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Life is Getting Worse in ESS Data: Is This Due to Micro or Macro Factors?

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Abstract

In order to evaluate the success of a society, measuring well-being might be a fruitful avenue. For a long time, governments have trusted economic measures, Gross Domestic Product (GDP) in particular, to assess their success. However GDP is only a limited measure of economic success, which is not enough to show whether policies implemented by governments have a positive perceived impact on the people they represent. This paper belongs to the studies of the relationship between measures of well-being and economic factors. More precisely, it tries to evaluate the decrease in happiness and life satisfaction that can be observed in European countries in the 2000-2010 decade. It asks whether this deterioration is mainly due to microeconomic factors, such as income and individual characteristics, or rather to environmental (macroeconomics) factors such as unemployment, inflation or income inequality. Such aggregate factors could impact individual happiness per se because they are related to the perception of an aggregate risk of unemployment or income fall. In order to strengthen this interpretation, this paper checks whether the type of social protection regime existing in different countries mediates the impact of macroeconomic volatility on individual well-being. To go further, adopting the classification of welfare regimes proposed by Esping-Andersen (1990), it verifies whether the decreasing pattern of subjective well-being varies across these regimes. This is partly due to the aggregate social protection expenditure. Hence, this paper brings some additional evidence to the idea that macroeconomic uncertainty has a cost in terms of well-being. More protective social regimes are able to reduce this cost. It also proposes an evaluation of the welfare cost of unemployment and inflation (in terms of happiness and life satisfaction), in each of the different social protection regimes. Finally different measures of well-being, i.e. cognitive, hedonic and eudaimonic, are used to confirm the above mentioned result.

Keywords: Happiness, Well-Being, Macroeconomics, Social Protection, Welfare Capitalism

JEL codes: E66, D60, I31

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1 Introduction

Does subjective well-being change over time?

According to a large body of the literature, levels of subjective well-being perceived by individuals do not significantly change over time. As the wealth of nations progresses, relative improvements and losses offset each other in a given population, resulting in the absence of a general change in the happiness level of a given nation (Easterlin, 1974). Therefore the trend of subjective well-being over time is supposed to be somewhat constant. Either a rise or a drop in perceived happiness would have the only consequence of bringing back individuals to their initial levels of well-being after a period of adjustment, generating a phenomenon initially called "hedonic treadmill" (Brickman and Campbell, 1981).

The main explanations for this pattern concern the importance of adaptations and social comparisons effects in the society. The concept of adaptation relies on the fact that changes in the living and economic conditions of individuals have only a temporary effect on their level of well-being. Rising wealth or experiencing serious life issues do not significantly affect happiness because in the long period people will come back to their starting level of well-being, either at the individual or the country level (Blanchflower, 2008).

Social comparison theory (Easterlin, 1974; 2003) instead states that individuals are concerned only by their relative position with respect to a certain reference group of people, carefully chosen, to which they decide to compare themselves (Layard et al, 2009; Di Tella et al, 2007; Ferrer-i-Carbonnell, 2005; Diener et al. 1993). These comparisons create the level of aspirations and desires associated to every individual and offer another explanation for the stability of the aggregate happiness of nations. In every country, the relative attainments and failures of each individual offset each other causing no substantial changes in the level of subjective well-being perceived by the entire society. Assuming happiness as mainly dependent by individuals' relative position in a society implies that - even if the whole economy of a country gets better off, only those with above-average enhancements will experience higher well-being, and these increases will be compensated by decreases among those with below-average improvements.

In spite of these theories some more recent works have tried to shed more light on the time patterns of well-being over countries. According to Stevenson and Wolfers (2008) and

Inglehart (2009) in the long run well-being varies over time and over countries, increasing in some of them while decreasing in others. For instance, they observed that well-being has increased in many Western European countries but decreased in the United States. However, Easterlin and Angelescu (2009) showed that Stevenson and Wolfers did not take into account the differences between the short and long-run relationship of subjective well-being and income. Indeed these are correlated in the short-term but not in the long run.

In addition there is also an open debate on the possibility that instead of a treadmill, that tends always in one direction, happiness is characterised by a homeostatic behaviour. Individuals preserve almost constant levels of well-being all over their lives, regardless of the events arising in their environment. Diener and Fujita (2005) analysed the stability of subjective well-being over time and found that there may be a stable range in which the level of satisfaction fluctuates. They also argue that level of life satisfaction is more stable in the long period than in the short run, and that those with a greater average level of life satisfaction also exhibit more stable levels of subjective well-being.

Those studies, however, do not offer an explanation for the cross-country differences in the trends of subjective well-being. Although they offer some evidence on how adaptation and social comparisons do not totally compensate changes in happiness, they do not explain why the trends of well-being vary across different countries.

To fill this gap, this paper runs a cross-sectional analysis of the trends of happiness and life satisfaction in a sample of 25 countries over a period from 2002 to 2008. Interestingly, the result is of a decreasing pattern in both happiness and life satisfaction over time in the period covered. Although this decrease is concomitant with a reduction of personal income in the sample, neither income nor other microeconomic characteristics explain this trend. Conversely, this pattern seems to be explained away by the introduction of macroeconomics factors. This is consistent with a small literature that has shown aggregate happiness to be sensitive to the business cycle. (Di Tella et al, 2001; Wolfers, 2003).

Consequently, we introduce macroeconomic magnitudes in the estimates to evaluate the factors of the decreasing subjective well-being over time. Considering the influence of macroeconomic variables as reflecting environmental changes in the perception of the well-being in a given country, this choice allows us to include in the analysis how individuals perceive fluctuations in the aggregate economic conditions of the country in which they live. Since on a 8-year basis macroeconomics variables are more time dependent than individual characteristics (age, gender, marital and unemployment status for instance), we can consider

the effect of these environmental changes to have a higher explicative power for the time trend of well-being. Therefore, assuming the environmental factors as associated to cross-region differences in well-being over time, we can use these variables to assess which and what kind of effect matters more for the puzzle suggested by the data.

Decreasing patterns of subjective well-being

Besides analysing the typical socio-demographic and microeconomic variables, we can also investigate the influence of macroeconomic variables on subjective well-being. To be precise, happiness and life satisfaction surveys do not directly ask people whether and how much they like inflation or unemployment. Instead, respondents are only asked how happy they feel, but by analysing both their answers and macroeconomic variables, it can be shown that these answers move together with macroeconomics figures and that it's worth to investigate this relationship.

The aim of this paper is to provide an explanation for the decreasing pattern in the perceived well-being conditions through their determinants at a micro and in particular macro-level, in a sample of 25 countries representing the Euro area and its main partners. According to the data collected by the European Social Survey (ESS) happiness, life satisfaction and income all decrease over the 4 rounds of the ESS, covering a period from 2002 to 2008 (Table 1). If on one hand the decreasing well-being over time is in contrast with the literature related to the hedonic treadmill, on the other it also leads us to verify whether conditions similar to the ones of the hedonic treadmill are completely absent from our sample or instead they do have a role even just in some countries rather than others. Considering all the countries together, if the decreasing trend in well-being suggested by the descriptive analysis is not confirmed for each nation then this can let us think that other factors are at play. In particular, if we observe that well-being is somewhat stable for some group of countries instead of others, then we may suspect that there are some factors, shared over some specific countries and over time - dampening the determinants of the fall in subjective well-being observed in the sample as a whole.

Although at an aggregate level the decreasing pattern of subjective well-being is associated to a corresponding drop of individual income in the sample (Table 1), when we try to investigate this figure at a micro level, personal income does not succeed in explaining this pattern (Table 2). Furthermore, if we consider each country separately, many of them do not show a strong

association between income and happiness over time, regardless of the differences in the level of income in each country (descriptive statistics available on request). In addition, countries of interest show overall a constant relative-to-the-mean pattern for happiness and life satisfaction values over time (results available but not shown). Combining this result with the previous ones reinforces the idea of a stable decrease over time, not determined by outlier observations that might drive the patterns of well-being when we pool together all the countries in the sample. Over four ESS rounds countries generally keep their position either if it's above or below the mean. This evidence increases the reliability of the analysis previously introduced: the general trend for subjective well-being is downward sloped and it's not due just to some extreme values of some particular countries in the sample. Therefore, according to the information collected by the European Social Survey, individual subjective well-being actually suggests that life perceived conditions are generally worsening over time in our countries of interest.

Introducing macroeconomics variables, we are able to better explain the decreasing values of subjective well-being over time, but if we run a separate analysis for groups of countries we can see as macro indicators have less power on well-being in some of them (particularly the Nordic countries). This result calls into question the differences in social protection expenditure over the countries in the sample, offering an explanation to why happiness decreased sensibly less or remained somewhat constant in some countries rather than others over the years. This also opens for an evaluation of the role of the risk aversion in a society as well as its elicitation in terms of subjective well-being.

One of the most important study of the relationship between subjective well-being and macroeconomics variable comes from Di Tella et al. (2001). Considering a country-year panel they found that life satisfaction decreases with unemployment and inflation, controlling for country and year fixed effects. Their work was based on an unbalanced panel of Eurobarometer survey data and it focuses on 12 European countries on a 16-years period, from 1975 to 1991. Di Tella et al. also find out that in those European countries, people would trade-off a 1 percentage point increase in the unemployment rate for a 1.7 percentage point decrease in the inflation rate. Their finding is that a "misery index" that attaches equal weight to both inflation and unemployment would underestimate the cost of falling unemployed, since the inflation coefficient is smaller than the one of unemployment. Consequently unemployment can be considered as more important than inflation in terms of happiness cost,

so that a higher weight has to be put on it, given the traditional unemployment and inflation rates.

This paper starts performing the same kind of analysis, but using cross-sectional data surveyed over a 8-years period divided in biannual waves, covering a higher number of countries, i.e. 25, and with a higher number of macroeconomics indicators as well. Moreover, it shows that the categories of social regimes proposed by Esping-Andersen are relevant to the analysis of the subjective welfare cost of macroeconomic fluctuations.

Conceptual issues in measuring well-being

As highlighted by Clark et al (2006), a question asking about current happiness status on some ordinal scale is not sure will provide a good assessment of current conditions related to, for example, family life, job and income, since its score may carry on also transitory factors of daily life event. In addition, the comparability of responses across different people and the chances to carry on inter-personal or inter-temporal comparison of happiness scores are questionable. Measurement issues on the reliability and validity of the replies, whether respondents report their true feelings, and on possible biases arising from the context in which every question is asked have been the subject of several studies and the general conclusion is that indicators of subjective happiness and life satisfaction even though are not perfect, do provide an effective way to measure well-being. Indeed psychologists who worked with this kind of data (i.e. Eckman to cite one among many) have provided a variety of evidence showing that well-being data are correlated with physical reactions, associated in turn with true happiness.

While many studies consider happiness and life satisfaction to be synonymous, there is an increasing and considerable body of research showing that measures of happiness and life satisfaction are not so interchangeable (Cummings, 1998). Measures of subjective well-being are constructed by asking individuals to choose a point in an ordinal scale concerning their level of happiness or life satisfaction. One problem that stems from the use of this kind of variables in economics is that well-being is considered as made of two main components. The first one is affective, referring to hedonic valuations lead by emotions and feelings, the other main component is cognitive, expressing an information-based assessment of one's life. While the first one is hard to disentangle when we ask individuals to express their level of well-being, the second is more easily observable since it express the effect of observable and

measurable factors on the gap between expected and actually experienced life. In general, life satisfaction is considered as referring to rational states of consciousness, whereas happiness is emotional and mainly associated to intimate matters of life. Therefore, while the hedonic dimension is more present in the happiness variable, life satisfaction is instead supposed to be representative of the cognitive aspect of well-being.

Although many economists make no distinction between these two measures, psychologists instead carefully separate them. Di Tella et al (2003) justify this similarity on the basis of a correlation between the two variables of 0.56 for the period 1975-86 using Eurobarometer data. Other studies found similar results but however the correlations are not close enough to suggest that the indicators are necessarily representing the same concept. Besides this, it has also been emphasized that even if the concepts of happiness and life satisfaction have different meanings in English, they do translate in a much more similar way into other languages, and so the correlations between these terms stems from the translation process. This interpretation is supposed to be a good point in favour of collecting data on subjective well-being independently and in different ways, as well as to consider happiness and life satisfaction separately in our analysis.

ESS worlds of welfare capitalism

In *The three worlds of welfare capitalism* (1990), Esping-Andersen suggested a classification for OECD welfare states based on three principles:

1. De-commodification - the extent to which an individual's welfare is reliant upon the market, particularly in terms of pensions, unemployment benefit and sickness insurance.
2. Social stratification - the role of welfare states in maintaining or breaking down social status.
3. The private-public mix - the relative roles of the state, the family, the voluntary sector and the market in welfare provision.

The concept of de-commodification is particularly interesting. According to Esping-Andersen, social rights depends on citizenship and not on the performances on the market. If social services provision is not dependent on market performances but is offered as a part of people's rights, the individuals are no longer dependent on their relationship with money and they are therefore no longer "commodified", so that they are no more a commodity

themselves to which we can assign a value depending on a money relationship – de-commodification is an essential notion when we want to analyse specific types of welfare states. If the level of de-commodification is high, the well-being of individuals is no more completely reliant on the market and the money relationship. If social rights are assured by the government, the commodity status of individuals is reduced and benefits are then available as individuals' rights. Welfare states differ for their level of de-commodification. While in some countries, as for instance the Nordic, social services are usually provided as a part of people's rights, in others (as the Liberals) benefits will depend more on individuals' performances in the market.

This classification brought to three worlds of welfare capitalism through which classify European countries:

1. Conservative-corporatist - countries with a strong preservation of status differentials.
2. Liberal - belonging to modest social insurance countries.
3. Social democratic - with universal transfers and a high level of de-commodification.

In the beginning only 18 countries belonging to the central Euro area were included in these typologies, but some critics and further development lead to the inclusion of Eastern and Southern Europe (or Mediterranean) countries.

Considering the work of H.J.M. Fenger (2007), Cerami (2008) and J. Gal (2009) with the Esping-Andersen's theory we can indeed derive the following classification for the countries in our sample:

1. Conservative Corporatist: Austria, Belgium, France, Germany, Luxembourg and The Netherlands
2. Liberal type: Great Britain, Ireland and Switzerland
3. Social-Democratic: Denmark, Finland, Norway and Sweden
4. Eastern countries: Bulgaria, Czech Republic, Estonia, Hungary , Slovakia and Slovenia
5. Mediterranean countries: Cyprus, Greece, Italy, Portugal, Spain and Turkey

While the 3 categories suggested by Esping-Andersen are generally accepted by the literature as the foundation of the welfare states classification, the presence of Eastern and Mediterranean regimes requires a more exhaustive explanation.

With respect to the existence of a Central-Eastern regime, H.J.M. Fenger (2008) performed a hierarchical cluster analysis by grouping countries different from the traditional OECDs but

with similar characteristics through which he revealed that the Central-Eastern welfare states differ significantly from the types that are defined by Esping-Andersen. The periods of transformation experienced by Central and Eastern European countries carried on an economic crisis in the shape of higher inflation, unemployment and poverty, rising an imperative call for a higher degree of social protection. The acceptance of the new form of government in these countries depended on the ability to offer satisfactory social policies in response to these needs. The responsibility of handling the consequences of this economic downturn explains the introduction of better defined unemployment, disability, sickness and early retirement schemes in these countries. Nevertheless, the disparities with respect to the Western countries mostly arise from differences in the social situation, and not so much from differences in the governmental programs. In particular, the level of trust as well as the level of social programs and social situation are significantly lower than in other European countries. Because of the post-transition introduction of new social protection schemes, we can look at the Eastern group as a combination of some elements of the conservative-corporatist and, to a minor extent, the social-democratic group.

