning of the millennium. But my project will extend their analysis to later years to include the context of the financial recession of 2008.
The results of Model 7 in Table 23 show that reference income on its own was not a significant predictor of life satisfaction in the sample of 24 European countries. Assessment of regional differences within Europe can be helpful in expanding this result as can looking at the effect of reference group income on life satisfaction in particular regions following previous literature in the field. In Model 8, splitting the sample into four geographical regions and interacting them with the reference income results in a more detailed and informative analysis.

In Model 8, the reference group income has a significant but negative association with life satisfaction as it relates to the reference category - the north, the coefficient being 0.052. The effect of reference group income is positive and significant in all regions as compared with the reference category. Comparing individual income with reference group income is a source of positive contribution to life satisfaction in the east with a 0.09 coefficient, in the south with 0.056, and the west with 0.042. Model 7 explains a 32.2 % variation in life satisfaction in Europe and Model 8 explains slightly more at 32.6%.

Table 23 Pooled OLS CLSE of individual life satisfaction and reference group income.

Variables	**Model 7**		**Model 8**	
	B(SE)		**B(SE)**	
Constant	-0.204	(-2.74)	-4.032	(-2.86)
Log GDP PPP	0.483	(-0.25)	0.801**	(-0.27)

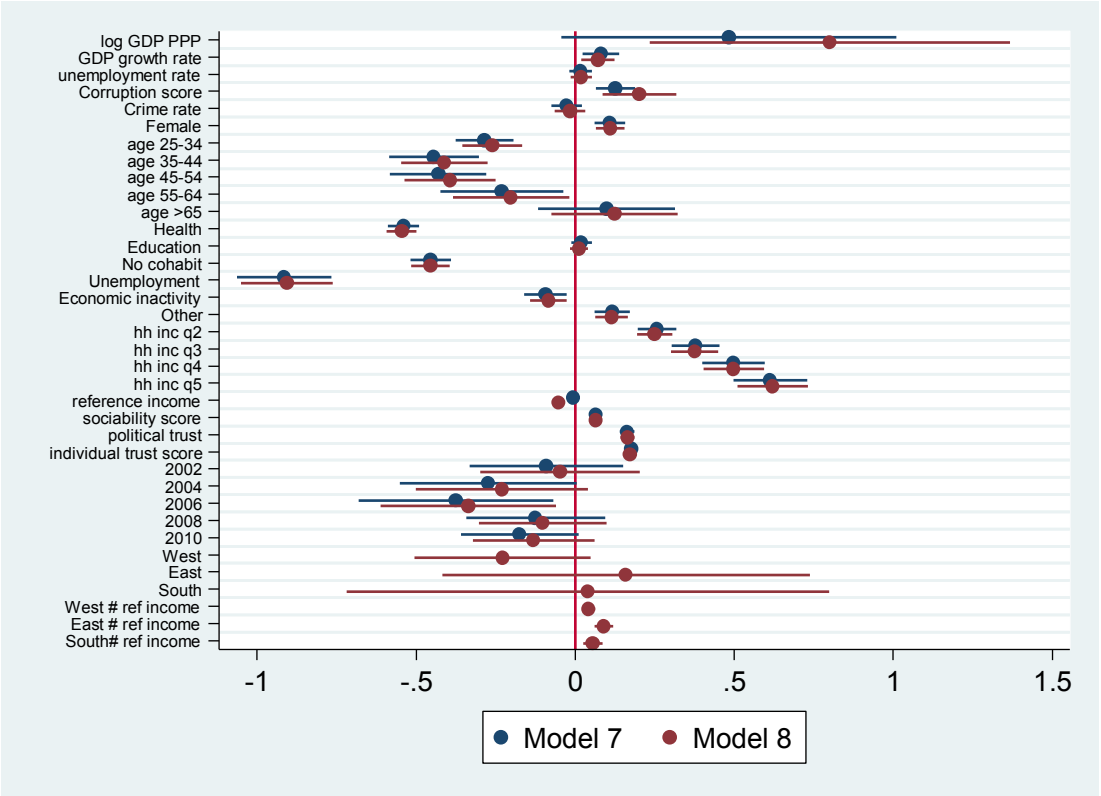
GDP growth rate	0.081**	(-0.03)	0.072*	(-0.03)
Unemployment rate	0.016	(-0.02)	0.019	(-0.02)
Corruption score	0.127***	(-0.03)	0.202**	(-0.06)
Crime rate	-0.027	(-0.02)	-0.016	(-0.02)
Gender reference category = male				
Female	0.110***	(-0.02)	0.110***	(-0.02)
Age reference category = 14-24				
Age 25-34	-0.285***	(-0.04)	-0.261***	(-0.05)
Age 35-44	-0.444***	(-0.07)	-0.411***	(-0.07)
Age 45-54	-0.431***	(-0.07)	-0.393***	(-0.07)
Age 55-64	-0.231*	(-0.09)	-0.202*	(-0.09)
Age > 65	0.098	(-0.1)	0.123	(-0.1)
Health	-0.540***	(-0.02)	-0.546***	(-0.02)
Education	0.02	(-0.02)	0.013	(-0.01)
Cohabitation status reference category = cohabiting				
Not cohabiting	-0.454***	(-0.03)	-0.456***	(-0.03)
Employment status reference category = in paid work				
Unemployed	-0.915***	(-0.07)	-0.906***	(-0.07)
Economically inactive	-0.093**	(-0.03)	-0.084**	(-0.03)
Other	0.117***	(-0.03)	0.115***	(-0.03)
Household income reference category = household income quintile 1				
Household income quintile 2	0.258***	(-0.03)	0.250***	(-0.03)
Household income quintile 3	0.379***	(-0.04)	0.376***	(-0.04)
Household income quintile 4	0.498***	(-0.05)	0.499***	(-0.05)
Household income quintile 5	0.613***	(-0.06)	0.621***	(-0.05)
Sociability score	0.065***	(-0.01)	0.066***	(-0.01)
Political trust	0.163***	(-0.01)	0.165***	(-0.01)
Trust individual	0.176***	(-0.01)	0.173***	(-0.01)
Year reference category = 2012				
2002	-0.091	(-0.12)	-0.047	(-0.12)
2004	-0.273	(-0.13)	-0.23	(-0.13)
2006	-0.375*	(-0.15)	-0.336*	(-0.13)
2008	-0.124	(-0.11)	-0.101	(-0.1)
2010	-0.174	(-0.09)	-0.13	(-0.09)
Reference group household income	-0.006	(-0.01)	-0.052***	(-0.01)
European region reference category = North				
West			-0.228	(-0.13)

East		0.16	(-0.28)
South		0.04	(-0.37)
European region and reference group reference category = North* reference group income (continuous)			
West*reference group income		0.042***	(-0.01)
East*reference group income		0.090***	(-0.01)
South*reference group income		0.056***	(-0.01)
R squared	0.322	0.326	
N clusters	24	24	
N observations	133,286	133,286	

* p<0.05, ** p<0.01, *** p<0.001

In comparison with Model 6 in Chapter 3, the significance of the coefficients associated with life satisfaction has not changed substantially, except national wealth in Model 8. There, log GDP PPP was significantly correlated with individual satisfaction, suggesting that it matters for some regions in Europe but not for all. The size of the coefficients has changed only marginally for some of the significant variables in models 7 and 8 in comparison with Model 6.

Figure 37 Plotted regression coefficients for models 7 and 8 with 95% CIs.



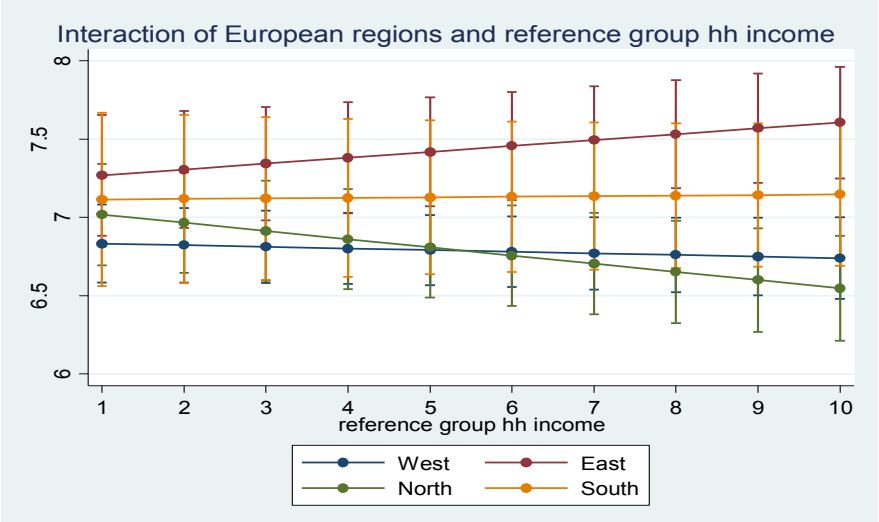
In order to calculate the predicted value of the dependent variable for each level of the categorical variable (in this case the interaction term between European regions and reference group income), the predictive margins need to be calculated. When the interaction term is entered into the regression analysis, the calculation of margins means that for each value of the interaction term (here specified for continuous *reference group income* variable at 1 point interval from 1 to 10 point, and for categorical variable of *region* as West, East, North, and South), the statistical programme calculates what the mean predicted value of the dependent variable would be if all observations had that value for the interaction term variable. All other variables are left unchanged and the mean value of those predictions is reported. Thus in this project, margins analysis asks, what would the mean life satisfaction be if all the people lived in region A and had A reference group income? (but still had their existing age, gender, employment status, etc.). It then asks: What would the mean life satisfaction be if all the people lived in region B and had A reference group income? This question is repeated for all combinations of categorical variables in the interaction term. And so, for four regions in Europe and 10 deciles of reference group income it results in 40 combinations of predicted scores which are then plotted on a XY axis line for ease of interpretation. In order to test the significance of the scores in relation to the variable of interest, confidence intervals set at 95% are also plotted in the graph.

Overall, plotting predictive margins of reference group income for four different regions in Figure 38 helps to assess if there are indeed significant differences between them that confirm the results of the regression analysis. But first the overall assessment of plot line slopes and their direction provides information about the direction of the relationship between reference income and life satisfaction in each of the regions. The downward trend in the north of Europe (green line) is consistent with the findings of regression analysis and confirms the negative relationship between reference income and life satisfaction there. Conversely, the positive effect of reference income to SWB in the east of Europe can be confirmed by the increasing slope of the margin line for this region (red line). Both south and west show a very subtle slope that is almost non-existent, but positive in the south (yellow line) and

negative in the west (blue line). The contribution to predicted life satisfaction arising from comparing income with the reference group is the highest in the east of Europe followed by the south across all levels of reference income. In the north those in lower income bands gain more from reference income than those in the west with similar income, but this relationship changes when the reference income increases. However, the differences between these two regions are not statistically significant.

Furthermore, the plots in Figure 38 show that predicted scores of life satisfaction overlap for most of the regions but only up to the middle point of the reference group income scale at about the 5th decile. Reference group income above the middle point shows non-overlapping confidence intervals for the east and west of Europe as well as for the east and the north from the 6th decile onwards. What these results mean is that for the wealthier groups in the east, west, and north of Europe there are significant differences in the benefit to life satisfaction from comparing one's income with one's reference group. These results point to the partial confirmation of Hypothesis 6 about the 'tunnel effect' in Eastern Europe from 2002 to 2012. There, those better off (with higher reference income) gained from comparing their income with the reference group, which supports their focus upon achievement and fuels their ambitions (Oishi *et al.* 2007, Senik 2008). Conversely, the negative effect of reference income in the north suggests that status comparisons in the group of wealthier individuals result in negative effects on their life satisfaction.

Figure 38 Predictive margins of European regions and reference group income.



4.3 Financial distress as a moderator between income and life satisfaction

4.3.1 Financial distress

As can be inferred from Chapter 3, the literature is clear about the effects of income on life satisfaction. However, not so many studies assess the importance of income in the light of stress associated with it. How people feel about their income may be more important than the absolute wages they earn or how their wages compare to the reference group. In the latter part of the chapter, this hypothesis will be tested.

Economic security is one of the most important factors that contribute to human well-being and was used in previous research to assess the strength of this relationship. Abbott and Wallace (2014) in their social quality model use it to show that a rise in economic wealth measured using GDP PPP is not always reflected in a rise in economic security. Their research, using variables of household income, deprivation income, the ability to make ends meet and to afford basic food (absolute poverty) as a measure of economic security, indicates a new direction in measuring well-being. Their findings confirm that, among economic factors, feelings of poverty are more likely to be related to feelings of satisfaction than actual household income in the sample of post-communist countries in 2003 and 2007. What is interesting is that once the variables of social integration and empowerment were added to their model in 2003, the influence of economic security remained strong but the measure of absolute poverty (ability to afford food) lost its significance. A similar process took place in 2007 but only empowerment factors were added to overall analysis. This suggests that the absolute measure of self-reported poverty is more subject to the influence of other factors than the relative measure. On the other hand, on average, absolute poverty is harder to find in affluent European societies, even among the poorest there. Hence the more relative measure of income seems more stable across different analyses.

The inability to make ends meet, also called financial distress is an interesting variable because, by definition, it not only refers to people on low incomes. Anxiety over one's finances is a universal phenomenon and can also affect those who own property and luxury goods, as well as those on middle incomes who live in middle class neighbourhoods and wish to lead middle class lifestyles. It can also, of course, be

relevant to those who live on low wages therefore cannot afford many of the goods available on the market. But more importantly, how one feels about one's income is related to how much one needs to earn in order to live the life that one wishes to live. Abbott and Wallace (2012) stress that not worrying about finances helps one to lead a dignified life, have resources to cope, and be open to opportunity. So it offers something more than just the ability to afford goods and consume. It provides security, influencing the way people assess their capabilities, and take advantage of the opportunities available to them as individuals and citizens.

The role of financial distress in well-being proves to be significant in all welfare regimes in Europe for older adults (Niedzwiedz *et al.* 2015). It also interacts with socio-economic status throughout life, proving to enhance life satisfaction if it is ameliorated. However, the inclusion of the income worry variable results in the attenuation of this relationship to a large extent. In this context it is easy to see that financial distress may play a mediating role in assessing the relationship between well-being and different socio-economic variables. For Niedzwiedz *et al.* (2015) this role is different for men and women and varies according to social regime with the weakest association recorded in Scandinavian social-democratic welfare regimes. Although their sample was limited to adults aged 50-64 years old, the findings offer insight into the importance of economic security. The ability to make ends meet was a key determinant of well-being as it contributed to the feeling of control one has in life. Prolonged financial distress was also linked to anxiety and stress, as people are not able to lead pleasurable lives and perform self-realizing activities, and feel left out of society.

Certain standards of living that are important for people can be threatened by financial stress if the individuals are faced with income uncertainty and cannot achieve the standards represented by their reference group. Thus the detrimental effect on life satisfaction becomes more probable. In the sample of European countries, Abbott and Wallace (2012) confirm that lack of economic security undermines life satisfaction in wealthy and stable economies of Western Europe as well as in the aspiring transitory economies of CEE. It seems that the detrimental effect of income anxiety can be universal not only across different income groups but also in cross-country samples.

Although the authors did not test for the existence of cross-country differences in this respect, it seems reasonable to assume that cross-country differences would not exist with regard to the financial distress variable. In short, worrying about making ends meet relates to very basic human needs (Maslow 1943) and as such does not enter the higher level of needs related to ambition or motives of jealousy behind income comparisons. These human motivations are higher in the hierarchy of needs and when the basic level is threatened it dominates other levels.

The research discussed in this section has important implications for my study. Owing to the 2008 economic crisis, many individual income factors as well as the country-level wealth indicators changed, undermining the feeling of economic security in Europe. Lower GDP PPP, increased unemployment rates, and perceived corruption all led to increased financial distress that negatively shaped well-being. This hypothesis was already confirmed by Arampatzi *et al.* (2015) for the unemployed during the recent crisis, but my project expands it to the whole population. In this section I will discuss the moderating effect of financial distress on income as a contributor to life satisfaction over time. Its contribution will be assessed as the global factor of economic recession altered levels of financial distress in many European households.

Hypothesis 7. Based on the literature, it is predicted that financial distress negatively shapes life satisfaction despite levels of earned income and is more significant to life satisfaction than earned income. Furthermore, there are no cross-country differences in the effect of income anxiety on life satisfaction owing to the universal nature of distress.

Methodology

4.4 Variables

Financial distress

The financial distress variable refers to perceived income stress as self-rated by participants of the survey. The question derives from the European Social Survey and is asked as follows: How do you feel about household's income nowadays? (ESS 2012).

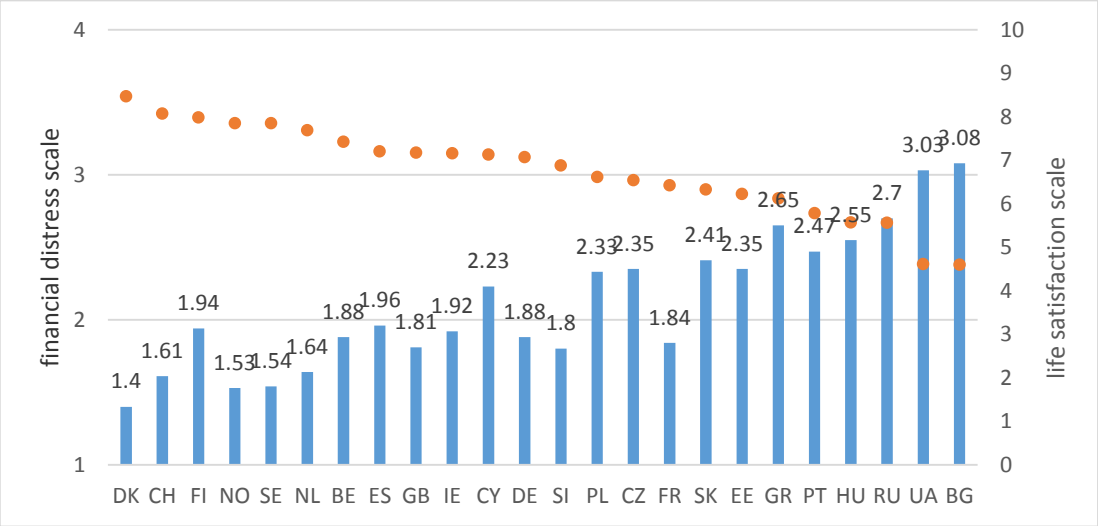
The answer is structured in four categories: 1. living comfortably on present income; 2. coping on present income; 3. difficult to live on present income, and 4. very difficult to live on present income. Other variables include those already used in Chapter 3 and discussed in the methodology section there.

Results

4.5.1 Descriptive analysis

Descriptive analysis points to disparities in the levels of financial anxiety between countries and over time. On a scale of 1 to 4 where 1 signifies living comfortably on present income and 4 equals very difficult to live on present income, around half of the countries seem to oscillate on average in the lower end of the scale between living comfortably and coping on present income (see Fig. 39). This range is more prevalent in countries where life satisfaction scores are higher. Countries with lower mean life satisfaction are populated by people who have difficulty living on their present income (scores between 2 and 3). Nations such as Ukraine and Bulgaria score the lowest on LS and inhabitants report that it is very difficult to live of present income there.

Figure 39 Summary statistics of financial distress and life satisfaction, average 2002-2012.



When changes in financial distress over time are inspected, interesting differences come to light. For countries with the highest increase in life satisfaction between 2002 and 2012, stress connected to income diminished (see Table 24). Specifically, in nine countries out of the 14 in the subsample with increasing happiness, worrying about

income decreased over time. Only in the United Kingdom, the Netherlands, Slovenia, and the Czech Republic was there a slight increase in financial distress while Switzerland's score remained the same in both years. Overall, in the cluster with rising LS income worry diminished -0.064 between 2002 and 2012. Conversely, countries with a significant decline in subjective well-being tended to experience a substantial increase in income distress over time by 0.268. Interestingly, nations where life satisfaction remained flat from 2002 and 2012 also experienced increased anxiety over income but at about half the rate of the declining LS cluster, or at 0.13. Whilst, most changes in country scores for financial distress over time do not achieve statistical significance, the overall scores for the LS cluster show tendencies of decreasing financial distress in the group of nations with rising life satisfaction, and the opposite trend in the cluster of nations where happiness has declined since 2002. There, financial distress increased substantially.

Table 24 Differences in financial distress by LS cluster, average 2002-2012.

COUNTRY	FD 2002	FD 2012	CHANGE 2012-2002
	RISING LS		
SK	2.65	2.39	-0.26
PL	2.46	2.27	-0.19
DE	1.86	1.8	-0.06
UA	3.12	2.96	-0.16
NO	1.57	1.49	-0.08
RU	2.83	2.6	-0.23
SI	1.81	1.91	0.1
NL	1.57	1.64	0.07
FI	1.96	1.92	-0.04
GB	1.72	1.85	0.13
EE	2.52	2.38	-0.14
CH	1.57	1.57	0
CZ	2.31	2.32	0.01
DK	1.44	1.39	-0.05
AVERAGE	**2.099**	**2.035**	**-0.064**

DECLINING LS			
IE	1.82	2.17	0.35
CY	2.05	2.49	0.44
GR	2.57	2.87	0.3
ES	1.94	2.15	0.21
BG	3.11	3.15	0.04
AVERAGE	**2.298**	**2.566**	**0.268**
FLAT LS			
FR	1.84	1.89	0.05
SE	1.56	1.61	0.05
PT	2.39	2.57	0.18
HU	2.5	2.72	0.22
BE	1.78	1.93	0.15
AVERAGE	**2.014**	**2.144**	**0.13**

In order to inspect in more detail trajectories of income worry in different clusters, regional differences in Europe are presented in Table 25. They help us to understand changes in income stress occurring in different LS clusters owing to the various political, economic, and cultural heritages mentioned at the beginning of this chapter and to a different degree of recession in each region. In the cluster with rising well-being, the subgroup of Eastern European nations recorded a decline in income anxiety from 2002 to 2012 of -0.124. Similarly, northern nations in this cluster also recorded a decline in financial distress of -0.057, but the western nations recorded a slight increase of 0.035. Hence the dominant trend in this cluster was a decline in financial anxiety, which might contribute to rising satisfaction. The largest increase in income worry was observed in the southern European nations with 0.317, and Ireland with 0.35 where, coincidentally, life satisfaction has declined significantly since 2002. In the sample of countries where SWB did not change from 2002 to 2012, there is a tendency for income anxiety to increase with the highest scores in Hungary and Portugal of 0.22 and 0.18, followed by much lower increase in the west and north of Europe with 0.1 and 0.05.

Table 25 Change in financial distress by European region from 2002 to 2012.

RISING LS		DECLINING LS		FLAT LS	
		EAST			
SK	-0.26	BG	0.04	HU	0.22
PL	-0.19				
UA	-0.16				
RU	-0.23				
SI	0.1				
EE	-0.14				
CZ	0.01				
average	-0.124		0.04		0.22
		WEST			
DE	-0.06	IE	0.35	FR	0.05
NL	0.07			BE	0.15
GB	0.13				
CH	0				
average	0.035		0.35		0.1
		NORTH			
NO	-0.08			SE	0.05
FI	-0.04				
DK	-0.05				
average	-0.057				0.05
		SOUTH			
		CY	0.44	PT	0.18
		GR	0.3		
		ES	0.21		
average			0.317		0.18

Different tendencies in income worry in LS clusters, especially visible in the rising LS cluster, suggest that it is worthwhile assessing regional differences in the effect of financial distress on life satisfaction in addition to the assessment of the singular effect of income worry on well-being in the whole sample of European countries.

4.5.2 Regression analysis

Inclusion of the financial distress variable in the regression analysis results in significant coefficient size for this variable and its categories (Model 9, Table 26). People who cope with living on their present income are -0.385 less satisfied with their

life in comparison with those who live comfortably on their present income. Those who find it difficult, and very difficult, to live on their present income are -1.136 and -1.921 less satisfied than people who do not experience income worry and live comfortably on their present income. Overall, the model that includes the financial distress variable explains almost 36% of variation in happiness results compared with 32% from the model that excluded it in Chapter 3, a 4% point improvement in explaining the variation in life satisfaction scores in Europe from 2002 to 2012.

Once financial distress enters regression analysis, the household income variable loses its significance in all levels of income. This suggests that what really matters for well-being is not the income earned in comparison with others but how people feel about their income and if they worry about it. Moreover, in the analysis that includes income worry, the size of coefficients for the unemployed is 30% smaller than in previous analyses, and in comparison with the full model in Chapter 3 economic inactivity status loses its significance. Furthermore, this suggests that it is not employment status that matters so much, but whether one can live comfortably on one's present income or not, which can also be related to living with a partner/spouse and them having income. Out of the country-level indicators, the corruption score is no longer significant in comparison with previous models, but GDP growth rate retains its positive and significant association with life satisfaction recorded in models 1-6.

Table 26 Pooled OLS CLSE of individual life satisfaction and financial distress (M9) with regional interaction (M10).

Variables	**Model 9**		**Model 10**	
	B(SE)		**B(SE)**	
Constant	3.225	(-2.21)	0.567	(-2.49)
Log GDP PPP	0.288	(-0.22)	0.492	(-0.24)
GDP growth rate	0.061*	(-0.03)	0.056*	(-0.02)
Unemployment rate	0.012	(-0.01)	0.013	(-0.01)
Corruption score	0.064	(-0.04)	0.108*	(-0.05)
Crime rate	-0.014	(-0.02)	-0.006	(-0.02)
Gender reference category = male				
Female	0.124***	(-0.02)	0.123***	(-0.02)

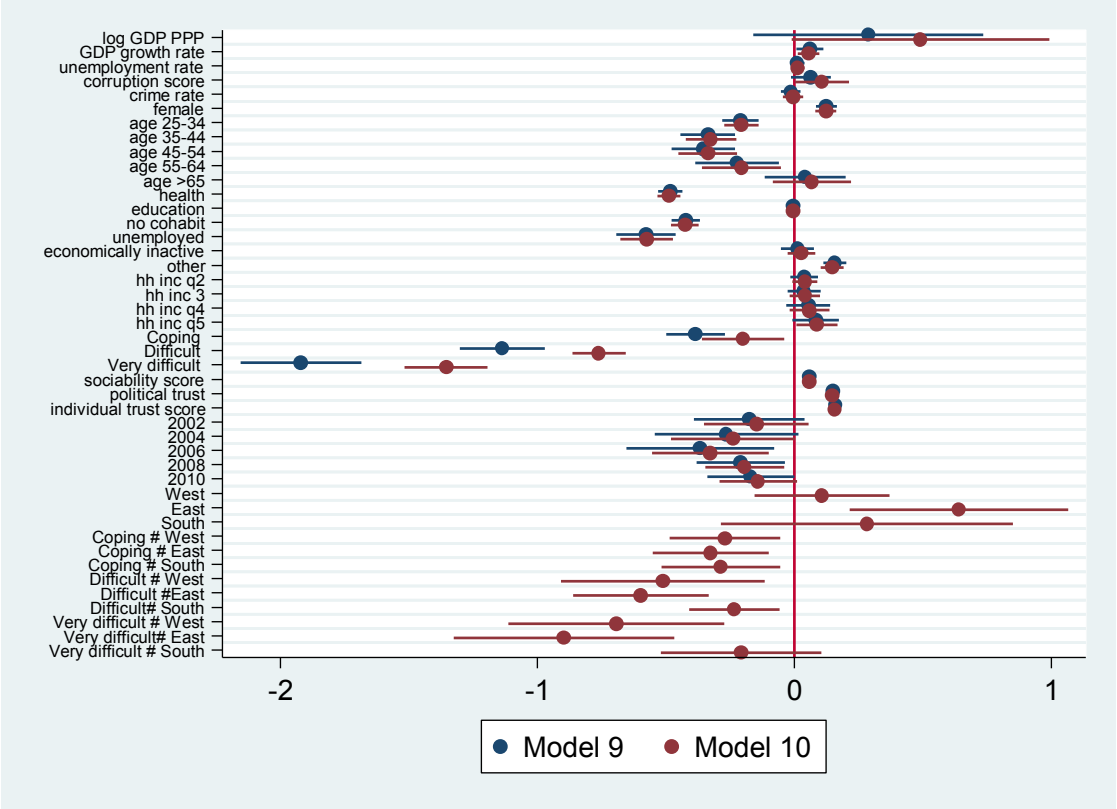
Age reference category = 14-24				
Age 25-34	-0.209***	(-0.03)	-0.207***	(-0.03)
Age 35-44	-0.337***	(-0.05)	-0.325***	(-0.05)
Age 45-54	-0.355***	(-0.06)	-0.337***	(-0.06)
Age 55-64	-0.224**	(-0.08)	-0.205*	(-0.07)
Age > 65	0.043	(-0.08)	0.068	(-0.07)
Health	-0.483***	(-0.02)	-0.489***	(-0.02)
Education	-0.005	(-0.01)	-0.006	(-0.01)
Cohabitation status reference category = cohabiting				
Not cohabiting	-0.423***	(-0.03)	-0.426***	(-0.03)
Employment status reference category = in paid work				
Unemployed	-0.578***	(-0.06)	-0.575***	(-0.05)
Economically inactive	0.013	(-0.03)	0.027	(-0.03)
Other	0.158***	(-0.02)	0.148***	(-0.02)
Financial distress reference category = living comfortably on present income				
Coping on present income	-0.385***	(-0.06)	-0.200*	(-0.08)
Difficult on present income	-1.136***	(-0.08)	-0.760***	(-0.05)
Very difficult on present income	-1.921***	(-0.11)	-1.355***	(-0.08)
Household income reference category = household income quintile 1				
Household income quintile 2	0.039	(-0.03)	0.041	(-0.02)
Household income quintile 3	0.038	(-0.03)	0.041	(-0.03)
Household income quintile 4	0.054	(-0.04)	0.059	(-0.04)
Household income quintile 5	0.083	(-0.04)	0.088*	(-0.04)
Sociability	0.058***	(-0.01)	0.058***	(-0.01)
Trust in institutions	0.149***	(-0.01)	0.147***	(-0.01)
Social trust	0.160***	(-0.01)	0.158***	(-0.01)
Year reference category = 2012				
2002	-0.175	(-0.1)	-0.148	(-0.1)
2004	-0.264	(-0.14)	-0.239	(-0.12)
2006	-0.366*	(-0.14)	-0.327**	(-0.11)
2008	-0.209*	(-0.08)	-0.193*	(-0.07)
2010	-0.170*	(-0.08)	-0.14	(-0.07)
European region reference category = North				
West			0.107	(-0.13)
East			0.640**	(-0.21)
South			0.283	(-0.27)

Financial distress and European region interaction reference category = North*living comfortably on present income			
Coping on present income *West		-0.270*	(-0.1)
Coping on present income*East		-0.325**	(-0.11)
Coping on present income*South		-0.285*	(-0.11)
Difficult living on present income*West		-0.511*	(-0.19)
Difficult living on present income*East		-0.597***	(-0.13)
Difficult living on present income*South		-0.234*	(-0.09)
Very difficult living on present income *West		-0.693**	(-0.2)
Very difficult living on present income*East		-0.897***	(-0.21)
Very difficult living on present income*South		-0.207	(-0.15)
R squared	0.358	0.361	
N clusters	24	24	
N observations	154,705	154,705	

* p<0.05, ** p<0.01, *** p<0.001

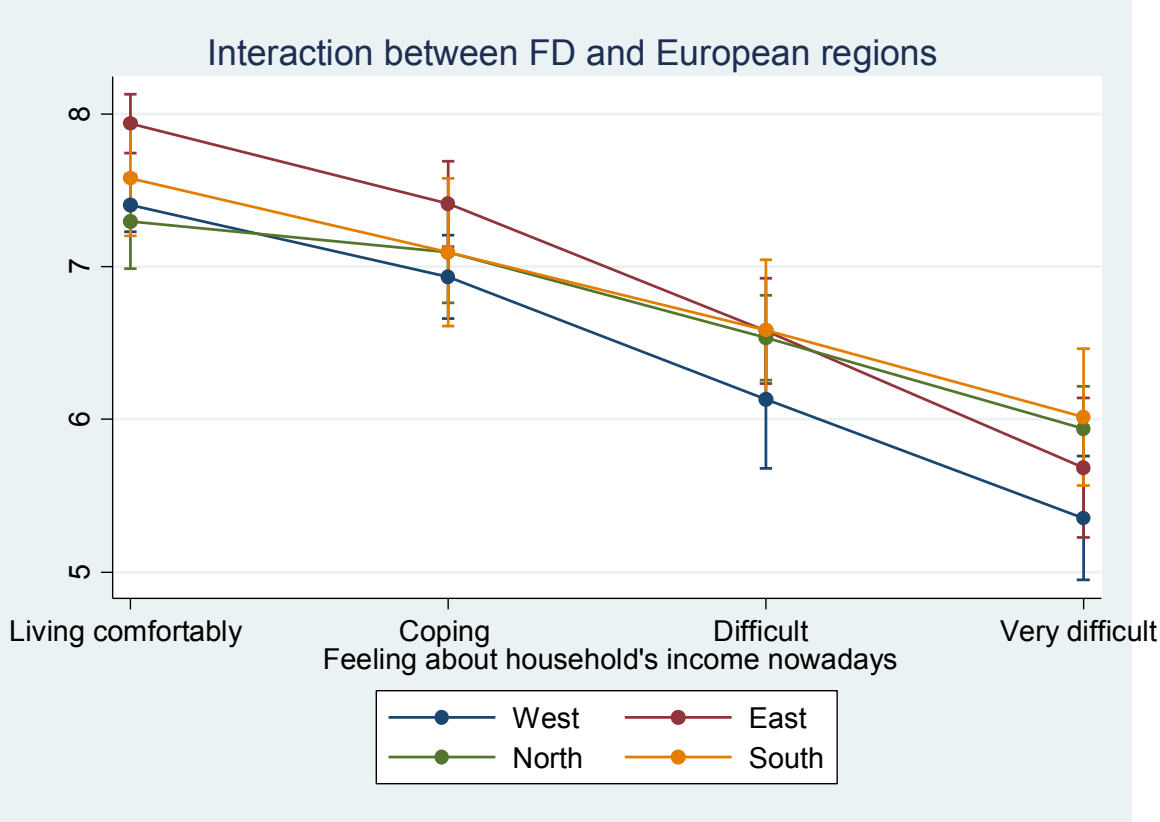
Adding the interaction effect to the analysis results in significant regional effect of financial distress on life satisfaction in all regions in Europe (Model 10 in Table 26). In comparison with the model without regional effect of financial distress (Model 9), the significance of correlates to life satisfaction remains the same but two additional factors gain significance, that is, the corruption score and having income from the highest income band (quintile five). This is consonant with the results from previous chapters. There, the corruption score was consistently associated with life satisfaction in models 1-6 and inclusion of the regional effect of FD confirms these findings. Also, the significant effect for the highest income level confirmed results from previous chapters, but in comparison with Model 9 this result suggests that earning the highest amount of money matters in some countries but not in others. Being economically inactive remains insignificant to SWB and unemployment retains its significant, albeit 30% smaller, coefficient size as in Model 9. The inclusion of the interaction between region and financial distress in this analysis explains 0.03% point more variation in life satisfaction in Europe in comparison with the model that includes only FD as an explanatory variable.

Figure 40 Plotted regression coefficients for models 9 and 10 with 95% CIs.



In order to assess the significant differences between four European regions and each category of income worry, predictive margins need to be plotted that include 95% confidence intervals. The results of this assessment in Figure 41 suggest that there are no statistically significant differences between regions in the influence of the financial distress variable on life satisfaction in all FD categories except one (see Table 9 in Appendix for full results). Only those who live comfortably on their present income and live in the east of Europe are significantly happier than their counterparts in the north of Europe. In other words, financial distress is a significant predictor of life satisfaction in Europe, but the region people inhabit plays no significant role in their self-evaluation of well-being when they experience income worry. When they are free of worry, people living in Eastern Europe have more gains in life satisfaction than those living in the north of Europe. This result confirms Hypothesis 7.

Figure 41 Predictive margins of European regions and financial distress.



Discussion

This chapter sought to find if comparing income with the income of the reference group and financial distress are important moderators of the relationship between income and life satisfaction identified in the previous chapter. It also explored the interaction of these two moderating variables and living in one of the four regions in Europe that are characterized by different political, economic, and cultural heritages, and to an extent, the varying impact of the 2008 recession. The regional approach to the analysis is also related to the findings of Chapter 1 in which three different clusters of SWB trends were identified. Whilst regional approximation does not capture the LS clusters perfectly, it nevertheless allows some generalizations that are helpful in understanding the variation in life satisfaction trends in Europe.

The rationale behind the analysis in this chapter stems from previous research into the motivational aspect of income comparisons identified by Senik (2008) and Caporale et al. (2009) in reference to different regions in Europe. Additionally, in the context of the

2008 recession the important factor of financial distress examined previously by Abbott and Wallace (2012, 2014) and Arampatzi et al. (2015) provides a tentative indication of the influence it may play in the self-assessment of well-being in some parts of Europe for subgroups of the population. To summarize, Hypothesis 6 about different effects of relative income on life satisfaction in European regions owing to the different motivation behind comparisons was partially confirmed for eastern and northern Europe only. Concerning the detrimental effect of financial distress on life satisfaction regardless of the region in Europe, Hypothesis 7 was fully confirmed. Discussion of the findings relating to the two hypotheses is presented in the remaining part of this section.

4.6 Reference income

Reference income was important for life satisfaction only when regional differences were accounted for through the interaction effect. The relationship was significant in just two European regions - the east and the north. The direction of this relationship was positive in the east of Europe and negative in the north but only for people from higher reference group income bands, partially supporting Hypothesis 6. In the groups with lower band reference group income there were no statistically significant differences in life satisfaction correlated with the region of Europe that people inhabit. These results confirm the 'tunnel effect' hypothesis in Eastern Europe, which is consonant with research by Caporale et al. (2009) and Senik (2008) but extended to cover the period 2002-2012.

The motivational orientation behind income comparisons differs in Europe. It is negative, hence status-motivated in Scandinavia (the "jealousy" motive following Senik 2008), while in CEE it is motivated by the ambition-oriented aspect that helps to infer one's future income based on income comparisons with the reference group. It is worth noting that these findings point to the persistent existence of the 'tunnel effect' in CEE, despite the World Bank announcing that the period of economic transition was officially completed in 2008 (Alam 2008). It also extends research carried out by Senik (2008) and Caporale et al. (2009) who confirm the 'tunnel effect' in CEE until their accession to the EU in 2004, while my analysis confirms its existence until 2012. The effect of reference group income on life satisfaction in the west and south of Europe

was not confirmed as the results were not significant for these two regions regardless of the level of reference group income. This suggests that income comparison in these two parts of Europe does not play a significant role in self-evaluations of well-being.

In light of the Easterlin paradox that attributes stagnant life satisfaction trends to the effect of the social comparison of income, these results provide partial answers to the research question posed in this thesis. They provide some explanation of the growing life satisfaction trend at least in a subsample of CEE countries but are not effective in explaining the declining and flat trend recorded in Chapter 1. Reference income seems to be helpful in understanding the rising LS trend in many CEE countries despite growing income inequalities and a generally low level of self-reported life satisfaction there in comparison with the rest of Europe. Confirmation of the 'tunnel effect' there for higher income band groups in society suggests that wealthier individuals still interpret the income of the reference group as a sign of their own improvement in the future. In other words, anticipation of future improvement in their income results in improved subjective well-being in the present moment. However, the 'tunnel effect' does not occur in groups with lower earnings and the reference income there is insignificant to their self-reported life satisfaction. It is possible that, for lower income groups, the absolute level of income is more important to their SWB as it helps to satisfy basic needs and provide decent living standards, which supports Veenhoven's livability theory (Veenhoven 1991).

A similar situation is recorded in western and southern Europe where reference income, consequently the position one occupies in comparison with the reference group, is not significant in predicting life satisfaction. Hence the declining SWB in the southern region, as well as mostly even or growing happiness in the western region does not seem to be correlated with perceptions of income distribution there, despite changes in income inequality following the 2008 recession (Eurostat 2016c). It may be that the interaction between income inequality and national characteristics is more significant in assessing one's well-being in the long- term rather than income inequality alone (Rözer and Kraaykamp 2013). Conversely, worsening economic situations in most southern countries and some wealthy western ones (see Table 19 concerning the degree of recession in European countries) suggest that absolute

income is central to providing means for satisfying basic needs. Hence it is relevant to life satisfaction. This again would support the needs-based approach proposed by Ruut Veenhoven who argues that happiness is sensitive to the actual quality of life (Veenhoven 1991).

The negative effect of reference income in the north of Europe confirms the status-oriented comparisons with reference group that are detrimental to life satisfaction. And as in the case of eastern Europe, the relationship is relevant only for people who have levels of income above the middle point. The results suggest that societies with low- income mobility and a stable economy (see Table 21) are conducive to interpreting reference income in terms of status that one attained in comparison with the relevant group. The result of this status-oriented approach is lower subjective well-being in most countries of 'old Europe' where the northern nations belong, according to Senik (2008). However, rising LS in northern European nations makes for a conundrum that is not consistent with the negative effect of relative income on SWB. A possible solution to this puzzle is furnished by Turgot's law of diminishing returns (Shephard and Färe 1974), which suggests that above a certain threshold of income (which is very hard to determine) additional income provides few additional benefits, in this case to the subjective well-being of individuals. Because northern European nations enjoy the highest levels of absolute income in Europe, then comparing their status with the reference group does not harm their well-being since the overall high quality of life there is conducive to greater happiness.

4.7 Financial distress

Results of the regression analysis that includes the financial distress variable lead to the confirmation of Hypothesis 7. Financial distress is a significant predictor of individual life satisfaction and is negatively correlated with it. The higher the income worry, the lower the well-being compared with people who are not anxious about their income. Moreover, inclusion of the financial distress variable in the analysis resulted in the importance of household income for life satisfaction disappearing across all income levels. This is consonant with other research to date (Abbott and Wallace 2012b, Abbott and Wallace 2014, Arampatzi et al. 2015, Niedzwiedz et al. 2015). Moreover, its inclusion led to the unemployment coefficient to diminish

substantially and the negative influence of economic inactivity to disappear. This result suggests that people placed less importance on employment status and earned income when evaluating their life satisfaction once the factor of experiencing stress related to finances was acknowledged. In other words, the difficulty of living on present income, whether it is small, medium, or large, has more detrimental effect on life satisfaction than the level of income earned in relation to others and employment status. This finding also shows that the feeling of stress associated with income is universal and can affect people at all levels of income and in all employment statuses, whether working, unemployed, or economically inactive. It seems to be a detrimental factor to satisfaction with life as it threatens the sense of stability that one enjoys and leads to a feeling of economic insecurity, which is detrimental to subjective well-being.