Considering the Mediterranean group, regardless of each specific characteristics belonging to the each Mediterranean state, according to J. Gal (2009) those countries have in common several specific features that allow us to separate them from other welfare categories. Indeed Mediterranean countries are characterized by somewhat low levels of economic production, with a GDP per capita lower than in other more industrially developed societies. Concerning the social protection expenditure those countries have started instead a catch-up process that brought them to levels higher than those of liberal countries, even if still lower than social-democratic and conservative ones (Figure 4). They also share low levels of female labor market participation, which is associated, according to the literature, to the kind of economic development of these societies as well as to the prevalence of the male bread-winner model. Last but not least, as a consequence of the relatively low social protection expenditure and female labor market participation, we find in those countries a low ability to handle poverty and inequality, and in turn, to manage social disparities.

The introduction of this classification in our sample is very useful to draw some more general cross-border considerations, allowing us to better take into account what countries have in common, as well as showing more precisely in which aspects do they differ with respect to changes in the determinants of subjective well-being. In addition, through these typologies we can also extend the analysis carried on by Di Tella et al (2001) deriving the happiness and life

satisfaction's loss for a change in social transfers in each category of the countries considered. Furthermore, we are also able to figure out how many percentage points of social transfers we need to increase to keep the happiness and life satisfaction index constant, for a given value of the unemployment-inflation ratio.

The methodology followed in this paper consists of, first, showing that subjective well-being surveyed in the sample is significantly different across countries and it decreases over time; then, microeconomic factors as personal revenue and individual characteristics are regressed on both happiness and life satisfaction confirming that micro correlates of well-being do not sufficiently explain the decreasing well-being. Afterwards, macro determinants as the GDP per capita, Gini coefficient, social protection expenditure, unemployment and inflation rate are introduced to show that environmental factors significantly help in explaining time fixed effects of well-being. All the macroeconomics variables are also compared to each other to determine which one affects more happiness and life satisfaction, and marginal rate of substitution between macro factors are computed to determine the full social costs of an increase in these variables. Finally hedonic and some suggestions of eudaimonic (multi-item) measures of well-being are compared to provide an analysis of the similarities and differences between these measures with respect to both micro and macro determinants of well-being.

The analysis of time trends in well-being in a cross-sectional dataset with respect to either single than multi-item measures of well-being, as well as the development of welfare regime classes inspired to the Esping-Andersen's work, want to extend the scope of traditional studies on subjective well-being. While many papers account for the effect of both micro and macro factors on individuals' well-being, social protection expenditure is often absent from the sets of macroeconomics correlates. In addition, the analysis of the temporal effects of micro and macro factors on well-being is somewhat omitted from cross-sectional studies. Filling this gap with lines of research derived from the literature on welfare regime typologies and eudaimonic indicators aims to go beyond the limitations imposed by survey data traditionally used to analyze well-being, and it constitutes an interesting contribution to the literature on subjective well-being.

The paper is organised as follows: Section 2 describes the data presenting the datasets features and highlighting why they have been chosen for this study; Section 3 presents the econometric model as well as the empirical strategy followed, introducing the conceptual issues standing behind this analysis, and relating them to the existing literature; Section 4 describes the empirical findings, while Section 5 introduces some alternative methodologies

and their outcomes to measure subjective well-being. Section 6 finally concludes with also some suggestions for further improvements.

2 Data Description

The European Social Survey

The analysis is based on a cross-sectional dataset, the European Social Survey (ESS), which contains nationally representative samples of individuals from more than 20 countries. The ESS examines the interaction between Europe's changing institutions and attitudes, beliefs and behavioural patterns of its different populations and it describes itself as a "methodologically bullet-proof study of changing social attitudes and values". Through its sampling and translation methodology the ESS ensures that data are comparable between countries.

In addition, ESS data are collected, where possible, through face to face interviews lasting about one hour. This allows the interviewers to clarify their questions and the subjects to develop their answers, so we can expect high quality data from the survey design, which also includes high quality controls as random probability sampling and minimum target response rates. The questionnaire includes two main sections: a "core" module which is repeated in each survey round, and a series of "rotating" modules, varying in each biannual round. In the rotating part every wave includes two specific topics that can change from a wave to the other. The fixed part instead includes questions that are present in every ESS wave. This module includes basic socio-economic and demographic background information, as well as some questions regarding respondents' satisfaction in different domains. The main purpose of this survey is to outline the attitudes of different regions towards religion, politics and moral issues, describing also their social habits and how they are changing over time.

The ESS provides two general well-being questions, the first is related to happiness where respondents are asked:

"Taken all thing together, how happy would you say you are?"

with answers on a 0 to 10 scale, where 0 corresponds to "Extremely Unhappy" and 10 to "Extremely Happy".

Similarly, the life satisfaction question asks:

"All things considered, how satisfied are you with your life as a whole nowadays?"

Answers are again on a 0 to 10 scale, where 0 corresponds to "Extremely Unsatisfied" and 10 to "Extremely Satisfied".

The cumulative data from four waves of the ESS includes 29 countries of which 25 are included in this analysis. Precisely those are:

Austria	Belgium	Bulgaria	Cyprus	Czech Republic
Denmark	Estonia	Finland	France	Germany
Greece	Hungary	Ireland	Italy	Luxembourg
Netherlands	Norway	Portugal	Slovakia	Slovenia
Spain	Sweden	Switzerland	Turkey	United Kingdom

Eurostat New Cronos

To include macroeconomics determinants of well-being in the analysis it is necessary to link micro data from ESS to macro data from a different dataset, the **Eurostat New Cronos**. Eurostat is the statistical body of the European Union and responds directly to the European Commission. Together with OECD, it works on issues concerning the cross-national comparability of economic, social, demographic and other indicators, producing detailed statistics on the member states of the EU. Eurostat does not collect data itself since this is done by the statistical authorities of each EU member state, but it gathers the data ensuring that all methodologies are harmonized and providing the European Union the evidence necessary to define policies and make comparisons between countries and regions. In addition, Eurostat also produces the data for EU structural policies and the macroeconomic data used by the European Central Bank in the development of its monetary policy.

The main database produced by Eurostat is the New Cronos, which include detailed data on a wide range of social and economic themes either at national or regional level. New Cronos is sub-divided into nine themes, including several domains, each covering a specific sector. Each domain is identified by an alphanumeric code, and consists of collections concerning the

economic and social indicators involved. The data are structured in multidimensional tables where the dimensions specify the country, the economic and social variable as well as the unit and the frequency. Its tables cover candidate member countries, central European countries and the main partners of the European Union as well.

For this study the variables chosen from this dataset are:

- Unemployment rate by sex, age groups and nationality (%)
- Annual average change in Harmonised Indices of Consumer Prices (HICPs)
- Real Gross Domestic Product (RGDP) per capita, either in levels as in percentage changes on previous periods
- Full unemployment benefits as percentages of GDP
- Gini coefficient of inequality, which varies between 0, representing complete equality, and 1, indicating complete inequality, i.e. one person has all the income or consumption whereas all others have none
- Social protection expenditure of each country as percentage of GDP
- Healthy life years (HLY) at birth by gender, i.e. number of years that a person is expected to live in a healthy condition

In some cases, in particular for Turkey and Switzerland, Eurostat data are missing for the variables representing the Gini coefficient of inequality, social protection expenditure and healthy life years. For the first two, Eurostat data are combined with the statistics database of the Organisation for Economic Co-operation and Development (OECD). The variable representing healthy life years is instead filled with data coming from the World Health Statistics (WHO). The next section will explain in detail all the reasons behind the presence of each variable and how do they enter in the econometric model.

3 Empirical Strategy

The Econometric model

In terms of econometric analysis, empirical models of subjective well-being are typically estimated through ordered probit (or logit) models since the happiness variables have multiple values ordered such that to higher scores correspond greater happiness. Even though happiness scores are ordinal rather than cardinal, Frey & Stutzer (2000; 2002) argued that

ordinal and cardinal treatments of life satisfaction generate quantitatively very similar results in micro-econometric analysis. This is confirmed by Ferrer-i-Carbonell & Frijters (2004) and Clark & Senik (2010a) who showed that the results from cardinal analysis using OLS are very similar to those from ordinal analysis. Although the main use of happiness scores in economics is not to compare levels of subjective well-being in absolute terms, but instead to examine the determinants of the well-being perceived by individuals, the interpretation of the results of this study would significantly benefit from a cardinal rather than ordinal use of happiness and life satisfaction variables. Therefore to ease the analysis of the relationship between subjective well-being and a set of micro and macro factors, this paper's choice has been of an OLS approach that produces very interesting results.

A typical micro-econometric happiness equation has the standard form:

$$Happy_{ist} = \alpha + \beta \cdot Micro_{ist} + \gamma \cdot Macro_{ist} + \mu_s + \ _t + \varepsilon_{ist}$$

where the left-hand side is the individual reported happiness of individual i, who lives in country s, at time t, the vector $Micro_{ist}$ is the set of individual characteristics of the respondents, $Macro_{ist}$ is the set of aggregate variables at the country level that vary within each year. The term μ_s represents country fixed effects, while $_t$ stands for wave fixed effects, and ε_{ist} is the error term capturing unobserved characteristics and measurement errors. Interactions between macro variables and individuals characteristics are excluded on purpose since this might let us wonder about the use of a multi-level approach, given that macro correlates as GDP, unemployment or inflations belongs to countries, whereas personal revenue, unemployment and marital status belongs to the individual. The interaction between variables associated to units of different levels is questionable if it is not performed through multi-level analysis, in particular in a cross-sectional design.

Microeconomics determinants of well-being

The microeconomic variables used in much of the existing literature include: gender, marital status, income group, employment status, education and age variables, and all of them are included in this analysis. Traditional findings are that happiness is higher for women, married people, more educated people, those with higher income, the young and the old (so that it is U-shaped in age) and the self-employed.

The ESS data provides information on a large set of standard demographic and labour market characteristics that are used as controls in the life satisfaction and happiness regressions. Such controls include personal characteristics, education, labour force status, income and health. A variable representing the income category to which an individual belongs is built to account for possible group effects in the variations of income. Moving from an income group to another better embodies income adaptions and aspirations effects, and it should also have a stronger impact when we try to explain time patterns of well-being. Considering instead the marital status, according to Frey & Stutzer (2004) it is very important to control for the effect of having a partner when we analyse well-being. This is due to two main reasons: first, partnership may provide a way to increase self-esteem by escaping from every day's stress; second, people in partnership experience lower probabilities to be affected by loneliness.

Individuals' answers to well-being questions can be influenced by order and framing effects within a survey, and by the number of available answer categories. Some of these problems may be reduced by averaging across a large number of observations, and by the inclusion of country fixed effects in the regressions. The analysis is also restricted to individuals whose age ranges between 15-64 to have a more homogenous sample. Respondents younger than 15 years old are excluded because they may have biased levels of happiness due to particular financial or family difficulties. Those older than 64 instead may have distortions due to the effect of age on subjective well-being, which is considered to be U-shaped according to most relevant literature (Blanchflower & Oswald, 2004), with happiness reaching the minimum in middle age (controlling for differences in income, health, and education).

Controlling for health is also important, since healthy individuals tend to be better off in many fields. The choice to include a national indicator instead of the ESS variable for individual health is due to two reasons: the first one is that since the ESS only provides a measures of self-assessed health condition, it is fairly reasonable to assume this as included in the happiness dependent variable. Therefore Healthy Life Years (HLY), a health expectancy indicator which combines information on mortality and morbidity, has been chosen for this study. This indicator is based on the age-specific prevalence (shares) of the population in healthy and unhealthy conditions and age specific mortality information. In this setting, a healthy condition is defined by the absence of limitations in functioning/disability. Therefore we can consider this variable not only as a better predictor of subjective well-being, but also as more correlated than individual health to macroeconomics variables, since it can also reflect the effect of the macroeconomic situation on health.

Macroeconomics determinants of well-being

Considering the macroeconomics determinants of well-being, normally the included variables are the unemployment and inflation rate, GDP per capita and/or growth, and unemployment benefits or a measure of income inequality, and that's exactly what this paper does as well. In addition, the introduction of the Esping-Andersen typologies opens for testing the effect of changes in social protection expenditure on subjective well-being. This may be very important because, following the same reasoning of Di Tella & MacCulloch (2005), if the level of personal income declared in the surveys of the ESS is net of taxes and we do not take into account for what those taxes are used, then we may be miscalculating the movements in happiness that we are trying to explain. To represent what people buy with the taxes they pay, a measure of government expenditure as the GDP share in social protection is therefore included.

Although psychologists do not agree, it is normally assumed that higher GDP increases well-being, This is of course challenged by the Easterlin paradox, which is usually explained through the hypothesis of relative income and adaptations. According to the latter, people change their aspirations as their income rises, so that an increase in income does not result in an equal increase in happiness. Moreover, rich people are not necessarily happier than the poor ones within the same country since it's the individual relative income position that influences more people's happiness. Individuals indeed do not consider the absolute level of income, but rather they make comparisons with respect to the income of relevant people, i.e. their reference group (Frey & Stutzer, 2002a). Therefore, GDP variable should be included in the happiness equation in two ways: to assess the impact of one's relative income position, the income group to which an individual belongs has to be taken into account. Furthermore, we should also consider the general level of income of the population by including the GDP per capita as an additional variable. This is possible because as showed by Di Tella & MacCulloch (2005) we can express the individual net income as the product of the individual's income relative position in each country times the country mean, i.e. $r_{it} \cdot GDP_t$. By using the properties of the log-operator we can then express the logarithm of income as $\log r_{it} + \log GDP_t$. The presence of both these two terms is very useful since it allows to separate the effect of an increase in income relative to the rest of the population (status or

relative income effects) from the effects of a general increase in the income of the population itself.

The growth rate of GDP is also included because changes in income can influence happiness further than a level effect. The effect of higher income may be only temporary as individuals adjust to their better living conditions. Even future expectations may affect current levels of well-being, hence as suggested by Di Tella & MacCulloch (2005) a simple indicator of future potentials outlooks is given by the growth rate of the economy, which is supposed to capture also some potential effects on employment status.

Consumption smoothing is a typical assumption when we try to figure out the patterns of economic growth. The presence of benefits for the unemployed allows individuals to better allocate their consumption choices over time. Since the cost of falling employed depends also on the income received during this condition, unemployment benefits in the shape of percentages of GDP are taken into account. Unemployed individuals are expected to gain more from these benefits but also the employed may take advantage of them thanks to general welfare improvements associated to their presence. Unemployment benefits are also correlated with the level of inequality in a society. As emphasized by Alesina et al (2001), inequality is a determinant of low social mobility that weakens the progress of a society. For this reason, the Gini coefficient is introduced in the regressions to measure the impact of income inequality on well-being.

Because of the lack of longitudinal data and of repeated measures of wellbeing over time, we are not able to determine to what extent micro and macro factors lead to changes in levels of happiness. Consequently, we are not able to say much about causality and selectivity issues, and one may argue that reverse causality is also at play for some variables, so this work has to be considered more for its relative viewpoint than for the degree at which it is possible to generalize the results. Despite these issues it is possible, however, to introduce a temporal dimension in the data. That's the reason why the cumulative dataset representing the four available waves of the ESS has been chosen for this study. This approach allows also to maximize the number of observations by country so that all the regressors vary not only by country but also with time. An economic or institutional shock in a country at a given time may influence how individuals perceive their well-being condition, as well as the quality of the public institutions and services provided. This shock is supposed to be unobservable and therefore it can be a source of distortions for the estimates of the country level indicators on the outcome variable. In this framework, a statistically significant effect may turn out to be

not significant anymore. The paper's strategy in response to these potentially unobservable shocks in the perception of individuals' well-being is to introduce a temporal dimension in the analysis in order to account for well-being sudden variations.