When regional differences in Europe were examined in connection with the income worry variable, they did not prove to elucidate the variation in LS trends that exist on the European continent. The financial distress variable explained 4% more of the variation, but the regional effect added only 0.03% to this explanation. The only significant result of the regional effect was recorded for people who do not experience income worry as those who live in the east of Europe gain more from it than those who live in the north. Living in other regions of Europe proved insignificant for life satisfaction for those living comfortably on their present income. Similarly, those who experience financial distress, whether small, medium or large, had no gains to their life satisfaction from living in a certain part of Europe. These results show that worrying about income is a universal phenomenon that negatively influences well-being regardless of the region people inhabit.

Assessment of trends in income worry leads to the conclusion that in countries when life satisfaction levels are high, financial distress levels are low and vice versa. In most nations where life satisfaction rose in the 10 years of the survey, income worry diminished. In only five nations out of 14 was there the same or a slight increase in income stress but well-being remained on the rise. Five countries where happiness declined from 2002 to 2012 experienced a mainly significant increase in levels of financial distress. In nations where the increase was not as pronounced, for example, Bulgaria, levels of income worry were already the highest in the sample. However,

these bivariate statistics are not confirmed by the results of the regression analysis that includes a regional interaction effect. There the lack of significant differences between European regions in terms of the influence of income worry on life satisfaction point to the universally detrimental effect of such anxiety on SWB despite its changing levels. As such, the inclusion of the financial distress variable in the analysis was very helpful in understanding the negative effect it undoubtedly has on self-evaluations of life satisfaction. Nevertheless, the financial distress factor does not explain different trends in life satisfaction that exist in Europe.

Conclusion

In conclusion, Hypothesis 6 concerning the relation between reference income and life satisfaction was partially confirmed for the east and north of Europe, but not for the south and west. This suggests that there exists a different motivation in income comparisons with reference group that divides European nations and it also helps to understand different life satisfaction trends recorded in Europe from 2002 to 2012. Hypothesis 7 was confirmed fully. Financial distress predicts individual life satisfaction and is more significant than earned income across all income levels with no regional differences recorded. The more people worry about their income, the larger the loss to their subjective well-being. Hence this factor alone does not explain happiness trends in Europe. But the effect this variable has on the unemployed and economically inactive population suggests there could be other factors that moderate the relation between income worry and SWB. Unemployed people experience less loss of well-being when income worry is included in the analysis than when it was excluded. Similarly, the economically inactive are no different in their SWB evaluations to the employed population once income worry is acknowledged. It may be that these employment statuses are not such a great source of dissatisfaction with life (although they are detrimental to it), as long as people do not experience too much stress over income. This can be caused by their partner or the family providing for them, or by living in a wealthy nation where general standards of living are high for everybody or generous welfare policies are implemented by the state. The two further hypotheses are tested in the next chapter.

V Financial distress, wealth, and welfare provision

Introduction

In the previous chapter financial distress alone did not explain variation in life satisfaction trends in Europe despite growing scores of life satisfaction being mirrored by falling levels of income worry and vice versa. Financial distress was negatively correlated with SWB and it affected life satisfaction to a much greater extent than earned income. The importance of relative income to self-assessed well-being disappeared when the stress that accompanied living on present income was included in the analysis. One of the reasons for this relation could be the universal anxiety about making ends meet that can affect people from all levels of income in all regions of Europe, although it might be more prevalent among the lowest levels of income distribution and in poorer countries. Yet people in all income ranges aim to live comfortably on present income, meaning that they wish to enjoy earnings compatible with their aspirations and living standards. Any threat to their income is in turn a threat to attained living standards. As such, this threat, whether realized or not, increases stress levels impacting negatively on life satisfaction.

In this chapter I will explore how the mediating context of an individual's country and its selected characteristics can help to compensate for the negative effect of financial distress on subjective well-being and contribute further to explaining different life satisfaction trends observed in Europe from 2002 to 2012. In the literature to date, national wealth already proved to be significant for national life satisfaction with people living in wealthier countries enjoying higher levels of happiness (Easterlin 1995). It was also positively correlated with national life satisfaction in Chapter 2, which explains different trends in life satisfaction identified in Chapter 1.

Regarding social benefits policy, the results are not as consistent as in the case of national wealth. The analysis carried out in this project that included social expenditure and unemployment benefit showed insignificant results (see Table 11 in the appendix) and the research to date offers contradictory conclusions. Studies by Veenhoven and Ouweneel (1995) and Veenhoven (2000) indicate no significant correlation between the size of the welfare state and life satisfaction, especially for

smaller and bigger welfare states. Conversely, Radcliff (2001) and Pacek and Radcliff (2008) show that people living in the most equal and generous welfare regime, notably social-democratic, enjoy the most satisfaction with life. However, the relationship between social benefits and happiness in other welfare regimes has not been the subject of much research. Hence my project will add new contribution to this field of studies.

My project will expand our knowledge by adding Mediterranean and post-communist nations as they have been little studied in the context of the effects of social policy on well-being. The inclusion of the financial distress variable in the context of economic wealth and social policy type contributes in a novel way to an existing field of studies that scarcely discuss the effect of income anxiety on life satisfaction overall (see Chapter 4) and in detail by looking at the interaction effects between financial distress of individuals and the context of the country they reside in.

Research question

Whereas Chapter 4 focused upon inclusion of the financial distress variable alone and through regional effect to investigate its effect on life satisfaction over time, Chapter 5 examines the interaction between financial anxiety and the context of the country. The context will be narrowed down to two income- related factors, namely national economic wealth and distribution of social benefits as the two factors show some level of connectivity (see Fig 42). The aim of this chapter is to show that worrying about income, albeit very detrimental to happiness, can be mediated by the context of the country people inhabit. The national context will further explain the existence of different life satisfaction trends in Europe. In order to inspect if these processes underlie the relation between life satisfaction, income worry and national context, two research questions are asked:

1. How does national wealth, measured in GDP purchasing power parity, mediate the relationship between financial distress and life satisfaction?
2. How does the context of living in a more or less generous welfare regime mitigate the detrimental effect of financial distress on life satisfaction?

5.1 Financial distress and national wealth

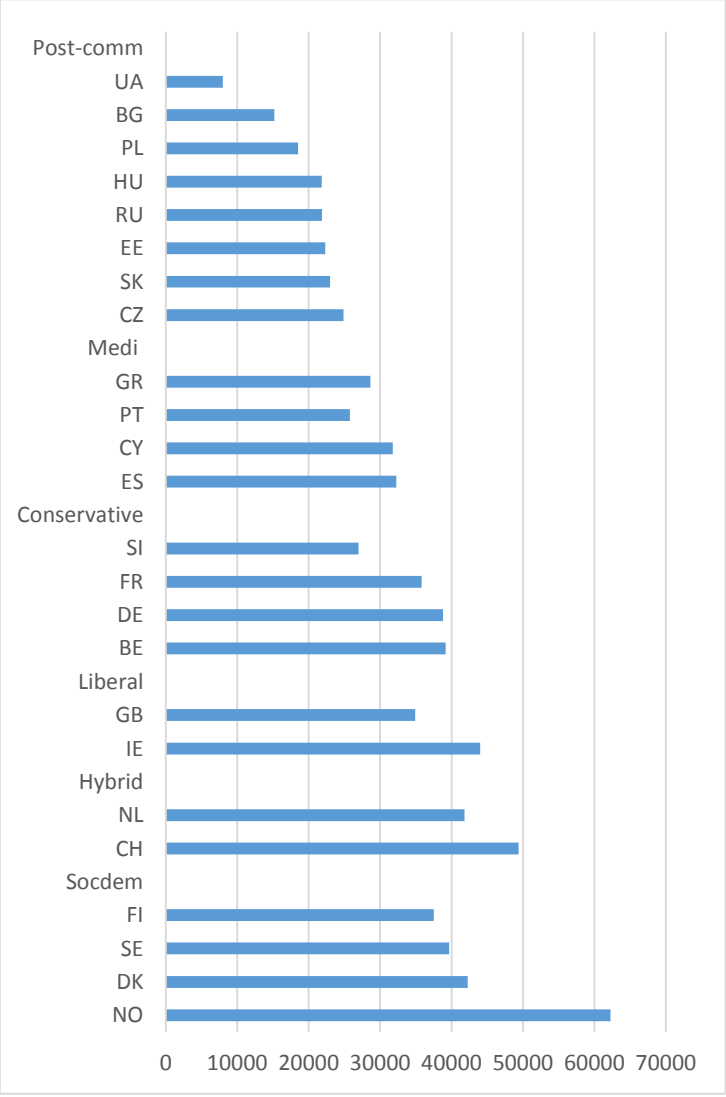
The country context was useful in assessing the detrimental effect of unemployment on well-being in reference to national unemployment norms (Stam *et al.* 2015). In order to assess if living in a wealthy country contributes to financial distress and its detrimental effect on subjective well-being, in this project income stress will be interacted with a measure of GDP PPP. This will help to determine if the life satisfaction of those who experience difficulties living on present income is less affected by their situation because they live in a wealthier country (and to a certain extent a more generous social policy as per Fig. 42). Or if the fact that they live in a wealthy nation but still experience strong economic insecurity results in lower life satisfaction scores than in poorer countries. This inconclusive hypothesis is related to the social comparison theory which argues that being similar to others on the dimension under comparison results in higher levels of well-being whilst being different, and specifically, worse off than the rest results in lower well-being (Taylor and Lobel 1989). Large disparities between oneself and others may result in lower life satisfaction if an individual experiences financial difficulties in a strong and wealthy economy. Alternatively, experiencing a very difficult material situation in a country where the economy is weak and many experience financial difficulties may help to alleviate its detrimental effects on well-being owing to feelings of solidarity with others who also have material problems.

Hypothesis 8. National wealth provides a context for assessing one's own material situation and so it will be relevant to life satisfaction when interacted with financial distress. The direction of this relationship is inconclusive, therefore the analysis will be exploratory. In fact, we can distinguish two sub-hypotheses addressing these contradictions which are mutually exclusive:

Hypothesis 8a. People living in wealthier countries have fewer losses to well-being owing to financial distress because wealthy nations provide higher living standards and more social benefits than poorer ones. Conversely, people living in poorer nations where welfare is not very generous will suffer more financial distress in terms of their subjective well-being.

Hypothesis 8b. Despite higher living standards and more generous social policies, people in wealthy nations who experience income stress will record lower levels of life satisfaction owing to the social comparison effect. Because most people live comfortably on their present income, those who suffer from financial distress will feel less advantageous than the rest of the population, therefore worse off. This results in lower life satisfaction as individuals see themselves as dissimilar to others in their reference group. Conversely, people living in poorer nations with less generous provision of benefits will suffer fewer losses to well-being owing to being in a similar situation as most of the population. Hence the effect of social comparison will be positive as they will see each other suffering the same stress .This leads to a feeling of solidarity among people which can contribute to higher well-being despite anxiety over making ends meet.

Figure 42 Histogram of average per capita GDP PPP by welfare state in Europe.



5.2 Welfare regimes in Europe

The importance of social policy systems to well-being is substantial as it can mediate the relation between income and self-assessed life satisfaction. Depending upon the recipients of the policy, and how much they actually receive, such policies can also regulate the impact of financial distress on individual SWB in the context of volatile economic fortunes.

In many European countries welfare policies began to appear around the beginning of the 20th century (Kasza 2002). They usually consist of policies related to offering income subsidies to sick, unemployed, elderly, and the poor, resulting in sickness pay, jobseekers allowances, pensions, family allowances, tax credits, social housing benefits, and sometimes free education (Kasza 2002). But welfare provisions have also been in the form of contributions from private businesses and families (Esping-Andersen 1990).

The typology of the main Western nations, the most dominant being that of Esping-Andersen (1990), presents 'ideal types' of welfare regime based on benefit generosity and social stratification. Despite many criticism from other researchers (Kasza 2002, Bambra 2006, Scruggs and Allan 2006) who argue that their similarity to the 'ideal type' is illusory and that none of the countries can indeed be classified as 'pure' states belonging to one type of welfare regime, the classification of different social policy types into distinctive regimes has gained popularity in the field. The criticism is fair, as welfare policies are complex and are divided into smaller components. They address specific issues such as unemployment, pensions, and health that do not resemble each other, are passed at different times, and governed by different departments that do not consult each other or know much about the solutions adopted in different policy areas (Kasza 2002).

All this notwithstanding, the significance of 'ideal types' of welfare regime to research of welfare policies is underlined by Ferragina and Seeleib-Kaiser (2011) who suggest methodological improvements to the original "three worlds of welfare capitalism" and warn against confusing them with 'real' welfare regime types. 'Ideal' welfare regimes

are described by many researchers who use different criteria yet nevertheless come up with similar typologies (Esping-Andersen 1990, Bonoli 1997, Saint-Arnaud and Bernard 2003, Fenger 2007, Ferragina and Seeleib-Kaiser 2011). The 'ideal' types by Esping –Andersen (1990) can be summarised as:

- Social-democratic – generous and universal benefits are not dependent upon personal contributions. Scores high on taxes, income redistribution, female participation in labour market, life expectancy, level of material well- being, and trust among citizens. It scores low on infant mortality. It fosters defamilisation through allowances for childcare, the elderly, and children.
- Liberal – means- tested assistance, modest social insurance plans, catering to low-income workers, and little redistribution of income. Has high level of inequality, low spending on social protection, and low government expenditure. This regime is based on freedom and relies upon the market to provide for people.
- Conservative-corporatist – income maintenance benefits depend upon occupational contributions, discourages women's participation in the labour market, state subsidies allocated when family cannot support itself. This type has high unemployment and low female participation in labour market. It has moderate income redistribution and relies upon social contributions rather than taxes. It is focused upon workers and leads to reliance upon family, especially for those who do not participate in labour market (e.g. housewives).
- Hybrid- is a mix of policies between the social-democratic and conservative or liberal welfare system
- Latin – family is the main source of provision and support for all as redistributive policies are elementary.
- Post- communist:
    - CEE - relaxed economic development, higher social well-being reflected in higher life expectancy and lower infant mortality, more egalitarian.
    - Former USSR –resembles conservative type in government expenditure but all other indicators are lower, especially level of trust and societal well-being.

- Developing welfare state – behind other countries with high infant mortality and low life expectancy

Welfare systems developed in Europe can be grouped according to typologies that usually focus upon the quantity of distribution, but some researchers challenge it as one-dimensional and not taking into account benefit recipients (Bonoli 1997). The most well-known typology by Esping- Andersen relies upon the criterion of decommodification, understood as the lack of dependence upon the market to make ends meet and intensity of redistribution (Esping-Andersen 1990). Ferrera (1996) on the other hand, comes up with the coverage model that distinguishes countries based on the receipt of benefits. Whilst applying different criteria, the two typologies lead to similar country clusters as do the analyses carried out by other researchers who aim to validate Esping-Andersen's typology by using two-dimensional criteria and enlarging the sample to include Mediterranean countries (Bonoli 1997), using quantitative measures (Saint-Arnaud and Bernard 2003), and finally by extending the analysis to post-communist countries (Fenger 2007). The typologies are summarized in Table 27 to emphasize the similarity of European regional groupings despite different criteria for selection.

In addition, Ferragina and Seeleib-Kaiser (2011) assess 23 studies in the field of welfare regime typologies and further distinguish hybrid type based on the frequency that countries were assigned to one of the 'ideal types'. They classify the Netherlands and Switzerland into that group as they represent mixed styles of social-democratic and a conservative system in the Netherlands and a liberal system in Switzerland.

As we have seen, Esping-Andersen (1990) focuses upon differentiating between different welfare types that provide financial backing to citizens, therefore lessening their dependence upon the market and their participation in it (termed decommodification). He also analyses countries in regard to the inclusion of individuals in provision of benefits. The most inclusive type in this sense is the social-democratic regime that dominates in the Nordic countries where provision of benefits is available to anyone. The conservative type found in western Europe focuses its efforts upon the working population and providing certain benefits (pensions,

jobseeker's allowance, sick pay) to them. However, it excludes those who do not participate in the employment market (e.g. housewives). The Liberal type present in English-speaking countries relies more heavily upon the market regulating the provision of benefits.

Table 27 Welfare types in Europe according to different typologies.

Esping-Andersen 1990	**Ferrera 1996**	**Bonoli 1997**	**Saint-Arnaud and Bernard 2003**	**Fenger 2007**	**Countries**
Social - democratic	Universalist pure	Beveridgean high spending	Social-democratic	Social-democratic	Nordic countries: DK, FI, SE, NO
Liberal	Universalist mixed	Beveridgean low spending	Liberal	Liberal	Anglo-Saxon countries: UK, IR
Conservative-corporatist	Occupational pure and mixed	Bismarckean high spending	Conservative	Conservative	Continental Europe: GE, FR, BE, SI
		Bismarckean low spending	Latin	Latin	Mediterranean countries: SP, PT, IT, GR, CY
-	-	-	-	Post-communist	CEE: PL, CZ, HU, SK, BG Ex- USSR: EE, RU, UA
			Criteria		
Decommo-dification	Recipients of benefits	Recipients and quantity of benefits	Social situation, public policy and civic participation		-

The Latin (Mediterranean) type differentiated by Saint Arnaud and Bernard (2003) focuses upon the working population as well but the provision of benefits is more tied to the family as their main source. Gal (2010) extends the group of Mediterranean welfare systems to include Cyprus, Malta, Israel, and Turkey as displaying the same features of the social system. It is worth mentioning that not all authors agree on identifying the Latin type as distinctive owing to many similarities to the conservative

model. As such, some classify it as a subgroup of the conservative model that did not develop distinguishing features, but is more elementary than the conservative one and places stronger emphasis upon family (Saint Arnaud and Bernard 2003, Fenger 2007). In a similar fashion, post-communist countries can be viewed as a subgroup of the conservative model but with lower scores on all factors that characterize it, especially lower social well-being and trust (Fenger 2007). Incidentally, as a wealthy post-communist nation, Slovenia fits the Bismarckean model of high spending but this categorization is based on the assessment of pension and health benefits only (Aspalter *et al.* 2009).

The typology by Bonoli (1997) reflects on problems related to classifying states into one type only and as a remedy he advocates treating country groupings not as separate clusters but rather analysing them based on the level to which they diverge towards each social system and quantity of benefits. Thus, taking into account his consideration and following the most dominant typology, different countries from my sample are classified as follows:

1. Social-democratic – DK, SE, FI, NO
2. Liberal – UK, IR
3. Conservative - GE, FR, BE, SI
4. Hybrid – NL, CH
5. Latin – SP, GR, PT, CY
6. Post-communist - CEE: PL, CZ, HU, SK, BG; ex- USSR: EE, RU, UA

5.2.1 Social policy type as a moderator between financial distress and life satisfaction

Questions about life satisfaction and its link with generous state benefits revolved around comparing life satisfaction levels in about 30 countries with more and less generous welfare policies after controlling for economic wealth and including time variation, i.e. expansion of the welfare state paired with increasing subjective well-being and health (Veenhoven and Ouweneel 1995, Veenhoven 2000). Results indicated no significant correlation between the size of the welfare state and life satisfaction, especially for smaller and bigger welfare states. The only link found was

for life satisfaction in countries that offered none or little welfare provision (Veenhoven 1995, p. 13). Therefore, it was concluded that the primary provision of benefits could be significantly correlated with higher life satisfaction. The data showed insignificant results for the time series analysis.

In contrast, findings from studies conducted by Radcliff (2001), Pacek and Radcliff (2008), and Radcliff (2013) came to the opposite conclusion. There, life satisfaction was positively correlated with the decommodification score, social spending and leftist governments that were used to measure the extent of the welfare state. All studies included sets of control variables, GDP per capita and unemployment rates, and in the second study the assessment of time variation confirmed the hypothesis of the link between the welfare state and life satisfaction over time. The preference for 'big government' supporting generous welfare provision to a wide array of people in the sample of OECD countries was shown to be conducive to greater happiness (Radcliff 2013). The findings point to the important observation that, although the positive link between the social-democratic system and life satisfaction is largely confirmed, the relationships between other types of welfare system (in this case conservative and liberal) and happiness is not so clearly established and requires further research.

This section aims to expand the aforementioned findings by investigating the link between financial distress and welfare type in the context of life satisfaction studies. Furthermore, the inclusion of Mediterranean and post-communist states missing from the main debate will contribute to the discussion, helping to establish the effects of distinct welfare policies in those regions too.

Hypothesis 9. More generous distribution of welfare moderates the detrimental effect of financial distress on life satisfaction. In this way, it helps to provide further explanations of the existence of different trends in LS in Europe observed in Chapter 1.

Table 28 is based on the summary of the factors discussed in this section. The placing of each country on the three- dimensional axis of life satisfaction trend, level of economic wealth, and type of welfare regime is used to disentangle the relationship between financial distress and life satisfaction moderated by the national wealth and

social policy system. This in turn will provide more clarification for the reasons of the existence of different life satisfaction trends in Europe delineated in Chapter 1.

Table 28 Summary of country groupings based on life satisfaction trend, level of economic wealth and welfare policy type.

Economic wealth						
	Affluent			**Moderate**		
Life satisfaction trend	*Decline*	*Flat*	*Growth*	*Decline*	*Flat*	*Growth*
Welfare type						
Social-democratic		SE	DK NO FI			
Liberal	IE		GB			
Conservative		BE FR	GE			SI
Hybrid			CH NL			
Latin				GR ES CY	PT	
Post-communist				BG	HU	PL SK CZ EE RU UA

* According to three indicators: life satisfaction; economic wealth, and welfare regime type.

** The groups for post -communist countries were merged (Sanfey and Teksoz 2007).

Methodology

5.3 Variables

In order to test for the influence of national wealth and social policy on financial distress, and in turn life satisfaction, I use the analytical strategy that follows recent developments in the field by Niedzwiedz *et al.* (2015). Hence I add to the analysis in Chapter 4 the interaction between log GDP PPP and income worry, as well as the interaction between welfare state types and financial distress. This strategy will help to assess the effect of country affluence to well-being among those who worry about income. It will also offer insight into the strength of the effect of social policies on financial distress in each of the welfare state types, and in turn whether it is a significant factor in explaining life satisfaction trends in Europe.

In previous analyses attempted in this project (Table 11 in the Appendix), no variables related to social policy were significant. I used a range of different measures that all proved inadequate at capturing directly existing variations in life satisfaction. The social expenditure variable was calculated as a percentage of GDP and included benefits covering unemployment, health, family, housing, old age, incapacity benefits etc. However, how much the government spends on social policy did not indicate whether those in need receive it. Therefore, another score that takes into account the generosity of benefits, its distribution among the needy, and the time it takes to receive the required help need to be analysed in this project. Owing to data availability for all countries in the sample, only the unemployment benefit generosity (UBG) score based on the decommodification factor devised by Esping- Andersen (Esping-Andersen 1990, Scruggs *et al.* 2014) and provided by the Scruggs Welfare Database was used. Since in the original file, UBG scores for the post - communist countries were missing from the main dataset, they were calculated using the formula created by the authors of the dataset (Scruggs et al. 2014). The higher UBG score, the better and more generous provision of the unemployment benefits. However, as mentioned at the beginning of this section, all these scores proved insignificant in the analysis.

Results

5.4 Financial distress and national wealth

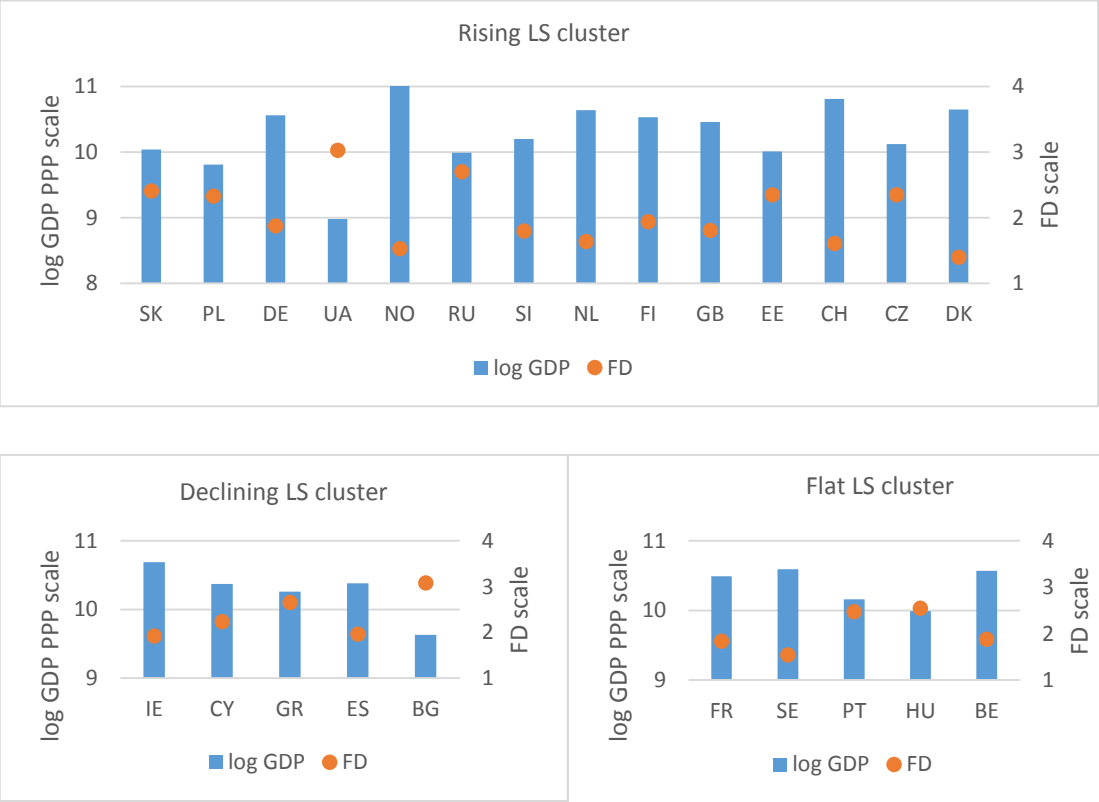
In order to assess if living in a wealthy country contributes to financial distress and its detrimental effect on subjective well-being, income stress was interacted with a measure of national productivity, namely p /c GDP PPP.

5.4.1 Descriptive statistics

The relationship between life satisfaction and national wealth measured in p/c GDP PPP was discussed in detail in Chapter 2. Here, comparisons with financial distress in different LS clusters will be presented in order to show how FD trends relate to the average level of GDP PPP in each LS cluster. Visual inspection of plots in Figure 43 points to a negative correlation between FD and national wealth, with richer nations recording lower income anxiety scores and vice versa. In order to test Hypothesis 8

concerning the interaction between the two factors and their influence on life satisfaction, the results of regression analysis are discussed in the next section.

Figure 43 Summary statistics for average log GDP PPP and average FD by LS cluster.



5.4.2 Regression analysis

National wealth measured in log GDP PPP is on its own insignificant for individual life satisfaction, which confirms the findings of previous chapters. But when it is interacted with financial distress it matters to subjective well-being. In comparison with the baseline category - people who live comfortably on present income, the level of national wealth is significant in life satisfaction evaluations for people who cope or find it difficult to live on present income with coefficient sizes of 0.362 and 0.593 respectively. People who have severe difficulty living on their present income enjoy more benefit to their well-being with the increase of log GDP PPP with a coefficient size of 0.908 (Model 11, Table 29). Since national wealth in this analysis is regressed as a continuous variable, then plotting the interaction effect with predictive margins helps us to see the differences between categories of financial distress at different levels of log GDP PPP (Fig. 44). In comparison with the previous models, coefficient

sizes and their significance to life satisfaction remain the same with two exceptions. Corruption score and economic inactivity lose significance as predictors of life satisfaction, which is similar to Model 9 in Chapter 4, but different to the rest of the models in this project. Overall, this model explains 35.9% of variations in life satisfaction in Europe**.**

Table 29 Pooled OLS CLSE of individual life satisfaction and interaction effect of FD and log GDP PPP.

Variables	**Model 11**
	B(SE)
Constant	7.993*** (-2.09)
GDP growth rate	0.060* (-0.02)
Unemployment rate	0.008 (-0.01)
Corruption score	0.064 (-0.03)
Crime rate	-0.014 (-0.02)
Gender reference category = male	
Female *Male ref*	0.126*** (-0.02)
Age reference category = 14-24	
Age 25-34 *14-25 ref*	-0.213*** (-0.03)
Age 35-44	-0.335*** (-0.05)
Age 45-54	-0.349*** (-0.06)
Age 55-64	-0.215* (-0.08)
Age > 65	0.057 (-0.08)
Health	-0.483*** (-0.02)
Education	-0.003 (-0.01)
Cohabitation status reference category = cohabiting	
Not cohabiting	-0.431*** (-0.03)
Employment status reference category = in paid work	
Unemployed	-0.586*** (-0.06)
Economically inactive	0.005 (-0.03)
Other	0.152*** (-0.02)
Household income reference category = household income quintile 1	
Household income quintile 2	0.044 (-0.03)
Household income quintile 3	0.042 (-0.03)
Household income quintile 4	0.054 (-0.04)
Household income quintile 5	0.074 (-0.04)
Sociability	0.058*** (-0.01)

Trust in institutions	0.150***	(-0.01)
Trust social	0.163***	(-0.01)
Financial distress reference category = living comfortably on present income		
Coping on present income	-4.223**	(-1.27)
Difficult living on present income	-7.337***	(-1.71)
Very difficult living on present income	-11.291***	(-2.3)
Log GDP PPP	-0.163	(-0.2)
Financial distress and log GDP PPP reference category = living comfortably on present income*log GDP PPP (continuous)		
Coping on present income*log GDP PPP	0.362**	(-0.12)
Difficult living on present income*log GDP PPP	0.593**	(-0.17)
Very difficult living on present income*log GDP PPP	0.908***	(-0.22)
Year reference category = 2012		
2002	-0.176	(-0.1)
2004	-0.258	(-0.13)
2006	-0.351*	(-0.13)
2008	-0.202*	(-0.08)
2010	-0.154	(-0.08)
R squared	0.359	
N countries	24	
N observations	154,705	

* p<0.05, ** p<0.01, *** p<0.001

Plotting the margins suggests that worrying about income is detrimental to life satisfaction regardless of the level of country affluence as all plot lines decrease with the increase of FD. However, the SWB plot is the flattest in the wealthiest nations across all FD categories, which suggests that diminishing life satisfaction owing to income worry is the smallest there. In less wealthy nations the plot is visibly steeper as FD progresses. Hence income worry shapes well-being at a higher rate there in comparison to the wealthiest group, but the steepness of the plot line between less wealthy nations is similar. This result suggests that the loss to SWB because of FD is proportionate in less affluent countries. Furthermore, visual inspection of the plot lines also suggests that people who do not experience income worry and live in poorer countries gain more well-being than those living in wealthier nations. As people begin to experience income worry, this trend reverses and results in people living in poorer nations experiencing higher losses to their well-being in comparison with those

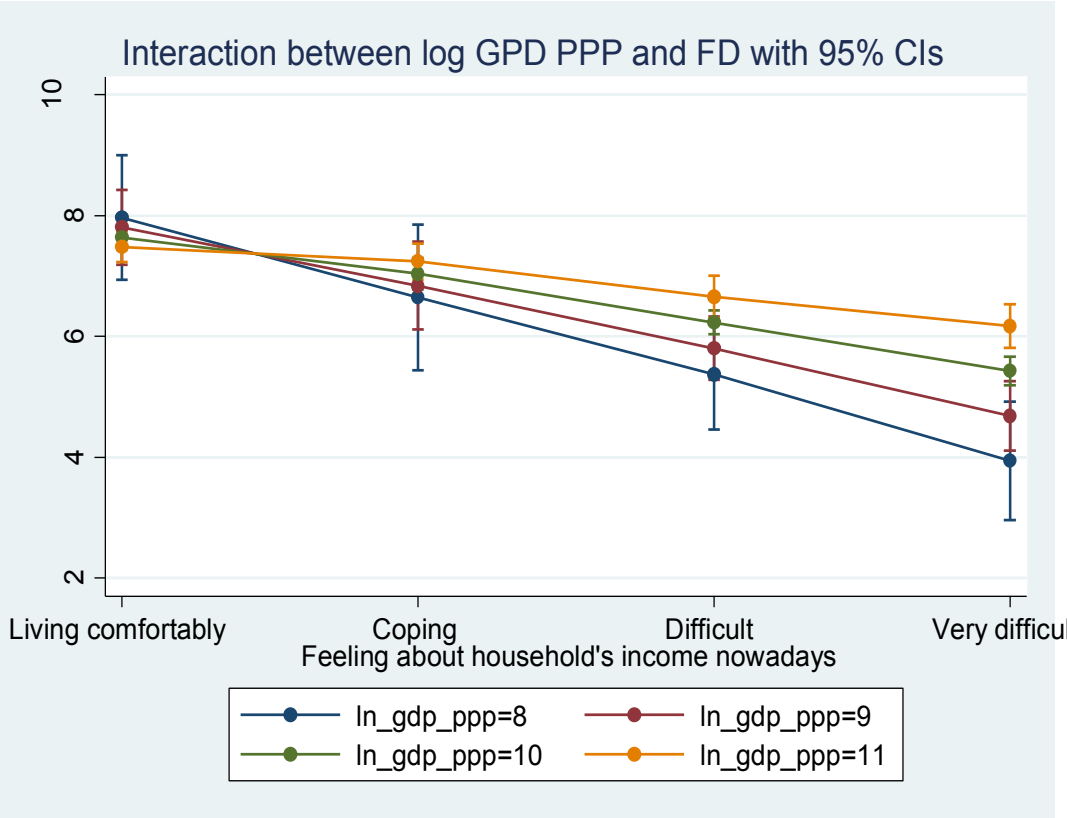
inhabiting more affluent nations. More detailed assessment of these results is needed in order to determine significant differences stemming from the context of national wealth. Hence I move on to the examination of each FD category and national wealth in relation to the significance of differences between them.

The context of national wealth is not significant at p=<0.05 for predicting life satisfaction scores for people who experience none, small, or medium financial distress as the confidence intervals for these categories of FD overlap for most log levels of national wealth (Fig. 44). Confidence intervals (CIs) serve here as an assessment of the significance of coefficients in relation to all categories of contextual variable, and not just its baseline category as in the regression analysis. If the CIs don't overlap, then we can be 95% confident that there is a difference between coefficients. But when they do overlap, which is the case in this plot for three categories of FD then the size of the overlap will help to determine the significance. Following Stauro (2012), if there is a 25% or less overlap between CIs for two different categories of variable, the result is still significant. Any overlap higher than this suggests *insignificant* differences between variables at 95% level. As the plot in Figure 44 suggests, the CIs overlap for the first two categories of FD points undoubtedly to the lack of significant differences in well-being among people who experience none or small income worry and live in different welfare regimes. The results are not as clear for the medium FD category with people living in the richest nations in Europe (log GDP PPP level 11) deriving possibly significant benefits to their well-being from living in a wealthy nation compared with people living in poorer European countries.

People who experience grave financial distress do gain benefit from living in a wealthy country, with significant differences between log GDP PPP measured at log level 11 and lower log levels of 10, 9, and 8. Similarly, those severely vexed by their finances and living in nations where wealth is at log level 10 gain benefit from their country in comparison with those who live in the nations with the lowest GDP PPP (at log level 8). Conversely, countries where log income levels reach 10 and 9 show no significant differences in the benefit accruing to national wealth for people with very high income worry as confidence intervals overlap there. The similar situation arises when

countries with 8 and 9 log levels are paired up. Therefore, the main differences in the importance of national wealth to well-being for people with very high financial distress seem to exist between the richest and the poorest countries in the sample.

Figure 44 Predictive margins of the interaction between log GDP PPP and FD.



In order to decipher log GDP PPP values from their real value, hence examine the differences between nations in the well-being of people with the highest income worry, it is necessary to show which countries fall into the relevant log wealth levels. Table 30 shows that most nations in Europe are at level 10 of national income with GDP PPP in constant 2011 international dollars ranging from $22,331 in Estonia to $49,411 in Switzerland. This is an almost 150% difference in the level of wealth between these two countries. The richest country in the sample, Norway, falls into the highest log level of GDP PPP with 11, while the poorest, Ukraine, falls into the lowest with a log level of 8. Essentially, these numbers show that people living in Norway and experiencing very strong financial distress benefit from living in this country in comparison with the rest of the sample. A similar situation can be observed in most

European nations in reference to Ukraine, where countries with GDP PPP log level 10 differ significantly from it.

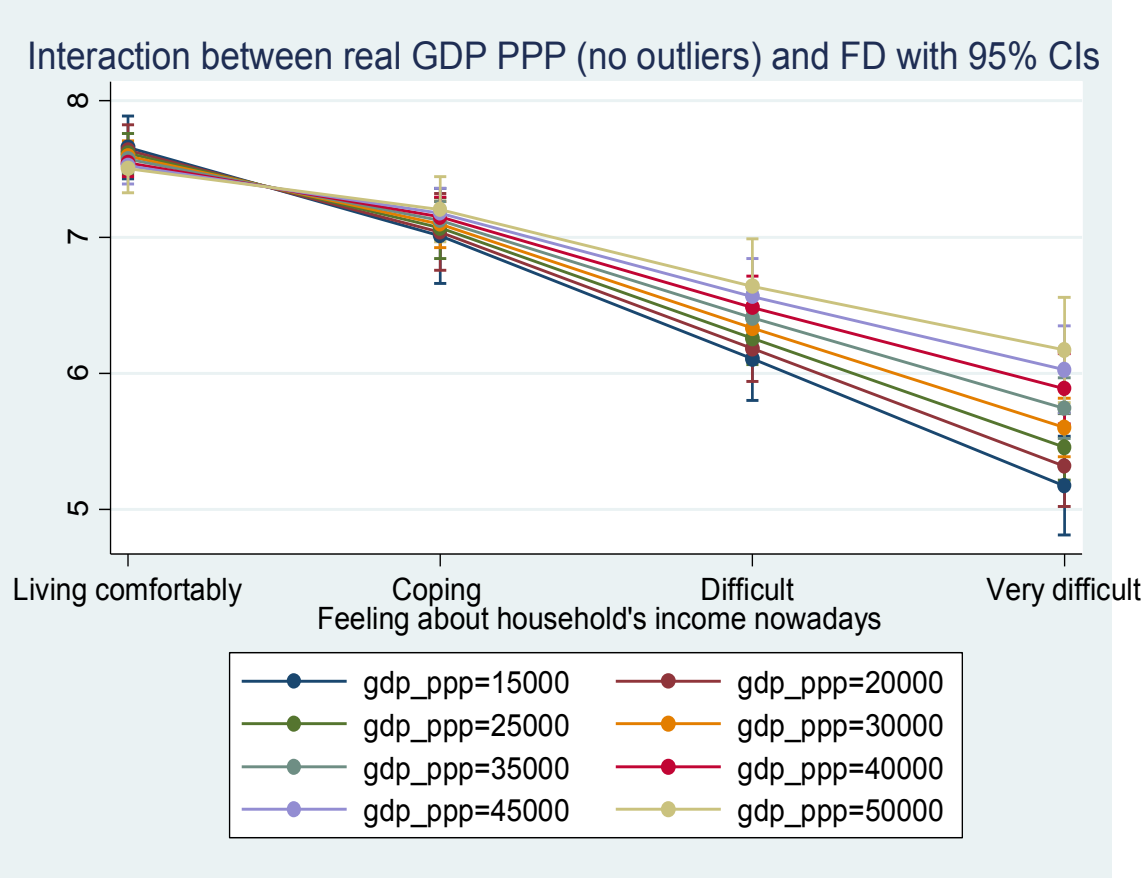
Table 30 Real GDP PPP and log equivalent in the sample.

Country	Log GDP PPP	Per capita GDP PPP
NO	11.04	62271.67
CH	10.81	49411.19
IE	10.69	44025.7
DK	10.65	42273.98
NL	10.64	41792.86
SE	10.59	39667.15
BE	10.57	39155.95
DE	10.56	38801.03
FI	10.53	37498.18
FR	10.49	35817.53
GB	10.46	34932.27
ES	10.38	32278.4
CY	10.37	31789.89
GR	10.26	28618.53
SI	10.2	26984.77
PT	10.16	25764.15
CZ	10.12	24869.04
SK	10.04	22994.29
EE	10.01	22331.24
RU	9.99	21863.78
HU	9.99	21808.74
PL	9.81	18507.05
BG	9.63	15199.72
UA	8.98	7963.59

In order to show more nuanced differences between countries, it is necessary to plot margins excluding the two outlining countries – Norway and Ukraine. Hence another margin plot is presented that plots real GDP PPP and sets the interval at $5,000 for all samples (Fig. 45). The plot shows that, for people with very high income worry living in countries where real GDP PPP is at 40k, 45k, and 50k, it brings significant benefits to

their well-being in comparison with nations with 15k and 20k of real GDP PPP. Hence the difference is significant between the richest cluster consisting of CH, IE, DK, and NL, and the poorest consisting of the post-communist nations of BG, PL, HU, RU, EE, SK, and CZ. Furthermore, the wealthiest nation in this plot, CH with 50k, is already significantly different from countries with 25k of real GDP PPP such as PT, SI, and GR in terms of the benefit that national wealth brings to the well-being of people with extreme financial distress.

Figure 45 Margin plot for FD and per capita GDP PPP without outliers – NO and UA.



5.5 Financial distress and welfare state type

Assessing the relationship by looking at different welfare states provides interesting insight into the extent of the influence of financial distress on life satisfaction. It is worth here emphasizing the argument concerning the connection between the wealth of the nation and the generosity of its benefit system. Regardless of the level of national wealth demonstrated to moderate the negative consequences of income stress on life satisfaction in Model 11, it is not only the wealth of the country that

matters but also how this wealth is used to provide economic security for all, and especially for those who experience financial distress.

5.5.1 Descriptive statistics

Assessment of frequency statistics points to the assertion that the majority of people in more generous welfare regimes live comfortably or cope on the present income (Table 31). In social-democratic systems it is over 90% of the population, in conservative systems it is almost 83%, in hybrid systems almost 88%, and in liberal states it is almost 80%. On the other hand, in the least generous system of post-communist countries this percentage barely reaches 49% of the population, so not even half, while in the Mediterranean countries it is almost 61%. These figures offer some insight into the amount of stress related to personal finances that exists in each welfare regime. They help us to understand the lowest well-being score in Europe that is recorded for post-communist nations where 51% of the population experiences income stress, and low scores for Mediterranean countries with 39%. Accordingly, in the context of these frequency statistics, the highest scores for life satisfaction in social democratic and hybrid nations are easy to predict. There, only 10% and 12% of the population reports financial distress which is significantly lower than in the two regimes with the lowest well-being scores. Middle scores recorded in liberal and conservative welfare regimes in western and Anglo-Saxon Europe can also be juxtaposed with a quite low distribution of financial distress affecting only 20% and 17% of the population respectively, which is still substantially lower than in the Mediterranean and ex-communist regions.