4 Results of the Analysis

Descriptive analysis

Happiness and life satisfaction are highly correlated in our sample (Figure 1), but looking at average scores for each country we notice as both measures show similar patterns only if they both exhibit high values for the same country (Figure 2). If instead life satisfaction is low in a given country, then happiness scores are noticeably higher. This confirms that happiness and life satisfaction do not exactly represent the same concept and it points in favour of separating these two variables in the analysis.

Pooling together all the countries in the sample in Table 1 we see as both well-being measures decreases over the four ESS rounds. At an aggregate level this is associated to a decrease in individual income over time, but looking at each country separately as in Table 2 we notice that the relationship between income and either happiness or life satisfaction is not unidirectional.

Implementing the classification of welfare regimes inspired by the work of Esping-Andersen provides remarkable insights (Table 3). Countries are allocated over five categories according to the relevant literature about welfare typologies suggested by Esping-Andersen and other authors of the same field. The resulting categories tells us that happiness and life satisfaction do not decrease wherever, but conversely they both rise over time in Social Democratic countries, i.e. the Nordic ones. Most interestingly, the increase in well-being is not associated to a comparative increase in income, which actually ends up in the fourth round as lower than ever before for this group.

This evidence suggest that some factors are at play for those countries, which is worth to investigate in order to understand, through their influence, what determines the well-being patterns in our sample as well as which factors are able to produce such different figures for this group of countries respect to the others.

Focusing on Nordic countries not only they exhibit the highest scores of happiness and life satisfaction in the sample (Figure 3), but they also rank first for the expenditure in social protection, an important determinant of well-being either at individual or country level (Figure 4). Since this is the only group of countries in which both happiness and life satisfaction increase, although slightly, over time (Table 3), the marked differences in social expenditure in favour of the Social-Democratic countries could be the critical factor to explain the well-being fall observed in the other group of countries.

Explaining well-being patterns

To analyse the time dimension of well-being in a cross-sectional dataset, the ESS provides four round dummies who are supposed to control for some time fixed effects due to the fact that data are collected in different years, specifically from 2002 to 2008. In this way we can control for time varying effects, either at micro or even macroeconomics level, which may influence happiness and life satisfaction scores over time. To this aim Table 5 performs a regression of those two variables on ESS round dummies, which all show an increasingly negative trend of subjective well-being over time, significant at 1% level. The dummy coefficients for the 4th round of both happiness and life satisfaction are twice the ones for the 2nd round.

This negative pattern does not cancel out after controlling for systematic differences in the level of happiness across 25 analysed countries (Table 6). Excluding one positive (but not significant) coefficient for the 2nd ESS round in the life satisfaction regression, all but one are significant at the 1% level. In addition, the estimates once again almost double from the 1st round to the 4th, and this trend holds for both happiness and life satisfaction. Table 6 also reports statistically significant cross-country differences in well-being levels for both happiness and life satisfaction. Denmark is taken as reference country in the regressions since the descriptive analysis reveals that Denmark is the country which exhibits highest levels of subjective well-being (Figure 2). All the countries show statistically different levels of happiness and life satisfaction with respect to Denmark, and not surprisingly, they also show lower levels of both happiness and life satisfaction (Table 6).

After observing the sign and size of the time fixed effects, it is possible to try to explain the time evolution through the determinants of subjective well-being. Controlling for country and time fixed effects, Table 7.1 and 7.2 regress happiness and life satisfaction on

microeconomics factors, including in turn only one of these groups of variables each time: individual and family traits, unemployment status, and income categories. Among these groups of correlates, only income categories have some impact in explaining time fixed effects, whose otherwise remain negative and 1% significant over all the different specifications. In the happiness regression, as a response to the inclusion of income categories, all but one ESS round dummies turn to be non-significant, even though they are still all negative. Income group seem to have a stronger impact on life satisfaction instead: all round dummies coefficients are now positive, although only 2 of them are significant and not at 1% level. However if we do not controls for cross-country differences in the life satisfaction regression, the impact of income categories does not explain time fixed effects which come back to be all negative and strongly significant (results not shown but available on request).

In Table 8.1 and 8.2 microeconomic factors are in turn progressively introduced in the econometric specification, up to be all included together with income categories in the last regression of each table. As before, only the presence of income groups has some influence, but this time it's even lower. In Table 8.1 indeed happiness time fixed effects are completely unaffected by microeconomics determinants of well-being, since the only impact is of a reduction in the level of significance, from 1% to 10%, of the dummy variable for the 1st ESS round. As before, life satisfaction is relatively more influenced, but not strongly enough to point in a particular direction: only the dummy for the 4th round is significant (10%) and positive at the same time, while the others are of opposite sign and anyway not significant at all.

Actual determinants of well-being over time

Microeconomics determinants, therefore, do not explain away the observed negative trend in subjective well-being, and even the higher impact of the income group to which an individual belongs does not produce enough evidence in favour of a satisfactory micro explanation of the decreasing well-being over time. In response to this need, Table 9.1 and 9.2 regress happiness and life satisfaction on the full set of macro and micro determinants of subjective well-being.

The introduction of the macro correlates strongly influences time fixed effects: all the ESS round dummies turnabout from positive to negative, and if the GDP share of social protection expenditure is included, they become all significant (Table 9.2). With respect to the

microeconomics regressions of Table 8.1 and 8.2, the change in sign of the round dummies from negative to positive, as well as in the level of significance, reflect a higher explicative power embedded in macroeconomics factors about time fixed effects.

Controlling for micro and macro variables at the same time we can see as unemployment reduces well-being more than inflation, likewise all the most relevant literature. Surprisingly although an increase in the growth rate of GDP increases well-being, an increase in the level of GDP reduces both happiness and life satisfaction. If we analyse separately each macro factors (Table 10.1 and 10.2), the level and the growth rate of GDP are instead respectively positive and negative, and if we control even just for country fixed effects (result available but not shown), they both turn out to be positive, although the level of GDP is not significant anymore. Consequently, we can infer that the change in their sign might be due to the interaction with the other variables and fixed effects, and this can be clarified through an environmental explanation that the effect of an increase in GDP may have.

An increase in the growth rate of the standards of living of the economy increases subjective well-being because it increases the expectations of future wealth among the population. This can explain why the GDP growth rate coefficient is negative in absence of any other controls, and turn to be positive once we control at least for country fixed effects. People can think of the increase in the GDP growth rate as a direct improvement in their revenue condition, which positively affects both measures of well-being at a micro level. The negative impact of a rise in the level of GDP instead represent an environmental effect of income comparison. While the GDP growth makes people believe they can be better off in the future, the increase in the level of wealth of the whole population makes people more concerned about their relative level of wealth, decreasing their perceived well-being because of a negative comparison effect. Indeed knowing that everyone in a country is supposed to be in good economic conditions can make individuals less satisfied about their own status.

Another counter-intuitive figure is the negative impact of social protection expenditure on well-being (Table 9.2). This effect fades away in Table 11.1 and 11.2 where the impact of each macro correlate is considered individually on well-being. However once we account for non-linear behaviours, social expenditure present a U-shaped relationship with respect to both happiness and life satisfaction (Table 12.1 and 12.2). Although at first sight this may seem pointless, there are several explanations provided by the literature in this case. Since people generally have a preference for lower taxes to increase their levels of available income - which in turn rises their happiness levels as well - and government expenditures are financed

partially through taxes, an increase in social expenditure can induce a decrease in happiness through the effect of citizens' expectations about changes in the tax burden. This may be the reason behind the negative association between social protection expenditure and subjective well-being. In addition, people may consider the expenditure in social protection as directly related to government size. Since an increase in government expenditure (to which social protection is related) can increase the power of the bureaucracy, this would reduce the level of citizens' trust in their government because of the expectations for higher inefficiencies, corruption and taxes (Brennan & Buchanan, 1980). On the other hand, when the increase in social expenditure becomes relevant enough to be translated into concrete investments in public goods and services, social protection expenditure has a positive impact on well-being. This can explain the U-shaped relationship found in Table 12.1 and 12.2.

Having assessed the importance of macroeconomics factors in the analysis of subjective well-being over time, we can benefit of these variables and their interaction with the different welfare regimes to eventually disentangle the puzzle presented by the data. Table 13 confirms, if there was still any need, that all the country groups perform worse in terms of happiness and life satisfaction with respect to the Social Democratic (Nordic) group. These differences hold over time, as showed in Table 14 when we include time fixed effects and their interactions with country groups.

Considering the effect of macro characteristics on country typologies, in Table 15.1 and 15.2 we can see as all the counter cyclical variables produce more pronounced negative effects in all country groups compared to the Social Democratic one. This reflects the influence of a higher protective system existing in Nordic countries, which dampens or partially absorbs the negative effects of increases in unemployment, inflation or inequality. Despite the negative effect of social expenditure, which has been assumed as related (linearly) to the rise of governments sizes and inefficiencies, is reduced respect to the other country categories. This represents the higher trust in government of the citizens in Social Democratic countries, which translates into a reduced fear for inefficiencies and corruption of the administration.

The higher resistance of happiness and life satisfaction scores in the Social Democratic group to changes in micro and in particular macroeconomic factors shows a connection with the degree of social protection present in the Nordic countries. Considering individuals as happiness maximisers, so that they will always prefer to be happier than otherwise, this finding suggest a preference for risk aversion in the shape of a preference for a high degree of social protection. We can therefore assume that in the choice between living in his own

country or moving to another one, a citizen of a Social Democratic country could generally prefer to remain in his homeland because of the fear of incurring a happiness loss. This alternative elicitation of a preference for risk aversion in terms of subjective well-being seems to be very attractive but it also requires a deeper investigation which goes beyond the scope of this paper.

Social costs of recessions

The introduction of macroeconomics determinants of well-being allows us to derive some measures of the happiness costs of unemployment and inflation as in Di Tella et al (2001). According to the coefficients of Table 9.2, a percentage point of unemployment causes 1.25 times more unhappiness and 1.24 life dissatisfaction than a percentage point of inflation. This result is lower than in Di Tella et al (2001), who found that unemployment reduces happiness almost 2 times more than inflation. Although this study does not report the same results, in the same way as Di Tella et al (2001) finds that unemployment can be considered as more important than inflation in terms of happiness and life satisfaction costs, so that a higher weight should be assigned on it for policy purposes. Moreover, concerning the difference in the size of the ratios between the two analysis, much is contingent on the equation specification, and therefore should not be over-interpreted.

Table 10 reports the unemployment-inflation ratios for each welfare regime. The regression equations from which those ratios are computed are contained into an appendix available on request. These ratios suggest that happiness and life satisfaction reflect different concepts since a change in the unemployment-inflation trade-off produces different consequences for these two measures by each group of countries. Concerning the size of these magnitudes, many of the coefficients from which the ratios are derived are not significant, therefore we cannot say much about the size of their effect. Nevertheless, it's interesting to see that only for the Social-Democratic countries the unemployment-inflation trade-off is the same for either happiness or life satisfaction. This may be a consequence of the enhanced social protection system implemented by these welfare regimes, which balances the well-being trade-off of unemployment and inflation over these two measures.

Table 9.2 also gives us the chance to compute some measures of the costs of recessions in the shape of the marginal rate of substitution between GDP and, in turn, unemployment, inflation and social expenditure. For each 1% point increase in the unemployment rate, individuals

need to receive, to keep happiness constant, an additional amount of $\frac{0.032 \times 0.01}{0.00012} = 2.66\ Euro$[1], in addition to a compensation for the drop in the GDP. This amount is higher for life satisfaction, rising to $\frac{0.06 \times 0.01}{0.000187} = 3.2\ Euro$. However, to compute the full social cost of an increase in the unemployment rate we need to add the individual cost of being unemployed to these computations.

In happiness terms this will be $(0.72 \times 0.01) + \frac{0.032 \times 0.01}{0.00012} = 62.6\ Euro$ for someone who is unemployed but actively looking for a job. If instead an individual does not search a job we have: $(0.59 \times 0.01) + \frac{0.032 \times 0.01}{0.00012} = 51.83\ Euro$. Since according to our estimates a 1% increase in the unemployment rate has a utility cost of (0.032×0.01) , an individual who loses his job in time of recession experiences a happiness loss of $\frac{0.72 + (0.032 \times 0.01)}{0.00012} = 6000\ Euro$ if he's actively looking, while $\frac{0.59 + (0.032 \times 0.01)}{0.00012} = 4920\ Euro$ if he's inactive.

Considering now the life satisfaction, the cost for each percentage point increase in the unemployment rate is: $(1 \times 0.01) + \frac{0.06 \times 0.01}{0.000187} = 56.68\ Euro$ for individuals without a job but actively looking for one. For the inactive we have $(0.8 \times 0.01) + \frac{0.06 \times 0.01}{0.000187} = 45.98\ Euro$. Given the utility cost of a 1% point increase in the unemployment rate for life satisfaction, i.e. (0.06×0.01) , someone who loses his job in time of recession experience a life satisfaction loss of $\frac{1 + (0.06 \times 0.01)}{0.00012} = 8340\ Euro$ in case he still looks for another occupation. If he is inactive we have: $\frac{0.8 + (0.06 \times 0.01)}{0.00012} = 6672\ Euro$.

On the other hand, in terms of inflation individuals should receive for each percentage point increase an amount of $\frac{0.025 \times 0.01}{0.00012} = 2.08\ Euro$ to keep their happiness level constant. Life satisfaction instead needs a compensation of $\frac{0.048 \times 0.01}{0.00012} = 2.57\ Euro$.

Concerning the expenditure in social protection, we can determine how many percentage points we need to increase the GDP share of this figure to keep subjective well-being constant, for a given value of the unemployment-inflation ratio. From Table 9.2 we can see as in response to an increase of 1% point in the unemployment-inflation ratio, the expenditure in social protection needs to be increased by 3% points to keep happiness constant, and by 4.5% points for life satisfaction.

[1] As in Di Tella et al (2003) GDP is rescaled back by a factor of 10 000

From these results we can derive some interesting considerations. Happiness is more expensive to compensate than life satisfaction in response to increases in the unemployment rate. Nevertheless, the higher cost of being unemployed in terms of life satisfaction makes less expensive to compensate the happiness social cost of losing a job with respect to the one associated to life satisfaction. Fluctuations in the inflation rate are also less expensive for happiness, and correspondingly, compensating happiness losses with increases in social expenditures is also less costly than for life satisfaction. Because the sensitivity to changes in the unemployment-inflation ratio is higher for life satisfaction than happiness, we can conclude that life satisfaction seems to be more sensible to macroeconomic fluctuations than happiness scores. This is consistent with a broader view of the notion of happiness, where the impact of economic factors may be mitigated by factors affecting individual well-being in the domain of life satisfaction, a domain that according to these results may be considered as more specific than the one surrounding happiness.