Table 31 Frequency statistics for FD by welfare regime (counts/ %).

Welfare regime	Living comfortably	Coping	Difficult	Very difficult	Total
Social democratic	20,937	17,584	3,096	864	42,481
	49.29	*41.39*	*7.29*	*2.03*	*100*
Conservative	14,646	21,765	6,012	1,593	44,016
	33.27	*49.45*	*13.66*	*3.62*	*100*
Hybrid	10,875	8,603	2,123	562	22,163
	49.07	*38.82*	*9.58*	*2.54*	*100*
Liberal	9,314	11,765	3,815	1,311	26,205
	35.54	*44.9*	*14.56*	*5*	*100*
Mediterranean	6,052	17,001	10,432	4,334	37,819
	16	*44.95*	*27.58*	*11.46*	*100*
Post-communist	4,896	32,719	25,794	13,214	76,623
	6.39	*42.7*	*33.66*	*17.25*	*100*
Total	66,720	109,437	51,272	21,878	249,307
	26.76	*43.9*	*20.57*	*8.78*	*100*

*Across all years 2002-2012

Financial distress by welfare regime, however, does not say much about changes that occurred in the 10 years of the survey. In order to assess them, it is important to present statistics describing how FD changed from 2002 to 2012 in each of the welfare states. Table 32 shows the results of frequency statistics and indicates important changes that occurred especially at the extremes of the income stress distribution. In all states the percentage of people who find it very difficult to live on present income increased from 2002 to 2012, but its extent differs tremendously. While, in the social democratic and, surprisingly, Mediterranean welfare states the size of the increase is a mere 0.03% more in 2012 than in 2002, which is the lowest increase in the sample, hybrid and conservative regimes recorded 1.2% increase, and the liberal nations recorded a 5% increase from 2002 to 2012. But the biggest increase was recorded for post-communist nations with almost 11% more people reporting very high financial distress in 2012 compared with 2002. Another significant change took place in liberal states where the percentage of people with medium income worry increased by over 6% from 11.5% in 2002 to almost 18% in 2012. This increase can probably be attributed to the disastrous financial situation affecting one of the countries in the

liberal welfare regime in 2010 following the economic crisis - Ireland. The separate results for each country in this regime presented in Table 10 of the Appendix confirm this speculation.

Table 32 Frequency statistics for FD by welfare regime in 2002 and 2012.

Year	% Living comfortably	% Coping	% Difficult	% Very difficult
		Social democratic		
2002	47	43.44	7.47	2.09
2012	49.16	41.1	7.35	2.39
change	**2.16**	**-2.34**	**-0.12**	**0.3**
		Hybrid		
2002	51.66	39.01	7.83	1.49
2012	51.13	36.7	9.48	2.69
change	**-0.53**	**-2.31**	**1.65**	**1.2**
		Conservative		
2002	34.27	50.3	12.47	2.96
2012	33.07	48.75	14.02	4.16
change	**-1.2**	**-1.55**	**1.55**	**1.2**
		Liberal		
2002	39.02	46.56	11.55	2.87
2012	29.2	45.09	17.84	7.87
change	**-9.82**	**-1.47**	**6.29**	**5**
		Mediterranean		
2002	15.59	44.3	28.64	11.46
2012	14.04	43.31	31.16	11.49
change	**-1.55**	**-0.99**	**2.52**	**0.03**
		Post-communist		
2002	6.7	50.57	34.56	8.17
2012	6.66	41.07	33.25	19.02
change	**-0.04**	**-9.5**	**-1.31**	**10.85**

5.5.2 Regression analysis

The results of the OLS CLSE regression confirm the claim that more generous benefit systems contribute to less financial distress and its smaller negative influence on life satisfaction (see Model 12 in Table 33). People who cope with living on present

income and live in post-communist nations have -0.38 point lower life satisfaction than people who live comfortably on their present income in social democratic regimes, followed by people in conservative welfare regimes with -0.364, Mediterranean regimes with -0.304, and liberal regimes with -0.299. This negative effect increases when income worry becomes stronger and it is difficult to live on one's present income in the aforementioned welfare regimes. The loss to SWB is most pronounced in conservative welfare regimes with -0.774, followed by post-communist regimes with -0.688, and liberal regimes with -0.389. Surprisingly, people in Mediterranean states experience less decline in life satisfaction owing to moderate income worry with a -0.275 coefficient size than people who cope with living on their present income in social democratic state. Finally, people who experience very high financial distress and live in post-communist regimes have less life satisfaction than the reference group with -1.017 coefficient size, followed by conservative regimes with -0.914, and liberal regimes with -0.551.

The moderating effect of welfare states in the financial distress –life satisfaction spectrum is not significant across all categories of financial distress in hybrid states represented by the Netherlands and Switzerland, and in the Mediterranean regime for people with very pronounced income worry. These results seem plausible since in the hybrid states FD was mostly small for all income worry levels, and in the Mediterranean welfare regime extreme financial distress levels did not change much from 2002 to 2012.

Table 33 Pooled OLS CLSE of individual life satisfaction and interaction effect of FD and welfare regime type.

Variables	**Model 12**	
	B(SE)	
Constant	2.459	(-2.38)
Log GDP PPP	0.36	(-0.23)
GDP growth rate	0.057*	(-0.02)
Unemployment rate	0.014	(-0.01)
Corruption score	0.061	(-0.05)
Crime rate	-0.016	(-0.02)

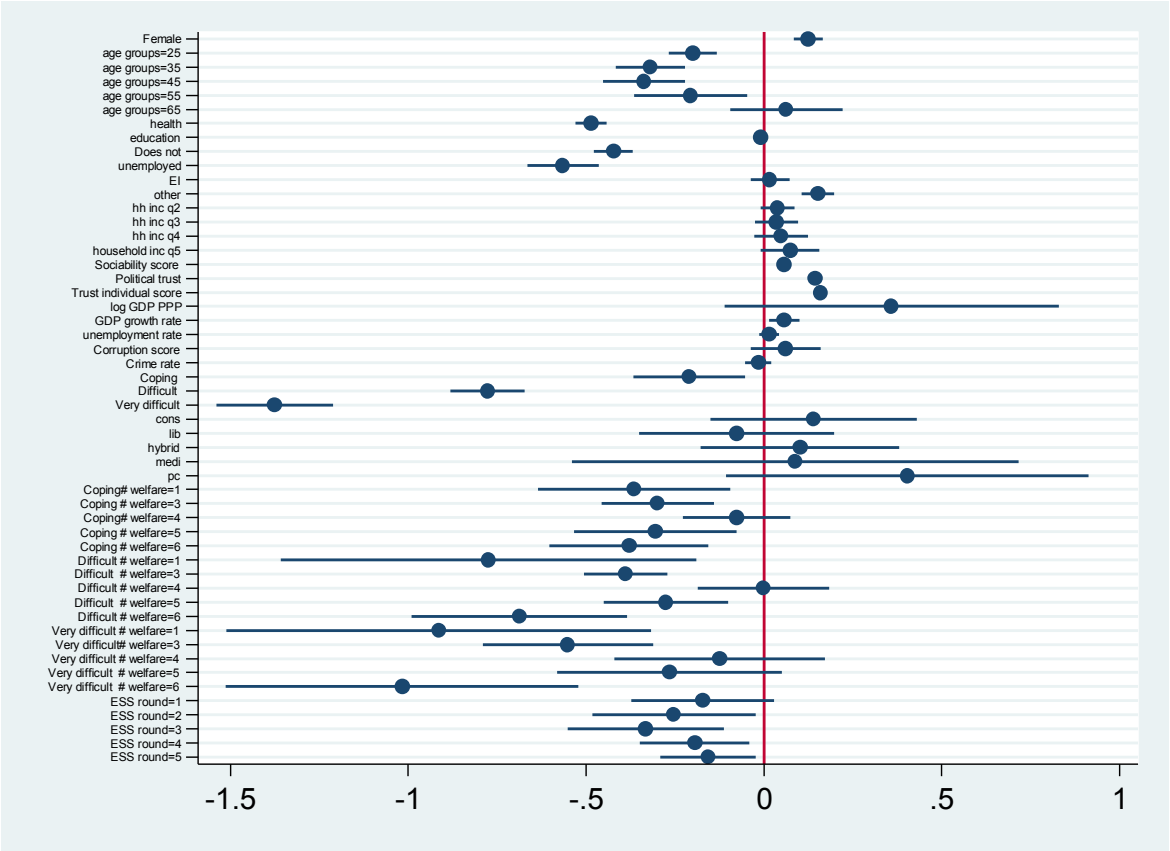
Gender reference category = male		
Female	0.125***	(-0.02)
Age reference category = 14-24		
Age 25-34 ***14-25 ref***	-0.200***	(-0.03)
Age 35-44	-0.320***	(-0.05)
Age 45-54	-0.337***	(-0.06)
Age 55-64	-0.206*	(-0.08)
Age > 65	0.063	(-0.08)
Health	-0.486***	(-0.02)
Education	-0.01	(-0.01)
Cohabitation status reference category = cohabiting		
Not cohabiting	-0.423***	(-0.03)
Employment status reference category = in paid work		
Unemployed	-0.565***	(-0.05)
Economically inactive	0.017	(-0.03)
Other	0.152***	(-0.02)
Household income reference category = household income quintile 1		
Household income quintile 2	0.04	(-0.02)
Household income quintile 3	0.035	(-0.03)
Household income quintile 4	0.049	(-0.04)
Household income quintile 5	0.074	(-0.04)
Sociability	0.057***	(-0.01)
Trust in institutions	0.144***	(-0.01)
Trust social	0.159***	(-0.01)
Financial distress reference category = living comfortable on present income		
Coping on present income	-0.210*	(-0.08)
Difficult living on present income	-0.777***	(-0.05)
Very difficult living on present income	-1.376***	(-0.08)
Welfare regime type reference category = social-democratic		
Conservative	0.14	(-0.14)
Liberal	-0.077	(-0.13)
Hybrid	0.101	(-0.13)
Mediterranean	0.089	(-0.3)
Post-communist	0.404	(-0.25)
Financial distress and welfare regime type reference category = social-democratic*living comfortable on present income		
Coping on present income*conservative	-0.364*	(-0.13)

Coping on present income*liberal	-0.299***	(-0.08)
Coping on present income*hybrid	-0.076	(-0.07)
Coping on present income*Mediterranean	-0.304*	(-0.11)
Coping on present income*post-communist	-0.380**	(-0.11)
Difficult living on present income*conservative	-0.774*	(-0.28)
Difficult living on present income*liberal	-0.389***	(-0.06)
Difficult living on present income*hybrid	-0.001	(-0.09)
Difficult living on present income*Mediterranean	-0.275**	(-0.08)
Difficult living on present income*post-communist	-0.688***	(-0.15)
Very difficult living on present income*conservative	-0.914**	(-0.29)
Very difficult living on present income*liberal	-0.551***	(-0.12)
Very difficult living on present income*hybrid	-0.124	(-0.14)
Very difficult living on present income*Mediterranean	-0.266	(-0.15)
Very difficult living on present income*post-communist	-1.017***	(-0.24)
Year reference category = 2012		
2002	-0.172	(-0.1)
2004	-0.253*	(-0.11)
2006	-0.333**	(-0.11)
2008	-0.194*	(-0.07)
2010	-0.157*	(-0.07)
R squared	0.362	
N countries	24	
N observations	154,705	

* p<0.05, ** p<0.01, *** p<0.001

Adding the interaction effect between welfare state type and financial distress does not change the effect of other covariates of subjective well-being in comparison with the previous models. Only corruption score and economic inactivity become insignificant, which is consonant with the results of models 9 and 11 but in contradiction to all other models. Model 12 explains a 36.2% variation in life satisfaction in Europe. Overall, it seems that the well-being of people experiencing financial distress declines the most when they live in the post-communist and conservative regimes of CEE and Western Europe. Liberal regimes seem to play a limited role in this relationship. Surprisingly, in Mediterranean nations the detrimental effect of FD on SWB is the smallest for people with moderate FD among other welfare regimes in Europe, and disappears for people with very high FD.

Figure 46 Plotted regression coefficients for model 12 with 95% CIs.



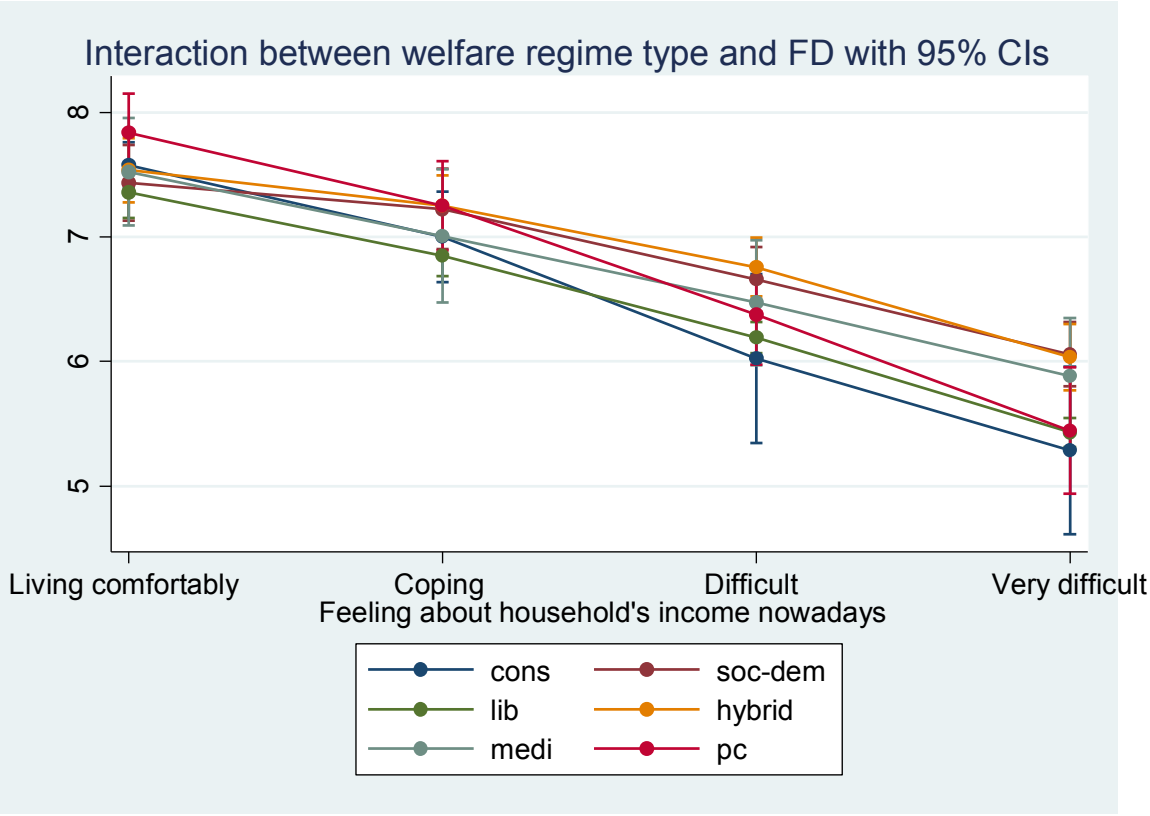
Comparison of regression results with the trend data for FD in different welfare clusters helps us to understand these findings. As mentioned, the percentage of people who experienced very high FD in Mediterranean regimes, despite being high with 11.5% of people, has not changed since 2002 and it seems reasonable that this variable was not significant in the analysis. Conversely, in post-communist and liberal clusters these numbers soared with over 10% and 5% point increases reaching 19% and 8% respectively. In order to assess the significance of differences between welfare policies, it is important to inspect predictive margins together with 95% confidence intervals.

The overall trend in Figure 47 shows that higher income worry impacts negatively on well-being regardless of the social policy system. The steepness of the prediction line is the highest in post-communist, conservative, and Mediterranean regimes, showing that life satisfaction deteriorates rapidly with the increase of financial distress in those countries. As regression results show, the life satisfaction of people who worry about

income is the lowest in conservative, liberal, and post-communist states, medium in the Mediterranean cluster, and the highest in the hybrid and social democratic groups.

When differences between welfare regimes as regards different categories of income worry are analysed, only liberal welfare regime scores significantly lower than the hybrid and social democratic states in terms of the well-being of people with high and moderate income worry. This means that people who experience FD gain significant benefits from the generous social policies of hybrid and social democratic states in comparison with market-regulated liberal regimes. However, social policies adopted in other welfare states do not seem to result in any benefit or loss to SWB of people regardless of their levels of income worry. In summary, it seems understandable that the generosity of benefit system characteristic of social democratic and hybrid states helps to diminish the negative effect of worrying about the effect of income on well-being and contributes to rising life satisfaction. Conversely, less comprehensive and generous provision of benefits does not seem to influence the relationship between income worry and subjective well-being trends in Europe.

Figure 47 Predictive margins for interaction between FD and welfare regime type.



Discussion

This chapter sought to answer the question about the moderating effect of country context on the relationship between financial distress and life satisfaction identified in the previous chapter. The country context was narrowed down to two factors crucial in the context of the 2008 recession, that is, the level of national wealth and type of provision of social benefits. I hypothesised that a country's wealth and its social policy system interact with financial distress and help to predict individual life satisfaction and its changes. The results of the regression analysis point to the confirmation of both hypotheses.

As regards national income, those living in wealthy nations experience less financial distress than those who live in less affluent countries. In addition, income worry diminishes in nations where life satisfaction has grown over time. People who live in wealthy countries and experience medium and major income worry experience smaller losses to their well-being than people who experience similar difficulties but live in poorer nations. These results confirm the Hypothesis 8a about fewer losses to SWB due to FD in nations that are more affluent, and hence have higher living standards (and to an extent more generous social policies). The findings of the margins plot show that the life satisfaction of people who experienced very high income worry, declined less with the increase of national wealth measured in log GDP PPP. People who experienced less income worry gained no significant benefit to their well-being owing to higher national wealth while the results for medium income worry were inconclusive.

These results correspond to the findings observed in Chapter 2 concerning the regional effect and GDP growth effect on national life satisfaction. There the lack of significant differences between regions as regards the effect of change in national wealth on aggregate life satisfaction pointed to the relevance of already attained levels of national wealth to SWB that were significant in regression analysis. Hence the conclusions support Veenhoven's liveability or needs-based theory positing that happiness is sensitive to the actual quality of life (Veenhoven 1991). The results of this chapter's analysis that included interaction between national wealth and financial distress reaffirm this claim for individual life satisfaction. People who experience very

high income worry are better off living in wealthy nations than poor nations, supporting the statement that higher living standards are conducive to greater happiness. This in turn clearly supports the needs- based approach advocated by Veenhoven. Furthermore, liveability theory is useful in understanding the variation in life satisfaction trends in Europe explored in Chapter 1.

The liveability theory posits that high living standards are crucial for satisfying basic human needs and as such it is the absolute level of wealth, and not its relative counterpart, that can secure it. In this chapter we have seen that such living standards lessen the destructive effect of high financial distress on individual happiness. Therefore, both static and dynamic national wealth is significant in explaining variations in life satisfaction trends. High levels of national wealth in most western and northern nations support high and growing life satisfaction there, while low but growing national wealth in mostly post-communist nations is also conducive to growth in life satisfaction there since they minimize the negative impact of financial worry on SWB. On the other hand, a sudden crisis in national wealth can result in the decline of living standards and increased income worry contributing to declining life satisfaction in other regions of Europe. Undoubtedly, there are also exceptions to this rule as was detected in Chapter 1, but these odd cases need further research that investigates the key issues at stake there.

Furthermore, the most generous and comprehensive welfare systems, namely social-democratic and hybrid, help to alleviate the negative consequences of income worry for life satisfaction, which is in stark contrast with the market-regulated liberal welfare regime. This result confirms Hypothesis 9. When people who experience medium or high income worry know that they can ask the state for financial help that is available to anyone and not means-tested, then it helps them to cope better with financial distress, leading to fewer losses in well-being. These results support the findings of Radcliff (2001), Pacek and Radcliff (2008), and Radcliff (2013) about the positive effect of generous and non-means tested benefits provision for subjective well-being observed in the most generous welfare regimes in the aforementioned studies. They are also helpful to understanding the social welfare context for different LS trends in Europe and show that generous social policies contribute to rising well-being.

Additionally, in more generous welfare regimes people usually live comfortably or cope on income provided by the government in the form of social benefits. In social-democratic, hybrid, conservative, and liberal welfare states (other than Ireland) less than 20% of the population experiences difficulties in making ends meet, which also explains rising life satisfaction there. Conversely, in Mediterranean and post-communist regimes this number is between 40% and 50% of the population. These differences may be responsible for declining life satisfaction in the Mediterranean cluster where levels of national wealth have also diminished following the 2008 recession. However, a closer look at income worry trends in post-communist countries can help to explain why, despite high and rising income worry life satisfaction is on the rise there too. Only Hungary and Bulgaria, which have flat and negative LS trends respectively, recorded large rises in financial distress in the highest FD category, while the rest of the post-communist nations recorded decreases.

People living in post-communist and conservative welfare systems suffer the largest losses to their well-being owing to financial distress, while those living in the Mediterranean system suffer medium losses in happiness. However, the differences between regimes are not significant. This suggests that when people who experience some degree of financial distress assess their life satisfaction there, they do not take into account the type or amount of welfare support they receive from public funds. It may be that the level of national wealth, in other words, standard of living, is more significant in their evaluations of life satisfaction because even limited access to small amounts of social benefit is in most cases out of reach.

Conclusion

In conclusion, both hypotheses were confirmed. Regarding hypothesis 8a, concerning the importance of country wealth context to the experience of financial distress, and in turn life satisfaction, the positive correlation was confirmed and positive. Hypothesis 9, concerning the most generous welfare regimes in Europe relieving the negative consequences of financial distress, was confirmed with people living in social democratic and hybrid welfare regimes gaining benefits to their well-being in

comparison with the market-regulated liberal welfare system. No significant differences between other welfare regimes were recorded.

Conclusion of the thesis

6.1 Revisiting the objectives of the thesis

This dissertation intends to make a distinct contribution to the field of the sociology of happiness. It does so by addressing key issues in this field that present a challenge to researchers resulting in long-term debates on the nature of the relationship between income and subjective well-being, also known as the Easterlin paradox. The general literature on this subject is inconclusive as to whether economic growth fosters life satisfaction over time or not. Moreover, there is a lack of research addressing this issue in Europe in the post-millennium period in the context of EU enlargement and the 2008 recession. Therefore, my project focuses upon establishing: 1) if there are significant differences between life satisfaction trajectories over time in Europe in years 2002-2012; 2) are these differences congruent with the trends in national economic growth?, and 3) what other factors other than economic wealth correlate with national and individual life satisfaction? Furthermore, my project asks more nuanced questions about 4) other factors associated with earnings that can moderate the relationship between income and life satisfaction in Europe, focusing upon reference income and financial distress, and 5) how national wealth moderates the relationship between financial distress and life satisfaction in the context of the 2008 recession. Finally, it asks 6) if the context of living in more generous welfare regimes alleviates the detrimental effect of economic insecurity on life satisfaction. The main empirical findings are chapter- specific and are summarized within the respective empirical chapters. The following section will synthesize the empirical findings to answer the study's main research questions outlined here.

Overall, 1) the study confirms the existence of three distinct life satisfaction trends in Europe from 2002 to 2012, that is, rising, stagnant, and declining. In relation to the trends, 2) some congruence with national wealth growth was found for the countries recording medium and small substantial increases in SWB, but was not found in other countries. In addition, 3) the corruption score was significant to national life satisfaction alongside economic wealth variables measured using per capita GDP PPP and GDP growth rates. Correlates of individual life satisfaction included the GDP

growth rate and the corruption score, as well as a number of socio-demographic (gender, age, health, cohabitation), economic (employment status, income level), and social capital (sociability, social trust, political trust) factors. Furthermore, the 4) confirmed regional effect in relative income pointed to a difference in motivational orientation behind the social comparison of income. In Eastern Europe, a 'tunnel effect' was recorded, and in the north status comparisons prevailed but only for people with higher levels of income. The first effect helps individuals to tolerate income inequality and contributes to positive subjective well-being, while the latter deters it. On another note, financial distress was confirmed to be highly detrimental to life satisfaction regardless of the region in Europe. However, 5) this factor was not insensitive to the level of national wealth and generosity of social benefits moderating losses to SWB due to income worry. Therefore, medium- and high-income worry experienced by people living in wealthy nations had less detrimental effect on life satisfaction there than for those in the same situation living in poor countries. Finally, 6) generous social-democratic and hybrid welfare regimes were shown to be conducive to higher well-being despite financial distress in comparison with the market-regulated liberal welfare regime.

The following hypotheses were confirmed:

CH1. Hypothesis 1. Life satisfaction in Europe will have significantly different trajectories from 2002 to 2012.

CH2. Hypothesis 2. Both the level and growth of national wealth are relevant to national life satisfaction. The relationship of both to life satisfaction is predicted to be significant and positive. Changes in national p/c GDP PPP are predicted to correlate with changes in national life satisfaction from 2002 to 2012, while the overall effect of growth rates on SWB in that time frame will be positive since all economies in the sample are advanced (not transitory).

CH3. Hypothesis 4. Economic security variables such as household income and employment status are significant predictors of individual life satisfaction in Europe with less economic security leading to a decline in life satisfaction.

CH3. Hypothesis 5. Social capital significantly predicts individual life satisfaction with greater social capital leading to a rise in life satisfaction in Europe.

CH4. Hypothesis 7. Based on the literature, it is predicted that financial distress impacts negatively on life satisfaction despite the level of income and is more significant to life satisfaction than earned income. Furthermore, there are no differences across countries in the effect of income worry on life satisfaction owing to the universal nature of distress.

CH5. Hypothesis 8a. People living in wealthier countries have less diminished well-being owing to financial distress because wealthy nations provide higher living standards and more generous social benefits than poorer ones. Conversely, people living in poorer nations where welfare is not generous will suffer more owing to financial distress in terms of their subjective well-being.

CH5. Hypothesis 9. More generous distribution of welfare can moderate the detrimental effect of financial distress on life satisfaction.

The following hypotheses were partially confirmed:

CH2. Hypothesis 3. Based on findings from previous studies, it is expected that national life satisfaction will correlate positively with diminishing corruption and crime rates.

The hypothesis was confirmed for corruption rates only.

CH4. Hypothesis 6. Owing to variance in social mobility and stability of economy in European regions, the relationship between reference group income and life satisfaction will vary in Europe. In countries where comparisons with others is a prevalent motivation, reference group income will have a negative impact on life satisfaction levels, namely the west and north of Europe. However, in economies that focus upon the informational aspect of reference income, life satisfaction scores will correlate positively with it, that is, in the east and south of Europe.

The hypothesis was confirmed for the east and north of Europe only.

The following hypothesis was not confirmed as it was mutually exclusive with confirmed hypothesis 8a:

CH5. Hypothesis 8b. Despite higher living standards and more generous social policies, people in wealthy nations experiencing income distress will record lower levels of life satisfaction owing to the social comparison effect. Because most people live comfortably on their present income, those suffering from financial distress will feel less at an advantage than the rest of the population, therefore worse off. This results in lower happiness as the individuals see themselves as dissimilar to others in their reference group. Conversely, people living in poorer nations with less generous provision of benefits will suffer fewer losses to life satisfaction owing to being in similar straits as most of the population. Hence the effect of social comparison will be positive as people recognize the same levels of stress. This leads to a feeling of solidarity which can contribute to higher well-being despite worry about making ends meet.

6.2 Original contribution to the field

6.2.1 Contribution 1

Variation in life satisfaction trends in Europe from 2002 to 2012 is confirmed

The first original contribution to the field of happiness studies and the Easterlin paradox debate is the confirmation of variation in life satisfaction trends over time. This project established distinct trends in life satisfaction during the years 2002 -2012. The majority of European countries recorded positive trends with the scores rising significantly over time. Few countries recorded a slide in subjective well-being in that period and some showed no significant changes in satisfaction scores between 2002 and 2012. This finding adds important detailed picture to the assessment of well-being trends that form the foundations of the Easterlin paradox debate in the well-being research field.

An additional contribution emerges from the assessment of the difference between the statistical (p-value) and substantial (Cohen's d) significance of life satisfaction scores over time. In 19 countries in the sample, changes in life satisfaction over time reached statistically significant levels of minimum p=<0.05. However, only a handful of

countries recorded a medium substantial significance of these changes. Most countries had only small, and even trivial change in well-being scores and none of them recorded substantially large significance. The countries where the Cohen's d was the largest and positive in the sample were Poland and Slovakia, followed by Germany, Norway, Russia, and Ukraine. On the other hand, Cyprus, Ireland, and Greece recorded negative small substantial change. Hence the overall Easterlin conclusion of no long-term change in SWB despite increases in national wealth can partially be agreed upon, but important differences need to be noted.

In the original research carried out by Easterlin (1974) the sample consisted of few western European nations in the 1970s excluding the post-communist region. Later studies also excluded transitory countries in Europe focusing mostly upon the north and west of Europe (Easterlin 1995). As such, the changes occurring in post-communist nations following the fall of the communist regimes and entrance to the EU at the beginning of the 21st century were largely ignored (exception Abbott and Wallace 2014). This project, like the first one in the field, addresses this gap in research and looks at changes in national life satisfaction from 2000 onwards, showing its dynamic while using the within-nation approach.

When discussing different trends of well-being in Europe, two important events should be born in mind as they affect countries that form the sample. The first is the enlargement of the EU in 2004 and 2007 with the addition of 12 mainly post-communist nations. This event has had a largely positive effect on subjective well-being there as five countries forming the rising LS cluster represent post-communist nations. Only one belongs to the declining LS cluster (BG) and another to the flat LS cluster (HU). The second event, the economic crisis of 2008, has wider implications for the whole of Europe as it affected all the countries but to varying extents as we saw in Chapter 5. This event has had a detrimental effect on national well-being in countries most affected by it (IR, CY, GR, and ES). But it might also have contributed to stagnant trends and/or to the lower level of happiness growth in the rest of Europe. These two events seem to act against each other, contributing to higher subjective well-being in CEE but halting it in the west and north of Europe, and even repressing it in the south.

6.2.2 Contribution 2

The rise in purchasing power is associated with a substantial rise in national life satisfaction

Close examination of GDP PPP trends in Chapter 2 leads to the conclusion that countries that did not record a decline in their PPP following the peak of their national productivity, which is usually around 2008 at the beginning of the recession, also recorded the most significant and substantial rise in life satisfaction. In Slovakia, Poland, Germany, and Russia GDP PPP and life satisfaction were on the rise from 2002 until 2012. Other countries in the rising LS cluster registered slumps in GDP PPP following the economic recession, hence also showed a slower rate of growth in SWB leading to only a small change in life satisfaction over time. What these results contribute to the literature is a rigorous assessment of the effect of the national level of wealth measured in per capita GDP PPP and its change measured in GDP growth rate.

6.2.3 Contribution 3

The regional variation in the effect of relative income on life satisfaction in Europe continues until 2012

Regional differences in the influence of relative income on SWB have already been investigated by Senik (2008) and Caporale *et al.* (2009), providing illuminating evidence of the role of motivational orientation when comparing income with reference groups. My study extends this approach to the four regions of Europe during the years 2002-2012. The original contribution of my project refers to assessment of the variation in impact of relative income on life satisfaction after 2000 when former communist countries finished their transition phase (Alam 2008), and in the context of the EU enlargement of 2004 and 2007, and the 2008 global recession. The results confirm the effect of status comparison in the north of Europe, and the 'tunnel effect' in the east for this extended time period, but only for more affluent groups. Groups with lower income levels do not take reference income into account when assessing life satisfaction. Therefore, this result points to the importance of the livability of the society for those less well-off.

6.2.4 Contribution 4

Income worry is a mediator of the effect of income on life satisfaction

As one of the main findings of the thesis, it was established that the aforementioned relationship between wealth and subjective well-being is mediated by the financial distress factor (see Chapter 4 for detailed analysis). Analysis suggests that worrying about income affects all income groups and leads to less life satisfaction. Moreover, this variable eliminates the contribution that income makes to individual life satisfaction. These results make for an important contribution to the debate on the Easterlin paradox as they point to the significant effect of mediating psychological variables, such as income stress, between well-being and wealth. This result alone adds important context to current debates concerning the impact of wealth on evaluating one's life satisfaction.

6.2.5 Contribution 5

Financial distress weakens the negative effect of unemployment on SWB

Acknowledgment of the income worry factor in this study leads to a novel result in exploring the link between employment status and satisfaction with life. It has been confirmed in research to date that unemployment has a detrimental effect on SWB (Clark and Oswald 1994, Winkelmann and Winkelmann 1998, Lucas *et al.* 2004). This project points to the moderating effect of income distress between employment status and life satisfaction, which affects unemployed individuals. As such, when financial distress factors are added to the analysis the negative influence of joblessness is diminished by 30% while the analysis explains an additional 4% of variation in individual life satisfaction in Europe.

6.2.6 Contribution 6

Living in a wealthy country with generous provision of benefits moderates the negative effect of income distress on life satisfaction

Another novel addition to studies in this area arises from interacting the effect of state wealth measured in GDP PPP with financial distress variables. As a result, it is established that the negative effect of high income worry on SWB is alleviated by living in an affluent nation. Furthermore, this result is reinforced by significantly higher

levels of SWB among people with medium and high income worry in countries fostering generous provision of social benefits, namely the social-democratic and hybrid welfare regimes of Scandinavia, Switzerland, and the Netherlands, in comparison with market-regulated liberal welfare states in the UK and Ireland.

6.2.7 Summary of contributions

Overall, my thesis contributes in many significant ways to happiness research and adds novel and original findings to the sociology of happiness in the context of the 2008 recession. This new and emerging field benefits from assessing the correlates of subjective well-being within a sociological framework and advances research carried out to date. As sociologically oriented research, my project aims at expanding the knowledge of subjective well-being, taking into account not only individual but also national factors contributing to happiness or preventing people from achieving it. In this way, the thesis helps to broaden the scope of issues that are of interest to the sociology of happiness and contributes to general knowledge.

6.3 Theoretical framework revisited

My thesis helped to establish that life satisfaction does indeed change over time (Table 3 in Chapter 1), which contradicts the baseline hypothesis of stagnant well-being levels in the long run (Brickman and Campbell 1971, Eysenck and Eysenck 1994). Three statistically distinct trends of life satisfaction in Europe are established from 2002 to 2012 but the extent of substantial change over time is indeed marginal for most of them (Figure 5 and Table 4 in Chapter 1). Only a handful of countries recorded small substantial changes in life satisfaction, and even less a medium substantial change. At the same time, most nations in Europe recorded substantial economic growth, resulting in becoming wealthier over time but life satisfaction scores did not follow the same substantial increase (Figure 8 in Chapter 2). Therefore, it can be argued that the Easterlin paradox postulates received some confirmation. But on the other hand, consonant with the view that assigns more weight to statistical than real (substantive) change over time, the paradox does not stand. Statistical significance show clearly that in the majority of cases, happiness does not have any set-point and it changes slowly, albeit surely, responding to changing external and internal conditions.

Throughout this project, I have aimed to establish the factors that explain variation in life satisfaction trends in Europe during the 21st century. Focusing mainly upon the economic indicators shown to correlate with life satisfaction, I explored a group of variables associated with various happiness trends observed in Europe from 2002 to 2012. I have also accounted for major events affecting a significant number of countries in the sample, if not the whole sample. The enlargement of the EU and the 2008 global recession were commented upon in the introduction and analysis of the findings to provide the contextual frame for the study. This led to the establishment of a strong and positive link between the level and growth rate of national wealth measured using GDP PPP (Model 2 in Table 11 in Chapter 2), confirming the postulates of Hagerty and Veenhoven (2003), Veenhoven and Hagerty (2006), Deaton (2007), Stevenson and Wolfers (2008), Sacks et al. (2010, 2012, 2013), and Opfinger (2015), among others in regard to the Easterlin paradox. I included both static levels of wealth as well as dynamics of change to show the complex conditions under which happiness can flourish or be thwarted. This diagnosis stemmed from the reasoning that dynamic processes are embedded within static conditions that determine the meaning that will be assigned to them. In other words, declining GDP growth or rising financial distress in poor countries will lead to different consequences for well-being than the same processes in affluent nations.

Overall, the thesis confirms the importance of livability of the society in fostering higher levels and growth of life satisfaction. Livability is expressed in the actual quality of living standards, which reflect people's experience of wealth deriving from the purchasing power of income that helps them to find provisions for satisfying basic needs. The experience of wealth is furthermore directly linked with the feeling of economic security exemplified by the self-reported income worry affecting people from all income strata. Higher livability paired with generous social aid in times of need helps to alleviate the feeling of financial distress for those most affected, helping to cushion the negative effect of income worry on life satisfaction (Model 11 in Table 29 in Chapter 5). It simply matters more to subjective well-being if people live in a rich or poor country, than if they live in country whose wealth is growing faster or slower, which supports the liveability/needs-based theory of Ruut Veenhoven (1991).

Achieved wealth offers stability, security, and freedom to satisfy needs that less affluent but rapidly transforming societies are not able to offer, consonant with finished transformations of the 1980s in the southern region and of the 1990s in eastern region of Europe.

On the other hand, motivational orientation prove to be a powerful factor in fostering higher subjective well-being in countries where livability leaves much to be desired. As shown by Oishi et al. (2007), moderate levels of SWB foster ambition and achievement, while high levels of SWB are conducive to focusing upon social relationships and volunteering. In economics this psychological effect was dubbed by Hirschman (1973) the 'tunnel effect', and contradicts the jealousy or status comparison process (Senik 2008, Caporale et al. 2009). As a result, this thesis establishes that in CEE countries up to 2012 poorer economic conditions are contextualized through the 'tunnel effect', which helps to tolerate arising income inequalities as indicative of future improvement of one's own financial situation (Model 8 in Table 23 in Chapter 4). However, this positive effect observed in CEE is significantly different from the north and west of Europe, but only for affluent groups (Figure 38 in Chapter 4).

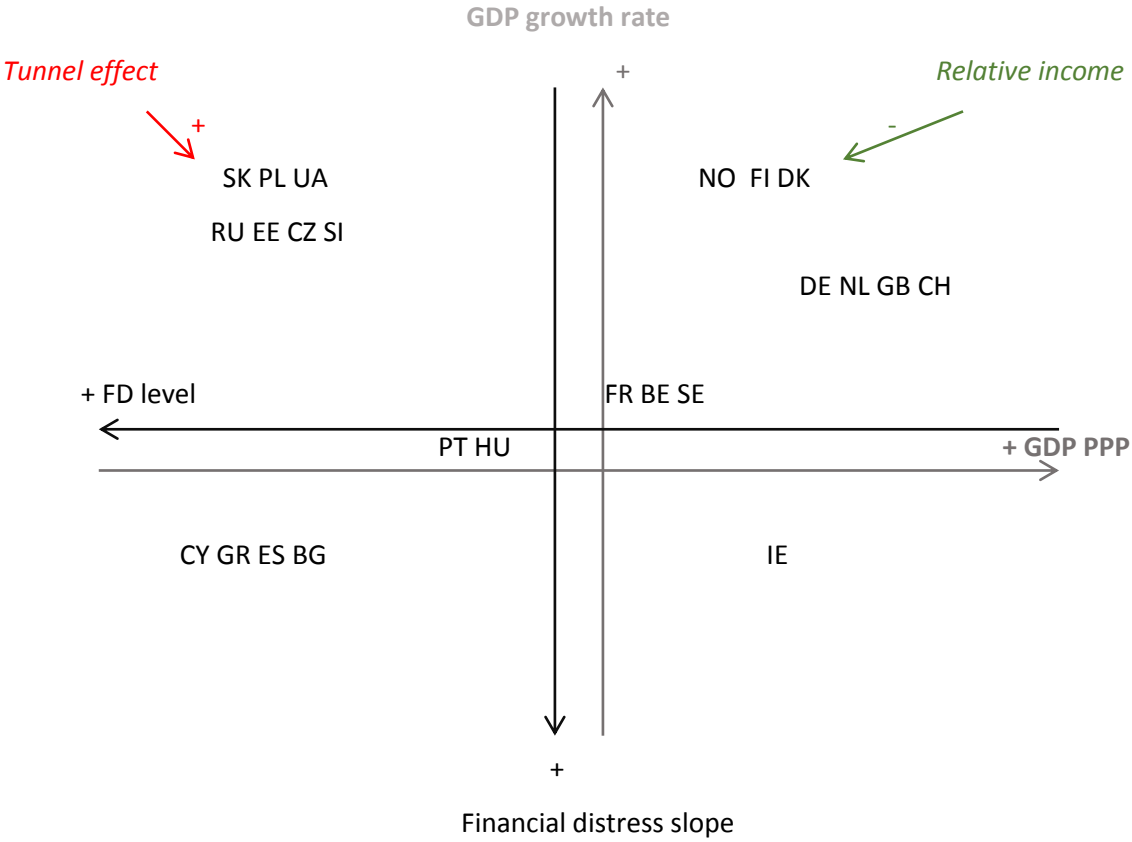
Status comparison dominated in the north of Europe from 2002 to 2012 as a prevalent motivation behind reference income for affluent people. No distinct motivational effect is confirmed in the west and south of Europe. Hence poorer people in the east and north of Europe, and all people in the west and south may benefit from absolute income instead, which again supports the livability of the society theory. However, in the context of the 2008 recession worrying about maintaining standards of living and income grew touching all groups.

The financial distress factor represents economic insecurity that is more salient in times of economic unrest caused by the 2008 global recession. Before the global crisis, financial distress was already higher in more financially unequal societies (Table 25 in Chapter 4). It also had a strong negative effect on life satisfaction, which increased with the increase of income worry (Model 9 in Table 26 in Chapter 4). High livability of the society was conducive to the smaller negative influence of high and (probably)

medium income worry on life satisfaction, in comparison with the poorest in Europe (figures 43 and 44 in Chapter 5). The social norm of worrying about income in poorer nations did not seem to be at stake here. Similarly, more generous and comprehensive provision of social benefits also led to the smaller negative effect of income worry on subjective well-being in comparison with the liberal welfare regime. It seems that when people experiencing grave financial distress feel they can address the state in asking for help that provides generous and comprehensive benefits, it alleviates the negative effect of income distress on subjective well-being, in comparison with the liberal system regulated entirely by the market (Figure 47 in Chapter 5). No differences between other less generous welfare regimes were recorded (conservative, post-communist, and Mediterranean that provide small and limited provision of benefits or rely upon money transfers from family members). There, people experiencing financial distress do not count on the state to offer financial assistance, hence social policies are insignificant in their assessment of subjective well-being. It seems that for most people there benefits are out of reach or offered in insufficient amounts. Analysis of the interaction between national wealth/ state provision of benefits and the effect of income worry on life satisfaction confirms the importance of affluence, and as such higher living standards to well-being, providing further support to livability theory.