5 Alternative Measures of Subjective Well-Being in the ESS

Single vs Multi-Item measures of well-being

Surveys containing measures of subjective well-being as happiness and life satisfaction have been questioned because of their dependence on single-item measures of well-being, instead of implementing more sophisticated, multi-item measures. Although most of the major surveys make frequent use of single-item measure, their answers are supposed to be biased by background elements as for instance the answers collected for former items in the survey schedule. In response to this problem, multi-item indicators of well-being have been created and their importance is raised by a considerable evidence indicating that those measures are significantly less influenced by income than by other key aspects of people's lives. This is very important because only a small share of variation in subjective well-being is considered to be associated to material circumstances. About half of this variation is instead related to stable features as personality, genes and environmental elements, while the remaining is due to the intentional activities that people choose to undertake, as well as the goals they set for themselves.

Research on well-being usually distinguishes between two different theoretical approaches: hedonic and eudaimonic. The hedonic approach is concerned with pleasure, enjoyment and satisfaction, and it's generally defined as the presence of positive affect at the same time as the absence of negative ones. The eudaimonic approach instead is concerned with functioning and the realization of individual potential, and it's focused on living life in a fully and deeply satisfying way. If we suspect that individuals' reports of being happy do not mean that they are also psychologically well, then well-being involves something more than just happiness, and this is usually called eudaimonia, a crucial notion used to characterize multi-component indicators of well-being.

Eudaimonic measures combine a more various set of principles than hedonic equivalents, which focus more on pleasure. Standard single-item measures of well-being are essentially hedonic, as they are the more detailed domain-specific questions that examine satisfaction in life domains such as work, finance, relationships and health. On the other hand, the eudaimonic view stems from Aristotle's work on the well-lived life, linking personal happiness to more public aspects as competencies, freedoms and opportunities. These measures have the advantage of incorporating either the development process than the outcome of subjective well-being, connecting both instrumental and intrinsic meaning. Even though the ESS module for subjective well-being is not present in the cumulative data, this paper wants to try to apply the same methodology used by Clark & Senik (2010) to derive eudaimonic measures from many different survey questions present in the ESS. Hence, an indicator of Flourishing in the style of Huppert & So (2009) is constructed based on a combination of variables reflecting human scale values. In a similar way, according to the methodology described by the New Economics Foundation, indices for Vitality, Optimism and Trust, and Positive Functioning are proposed.

As the module for eudaimonic well-being is defined only for the 3rd wave of the ESS, analysing the cumulative data we can just find some kind of proxies of the measures usually adopted to build eudaimonic indicators. Unfortunately this drawback imposes some important limitations on the measures we can derive from the aggregate data. Therefore, given that we can only try to get close as much as possible to a more adapt set of questions to carry on the analysis, the following indicators have to be intended as desire or aspirations towards the original eudaimonic measures. Of course, while the feeling of happiness is associated to psychological well-being, its search is not supposed to be necessarily healthy either. But it is also true that since we can look at these two components as independent, then analyzing the

latter may result in some non-ignorable results for research purposes on subjective well-being over time.

The Flourishing measure is defined by the following questions reflecting human values:

• *Importance to try new and different things in life.*

• *Importance to be successful and that people recognize achievements.*

• *Importance to be humble and modest, not draw attention. (reverse coding)*

• *Importance to have a good time.*

• *Importance to seek adventures and have an exciting life.*

• *Importance to help people and care for others well-being.*

As in Huppert and So (2009) this measure is constructed as agreement with the first two questions which are considered the core module, and agreement with at least three of the four other questions.

The indexes trying to mimic the New Economics Foundation methodology instead are constructed as the un-weighted sum of the answers to a number of z-score transformed questions, so that each one has zero mean and unitary variance. One of the major issues concerning merging or comparing different types of information is that they are measured in different units and on different scales, and this is even more true when we use survey data. Standardised scores then are very useful since each transformed questions is expressed in the same way, i.e. the distance from the mean or how many standard deviations an individual response is higher than the mean response for a particular question.

The Vitality measure is the sum of the answers to the following questions:

• *Compared to other people of your age, how often would you say you take part in social activities?*

• *How often do you meet socially with friends, relatives or work colleagues?*

• *How is your health in general?*

• *Are you hampered in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem? If yes, is that a lot or to some extent?*

• *Importance to seek adventures and have an exciting life*

• *Importance to seek fun and things that give pleasure*

Optimism and Trust instead is defined by the answers to:

• *Would you say that most people can be trusted, or that you can't be too careful in dealing with people?*

• *Do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?*

• *Would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?*

• *Which of the descriptions comes closest to how you feel about your household's income nowadays?*

• *Importance to be humble and modest, and to do not draw attention (reverse coding).*

Positive Functioning finally is represented by the answer to these questions:

• *Importance of thinking new ideas and being creative.*

• *Importance of trying new and different things in life.*

• *Importance to make own decisions and be free.*

• *Importance to be successful and that people recognize achievements.*

• *Importance to show abilities and be admired.*

• *Importance to have a good time.*

Hedonic vs Eudaimonic regressions

The scope of these measures is not to repeat the analysis previously introduced but instead life satisfaction and happiness single-item indicators will be compared to these eudaimonic multi-item indicators in line with the idea that if similar determinants of subjective well-being are found to be important for one measure of well-being in a particular country, then we can use the same model as a control framework to test the influence of those variables on the other well-being measures.

Table 16 reports Cronbach's alpha coefficients for the indicators created. This is a measure of internal consistency or reliability for a psychometric indicator. It measures to what extent a set of variables or items succeed in measuring a single, one-dimensional underlying aspect of

individuals. Its importance relies on the fact that sometimes we need to deal with quantities we are not able to explicitly measure. In these cases, one of the few possible solutions is to ask a sequence of questions and combine the answers into a single numerical value, expressed by this statistic. Since Cronbach's alpha rises as the correlations between the items increase, we can refer to this coefficient as the internal consistency of the test.

All the scores mimic pretty well the ones in Clark & Senik (2010) with all values greater or equal than 0.60. Only the score of the vitality index is lower than in Clark & Senik (2010), while the score for positive functioning is even higher, and the one for functioning has the same value. It's worth stating that due to the limitations of the cumulative dataset we are not able to derive a proxy-indicator for the resilience measure. Nevertheless we can consider the indicator for optimism as in some sense close to resilience, at least in some of its components, and its pretty high alpha score enhance its reliability.

Comparing the results from hedonic and eudaimonic regression, first of all we can point out that there are 2 levels on which we can focus the attention: the individual and the aggregate level, respectively represented by micro and macro control variables in our regressions. From Table 17 we can see as the individual level variable for which eudaimonic variables shows a different pattern from hedonic counterparts are the ones representing the male fixed effect and marital status. As in Clark & Senik (2010), income does not seem to play a role in distinguishing eudaimonic and hedonic well-being at an individual level. Time fixed effects instead assume positive values here, but the feeling is that this may be due to the absence of macroeconomics controls since we can consider these as more influential in the perception of well-being conditions over time with respect to individual variables, as they represent the link between well-being and environmental factors which embody several aspects of human life at the same time.

Indeed in Table 18 and 19 with the introduction of macroeconomic variables we have that for flourishing and functioning the time fixed effects turn out to be negative, while for vitality there is a non-clear direction and only optimism time fixed effects are still positive. Therefore we may suspect that the conflicting pattern previously observed in the eudaimonic microeconomics regressions is driven by an individual feeling of optimism present in the sample over the years.

At a macro level the variable for which we have a disagreement between hedonism and eudaimonia are the unemployment rate and the GDP, either in log or growth rate. Neither inequality (represented by the Gini coefficient) or social protection expenditure show different

behaviours. Hence we can infer that changes in variables associated to material aspects of life (as inflation for instance) are perceived in a similar way by individuals, while variables linked to psychological aspects as the unemployment status or the economic wealth in a country have different effects depending on the measure of well-being we chose to adopt. The differences in the effect of the unemployment rate may reflects differences between changing a job or losing it, as well as a different psychological impact of unemployment status on individuals. The different signs of the GDP per capita and its growth rate, respectively positive and negative, is instead harder to interpret, but it might explain, on one hand, the psychological importance of the current economic condition of a society, and on the other, the negative effect of the growth rate might represent the negative feeling of individuals for increases in the economic size of the countries where they live. Considering the fear of economic crisis as to some extent more associated to wealthier countries, the negative sign of GDP growth for eudaimonic indicators might represent this effect.

6 Conclusion

The results derived from the analysis of welfare regimes confirm the thesis initially proposed. Macroeconomic determinants matter more than micro characteristics in determining patterns of well-being over time. Indeed it is only by introducing macro factors taken from Eurostat database that we are able to explain the decreasing pattern of subjective well-being suggested by the ESS data. Among the macroeconomic indicators, countries in our sample differ by their level of social protection expenditure - and in turn, by their welfare regimes. Only Social-Democratic countries (which include Nordic countries) do not exhibit a decreasing pattern in subjective well-being. With respect to this specific group, all the other country categories exhibit lower well-being levels over time. Their inhabitants are more sensitive to the cyclical macroeconomic magnitudes. Social-Democratic countries, besides showing the highest scores of both happiness and life satisfaction, they also exhibit the highest GDP shares dedicated to social protection expenditure. Classifying the countries in the sample according to this criterion allows us to explain why the indicators of subjective well-being do not decrease over time for the group constituted by the Nordic countries.

This result opens for an alternative method to elicit a preference for risk aversion among individuals of Social Democratic countries, whose well-being scores significantly depend on the level of social protection present in the system.

Following Di Tella et al (2003), this paper applies the same methodology to compute sacrifice ratios between unemployment and inflation for both happiness and life satisfaction for each country category. Measures of the costs of economic downturns are also derived, suggesting that changes in life satisfaction induced by macro factors are more costly to compensate than happiness equivalents. In addition, the higher sensitivity exhibited by life satisfaction points in favor of a different use and interpretation of happiness and life satisfaction as well-being indicators, instead of the similarity normally adopted in the literature.

This study also tries to run a comparison between hedonic - single-item - and eudaimonic - multi-item - measures of well-being, controlling for country and time fixed effects. The cumulative dataset for all 4 rounds of the European Social Survey does not provide the variables normally used to derive eudaimonic indicators. Therefore referring to the work of Clark and Senik (2010), this paper has tried to propose some proxies for the eudaimonic variables usually derived from ESS data by the literature. This measure confirms the greater explicative power of macroeconomic factor suggested by prior analysis, and might be a starting point if not a benchmark, for future eudaimonic analysis including time fixed effects.

The attempt of explaining the temporal evolution of well-being in a cross-sectional dataset through the implementation of a welfare regime classification is an element of innovation with respect to the field literature of subjective well-being. Furthermore, the expenditure in social protection - crucial in this analysis - is somewhat absent in most well-being research. This variable allows to expand the scope of the analysis to several different classes of countries, whereas traditional research focuses mainly on developed economies. The suggestions for a new method of risk aversion elicitation is another original insight. Last but not least, introducing eudaimonic indicators in a temporal analysis of well-being do consists in an enlargement of the body of a pioneering literature as the one concerning subjective well-being.

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Appendix – Main Tables and Figures

Table 1 – Mean values over ESS rounds

ESS Round	(1) Happiness Mean	(2) Life Satisfaction Mean	(3) Income Mean	(4) Income S.d.
1st	7.425231	7.083702	6.533786	2.371826
2nd	7.286	6.949884	6.238403	2.533762
3rd	7.364505	7.023903	6.689164	2.476312
4th	7.166214	6.765997	5.794813	2.736282
Total	7.305671	6.950639	6.294605	2.561938

Table 2 – Summary of well-being in the ESS

	Happiness decreasing	Happiness increasing	Life Satisfaction decreasing	Life Satisfaction increasing
Avg Income increasing	Austria Belgium Cyprus Hungary Italy Luxembourg Sweden Turkey	Bulgaria Estonia Greece Slovakia Slovenia Spain	Austria Belgium Bulgaria Cyprus Greece Hungary Italy Luxembourg Turkey	Estonia Slovakia Slovenia Spain Sweden
Avg Income decreasing	France Great Britain Ireland Netherlands Portugal Switzerland	Czech Republic Denmark Finland Norway	France Great Britain Ireland Netherlands Portugal Switzerland	Czech Republic Denmark Finland Norway
S.d. Income increasing	Austria Belgium Cyprus France Great Britain Hungary Italy Sweden Switzerland Turkey	Bulgaria Denmark Finland Greece Norway Slovakia Slovenia Spain	Austria Belgium Cyprus France Great Britain Greece Hungary Ireland Switzerland Turkey	Bulgaria Denmark Finland Norway Slovakia Slovenia Spain Sweden
S.d. Income decreasing	Italy Luxembourg Netherlands Portugal	Czech Republic Estonia	Italy Luxembourg Netherlands Portugal	Czech Republic Estonia

Table 3 – Aggregate micro indicators per country regions

ESS Round	(1) Happiness Mean	(2) Life Satisfaction Mean	(3) Income Mean	(4) Income S.d.
Conservative countries				
1st	7.580362	7.241049	6.964418	1.962562
2nd	7.47429	7.145928	6.987434	2.053145
3rd	7.378366	7.06482	6.880753	2.011248
4th	7.388295	6.92725	6.14109	2.821409
Total	7.458128	7.096474	6.710202	2.306511
Liberal countries				
1st	7.758818	7.42726	7.963623	2.11814
2nd	7.72997	7.50635	7.747244	2.118813
3rd	7.65032	7.43312	7.953838	2.148974
4th	7.529695	7.189337	5.466216	2.755836
Total	7.655088	7.370347	7.005513	2.643667
Social Democratic countries				
1st	7.985664	7.886495	7.535962	1.985507
2nd	7.988257	7.925183	7.657358	2.039751
3rd	8.022863	7.950932	7.936754	1.981109
4th	8.041031	8.018398	6.783845	2.542238
Total	8.01227	7.951893	7.405887	2.238104
Eastern countries				
1st	6.766902	6.172159	4.418824	1.541005
2nd	6.721901	6.174375	4.236717	1.645181
3rd	6.588568	6.013077	3.886071	1.968973
4th	6.529165	5.939529	5.238802	2.599268
Total	6.619722	6.04293	4.601241	2.197551
Mediterranean coutnries				
1st	6.914335	6.532934	5.268643	1.965845
2nd	6.828025	6.441889	4.807531	2.352517
3rd	7.323491	6.741259	6.076278	1.994555
4th	6.788034	6.311111	4.879752	2.460012
Total	6.892093	6.44138	5.089647	2.325334

Table 4 – Aggregate macro-indicators per country regions

ESS Round	(1) Unemployment rate	(2) Inflation rate	(3) RGDP	(4) RGDP growth	(5) Gini coefficient	(6) Social Expenditure	(7) Healthy Life Years
Conservative countries							
1st	6.134148	1.897323	32133.65	0.3397497	27.31894	19.77483	65.06583
2nd	7.356811	2.148867	33596.73	1.818856	26.71094	19.77826	60.0793
3rd	6.920098	1.905117	30069.27	2.894889	27.11921	19.38341	61.41094
4th	7.033592	1.648155	29621.25	-0.467276	28.47437	20.08505	60.71754
Total	6.856535	1.900313	31398.65	1.097938	27.41564	19.73561	61.99504
Liberal countries							
1st	4.338394	2.911619	34844.88	1.760894	33.12781	12.30279	66.32472
2nd	4.541249	2.006731	36545.11	2.280779	32.52346	12.68846	67.3728
3rd	4.688148	2.019184	37413.73	2.641731	32.14372	13.46458	67.5108
4th	7.225219	1.392054	36181.18	-1.902951	31.37562	15.22155	68.5325
Total	5.389434	1.939771	36219.92	0.8910305	32.13093	13.57745	67.35712
Social Democratic countries							
1st	6.287275	1.807712	36437.47	1.199293	25.31974	21.32526	62.5379
2nd	6.694308	0.8983433	37832.77	2.858139	24.92922	21.14865	61.61238
3rd	5.296483	1.603236	39960.19	2.861296	25.17459	19.82279	63.61842
4th	6.268646	2.430197	38247.32	-1.51158	25.2158	21.709	64.23494
Total	6.157872	1.762678	38097.95	1.048637	25.14946	21.02818	62.98012
Eastern countries							
1st	6.363834	4.423764	10004.27	3.695871	23.83144	15.84768	63.17855
2nd	9.423062	3.564671	9418.127	5.710482	29.2656	13.46483	54.79918
3rd	7.972378	4.878396	9228.312	6.856615	28.87492	12.95129	57.05886
4th	8.914415	3.799253	9154.521	-0.828418	27.57933	13.99284	58.75263
Total	8.543291	4.034182	9340.553	2.960734	27.79921	13.85187	57.96931
Mediterranean countries							
1st	9.13034	3.371556	18228.12	1.603674	32.57016	15.29107	67.19637
2nd	9.010212	4.213237	15893.08	2.901702	36.39378	15.08678	62.6159
3rd	7.538693	2.790996	18285.44	2.054489	33.28295	13.31402	61.2219
4th	11.26801	3.792631	15222.96	-0.961510	36.4349	15.46167	62.87779
Total	9.845129	3.689854	16336.13	0.870301	35.5619	14.95448	63.44521