The relationship between static and dynamic national wealth, financial distress, and the motivation behind reference income is illustrated by Figure 48. The two horizontal axes represent per capita GDP PPP, thus the level of national wealth and level of income worry. These are contradictory to each other as wealthier nations have lower levels of financial distress. The vertical axes represent the dynamic aspects of these two factors that are also in contradiction. They enable placing of the nations in the sample according to the level and trend of national wealth and income worry. This figure represents a model of life satisfaction level and change in Europe from 2002 to 2012. It can be compared with Figure 34 in Chapter 3 that models all countries in the sample according to predicted levels of life satisfaction.

Figure 48 Life satisfaction trends in Europe 2002-2012: liveability for the poor and social comparison for the wealthy moderated by motivations behind relative income and level/slope of income worry.



The importance of the level and change of state wealth to rising life satisfaction is re-affirmed because wealthy northern and western nations, as well as poorer but developing eastern nations, mainly recorded growth in life satisfaction. There are exceptions, however, and they include mostly flat happiness trends in SE, BE, FR, and HU, and a negative trend in BG. Despite some exceptions, per capita GDP PPP constantly rose for countries recording the highest rise in subjective well-being over time, despite declines in other nations that still enjoyed mainly high levels of living standards. Strong decline of per capita GDP PPP in poorer nations, mostly in the south of Europe, had disastrous effects on well-being as they led to the increase of income worry and strong decline in life satisfaction in the context of the 2008 crisis.

Economic wealth is often tied with the generosity of social benefits that help to maintain higher rates of well-being and can contribute to its change. As Figure 42 in Chapter 5 shows, it is often the richest countries in Europe that have the most

generous and comprehensive welfare benefits leading to less financial distress, hence higher well-being. This relationship does not always hold, but for a few nations in the sample it does. The countries that enjoy high living standards and experience only a slight increase in financial distress recorded growth in their life satisfaction over time (see top right quadrant in Figure 48). In the same cluster of affluent nations, modest increases in income worry did not lead to any significant changes in life satisfaction, but large increases were mirrored by declining happiness, despite great wealth (see bottom right quadrant). However, in the countries that had only moderate or low levels of living standards measured in per capita GDP PPP this relationship was not as clear. Increases in income worry in Mediterranean nations resulted in negative LS trends, while the reverse could be said of post-communist nations (see top and bottom left quadrants in Figure 48). The nations where happiness trends did not change recorded large (HU) and small (PT) increases of income worry further complicating the model for poorer groups of the countries in Europe. It seems that other contextual factors such as the EU enlargement and economic crisis may play a significant role here.

The tunnel effect recorded in CEE countries (see top left quadrant in Figure 48) compensates for lower standards of living as it enables tolerating income inequality in the context of rising living standards for all (measured by GDP growth rate). Conversely, the negative effect of income comparison on subjective well-being in the north of Europe can be moderated by already very high and growing livability of the society. These effects confirm the processes illustrated in Figure 1 of the positive effect of absolute income on life satisfaction, supporting the livability theory of Veenhoven, and the negative effect of relative income that can nevertheless be compensated for by the 'tunnel effect'.

In conclusion, the process in which CEE countries catch up with the rest of Europe in their well-being following integration with the EU is not finished, but they are on track thanks to the growing wealth and psychological mechanism allowing them to tolerate income inequalities without damaging their levels of life satisfaction. Conversely, Mediterranean nations that joined the EU in the 1980s have mostly different trends in catching up with the rest of Europe, and they have been severely slowed down by the

2008 recession. Hence entering the wealthy common European market can facilitate catching up process but cannot guarantee it in the context of global financial difficulties.

6.4 Application of the research findings

The influence of happiness research on public policy seems to be the most straightforward answer in search for the answer of application of happiness studies in "real life". Dolan and White (2007) suggest that subjective well-being measures (i.e. happiness as opposed to objective and desire-fulfilment well-being), can be a tool for implementing policies because they can help to put a monetary value on conditions that are difficult to estimate and yet related to subjective well-being. They can deliver measures to compare different alternatives by assigning different weights to important happiness domains and can provide defaults for policies favoured by governments as means of comparison between them.

However, more and more researchers advocate that the direct influence of happiness findings on policy creation is not desirable (Bartram 2012). Different governmental bodies or organizations have different goals, therefore, even if they use reliable and valid data, the value that they assign to it will be different according to their goals. Even if research or data is assessed correctly, the overall aim of the organization will determine how important it is for them and how it will be used. In other words, different goals dictate different focus upon the same research. Hence the focus of happiness research could be re-oriented to advising other groups who may be interested in the results. It can point to the areas of knowledge it is advancing or broadening, and inform people about their inner states and experiences leading to increased self-awareness. This can be a starting point to change not so useful habits and develop more positive ones.

Because of the aforementioned consequences of conducting research on subjective well-being, crisis can paradoxically help and enforce change that was long needed. Holding on to traditional views that do not work anymore does not solve current problems and creates an archaic system that is bound to fail sooner or later. Rising unemployment and debt paired with the lack of financial security have a major impact

on people's lives challenging mainstream views embedded for a long time and taken for granted. Changing circumstances, such as a worldwide financial crisis, can produce a new way of thinking about usual patterns of behaviour and results in putting more effort into creating, developing, facilitating, and practically implementing new ideas. These ideas might have existed before but nobody was interested in exploring them or making them mainstream since the old system worked and the majority did not complain. In the light of the global crisis, it seems that these new ideas need to be given a chance as they can transform the existing status quo and enhance the well-being of all.

6.4.1 Policy implications?

Despite raising awareness about correlates of the happy life and the importance of national context, the question remains as to whether there is something that public policy can do to help people achieve optimal happiness. In the light of the findings of this thesis, it seems that it can. While questions of subjective well-being have already become part of national accounts in many European countries following calls by government leaders and indirectly provoked by economic crisis, more can be done in this area.

Governments in Europe can benefit from knowledge of changing happiness trends and use the Easterlin paradox as the beginning of a new policy approach that focuses upon economic acceleration but not at any cost. This new approach inspects all factors relevant to optimal quality of life so a balance can be reached between positive national economic growth and other factors such as individual income worry, provision of benefits, importance of social capital, health and family status, and employment that all contribute to the individual flourishing. A more comprehensive approach to fostering optimal feeling and functioning implemented in government policies can also be a rescue during times of national economic downturn that happen in a cyclical way. Promoting well-being in all areas of life and giving it a preferential role in governmental policies can ensure that, even when national economies experience problems, well-being will not plummet as people have other areas of life from which they can gain social support and material assistance. This will help to ensure optimal well-being to many in the society despite the global context.

The significant negative effect of financial distress affecting life satisfaction of all income groups can also be addressed by public policy. Cuts to social benefits often influence those already under financial strain who experience increased income worry because of it. Governments can implement policies that will gradually lessen the amount of benefits received by those in need in order to give them time to adjust to the new economic reality and make necessary changes. These may include downsizing expenses, merging debts in one loan payment or re-organizing social activities. Rather than sudden cuts, a more gentle approach can be adopted that allows the affected group to come up with new strategies of dealing with the recession and its consequences for their lifestyles without causing so much distress detrimental to well-being.

6.5 Further research

This project opened new avenues for further research, providing a more sophisticated picture of the correlates of life satisfaction levels and its change in Europe in the context of the 2008 global recession. Regarding happiness trends and their variation, further analysis focusing solely upon the correlates of change would help to establish what factors are correlated with it, as they may differ to those that are relevant to life satisfaction at the beginning and end of the specified time- frame. Also, adding more macro and micro variables to the analysis would help to provide more detailed assessment of the correlates of national life satisfaction trajectories and scores in Europe. In relation to the recession and its consequences for well-being in Europe, more nuanced analysis that explores its effect on subgroups in the society would provide a more exhaustive picture of the winners and losers of the 2008 economic crisis. Furthermore, distinguishing between different kinds of satisfaction, such as financial satisfaction, satisfaction with government, family satisfaction etc., would help to provide a more complete view of the subdomains of subjective well-being that contribute to an overall feeling of satisfaction with life in the context of the 2008 recession.

6.6 Limitations

There are a number of limitations to the study that need to be pointed out. Firstly, owing to lack of time-series data, the sample omits some important European nations. Italy, Romania, Latvia, Lithuania, and the Balkan nations are all members of the European community and take part in well-being rankings there. It would be interesting to inspect satisfaction trends occurring in those countries, assess their levels of financial distress before and after 2008 recession, and explore how country context influences the effect of different factors on happiness. The analysis from these countries would help to provide a clearer picture of regional differences in SWB in Europe and assess if some nations follow the pattern typical for their region or manage to escape it. For example, including Italy would help to determine if the decline in happiness occurred there too, hence if there is a general trend of happiness decline in the Mediterranean sample. Similarly, including Latvia, Lithuania, and Romania would help to disentangle more nuanced trends in the post-communist sample in Europe that overwhelmingly recorded growth in life satisfaction from 2002 to 2012.

Secondly, the issue of causation is a limitation to the study. The regression analysis conducted is based on correlations, and so this project cannot establish if higher levels of wealth cause higher life satisfaction when individual life satisfaction is investigated. However, the associations between these factors are present and are statistically significant. The study controls also for some standard variables to deal with the issue of spuriousness. Despite these results, the nature of the dataset prohibits any assumptions about the direction of causation for individual-level analysis but not for country-level analysis. The ESS is a time-series cross-national dataset and not a longitudinal one in which participants are randomly selected every two years in each country to participate in the study. Hence any processes are not particular to the same groups of individuals and cannot show causes of change in their well-being scores over time. But these processes can be discussed on the aggregate level of countries as the data has a longitudinal frame there.

Thirdly, the studies relied upon self-reported measures of well-being and independent variables which can introduce response bias to the study, if the participants regularly give the same values (high, medium or low) for each variables of the study. However, this problem is prevalent in the social science surveys and there are measures introduced that aim to eliminate the effects of satisficing or response bias in the studies that use self-reported indicators.

6.7 Conclusion

Higher wealth supports higher life satisfaction in Europe in the early 21st century. Similarly, being on the path to greater economic prosperity is favourable to higher life satisfaction. This is why economic difficulties have disastrous effects on well-being in nations that experience them the most. Here the common market of Europe embodied by the European Union that facilitated the process of catching of new member states in the 1980s and 2000s to the rest of the continent in economic and political terms, plays a vital role. However, this role was undermined by the global recession that exposed the importance of national context to fostering well-being of its inhabitants. Hence it seems that it is the duty of a country, and not the greater European community, to put its national well-being on the path to recovery, development, and growth that follow growing wealth and standards of living. The livability of a society makes the Easterlin paradox an illusion for some countries in Europe, while for others it makes it a reality.

Appendix

Table 1. Happiness trends as reported by researchers assessing the Easterlin paradox over time.

Author	Study done by	Dataset and dates	Flat trend	Positive trend	Negative trend
Veenhoven 1993	1948 -Cantril & Buchanan; 1981- author	**1948-1981**	IT	West GER, GB, FR	NOR, NTH
Inglehart 1988	author (% of very happy people)	1973-1987	none	**DK, IT**, GER, UK	**BEL**, NTH, IE, FR
Easterlin 1995	Inglehart 1992	1973-1989	**UK**, FR, NTH	**DK, IT,** GER	**BEL,** IE
Oswald 1997	author	1973-1990	**UK, IE**	**DK, IT,** FR, WGER, LUX, NTH	**BEL**
Hagerty and Veenhoven 2003	authors	1973-1996	**UK**, **IE**, FR, NOR, GER, SP, GR	**DK**, **IT**, LUX, PT, NTH	**BEL**
Veenhoven and Hagerty 2006	authors	1973-2004	**UK**, **IE**, GER	**DK**, **IT**, FR, LUX	**BEL**
Stevenson and Wolfers 2008	authors	EU 1973-2007	**UK**, **IE**	**DK, IT**, West GER, FR, NTH	**BEL**
Inglehart et al.2008	authors	1946 WDH + WVS 2005-2007	NOR	**DK**, **IT**, FR, LUX, IR, NTH, PL, SP, SWE, FIN	**BEL**,UK, AU, West GER
Sacks, Stevenson and Wolfers 2010	Stevenson and Wolfers 2008	EU 1973-2007	**UK**, **IE**	**DK**, **IT**, FR, West GER, NTH	**BEL**
Pittau 2010	author	**1992-2002 (short term)**	**UK**, **IE**, DK, GER,	**IT,** FR, SP, GR	**BEL**, NTH, LUX, PT
Wolfers, Sacks and Stevenson 2012	authors	WVS 1981-2008,EU 1973-2009	none	**DK**, **IT**, FR, West GER, NTH, GR**,** UK, IE (probably	**BEL**

				not significant*)*	
Bjørnskov, Ch., Gupta, N. and Pedersen, P. 2007	authors	EU 1973-2002	General stagnant trend in 15 EU countries		
R. Layard, G. Mayraz, S. Nickell 2010	authors	EU 1973-2007	Disparate trends in happiness in different EU countries. Time span between countries varies as they enter EU at different years.		
Sacks, Stevenson and Wolfers 2013	authors	WVS 1981-2008, EU 1973-2009		General positive trend in EU countries	
Veenhoven and Vergunst 2013	World Database of Happiness	WHD 1946-2011		Happiness grew in 43 nations among 67	Happiness declined in 24 nations among 67
Easterlin 2013b	Older studies by authors	Developed, developing and transitional countries	General lack of trends across the world		

Figures 1a-c from Veenhoven and Vergunst (2013).

Figure 1a
Economic growth and rising happiness in nations
Correlation in 114 series over 10 to 20 year periods

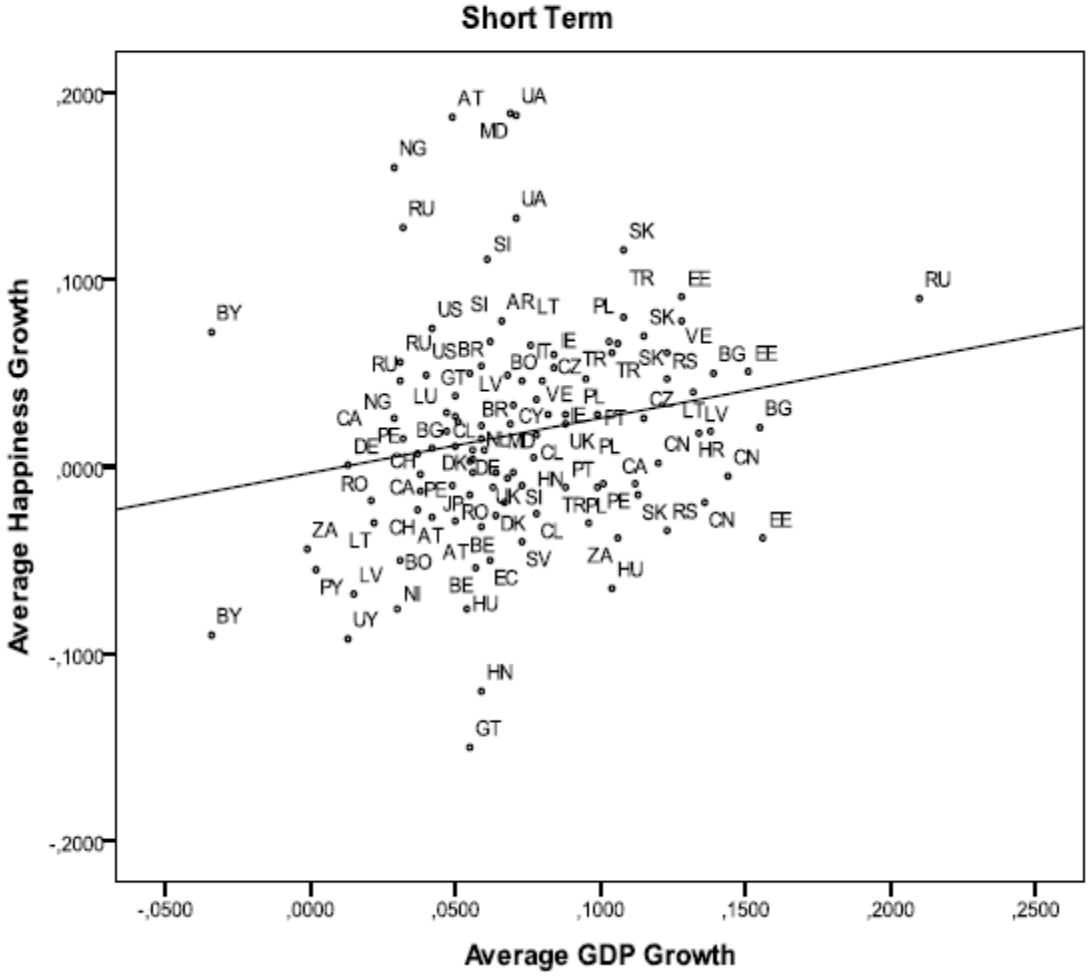


Figure 1b

Economic growth and rising happiness in nations

Correlation in 67 series over 21 t0 40 year period

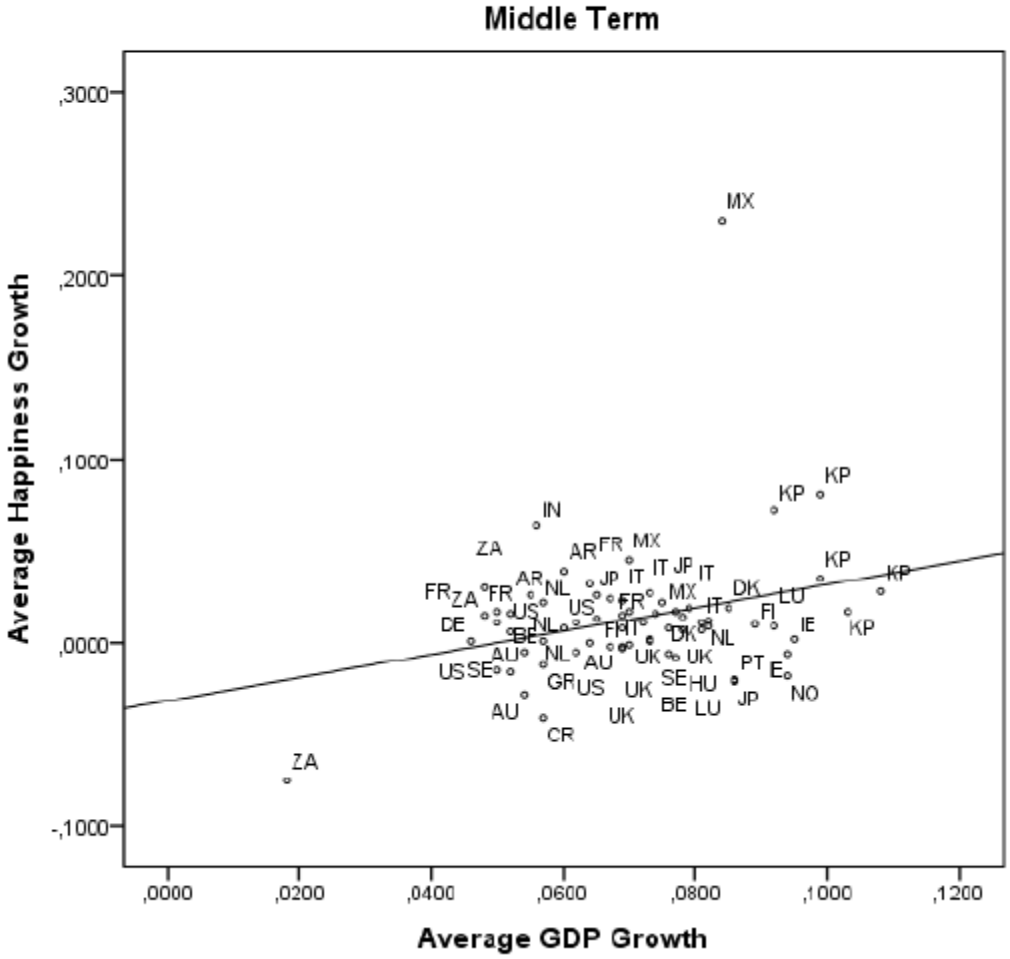


Figure 1c

Economic growth and rising happiness in nations

Correlation in 18 series over periods of more than 40 years

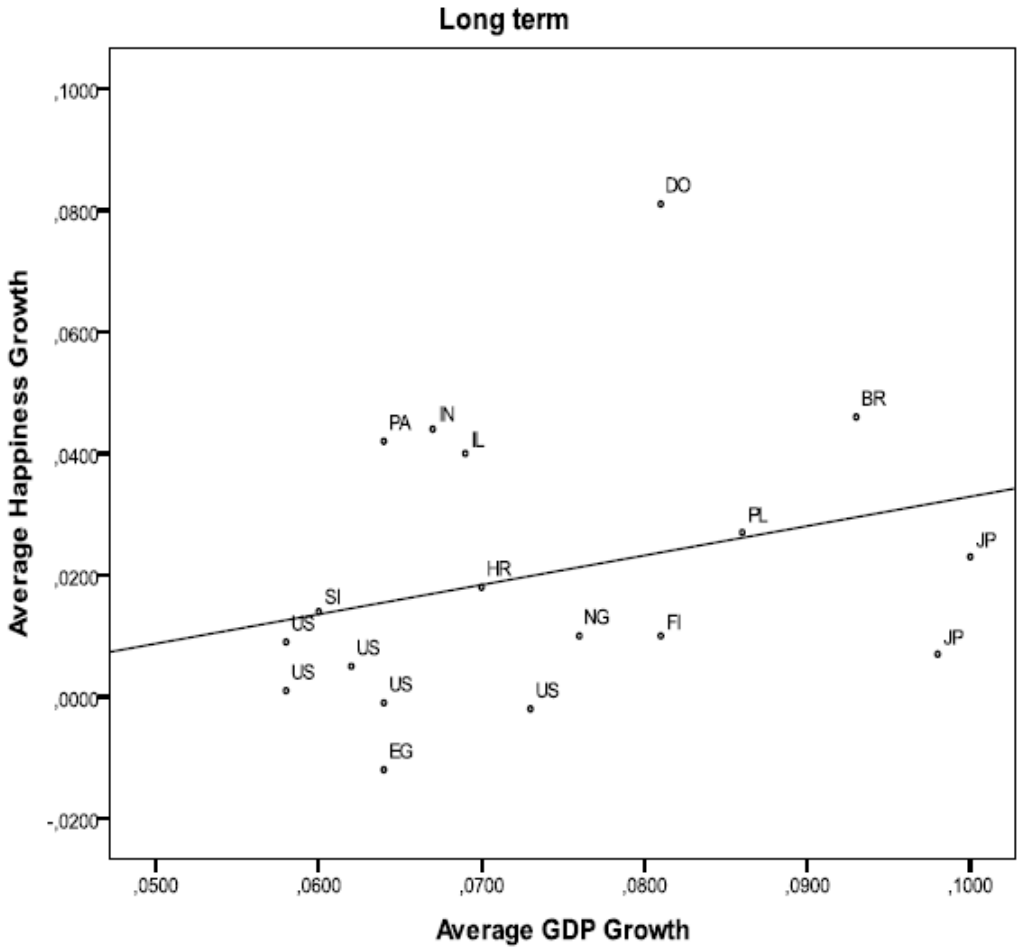


Table 2. Mean of life satisfaction in each country by year from ESS (design-weighted).