Table 5 – Time fixed effects on well-being

	(1) Happiness	(2) Life Satisfaction
ESS round 2	-0.178***	-0.180***
	(0.0108)	(0.0124)
ESS round 3	-0.101***	-0.118***
	(0.0113)	(0.0131)
ESS round 4	-0.323***	-0.402***
	(0.0100)	(0.0116)
Constant	7.482***	7.157***
	(0.00793)	(0.00917)
Observations	288,093	288,055
R-squared	0.004	0.005

OLS regression - Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 – Differences in the level of well-being over time and across countries

	(1) Happiness	(2) Life Satisfaction
ESS round 2	-0.0602***	-0.0395**
	(0.0150)	(0.0174)
ESS round 3	-0.0774***	0.0215
	(0.0164)	(0.0190)
ESS round 4	-0.119***	-0.0706***
	(0.0158)	(0.0183)
AT	-0.680***	-0.841***
	(0.0647)	(0.0747)
BE	-0.606***	-1.045***
	(0.0590)	(0.0682)
BG	-2.696***	-3.776***
	(0.0742)	(0.0852)
CH	-0.268***	-0.449***
	(0.0625)	(0.0721)
CY	-0.519***	-1.116***
	(0.180)	(0.208)
CZ	-1.280***	-1.799***
	(0.0622)	(0.0719)
DE	-1.120***	-1.591***
	(0.0496)	(0.0573)
EE	-1.540***	-2.166***
	(0.122)	(0.141)
ES	-0.660***	-1.090***
	(0.0510)	(0.0588)
FI	-0.267***	-0.489***
	(0.0685)	(0.0791)
FR	-1.005***	-2.051***
	(0.0502)	(0.0580)
GB	-0.855***	-1.375***
	(0.0502)	(0.0580)
GR	-1.473***	-2.071***
	(0.0616)	(0.0711)
HU	-1.918***	-2.914***
	(0.0595)	(0.0687)
IE	-0.588***	-1.062***
	(0.0730)	(0.0843)
IT	-1.858***	-1.658***
	(0.0524)	(0.0605)
LU	-0.553**	-0.696***
	(0.233)	(0.269)
NL	-0.519***	-0.808***
	(0.0552)	(0.0637)
NO	-0.385***	-0.669***
	(0.0703)	(0.0812)
PT	-1.418***	-2.577***
	(0.0595)	(0.0688)
SE	-0.476***	-0.650***
	(0.0607)	(0.0701)
SI	-1.031***	-1.513***
	(0.0911)	(0.105)
SK	-1.687***	-2.313***
	(0.0728)	(0.0841)
TR	-2.168***	-2.410***
	(0.0520)	(0.0600)
Constant	8.371***	8.443***
	(0.0491)	(0.0567)
Observations	127,392	127,387
R-squared	0.073	0.073

Weighted OLS regression – The omitted categories are: ESS round 1 and Denmark
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 7.1 – Micro determinants of Happiness

Happiness	(1)	(2)	(3)	(4)
ESS round 2	-0.0636***	-0.0513***	-0.0604***	-0.0199
	(0.0150)	(0.0154)	(0.0149)	(0.0150)
ESS round 3	-0.0752***	-0.0887***	-0.0808***	-0.0658***
	(0.0164)	(0.0169)	(0.0162)	(0.0163)
ESS round 4	-0.114***	-0.125***	-0.110***	-0.0176
	(0.0158)	(0.0162)	(0.0156)	(0.0159)
Father's education		0.0453***		
		(0.00322)		
Separated		-1.043***		
		(0.0433)		
Divorced		-0.802***		
		(0.0234)		
Widowed		-1.084***		
		(0.0389)		
Never married		-0.174***		
		(0.0120)		
Age of respondent, calculated	-0.0441***			
	(0.00238)			
Age of Respondent^2 /100	0.0426***			
	(0.00297)			
Male	-0.0940***			
	(0.0107)			
Unemployed (actively looking)			-1.016***	
			(0.0233)	
Unemployed (inactive)			-0.809***	
			(0.0338)	
Disabled			-1.087***	
			(0.0313)	
Retired			-0.201***	
			(0.0214)	
Community service			0.228*	
			(0.116)	
Housework			0.0393***	
			(0.0132)	
Other			-0.177***	
			(0.0366)	
Income group 2				0.390***
				(0.0319)
Income group 3				0.504***
				(0.0257)
Income group 4				0.852***
				(0.0252)
Income group 5				0.950***
				(0.0243)
Constant	9.438***	8.398***	8.458***	7.499***
	(0.0660)	(0.0503)	(0.0487)	(0.0540)
Observations	127,324	117,237	127,392	127,392
R-squared	0.080	0.097	0.099	0.089

The omitted categories are: ESS round 1, Income group 1, female, married, employed and Denmark
Weighted OLS regression - Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 7.2 – Micro determinants of Life Satisfaction

Life Satisfaction	(1)	(2)	(3)	(4)
ESS round 2	-0.0455***	-0.0426**	-0.0415**	0.0170
	(0.0173)	(0.0178)	(0.0171)	(0.0173)
ESS round 3	0.0230	0.00571	0.0155	0.0379**
	(0.0189)	(0.0195)	(0.0186)	(0.0188)
ESS round 4	-0.0665***	-0.0875***	-0.0614***	0.0657***
	(0.0182)	(0.0187)	(0.0180)	(0.0183)
Father's education		0.0622***		
		(0.00372)		
Separated		-1.108***		
		(0.0500)		
Divorced		-0.845***		
		(0.0270)		
Widowed		-0.946***		
		(0.0450)		
Never married		-0.100***		
		(0.0138)		
Age of respondent, calculated	-0.0668***			
	(0.00275)			
Age of Respondent^2 /100	0.0681***			
	(0.00343)			
Male	-0.0804***			
	(0.0123)			
Unemployed (actively looking)			-1.459***	
			(0.0268)	
Unemployed (inactive)			-1.079***	
			(0.0388)	
Disabled			-1.470***	
			(0.0361)	
Retired			-0.153***	
			(0.0246)	
Community service			0.213	
			(0.134)	
Housework			-0.00440	
			(0.0151)	
Other			-0.245***	
			(0.0419)	
Income group 2				0.451***
				(0.0368)
Income group 3				0.656***
				(0.0297)
Income group 4				1.122***
				(0.0291)
Income group 5				1.264***
				(0.0280)
Constant	9.957***	8.407***	8.570***	7.288***
	(0.0762)	(0.0581)	(0.0558)	(0.0622)
Observations	127,320	117,237	127,387	127,387
R-squared	0.082	0.091	0.109	0.094

The omitted categories are: ESS round 1, Income group 1, female, married, employed and Denmark
Weighted OLS regression - Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 8.1 – Do micro factors explain time fixed effects?

Happiness	(1)	(2)	(3)	(4)
ESS round 2	-0.0602***	-0.0495***	-0.0501***	-0.0262*
	(0.0150)	(0.0153)	(0.0151)	(0.0151)
ESS round 3	-0.0774***	-0.0725***	-0.0759***	-0.0676***
	(0.0164)	(0.0168)	(0.0166)	(0.0166)
ESS round 4	-0.119***	-0.104***	-0.0969***	-0.0364**
	(0.0158)	(0.0161)	(0.0160)	(0.0161)
Income group 2				0.263***
				(0.0322)
Income group 3				0.368***
				(0.0261)
Income group 4				0.544***
				(0.0260)
Income group 5				0.612***
				(0.0251)
Age of respondent, calculated		-0.0805***	-0.0775***	-0.0761***
		(0.00272)	(0.00280)	(0.00280)
Age of Respondent^2 /100		0.0783***	0.0766***	0.0751***
		(0.00323)	(0.00342)	(0.00342)
Male		-0.118***	-0.0949***	-0.0979***
		(0.0110)	(0.0115)	(0.0114)
Separated		-1.075***	-1.005***	-0.944***
		(0.0430)	(0.0426)	(0.0426)
Divorced		-0.786***	-0.705***	-0.645***
		(0.0233)	(0.0231)	(0.0232)
Widowed		-1.071***	-1.038***	-0.975***
		(0.0393)	(0.0389)	(0.0389)
Never married		-0.574***	-0.512***	-0.485***
		(0.0161)	(0.0160)	(0.0160)
Father 's education		0.0343***	0.0265***	0.0211***
		(0.00322)	(0.00319)	(0.00319)
Unemployed (actively looking)			-0.929***	-0.844***
			(0.0241)	(0.0242)
Unemployed (inactive)			-0.718***	-0.634***
			(0.0351)	(0.0352)
Disabled			-0.887***	-0.817***
			(0.0332)	(0.0332)
Retired			-0.0735***	-0.0444*
			(0.0254)	(0.0254)
Community service			0.148	0.120
			(0.115)	(0.115)
Housework			0.0214	0.0392***
			(0.0144)	(0.0144)
Other			-0.136***	-0.132***
			(0.0373)	(0.0372)
Constant	8.371***	10.47***	10.43***	9.821***
	(0.0491)	(0.0760)	(0.0762)	(0.0799)
Observations	127,392	117,176	117,176	117,176
R-squared	0.073	0.110	0.129	0.134

The omitted categories are: ESS round 1, Income group 1, female, married, employed and Denmark
Weighted OLS regression - Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 8.2 – Do micro factors explain time fixed effects?

Life Satisfaction	(1)	(2)	(3)	(4)
ESS round 2	-0.0395**	-0.0424**	-0.0424**	-0.00600
	(0.0174)	(0.0177)	(0.0174)	(0.0173)
ESS round 3	0.0215	0.0224	0.0186	0.0308
	(0.0190)	(0.0194)	(0.0191)	(0.0191)
ESS round 4	-0.0706***	-0.0650***	-0.0555***	0.0319*
	(0.0183)	(0.0186)	(0.0184)	(0.0185)
Income group 2				0.288***
				(0.0370)
Income group 3				0.475***
				(0.0301)
Income group 4				0.753***
				(0.0298)
Income group 5				0.856***
				(0.0288)
Age of respondent, calculated		-0.0971***	-0.0906***	-0.0882***
		(0.00314)	(0.00322)	(0.00321)
Age of Respondent^2 /100		0.0979***	0.0919***	0.0895***
		(0.00374)	(0.00393)	(0.00392)
Male		-0.0991***	-0.0695***	-0.0741***
		(0.0127)	(0.0132)	(0.0131)
Separated		-1.136***	-1.039***	-0.946***
		(0.0497)	(0.0490)	(0.0488)
Divorced		-0.825***	-0.712***	-0.621***
		(0.0269)	(0.0266)	(0.0266)
Widowed		-0.949***	-0.905***	-0.812***
		(0.0455)	(0.0448)	(0.0447)
Never married		-0.540***	-0.453***	-0.412***
		(0.0186)	(0.0184)	(0.0184)
Father's education		0.0507***	0.0398***	0.0317***
		(0.00372)	(0.00366)	(0.00365)
Unemployed (actively looking)			-1.339***	-1.213***
			(0.0278)	(0.0279)
Unemployed (inactive)			-0.969***	-0.844***
			(0.0404)	(0.0403)
Disabled			-1.255***	-1.150***
			(0.0382)	(0.0381)
Retired			-0.0289	0.0164
			(0.0292)	(0.0291)
Community service			0.0707	0.0304
			(0.133)	(0.132)
Housework			0.0227	0.0487***
			(0.0166)	(0.0165)
Other			-0.203***	-0.199***
			(0.0428)	(0.0426)
Constant	8.443***	10.80***	10.72***	9.862***
	(0.0567)	(0.0878)	(0.0876)	(0.0917)
Observations	127,387	117,177	117,177	117,177
R-squared	0.073	0.102	0.131	0.139

The omitted categories are: ESS round 1, Income group 1, female, married, employed and Denmark
Weighted OLS regression - Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 9.1 – Macroeconomic impact on time fixed effects

	(1) Happiness	(2) Life Satisfaction
ESS round 2	0.0167	0.168***
	(0.0193)	(0.0222)
ESS round 3	0.0166	0.210***
	(0.0277)	(0.0320)
ESS round 4	0.272***	0.406***
	(0.0326)	(0.0377)
Unemployment rate	-0.0357***	-0.0650***
	(0.00733)	(0.00847)
Inflation rate	-0.0242**	-0.0462***
	(0.00985)	(0.0114)
Log RGDP	-1.006***	-1.547***
	(0.279)	(0.323)
Real GDP growth rate	0.0543***	0.0325***
	(0.00526)	(0.00607)
Unemployment benefits	0.000779	-0.00672
	(0.00466)	(0.00539)
Gini coefficient	-0.00785***	0.00438
	(0.00278)	(0.00321)
Healthy life years at birth	0.179***	0.159***
	(0.0431)	(0.0498)
Income group 2	0.224***	0.231***
	(0.0299)	(0.0346)
Income group 3	0.380***	0.477***
	(0.0240)	(0.0278)
Income group 4	0.569***	0.805***
	(0.0238)	(0.0276)
Income group 5	0.620***	0.875***
	(0.0232)	(0.0269)
Age of respondent, calculated	-0.0767***	-0.0869***
	(0.00235)	(0.00272)
Age of Respondent^2 /100	0.0746***	0.0868***
	(0.00287)	(0.00332)
Male	-0.0974***	-0.0724***
	(0.00959)	(0.0111)
Separated	-0.935***	-0.976***
	(0.0361)	(0.0416)
Divorced	-0.646***	-0.654***
	(0.0195)	(0.0225)
Widowed	-1.047***	-0.922***
	(0.0332)	(0.0383)
Never married	-0.493***	-0.430***
	(0.0134)	(0.0154)
Father's highest level of education	0.0227***	0.0395***
	(0.00288)	(0.00333)
Unemployed (actively looking)	-0.719***	-1.083***
	(0.0209)	(0.0243)
Unemployed (inactive)	-0.587***	-0.798***
	(0.0298)	(0.0344)
Disabled	-0.804***	-1.134***
	(0.0272)	(0.0314)
Retired	-0.0179	0.0500**
	(0.0215)	(0.0248)
Community service	0.167	0.235**
	(0.102)	(0.118)
Housework	0.0433***	0.0317**
	(0.0124)	(0.0143)
Other	-0.117***	-0.178***
	(0.0316)	(0.0364)
Constant	20.41***	26.00***
	(2.940)	(3.396)
Observations	158,415	158,433
R-squared	0.132	0.142

The omitted categories are: ESS round 1, Income group 1, female, married, employed and Denmark
Weighted OLS regression - Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 9.2 – Macroeconomic impact on time fixed effects (Social Expenditure)

	(1) Happiness	(2) Life Satisfaction
ESS round 2	0.0351*	0.195***
	(0.0202)	(0.0234)
ESS round 3	0.0493*	0.259***
	(0.0298)	(0.0344)
ESS round 4	0.306***	0.457***
	(0.0346)	(0.0399)
Unemployment rate	-0.0322***	-0.0598***
	(0.00742)	(0.00857)
Inflation rate	-0.0256***	-0.0482***
	(0.00986)	(0.0114)
Log RGDP	-1.224***	-1.874***
	(0.289)	(0.334)
Real GDP growth rate	0.0490***	0.0247***
	(0.00555)	(0.00641)
Gini coefficient	0.000242	-0.00753
	(0.00467)	(0.00539)
Healthy life years at birth	-0.00943***	0.00200
	(0.00283)	(0.00327)
Social protection expenditure (%GDP)	-0.0375***	-0.0565***
	(0.0127)	(0.0147)
Unemployment benefits	0.247***	0.262***
	(0.0490)	(0.0566)
Income group 2	0.225***	0.232***
	(0.0299)	(0.0346)
Income group 3	0.381***	0.480***
	(0.0240)	(0.0278)
Income group 4	0.571***	0.808***
	(0.0238)	(0.0276)
Income group 5	0.620***	0.875***
	(0.0232)	(0.0269)
Age of respondent, calculated	-0.0768***	-0.0870***
	(0.00235)	(0.00272)
Age of Respondent^2 /100	0.0747***	0.0870***
	(0.00287)	(0.00332)
Male	-0.0974***	-0.0724***
	(0.00959)	(0.0111)
Separated	-0.936***	-0.977***
	(0.0361)	(0.0416)
Divorced	-0.646***	-0.654***
	(0.0195)	(0.0225)
Widowed	-1.047***	-0.922***
	(0.0332)	(0.0383)
Never married	-0.493***	-0.430***
	(0.0134)	(0.0154)
Father's highest level of education	0.0226***	0.0393***
	(0.00288)	(0.00333)
Unemployed (actively looking)	-0.719***	-1.082***
	(0.0209)	(0.0243)
Unemployed (inactive)	-0.586***	-0.798***
	(0.0298)	(0.0344)
Disabled	-0.804***	-1.135***
	(0.0272)	(0.0314)
Retired	-0.0180	0.0498**
	(0.0215)	(0.0248)
Community service	0.165	0.232**
	(0.102)	(0.117)
Housework	0.0431***	0.0314**
	(0.0124)	(0.0143)
Other	-0.115***	-0.176***
	(0.0316)	(0.0364)
Constant	23.98***	30.77***
	(3.130)	(3.614)
Observations	158,450	158,468
R-squared	0.132	0.142

The omitted categories are: ESS round 1, Income group 1, female, married, employed and Denmark
Weighted OLS regression - Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 10 – Sacrifice ratios by welfare regimes

	(1) Happiness	(2) Life Satisfaction
ESS countries	1.25	1.24
Conservative countries	3.14	11.29
Liberal countries	0.69	0.59
Social-Democratic countries	1.53	1.55
Eastern countries	1.07	0.34
Mediterranean countries	0.97	0.59

Table 11.1 – Macro determinants of Happiness

Happiness	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.0860***					
	(0.00112)					
Inflation rate		-0.167***				
		(0.00170)				
Log RGDP			0.874***			
			(0.00541)			
Real GDP growth rate				-0.0223***		
				(0.00106)		
Gini coefficient					-0.0749***	
					(0.000806)	
Social protection expenditure (%GDP)						0.0576***
						(0.000973)
Constant	7.950***	7.738***	-1.429***	7.337***	9.471***	6.341***
	(0.00910)	(0.00583)	(0.0542)	(0.00390)	(0.0239)	(0.0171)
Observations	286,446	281,397	288,093	288,093	228,320	244,218
R-squared	0.020	0.033	0.083	0.002	0.037	0.014

Weighted OLS regression – Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 11.2 – Macro determinants of Life Satisfaction

Life Satisfaction	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.116***					
	(0.00129)					
Inflation rate		-0.191***				
		(0.00197)				
Log RGDP			1.118***			
			(0.00618)			
Real GDP growth rate				-0.0198***		
				(0.00122)		
Gini coefficient					-0.0895***	
					(0.000927)	
Social protection expenditure (%GDP)						0.0785***
						(0.00112)
Constant	7.817***	7.440***	-4.220***	6.977***	9.535***	5.623***
	(0.0105)	(0.00673)	(0.0619)	(0.00451)	(0.0275)	(0.0198)
Observations	286,407	281,353	288,055	288,055	228,324	244,203
R-squared	0.027	0.032	0.102	0.001	0.039	0.020

Weighted OLS regression – Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 12.1 – Non-linear impact of macro factors on Happiness

Happiness	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.288***					
	(0.00405)					
Unemployment*2	0.0109***					
	(0.000210)					
Inflation rate		-0.0922***				
		(0.00441)				
Inflation*2		-0.00829***				
		(0.000449)				
Log RGDP			2.828***			
			(0.140)			
Log RGDP*2			-0.101***			
			(0.00724)			
Real GDP growth rate				-0.0204***		
				(0.00105)		
RGDP Growth*2				-0.00939***		
				(0.000161)		
Gini coefficient					0.111***	
					(0.00723)	
Gini*2					-0.00286***	
					(0.000111)	
Social protection expenditure (%GDP)						-0.121***
						(0.00776)
Social Expenditure*2						0.00525***
						(0.000226)
Constant	8.739***	7.634***	-10.85***	7.463***	6.563***	7.780***
	(0.0177)	(0.00812)	(0.679)	(0.00444)	(0.115)	(0.0643)
Observations	284,799	281,397	288,093	288,093	228,320	244,218
R-squared	0.029	0.034	0.084	0.013	0.039	0.016

Weighted OLS regression – Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 12.2 – Non-linear impact of macro factors on Life Satisfaction

Life Satisfaction	(1)	(2)	(3)	(4)	(5)	(6)
Unemployment rate	-0.385***					
	(0.00465)					
Unemployment*2	0.0145***					
	(0.000241)					
Inflation rate		-0.118***				
		(0.00509)				
Inflation*2		-0.00807***				
		(0.000519)				
Log RGDP			1.046***			
			(0.160)			
Log RGDP*2			0.00368			
			(0.00826)			
Real GDP growth rate				-0.0176***		
				(0.00121)		
RGDP Growth*2				-0.0104***		
				(0.000186)		
Gini coefficient					-0.0873***	
					(0.00833)	
Gini*2					-3.33e-05	
					(0.000128)	
Social protection expenditure (%GDP)						-0.161***
						(0.00896)
Social Expenditure*2						0.00703***
						(0.000261)
Constant	8.865***	7.338***	-3.876***	7.116***	9.501***	7.547***
	(0.0203)	(0.00938)	(0.774)	(0.00513)	(0.133)	(0.0742)
Observations	284,759	281,353	288,055	288,055	228,324	244,203
R-squared	0.040	0.033	0.102	0.012	0.039	0.022

Weighted OLS regression – Country dummies are included (although not shown)
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 13 – European welfare models of well-being

	(1) Happiness	(2) Life Satisfaction
Conservative countries	-0.554***	-0.855***
	(0.0106)	(0.0121)
Liberal countries	-0.357***	-0.582***
	(0.0123)	(0.0140)
Eastern countries	-1.393***	-1.909***
	(0.0113)	(0.0129)
Mediterranean countries	-1.120***	-1.511***
	(0.0113)	(0.0129)
Constant	8.012***	7.952***
	(0.00819)	(0.00935)
Observations	288,093	288,055
R-squared	0.065	0.086

Weighted OLS regression - Omitted category: Social-Democratic countries
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 14 – Time and country-group fixed effects

	(1) Happiness	(2) Life Satisfaction
Conservative countries	-0.405***	-0.645***
	(0.0214)	(0.0245)
Liberal countries	-0.227***	-0.459***
	(0.0253)	(0.0290)
Eastern countries	-1.219***	-1.714***
	(0.0279)	(0.0320)
Mediterranean countries	-1.071***	-1.354***
	(0.0250)	(0.0285)
ESS round 2	0.00259	0.0387
	(0.0241)	(0.0276)
ESS round 3	0.0372	0.0644**
	(0.0243)	(0.0278)
ESS round 4	0.0554**	0.132***
	(0.0221)	(0.0253)
Conservative & ESS round 2	-0.109***	-0.134***
	(0.0306)	(0.0349)
Conservative & ESS round 3	-0.239***	-0.241***
	(0.0311)	(0.0355)
Conservative & ESS round 4	-0.247***	-0.446***
	(0.0290)	(0.0332)
Liberal & ESS round 2	-0.0314	0.0404
	(0.0360)	(0.0411)
Liberal & ESS round 3	-0.146***	-0.0586
	(0.0366)	(0.0418)
Liberal & ESS round 4	-0.284***	-0.370***
	(0.0332)	(0.0380)
Eastern & ESS round 2	-0.0476	-0.0365
	(0.0363)	(0.0415)
Eastern & ESS round 3	-0.216***	-0.224***
	(0.0373)	(0.0426)
Eastern & ESS round 4	-0.293***	-0.365***
	(0.0336)	(0.0385)
Mediterranean & ESS round 2	-0.0889***	-0.130***
	(0.0341)	(0.0390)
Mediterranean & ESS round 3	0.372***	0.144***
	(0.0373)	(0.0426)
Mediterranean & ESS round 4	-0.182***	-0.354***
	(0.0311)	(0.0356)
Constant	7.986***	7.886***
	(0.0168)	(0.0192)
Observations	288,093	288,055
R-squared	0.068	0.088

Weighted OLS regression - The omitted categories are: ESS round 1and Social Democratic
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 15.1 – Different impacts of macroeconomic magnitudes in European regions

Happyness	(1)	(2)	(3)	(4)	(5)	(6)
Conservative	-0.0263	-0.650***	-1.048***	-0.572***	2.364***	1.993***
	(0.0311)	(0.0250)	(0.0442)	(0.0116)	(0.219)	(0.0911)
Liberal	-0.0582*	-0.369***	-2.238***	-0.393***	2.118***	1.202***
	(0.0333)	(0.0246)	(0.0792)	(0.0129)	(0.278)	(0.0861)
Eastern	-1.181***	-1.054***	-2.842***	-1.401***	0.995***	-1.493***
	(0.0316)	(0.0234)	(0.0434)	(0.0125)	(0.161)	(0.0781)
Mediterranean	-1.292***	-0.530***	-2.530***	-1.119***	3.287***	1.477***
	(0.0341)	(0.0232)	(0.0438)	(0.0118)	(0.163)	(0.0859)
Unemployment rate	-0.00844**					
	(0.00360)					
Cons*Unem	-0.0761***					
	(0.00455)					
Lib*Unem	-0.0566***					
	(0.00540)					
East*Unem	-0.0224***					
	(0.00426)					
Med*Unem	0.0214***					
	(0.00431)					
Inflation rate		0.0258***				
		(0.00961)				
Cons*Inf		0.0484***				
		(0.0124)				
Lib*Inf		-0.0292**				
		(0.0116)				
East*Inf		-0.0984***				
		(0.0100)				
Med*Inf		-0.174***				
		(0.0101)				
Real GDP per capita			-0.0342			
			(0.0377)			
Cons*RGDP			0.686***			
			(0.0498)			
Lib*RGDP			1.801***			
			(0.0774)			
East*RGDP			1.270***			
			(0.0423)			
Med*RGDP			1.073***			
			(0.0414)			
Real GDP growth rate				-0.00983***		
				(0.00273)		
Cons*RGDP Growth				0.0163***		
				(0.00433)		
Lib*RGDP Growth				0.0382***		
				(0.00424)		
East*RGDP Growth				0.00905***		
				(0.00314)		
Med*RGDP Growth				-0.00318		
				(0.00362)		
Gini coefficient					0.0174***	
					(0.00602)	
Cons*Gini					-0.107***	
					(0.00834)	
Lib*Gini					-0.0837***	
					(0.00942)	
East*Gini					-0.0886***	
					(0.00631)	
Med*Gini					-0.129***	
					(0.00624)	
Social protection expenditure (%GDP)						0.0266***
						(0.00305)
Cons*Expenditure						-0.127***
						(0.00444)
Lib*Expenditure						-0.106***
						(0.00511)
East*Expenditure						0.0216***
						(0.00435)
Med*Expenditure						-0.157***
Constant	8.064***	7.967***	8.072***	8.023***	7.570***	7.459***
	(0.0236)	(0.0188)	(0.0365)	(0.00867)	(0.152)	(0.0648)
Observations	286,446	281,397	288,093	288,093	228,320	244,218
R-squared	0.069	0.074	0.091	0.065	0.092	0.073

Weighted OLS regression - Omitted category: Social Democratic countries - Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 15.2 – Different impacts of macroeconomic magnitudes in European regions

Life Satisfaction	(1)	(2)	(3)	(4)	(5)	(6)
Conservative	0.223***	-0.991***	-1.942***	-0.922***	3.941***	3.788***
	(0.0354)	(0.0286)	(0.0503)	(0.0132)	(0.250)	(0.104)
Liberal	-0.0737*	-0.563***	-3.456***	-0.634***	1.749***	1.729***
	(0.0379)	(0.0282)	(0.0902)	(0.0147)	(0.317)	(0.0983)
Eastern	-1.652***	-1.386***	-3.965***	-1.940***	0.524***	-1.129***
	(0.0359)	(0.0268)	(0.0494)	(0.0143)	(0.183)	(0.0892)
Mediterranean	-1.933***	-1.085***	-3.139***	-1.532***	1.904***	1.521***
	(0.0389)	(0.0265)	(0.0499)	(0.0135)	(0.185)	(0.0982)
Unemployment rate	-0.00926**					
	(0.00409)					
Cons*Unem	-0.156***					
	(0.00518)					
Lib*Unem	-0.0955***					
	(0.00615)					
East*Unem	-0.0275***					
	(0.00485)					
Med*Unem	0.0468***					
	(0.00490)					
Inflation rate		0.0469***				
		(0.0110)				
Cons*Inf		0.0678***				
		(0.0142)				
Lib*Inf		-0.0678***				
		(0.0132)				
East*Inf		-0.156***				
		(0.0115)				
Med*Inf		-0.140***				
		(0.0115)				
Real GDP per capita			-0.0161***			
			(0.00312)			
Cons*RGDP			0.0615***			
			(0.00495)			
Lib*RGDP			0.0557***			
			(0.00484)			
East*RGDP			0.0208***			
			(0.00358)			
Med*RGDP			0.0219***			
			(0.00414)			
Real GDP growth rate				-0.0161***		
				(0.00312)		
Cons*RGDP Growth				0.0615***		
				(0.00495)		
Lib*RGDP Growth				0.0557***		
				(0.00484)		
East*RGDP Growth				0.0208***		
				(0.00358)		
Med*RGDP Growth				0.0219***		
				(0.00414)		
Gini coefficient					-0.00812	
					(0.00686)	
Cons*Gini					-0.174***	
					(0.00950)	
Lib*Gini					-0.0753***	
					(0.0107)	
East*Gini					-0.0879***	
					(0.00719)	
Med*Gini					-0.0927***	
					(0.00711)	
Social protection expenditure (%GDP)						0.0554***
						(0.00349)
Cons*Expenditure						-0.231***
						(0.00507)
Lib*Expenditure						-0.149***
						(0.00584)
East*Expenditure						-0.0269***
						(0.00496)
Med*Expenditure						-0.176***
Constant	8.009***	7.869***	8.143***	7.969***	8.149***	6.793***
	(0.0268)	(0.0215)	(0.0415)	(0.00990)	(0.173)	(0.0740)
Observations	286,407	281,353	288,055	288,055	228,324	244,203
R-squared	0.098	0.091	0.118	0.087	0.111	0.098