Descriptive Statistics				
Country	**Round**	**N**	**Mean**	**Std. Deviation**
Belgium	1	1882	7.44	1.936
	2	1777	7.43	1.800
	3	1795	7.41	1.871
	4	1755	7.27	1.896
	5	1702	7.51	1.648
	6	1868	7.44	1.758
Bulgaria	3	1389	4.70	2.688
	4	2220	4.41	2.604
	5	2420	4.88	2.625
	6	2250	4.42	2.671
Switzerland	1	2037	8.01	1.707
	2	2139	8.06	1.691

	3	1803	8.10	1.624
	4	1818	7.96	1.707
	5	1505	8.14	1.652
	6	1491	8.19	1.665
Cyprus	3	995	7.46	1.659
	4	1209	7.08	1.802
	5	1069	7.14	1.984
	6	1111	6.86	2.405
Czech Republic	1	1350	6.45	2.162
	2	2972	6.54	2.201
	4	1995	6.65	2.099
	5	2380	6.41	2.175
	6	1978	6.67	2.122
Germany	1	2915	6.96	2.245
	2	2856	6.79	2.264
	3	2912	6.83	2.182
	4	2745	6.95	2.218
	5	3027	7.25	2.106
	6	2956	7.60	2.003
Denmark	1	1494	8.44	1.577
	2	1484	8.46	1.476
	3	1497	8.48	1.501
	4	1609	8.52	1.417
	5	1572	8.35	1.555
	6	1648	8.57	1.505
Estonia	2	1985	5.89	2.241
	3	1496	6.38	2.214
	4	1653	6.20	2.226
	5	1791	6.52	2.292
	6	2373	6.18	2.381
Spain	1	1705	7.08	1.893
	2	1653	7.13	1.934
	3	1863	7.44	1.791
	4	2553	7.31	1.803
	5	1885	7.30	1.748
	6	1884	6.91	2.326
Finland	1	1999	7.91	1.651
	2	2019	8.00	1.540
	3	1893	7.99	1.513
	4	2195	7.94	1.540
	5	1876	7.94	1.516
	6	2194	8.11	1.395
France	1	1499	6.42	2.555
	2	1806	6.44	2.388
	3	1986	6.42	2.422
	4	2070	6.35	2.415
	5	1728	6.34	2.416
Great Britain	1	2046	7.07	2.106
	2	1890	7.12	1.951
	3	2390	7.23	1.946
	4	2346	7.08	2.091
	5	2408	7.17	2.043
	6	2270	7.35	2.014
Greece	1	2558	6.33	2.379

	2	2404	6.42	2.196
	4	2066	6.06	2.313
	5	2706	5.71	2.347
Hungary	1	1668	5.61	2.482
	2	1493	5.69	2.501
	3	1507	5.42	2.581
	4	1536	5.29	2.585
	5	1555	5.83	2.476
Ireland	1	2027	7.44	2.066
	2	2279	7.72	1.741
	3	1792	7.54	1.931
	4	1762	7.12	2.106
	5	2572	6.59	2.252
	6	2618	6.78	2.228
Netherlands	1	2358	7.69	1.591
	2	1879	7.57	1.630
	3	1888	7.55	1.556
	4	1773	7.69	1.450
	5	1828	7.77	1.425
	6	1845	7.90	1.468
Norway	1	2036	7.76	1.692
	2	1757	7.66	1.801
	3	1746	7.76	1.675
	4	1548	7.89	1.659
	5	1549	7.93	1.657
	6	1622	8.14	1.567
Poland	1	2092	5.85	2.627
	2	1710	6.24	2.516
	3	1713	6.69	2.409
	4	1607	6.87	2.304
	5	1740	7.00	2.214
	6	1887	7.12	2.255
Portugal	1	1498	5.91	2.161
	2	2041	5.68	2.037
	3	2189	5.52	2.121
	4	2330	5.72	2.266
	5	2138	5.93	2.238
	6	2137	5.99	2.092
Russia	3	2419	5.25	2.554
	4	2494	5.47	2.491
	5	2585	5.70	2.418
	6	2459	5.80	2.318
Sweden	1	1994	7.80	1.728
	2	1945	7.84	1.704
	3	1924	7.82	1.762
	4	1830	7.86	1.723
	5	1496	7.91	1.682
	6	1844	7.87	1.698
Slovenia	1	1497	6.57	2.381
	2	1439	6.90	2.121
	3	1470	6.97	2.185
	4	1274	6.93	2.139
	5	1394	6.97	2.152

	6	1253	6.98	2.192
Slovakia	2	1496	5.58	2.573
	3	1748	6.08	2.289
	4	1789	6.51	2.216
	5	1845	6.56	2.296
	6	1839	6.76	2.130
Ukraine	2	1997	4.44	2.389
	3	1962	4.39	2.723
	4	1783	4.19	2.556
	5	1906	4.82	2.571

Table 3. Margin plots for interaction effect between region and GDP growth rate (CH2).

	Margin	**Std. Err.**	**t**	**P>t**	**95% CI**	
1/West	5.760	0.410	14.06	0	4.913	6.607
1 /East	6.324	0.326	19.41	0	5.650	6.999
1 /North	7.072	0.443	15.97	0	6.156	7.989
1 /South	5.664	0.565	10.03	0	4.496	6.832
2 / West	5.923	0.336	17.62	0	5.227	6.618
2 / East	6.438	0.284	22.64	0	5.850	7.026
2 / North	7.020	0.390	18	0	6.213	7.827
2 / South	5.895	0.471	12.52	0	4.922	6.869
3 / West	6.085	0.268	22.71	0	5.531	6.640
3 / East	6.552	0.246	26.62	0	6.042	7.061
3 / North	6.968	0.341	20.42	0	6.262	7.674
3 / South	6.127	0.384	15.96	0	5.333	6.921
4 / West	6.248	0.210	29.72	0	5.813	6.683
4 / East	6.665	0.213	31.26	0	6.224	7.106
4 / North	6.916	0.299	23.15	0	6.298	7.534
4 / South	6.358	0.310	20.48	0	5.716	7.000
5 / West	6.411	0.174	36.9	0	6.051	6.770
5 / East	6.779	0.188	35.98	0	6.389	7.168
5 / North	6.863	0.265	25.86	0	6.314	7.412
5 / South	6.589	0.262	25.18	0	6.048	7.131
6 / West	6.573	0.173	38.1	0	6.217	6.930
6 / East	6.892	0.175	39.37	0	6.530	7.254
6 / North	6.811	0.245	27.79	0	6.304	7.318
6 / South	6.821	0.253	26.99	0	6.298	7.343
7 / West	6.736	0.207	32.51	0	6.308	7.165
7 / East	7.006	0.176	39.84	0	6.642	7.370
7 / North	6.759	0.241	28.03	0	6.260	7.257
7 / South	7.052	0.287	24.57	0	6.458	7.646
8 / West	6.899	0.264	26.13	0	6.353	7.445
8 / East	7.119	0.191	37.35	0	6.725	7.514
8 / North	6.706	0.254	26.38	0	6.180	7.232
8 / South	7.284	0.352	20.68	0	6.555	8.012

9 / West	7.062	0.332	21.29	0	6.375	7.748
9 / East	7.233	0.217	33.4	0	6.785	7.681
9 / North	6.654	0.282	23.59	0	6.070	7.238
9 / South	7.515	0.435	17.29	0	6.616	8.414
10 / West	7.224	0.405	17.84	0	6.387	8.062
10 / East	7.347	0.250	29.37	0	6.829	7.864
10 / North	6.602	0.321	20.58	0	5.938	7.265
10 / South	7.746	0.526	14.72	0	6.657	8.835
11 / West	7.387	0.481	15.35	0	6.392	8.382
11 / East	7.460	0.289	25.83	0	6.863	8.058
11 / North	6.549	0.367	17.84	0	5.790	7.309
11 / South	7.978	0.623	12.8	0	6.689	9.267

Table 4. Calculated margins for interaction effect between region and corruption score (CH2).

Corruption score/ region	**Margin**	**Std. Err.**	**t**	**P>t**	**95% CI**	
2 /West	4.638	0.716	6.48	0	3.156	6.119
2/ East	6.240	0.327	19.09	0	**5.564**	**6.916**
2/ North	1.633	1.411	1.16	0.259	**-1.286**	**4.553**
2/ South	5.863	0.361	16.22	0	**5.115**	**6.611**
4/ West	5.357	0.501	10.7	0	4.321	6.393
4/ East	6.478	0.226	28.66	0	**6.011**	**6.946**
4/ North	3.244	1.029	3.15	0.004	**1.115**	**5.372**
4/ South	6.227	0.193	32.22	0	**5.827**	**6.627**
6/ West	6.077	0.294	20.66	0	5.468	6.685
6/ East	6.717	0.172	39.01	0	**6.361**	**7.073**
6/ North	4.854	0.651	7.46	0	**3.508**	**6.200**
6/ South	6.591	0.260	25.37	0	**6.054**	**7.129**
8/ West	6.796	0.142	47.9	0	6.503	7.090
8/ East	6.955	0.206	33.73	0	6.529	7.382
8/ North	6.464	0.294	21.97	0	5.855	7.073
8/ South	6.955	0.470	14.79	0	5.983	7.928
10/ West	7.515	0.227	33.08	0	7.045	7.985
10/ East	7.194	0.300	24.02	0	6.574	7.813
10/ North	8.074	0.219	36.82	0	7.621	8.528
10/ South	7.319	0.706	10.37	0	5.859	8.779

Table 5. Multicollinearity statistics for OLS CLSE within countries for model 2 in chapter 2.

Variable	**VIF**	**1/VIF**
Ln GDP PPP	3.66	0.273
Corruption	3.4	0.294
Crime rate	1.56	0.639
GDP growth	1.36	0.736
Unemployment rate	1.32	0.757
Mean VIF	2.26	

*Assumptions are checked with the F and chi2 statistics after modelling data with GDP only, and with other explanatory vars. Due to panel structure of the data there is no need to assess normality, heteroschedascicity.

Table 6. Country participation in ESS and sample size.

Country	ESS round						
	1	**2**	**3**	**4**	**5**	**6**	**Total**
BE	1,899	1,778	1,798	1,760	1,704	1,869	10,808
BG			1,400	2,230	2,434	2,260	8,326
CH	2,040	2,141	1,804	1,819	1,506	1,493	10,803
CY			995	1,215	1,083	1,116	4,411
CZ	1,360	3,026		2,018	2,386	2,009	10,800
DE	2,919	2,870	2,916	2,751	3,031	2,958	17,445
DK	1,506	1,487	1,505	1,610	1,576	1,650	9,334
EE		1,989	1,517	1,661	1,793	2,380	9,341
ES	1,729	1,663	1,876	2,576	1,885	1,889	11,618
FI	2,000	2,022	1,896	2,195	1,878	2,197	12,188
FR	1,503	1,806	1,986	2,073	1,728	1,968	11,064
GB	2,052	1,897	2,394	2,352	2,422	2,286	13,403
GR	2,566	2,406		2,072	2,715		9,761
HU	1,685	1,498	1,518	1,544	1,561	2,014	9,820
IE	2,046	2,286	1,800	1,764	2,576	2,628	13,100
NL	2,364	1,881	1,889	1,778	1,829	1,845	11,586
NO	2,036	1,760	1,750	1,549	1,548	1,624	10,267
PL	2,110	1,716	1,721	1,619	1,751	1,898	10,815
PT	1,511	2,052	2,222	2,367	2,150	2,151	12,453
RU			2,437	2,512	2,595	2,484	10,030
SE	1,999	1,948	1,927	1,830	1,497	1,847	11,048
SI	1,519	1,442	1,476	1,286	1,403	1,257	8,383
SK		1,512	1,766	1,810	1,856	1,847	8,792
UA		2,031	2,002	1,845	1,931	2,178	9,988
Total	34,850	41,214	40,597	46,236	46,838	45,849	255,584

Table 7. Explanatory variables used in the project.

Variable name	Description	Categories
	Social demographics	
Gender	gender	1=male, 2=female
Age	Age of respondent, calculated	
Health	Subjective general health	1=v good 2=good 3=fair 4=bad 5=v bad
Education	Highest level of education, ES-ISCED	0=not possible to harmonise 1=less than lower secondary 2=lower secondary 3=lower tier upper secondary 4=upper tier upper secondary 5=advanced vocational, sub-degree 6=BA level, lower tertiary edu 7=>MA, higher tertiary edu

		55=other
Co-habit	Lives with husband/wife/ partner	1=yes 2=no
	Economic variables	
Household income	Household's total net income, all sources	Different coding for waves 1-3 and 4-6
Employment status	Main activity, last 7 days. All respondents. Post coded	1 Paid work 2 Education 3 Unemployed, looking for job 4 Unemployed, not looking for job 5 Permanently sick or disabled 6 Retired 7 Community or military service 8 Housework, looking after children, others 9 Other
	Social capital	
Social trust		
people can be trusted	Most people can be trusted or you can't be too careful	0=no trust 10=trust
people try to take advantage of you	Most people try to take advantage of you, or try to be fair	0=no fair 10=fair
people are helpful	Most of the time people helpful or mostly looking out for themselves	0=not helpful 10=helpful
Social relationships		
socially meet with friends	How often socially meet with friends, relatives or colleagues	1 Never 2 Less than once a month 3 Once a month 4 Several times a month 5 Once a week 6 Several times a week 7 Every day
Discuss intimate matters	Anyone to discuss intimate and personal matters with	1=yes 2=no
Institutional trust		
Trust in country's parliament	Trust in country's parliament	0= none 10=complete
Trust in the legal system	Trust in the legal system	0= none 10=complete
Trust in politicians	Trust in politicians	0= none 10=complete

Table 8. Recoded explanatory variables.

Variable name	Original category	Recoded categories
Main activity, last 7 days. All respondents. Post coded	1 Paid work 2 Education 3 Unemployed, looking for job 4 Unemployed, not looking for job 5 Permanently sick or disabled 6 Retired 7 Community or military service 8 Housework, looking after children, others 9 Other	1 - work (1) 3, 4 – unemployment (2) 2, 5,6,7,8,9 - other (in education, sick, retired) (3)
	Social trust	
Most people can be trusted or you can't be too careful	0=no trust 10=trust	0 = no social trust 10 = high social trust
Most people try to take advantage of you, or try to be fair	0=no fair 10=fair	
Most of the time people helpful or mostly looking out for themselves	0=no helpful 10=helpful	
	Institutional trust	
Trust in country's parliament	0= none 10=complete	0= none 10=complete
Trust in the legal system	0= none 10=complete	
Trust in politicians	0= none 10=complete	
	Social relations	
How often socially meet with friends, relatives or colleagues	1 Never 2 Less than once a month 3 Once a month 4 Several times a month 5 Once a week 6 Several times a week 7 Every day	1 = low social relations score 10 = high social relations score
Anyone to discuss intimate and personal matters with	1=yes 2=no	

Table 9. Predictive margins of financial distress and European region with 95% confidence intervals.

FD # region	Margin	SE	t	P> | t |	95% I	
Living comfortably # West	7.402383	0.083217	88.95	0	7.230235	7.574531
Living comfortably # East	7.935404	0.092699	85.6	0	**7.74364**	**8.127167**
Living comfortably # North	7.294996	0.149796	48.7	0	**6.985121**	**7.604872**
Living comfortably # South	7.578073	0.182014	41.63	0	7.201548	7.954597
Coping # West	6.931997	0.131197	52.84	0	6.660595	7.2034
Coping # East	7.409742	0.135833	54.55	0	7.128752	7.690733
Coping # North	7.094759	0.160875	44.1	0	6.761963	7.427555
Coping # South	7.092455	0.233954	30.32	0	6.608485	7.576425
Difficult present income# West	6.130973	0.217617	28.17	0	5.680798	6.581148
Difficult # East	6.578076	0.167048	39.38	0	6.232511	6.923641
Difficult # North	6.534775	0.134663	48.53	0	6.256203	6.813347
Difficult # South	6.584251	0.222269	29.62	0	6.124454	7.044049
Very difficult present income# West	5.353432	0.196159	27.29	0	4.947645	5.759218
Very difficult # East	5.683412	0.220174	25.81	0	5.227948	6.138877
Very difficult # North	5.93951	0.13302	44.65	0	5.664337	6.214683
Very difficult # South	6.015308	0.215961	27.85	0	5.568559	6.462058

Table 10. Frequency statistics of financial distress for countries of the liberal welfare regime.

Year	Living comfortably	Coping	Difficult	Very difficult
		Ireland		
2002	37.84	46.16	12.31	3.69
2004	47.55	41.1	9.4	1.94
2006	46.04	42.12	9.73	2.11
2008	31.29	47.84	15.93	4.95
2010	20.15	47.16	21.61	11.08
2012	21.96	46.26	21.42	10.36
change	**-15.88**	**0.10**	**9.11**	**6.67**
		Great Britain		
2002	40.18	46.95	10.81	2.06
2004	36.1	45	14.7	4.05
2006	41.34	42	13.33	2.85
2008	36.64	45	14.3	4.25
2010	35.65	45.06	14.27	5.02
2012	37	44	14	5.02
change	**-3.18**	**-2.95**	**3.19**	**2.96**

Table 11. Pooled OLS CLSE analysis of life satisfaction and social benefits covariates included.

	B	**SE**	**t**	**P>t**	**95% CI**	
Constant	5.334	5.142	1.04	0.313	-5.427	16.096
Log GDP PPP	0.088	0.508	0.17	0.864	-0.976	1.152
GDP growth	0.057	0.030	1.91	0.071	-0.005	0.120
Unemployment rate	0.008	0.020	0.39	0.699	-0.035	0.051
Corruption score	0.090	0.056	1.6	0.125	-0.028	0.208
Crime rate	0.023	0.073	0.32	0.754	-0.130	0.176
Social expenditure in % of GDP PPP	-0.009	0.022	-0.39	0.703	-0.056	0.038
Unemployment generosity benefit	0.001	0.040	0.02	0.985	-0.084	0.085
Gender reference category = male						
Female		0.020	6.07	0	0.080	0.165
Age reference category = 14-24						
Age 25-34		0.037	-5.15	0	-0.271	-0.114
Age 35-44		0.052	-6.01	0	-0.418	-0.202
Age 45-54		0.064	-5.07	0	-0.461	-0.192
Age 55-64		0.084	-2.19	0.041	-0.360	-0.008
Age > 65		0.081	1.12	0.276	-0.079	0.262
Health		0.024	-19.79	0	-0.516	-0.417
Education		0.010	-0.24	0.815	-0.022	0.018
Cohabitation status reference category = cohabiting						
Not cohabiting		0.025	-17.9	0	-0.500	-0.395
Employment status reference category = in paid work						
Unemployed		0.056	-10.76	0	-0.725	-0.489
Economically inactive		0.029	0.01	0.993	-0.061	0.062
Other		0.024	6.6	0	0.106	0.205
Household income reference category = household income quintile 1						
Household income quintile 2	0.024	0.024	1.02	0.319	-0.025	0.074
Household income quintile 3	0.029	0.030	0.97	0.346	-0.034	0.092
Household income quintile 4	0.039	0.042	0.92	0.371	-0.050	0.128
Household income quintile 5	0.057	0.044	1.29	0.213	-0.035	0.149
Sociability	0.058	0.007	8.37	0	0.043	0.072
Trust in institutions	0.140	0.011	12.39	0	0.116	0.164
Trust social	0.158	0.008	18.88	0	0.141	0.176
Financial distress reference category = living comfortable on present income						
Coping on present income	-0.403	0.053	-7.67	0	-0.513	-0.293
Difficult living on present income	-1.151	0.087	-13.23	0	-1.334	-0.969
Very difficult living on present income	-1.850	0.116	-15.89	0	-2.093	-1.606
Year dummies	Yes					

R sq =0.32, n=129,544

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