Weighted OLS regression - Omitted category: Social Democratic countries – Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 16 – Cronbach's alpha scores by eudaimonic indicators

	(1) Flourishing	(2) Vitality	(3) Optimism	(4) Functioning
Cronbach's alpha	0.6213	0.5960	0.6721	0.7361

Table 17 – Eudaimonic Well-Being in the ESS

	(1) Happiness	(2) Life Satisfaction	(3) Flourishing	(4) Vitality	(5) Optimism	(6) Functioning
ESS round 2	-0.0262*	-0.00600	0.0106***	0.00375	0.00928***	-0.0194***
	(0.0151)	(0.0173)	(0.00254)	(0.00287)	(0.00316)	(0.00382)
ESS round 3	-0.0676***	0.0308	0.0265***	0.0220***	0.0212***	0.0161***
	(0.0166)	(0.0191)	(0.00272)	(0.00307)	(0.00338)	(0.00395)
ESS round 4	-0.0364**	0.0319*	0.0331***	0.0230***	0.0299***	0.0393***
	(0.0161)	(0.0185)	(0.00247)	(0.00279)	(0.00308)	(0.00360)
Income group 2	0.263***	0.288***	0.00549	0.0274***	0.0546***	0.00628
	(0.0322)	(0.0370)	(0.00519)	(0.00586)	(0.00646)	(0.00742)
Income group 3	0.368***	0.475***	0.0225***	0.0759***	0.130***	0.0452***
	(0.0261)	(0.0301)	(0.00426)	(0.00481)	(0.00530)	(0.00611)
Income group 4	0.544***	0.753***	0.0266***	0.111***	0.233***	0.0338***
	(0.0260)	(0.0298)	(0.00420)	(0.00475)	(0.00524)	(0.00604)
Income group 5	0.612***	0.856***	0.0485***	0.139***	0.265***	0.0656***
	(0.0251)	(0.0288)	(0.00402)	(0.00454)	(0.00500)	(0.00576)
Age of respondent, calculated	-0.0761***	-0.0882***	-0.0159***	-0.0309***	-0.00825***	-0.0148***
	(0.00280)	(0.00321)	(0.000442)	(0.000499)	(0.000550)	(0.000641)
Age of Respondent^2 /100	0.0751***	0.0895***	0.0121***	0.0225***	0.0102***	0.00709***
	(0.00342)	(0.00392)	(0.000536)	(0.000606)	(0.000668)	(0.000777)
Male	-0.0979***	-0.0741***	0.0431***	0.0831***	-0.0156***	0.0486***
	(0.0114)	(0.0131)	(0.00178)	(0.00201)	(0.00221)	(0.00257)
Separated	-0.944***	-0.946***	0.0439***	0.0372***	-0.0832***	0.105***
	(0.0426)	(0.0488)	(0.00665)	(0.00752)	(0.00829)	(0.00969)
Divorced	-0.645***	-0.621***	0.0584***	0.0631***	-0.0761***	0.130***
	(0.0232)	(0.0266)	(0.00330)	(0.00373)	(0.00411)	(0.00475)
Widowed	-0.975***	-0.812***	-0.00649	-0.0406***	-0.0801***	-0.0392***
	(0.0389)	(0.0447)	(0.00539)	(0.00609)	(0.00671)	(0.00779)
Never married	-0.485***	-0.412***	0.0514***	0.0648***	0.00980***	0.0793***
	(0.0160)	(0.0184)	(0.00244)	(0.00276)	(0.00304)	(0.00354)
Father's education	0.0211***	0.0317***	0.00796***	0.0120***	0.0212***	0.0178***
	(0.00319)	(0.00365)	(0.000457)	(0.000517)	(0.000570)	(0.000655)
Unemployed (actively looking)	-0.844***	-1.213***	-0.0247***	-0.0893***	-0.256***	-0.0264***
	(0.0242)	(0.0279)	(0.00409)	(0.00462)	(0.00510)	(0.00589)
Unemployed (inactive)	-0.634***	-0.844***	-0.0458***	-0.131***	-0.209***	-0.101***
	(0.0352)	(0.0403)	(0.00572)	(0.00646)	(0.00712)	(0.00826)
Disabled	-0.817***	-1.150***	-0.0611***	-0.737***	-0.238***	-0.140***
	(0.0332)	(0.0381)	(0.00502)	(0.00568)	(0.00626)	(0.00728)
Retired	-0.0444*	0.0164	-0.0413***	-0.180***	-0.0813***	-0.0662***
	(0.0254)	(0.0291)	(0.00380)	(0.00429)	(0.00473)	(0.00549)
Community service	0.120	0.0304	-0.00597	0.105***	0.0679***	0.0280
	(0.115)	(0.132)	(0.0150)	(0.0169)	(0.0186)	(0.0217)
Housework	0.0392***	0.0487***	-0.0344***	-0.0531***	-0.0268***	-0.0750***
	(0.0144)	(0.0165)	(0.00224)	(0.00253)	(0.00279)	(0.00323)
Other	-0.132***	-0.199***	-0.0182***	-0.0297***	-0.0211***	-0.0145*
	(0.0372)	(0.0426)	(0.00560)	(0.00633)	(0.00698)	(0.00814)
Constant	9.821***	9.862***	0.648***	0.843***	0.583***	0.298***
	(0.0799)	(0.0917)	(0.0110)	(0.0124)	(0.0137)	(0.0159)
Observations	117,176	117,177	265,572	265,568	265,566	252,300
R-squared	0.134	0.139	0.094	0.275	0.336	0.136

Weighted OLS regression - Omitted category: Social Democratic countries -
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 18 – Macroeconomic impact on Eudaimonic Well-Being

	(1) Happiness	(2) Life Satisfaction	(3) Flourishing	(4) Vitality	(5) Optimism	(6) Functioning
ESS round 2	0.0132	0.168***	-0.0262***	-0.00113	0.0261***	-0.0542***
	(0.0193)	(0.0223)	(0.00469)	(0.00528)	(0.00566)	(0.00680)
ESS round 3	0.0120	0.209***	-0.00572	0.0161**	0.0328***	-0.0390***
	(0.0277)	(0.0320)	(0.00644)	(0.00726)	(0.00778)	(0.00928)
ESS round 4	0.269***	0.408***	0.00130	0.0166*	0.0443***	-0.0314***
	(0.0326)	(0.0377)	(0.00780)	(0.00879)	(0.00943)	(0.0112)
Inflation rate	-0.0359***	-0.0650***	-0.00372**	-0.00167	-0.00194	-0.0105***
	(0.00733)	(0.00847)	(0.00157)	(0.00177)	(0.00190)	(0.00230)
Unemployment rate	-0.0237**	-0.0460***	0.0124***	0.00585***	-0.00395**	0.00202
	(0.00985)	(0.0114)	(0.00161)	(0.00181)	(0.00194)	(0.00233)
Log RGDP	-0.978***	-1.550***	0.325***	0.0972*	-0.161***	0.494***
	(0.280)	(0.323)	(0.0498)	(0.0561)	(0.0602)	(0.0715)
Real GDP growth rate	0.0551***	0.0334***	-0.000765	-0.00304**	-0.00683***	-0.00630***
	(0.00526)	(0.00607)	(0.00110)	(0.00124)	(0.00133)	(0.00161)
Unemployment benefits	0.188***	0.162***	0.0154*	0.0257***	0.00561	0.0316**
	(0.0431)	(0.0498)	(0.00851)	(0.00959)	(0.0103)	(0.0123)
Gini coefficient	0.000587	-0.00682	-0.00123	0.00237**	0.00180	-0.000245
	(0.00466)	(0.00538)	(0.000977)	(0.00110)	(0.00118)	(0.00140)
Income group 2	-0.00820***	0.00424	0.0104	0.0283***	0.0502***	0.0307***
	(0.00278)	(0.00321)	(0.00748)	(0.00843)	(0.00904)	(0.0107)
Income group 3	0.235***	0.235***	0.0240***	0.0622***	0.120***	0.0465***
	(0.0299)	(0.0346)	(0.00618)	(0.00697)	(0.00747)	(0.00885)
Income group 4	0.388***	0.483***	0.0280***	0.105***	0.226***	0.0333***
	(0.0240)	(0.0278)	(0.00612)	(0.00690)	(0.00739)	(0.00877)
Income group 5	0.573***	0.809***	0.0532***	0.134***	0.256***	0.0678***
	(0.0238)	(0.0276)	(0.00592)	(0.00667)	(0.00715)	(0.00847)
Age of respondent, calculated	0.620***	0.879***	-0.0162***	-0.0308***	-0.00471***	-0.0156***
	(0.0232)	(0.0269)	(0.000580)	(0.000654)	(0.000701)	(0.000840)
Age of Respondent^2 /100	-0.0753***	-0.0863***	0.0124***	0.0223***	0.00635***	0.00803***
	(0.00236)	(0.00273)	(0.000704)	(0.000793)	(0.000851)	(0.00102)
Male	0.0739***	0.0865***	0.0436***	0.0800***	-0.0252***	0.0438***
	(0.00288)	(0.00332)	(0.00231)	(0.00261)	(0.00280)	(0.00334)
Separated	-0.0982***	-0.0719***	0.0560***	0.0436***	-0.0730***	0.127***
	(0.00959)	(0.0111)	(0.00880)	(0.00991)	(0.0106)	(0.0128)
Divorced	-0.914***	-0.970***	0.0570***	0.0666***	-0.0636***	0.137***
	(0.0362)	(0.0418)	(0.00431)	(0.00486)	(0.00521)	(0.00621)
Widowed	-0.625***	-0.647***	-0.00467	-0.0375***	-0.0786***	-0.0373***
	(0.0197)	(0.0228)	(0.00713)	(0.00803)	(0.00861)	(0.0103)
Never married	-1.032***	-0.917***	0.0489***	0.0587***	0.0163***	0.0789***
	(0.0332)	(0.0384)	(0.00317)	(0.00358)	(0.00383)	(0.00459)
Father's education	-0.473***	-0.424***	0.00960***	0.0151***	0.0261***	0.0223***
	(0.0138)	(0.0159)	(0.000678)	(0.000765)	(0.000820)	(0.000971)
How satisfied with the national government	0.0203***	0.00647*	0.00165***	0.0123***	0.0519***	-0.000457
	(0.00335)	(0.00389)	(0.000502)	(0.000565)	(0.000606)	(0.000725)
Unemployed (actively looking)	0.0235***	0.0397***	-0.0323***	-0.0841***	-0.225***	-0.0255***
	(0.00289)	(0.00333)	(0.00542)	(0.00611)	(0.00654)	(0.00778)
Unemployed (inactive)	-0.724***	-1.084***	-0.0405***	-0.131***	-0.187***	-0.0954***
	(0.0209)	(0.0243)	(0.00743)	(0.00837)	(0.00898)	(0.0107)
Disabled	-0.589***	-0.799***	-0.0534***	-0.733***	-0.219***	-0.132***
	(0.0298)	(0.0344)	(0.00649)	(0.00731)	(0.00784)	(0.00942)
Retired	-0.802***	-1.133***	-0.0362***	-0.172***	-0.0756***	-0.0567***
	(0.0272)	(0.0314)	(0.00494)	(0.00557)	(0.00597)	(0.00712)
Community service	-0.0113	0.0520**	-0.0131	0.106***	0.0313	0.00361
	(0.0216)	(0.0249)	(0.0210)	(0.0236)	(0.0253)	(0.0304)
Housework	0.165	0.234**	-0.0314***	-0.0497***	-0.0275***	-0.0725***
	(0.102)	(0.117)	(0.00294)	(0.00332)	(0.00356)	(0.00424)
Other	0.0378***	0.0294**	-0.0146**	-0.0302***	-0.0118	-0.0123
	(0.0124)	(0.0143)	(0.00741)	(0.00835)	(0.00895)	(0.0107)
Constant	-0.106***	-0.162***	-2.802***	-0.354	1.871***	-4.882***
	20.41***	26.00***	(0.522)	(0.588)	(0.631)	(0.749)
	(2.940)	(3.396)				
Observations			155,519	155,519	155,518	148,157
R-squared	158,415	158,433	0.095	0.277	0.362	0.135

Weighted OLS regression - Omitted category: Social Democratic countries
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Table 19 – Macroeconomic impact on Eudaimonic Well-Being (Social Expenditure)

	(1) Happiness	(2) Life Satisfaction	(3) Flourishing	(4) Vitality	(5) Optimism	(6) Functioning
ESS round 2	0.0351*	0.195***	-0.0260***	-0.00169	0.0213***	-0.0512***
	(0.0202)	(0.0234)	(0.00472)	(0.00532)	(0.00570)	(0.00685)
ESS round 3	0.0493*	0.259***	-0.00511	0.0147**	0.0210***	-0.0322***
	(0.0298)	(0.0344)	(0.00659)	(0.00742)	(0.00796)	(0.00949)
ESS round 4	0.306***	0.457***	0.00210	0.0148	0.0288***	-0.0224*
	(0.0346)	(0.0399)	(0.00800)	(0.00902)	(0.00967)	(0.0115)
Inflation rate	-0.0322***	-0.0598***	-0.00369**	-0.00173	-0.00249	-0.0101***
	(0.00742)	(0.00857)	(0.00157)	(0.00177)	(0.00190)	(0.00230)
Unemployment rate	-0.0256***	-0.0482***	0.0125***	0.00566***	-0.00553***	0.00299
	(0.00986)	(0.0114)	(0.00162)	(0.00182)	(0.00195)	(0.00234)
Log RGDP	-1.224***	-1.874***	0.321***	0.106*	-0.0836	0.448***
	(0.289)	(0.334)	(0.0506)	(0.0570)	(0.0611)	(0.0727)
Real GDP growth rate	0.0490***	0.0247***	-0.000903	-0.00272**	-0.00413***	-0.00786***
	(0.00555)	(0.00641)	(0.00114)	(0.00129)	(0.00138)	(0.00167)
Unemployment benefits	0.000242	-0.00753	0.0182*	0.0191	-0.0508***	0.0633***
	(0.00467)	(0.00539)	(0.0107)	(0.0121)	(0.0129)	(0.0154)
Gini coefficient	-0.00943***	0.00200	-0.00118	0.00226**	0.000836	0.000321
	(0.00283)	(0.00327)	(0.000983)	(0.00111)	(0.00119)	(0.00141)
Social protection expenditure (%GDP)	-0.0375***	-0.0565***	-0.00111	0.00253	0.0217***	-0.0126***
	(0.0127)	(0.0147)	(0.00250)	(0.00282)	(0.00303)	(0.00366)
Income group 2	0.247***	0.262***	0.0104	0.0283***	0.0498***	0.0310***
	(0.0490)	(0.0566)	(0.00748)	(0.00843)	(0.00904)	(0.0107)
Income group 3	0.225***	0.232***	0.0240***	0.0622***	0.120***	0.0467***
	(0.0299)	(0.0346)	(0.00618)	(0.00697)	(0.00747)	(0.00885)
Income group 4	0.381***	0.480***	0.0280***	0.105***	0.226***	0.0333***
	(0.0240)	(0.0278)	(0.00612)	(0.00690)	(0.00739)	(0.00877)
Income group 5	0.571***	0.808***	0.0531***	0.134***	0.257***	0.0673***
	(0.0238)	(0.0276)	(0.00592)	(0.00667)	(0.00715)	(0.00847)
Age of respondent, calculated	0.620***	0.875***	-0.0162***	-0.0308***	-0.00471***	-0.0156***
	(0.0232)	(0.0269)	(0.000580)	(0.000654)	(0.000701)	(0.000840)
Age of Respondent^2 /100	-0.0768***	-0.0870***	0.0124***	0.0223***	0.00636***	0.00803***
	(0.00235)	(0.00272)	(0.000704)	(0.000793)	(0.000850)	(0.00102)
Male	0.0747***	0.0870***	0.0436***	0.0799***	-0.0253***	0.0438***
	(0.00287)	(0.00332)	(0.00231)	(0.00261)	(0.00280)	(0.00334)
Separated	-0.0974***	-0.0724***	0.0559***	0.0436***	-0.0727***	0.127***
	(0.00959)	(0.0111)	(0.00880)	(0.00991)	(0.0106)	(0.0128)
Divorced	-0.936***	-0.977***	0.0570***	0.0666***	-0.0635***	0.137***
	(0.0361)	(0.0416)	(0.00431)	(0.00486)	(0.00521)	(0.00621)
Widowed	-0.646***	-0.654***	-0.00469	-0.0374***	-0.0784***	-0.0375***
	(0.0195)	(0.0225)	(0.00713)	(0.00803)	(0.00861)	(0.0103)
Never married	-1.047***	-0.922***	0.0489***	0.0587***	0.0164***	0.0788***
	(0.0332)	(0.0383)	(0.00317)	(0.00358)	(0.00383)	(0.00459)
Father's highest level of education	-0.493***	-0.430***	0.00959***	0.0151***	0.0263***	0.0223***
	(0.0134)	(0.0154)	(0.000679)	(0.000765)	(0.000820)	(0.000971)
How satisfied with the national government	0.0226***	0.0393***	0.00163***	0.0124***	0.0522***	-0.000622
	(0.00288)	(0.00333)	(0.000503)	(0.000566)	(0.000607)	(0.000727)
Unemployed (actively looking)	-0.719***	-1.082***	-0.0323***	-0.0841***	-0.225***	-0.0255***
	(0.0209)	(0.0243)	(0.00542)	(0.00611)	(0.00654)	(0.00778)
Unemployed (inactive)	-0.586***	-0.798***	-0.0405***	-0.131***	-0.187***	-0.0955***
	(0.0298)	(0.0344)	(0.00743)	(0.00837)	(0.00898)	(0.0107)
Disabled	-0.804***	-1.135***	-0.0534***	-0.733***	-0.219***	-0.132***
	(0.0272)	(0.0314)	(0.00649)	(0.00731)	(0.00784)	(0.00942)
Retired	-0.0180	0.0498**	-0.0362***	-0.172***	-0.0755***	-0.0568***
	(0.0215)	(0.0248)	(0.00494)	(0.00557)	(0.00597)	(0.00712)
Community service	0.165	0.232**	-0.0131	0.106***	0.0315	0.00345
	(0.102)	(0.117)	(0.0210)	(0.0236)	(0.0253)	(0.0304)
Housework	0.0431***	0.0314**	-0.0314***	-0.0496***	-0.0269***	-0.0728***
	(0.0124)	(0.0143)	(0.00295)	(0.00332)	(0.00356)	(0.00424)
Other	-0.115***	-0.176***	-0.0145**	-0.0302***	-0.0122	-0.0121
	(0.0316)	(0.0364)	(0.00741)	(0.00835)	(0.00895)	(0.0107)
Constant	23.98***	30.77***	-2.739***	-0.497	0.646	-4.162***
	(3.130)	(3.614)	(0.541)	(0.609)	(0.653)	(0.778)
Observations	158,450	158,468	155,519	155,519	155,518	148,157
R-squared	0.132	0.142	0.095	0.277	0.362	0.136

Weighted OLS regression - Omitted category: Social Democratic countries
Standard errors in parentheses - *** p<0.01, ** p<0.05, * p<0.1

Figure 1 – Life is getting worse in ESS data

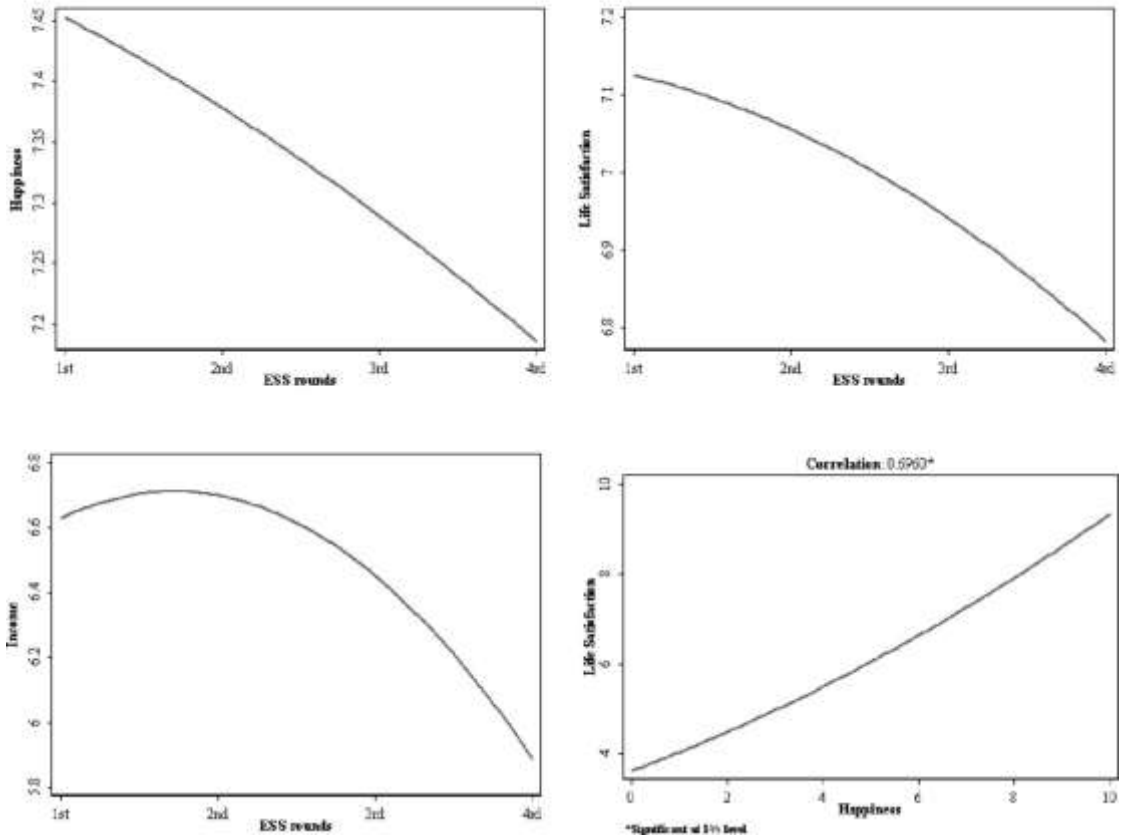


Figure 2 – Ranking of well-being across ESS countries

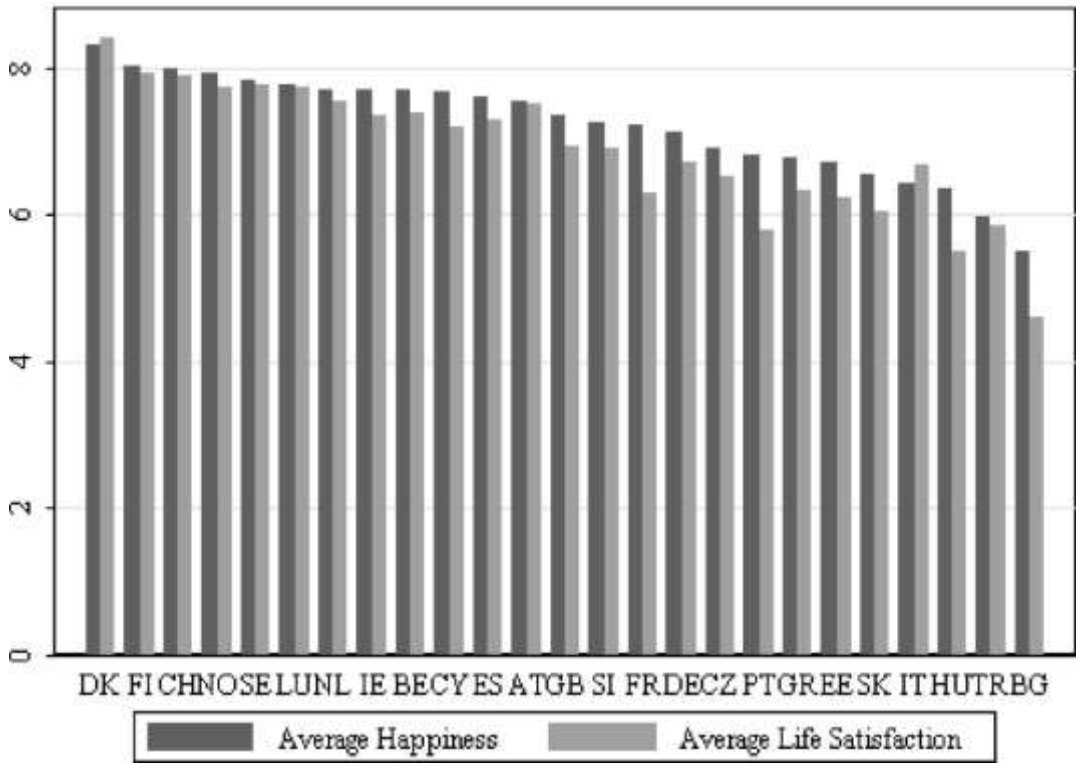


Figure 3 – Ranking of well-being across groups of countries

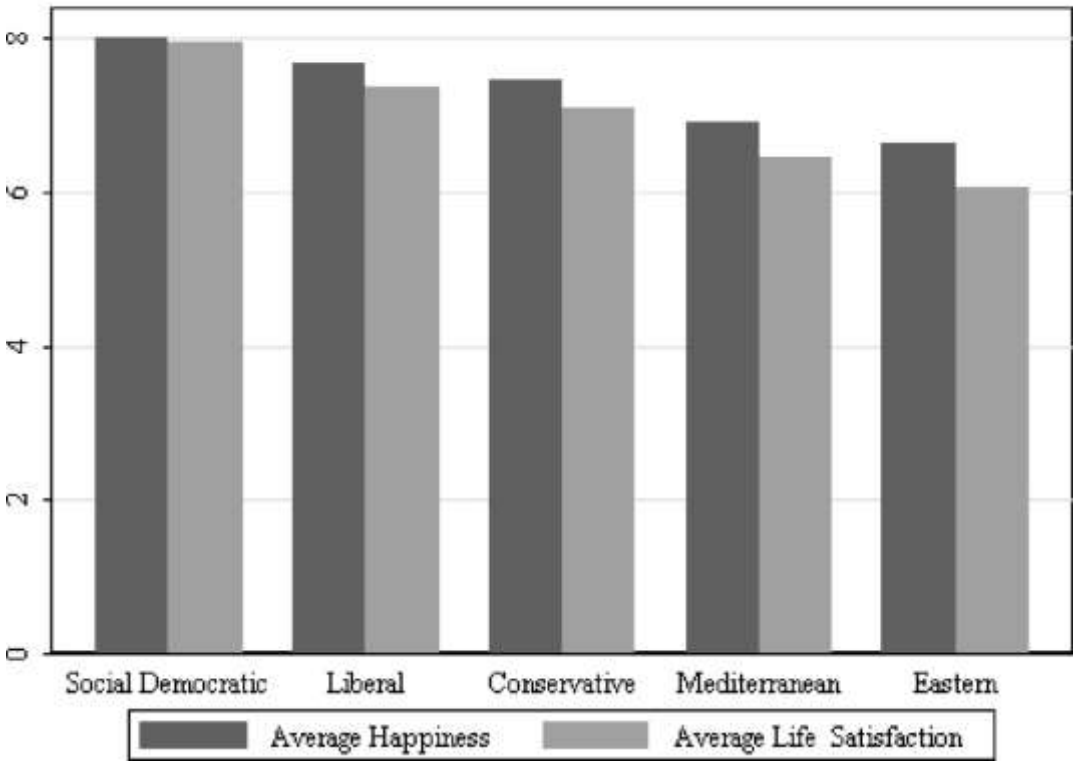
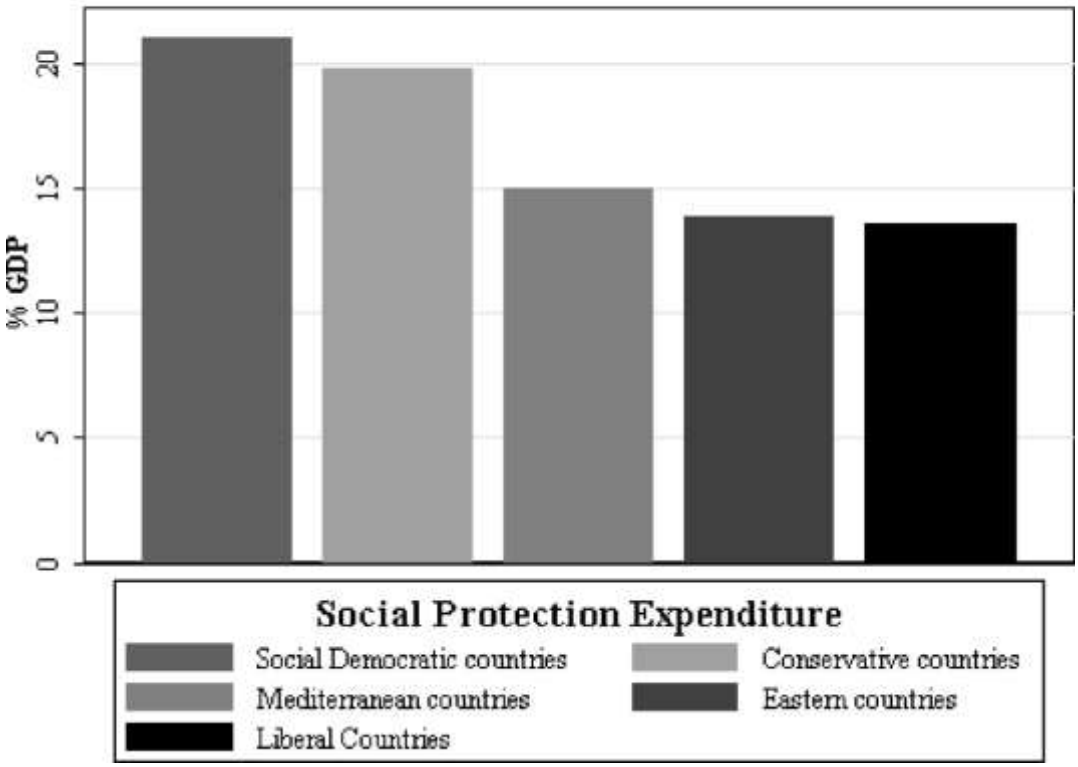


Figure 4 – Social protection in the ESS



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