# THE DETERMINANTS OF WELL-BEING: RESULTS FROM THE EUROPEAN QUALITY OF LIFE SURVEY

# BOX 1: THE DETERMINANTS OF WELL-BEING: RESULTS FROM THE EUROPEAN QUALITY OF LIFE SURVEY[1]

## Introduction

The use of GDP as an indicator of social development is often criticised due its lack of consideration of various environmental and social factors.[2] Consequently, many argue that economic growth may not necessarily be reflected in individual well-being improvements. This appears to be the case in the European Union, where, following a period of recovery from the negative repercussions of the financial and sovereign debt crises, the economic situation in a number of EU Member States had improved significantly by 2016. In fact, official statistics show that the level of real GDP per capita in 2016 was higher than the corresponding 2011 levels in 24 Member States. However, in a seeming contradiction of the EU's objective of promoting the well-being of its citizens, the European Quality of Life Survey (EQLS) shows that mean subjective well-being had improved in only 13 of these Member States over this period.

In light of the possible disconnect between GDP and well-being levels, international institutions – such as the European Commission and the United Nations – have increasingly been placing their focus firmly on individual well-being. At the same time, the number of well-being studies in relevant literature has also increased significantly.

This study uses the two most recent EQLS datasets, comprising data largely from 2011 and 2016, in order to trace any changes in the importance of well-being determinants that may have occurred in a period of economic growth in the European Union. This builds on Diener and Seligman's (2004) argument that the importance of non-material dimensions in explaining well-being levels increases with economic development.[3]

## Method

This hypothesis is tested using micro-datasets made available by Eurofound pertaining to the third and fourth waves of the EQLS carried out in 2011 and 2016, respectively. The nature of the data rules out the testing of any direct causal effect of economic growth on changes in the importance of well-being determinants.[4] In the absence of such means, the economic growth context is captured by considering only those Member States whose real GDP per capita level in 2016 was at least 10% higher than the respective 2011 level. As such, the countries considered are (by ascending order of growth rates): Hungary, Slovakia, Bulgaria, Poland, Estonia, Latvia, Romania, Lithuania, Malta and Ireland. Although this

[2] Stiglitz, J., Sen, A. and Fitoussi, J. (2009), "Report by the Commission on the measurement of economic performance and social progress". European Commission.

[3] Diener, E. and Seligman, M. E. P. (2004), "Beyond Money: Toward an Economy of Well-Being". *Psychological Science in the Public Interest*, 5(1), pp. 1-31.

[4] The dataset is of cross-sectional nature, rather than a longitudinal one. As a result, the individuals taking part in the survey in the 2016 edition are not necessarily the same individuals taking part in the 2011 wave. Furthermore, the survey's primary purpose is to monitor quality of life and thus no focus is placed on the prevalent economic conditions in a particular country. Therefore, while this study considers countries that experienced favourable economic conditions in the period under analysis, it cannot be concluded that any changes in the importance of well-being determinants in this period are a direct result of the underlying changes in economic conditions.

selection is rather subjective, it is based on the a priori expectation that any changes in the importance of well-being determinants associated with economic growth are likely to be more pronounced in the countries that have experienced the strongest economic growth in the European Union.

A well-being function is specified for each of the two years of data that are available. Following relevant literature, each well-being function expresses subjective well-being as a function of a number of factors, such as income, health, social involvement, housing, environmental, socio-demographic factors and trust in national governments, which are commonly found to be significant predictors of well-being in the literature (see Table 1).

In both years of analysis, subjective well-being is proxied by the respondent's level of life satisfaction, reported on a scale ranging from 1 (very dissatisfied) to 10 (very satisfied). Among the well-being predictors included in this study, income is measured by the respondent's household equivalised net monthly income, considered relative to the household equivalised net monthly median income in her/his own country.[5] The health component captures any chronic physical or mental health problem, illness or disability. Social involvement is approximated by the frequency of volunteering and the regularity with which one participates in religious and sporting activities. The specified model also considers any problems with housing accommodation (space shortage, rot in windows, doors or floors, damp or leaks in walls or roof, lack of indoor flushing toilet and lack of bath or shower) and the neighbourhood environment (noise, air quality, litter or rubbish and heavy traffic). Following literature findings, a respondent's trust in national government is also included as one of the possible predictors of

**Table 1**
**VARIABLE SUMMARISED STATISTICS**

| Variable | Description | Values |
|---|---|---|
| Income | Log of equivalised household income relative to the country's median | Absolute value |
| Illness | Chronic physical or mental health problem | 0 - No; 1 - Yes |
| Religious | Frequency of attendance to religious activities | 1 - Never; 2 - Occasional; 3 - Frequent[1] |
| Sport | Frequency of participation in sports | 1 - Never; 2 - Occasional; 3 - Frequent[1] |
| Volunteer | Frequency of volunteering | 1 - Never; 2 - Occasional; 3 - Frequent[2] |
| Housing | Problems with accommodation | 0 - At least one problem; 1 - No problems |
| Environment | Problems with neighbourhood environment | 0 - At least one problem; 1 - No problems |
| Trust in Government | Level of trust in Government | 1 - 10 |
| Unemployed | Respondent is unemployed | 0 - No; 1 - Yes |
| Tertiary | Respondent has a tertiary level of education | 0 - No; 1 - Yes |
| Age | Respondent's age | Absolute value |
| Age2 | Square of respondent's age | Absolute value |
| Residence | Area of residence | 0 - Urban; 1 - Rural |
| Gender | Respondent's gender | 0 - Female; 1 - Male |
| Partner | Respondent lives with a partner in household | 0 - No; 1 - Yes |
| Children | Respondent has children | 0 - No; 1 - Yes |

Sources: Eurofound; author.

[1] A frequency of "one to three times a month" and "less often" is classified as occasional while attendance "every day/almost every day" and "at least once a week" is classified as frequent participation.

[2] Respondents who volunteer "occasionally" or "every month" are deemed to volunteer on an occasional basis while volunteering "every week" is taken to represent frequent volunteering.

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[5]   The net monthly median income in a country is calculated from the microdata itself.

well-being. Employment status, education, age, area of residence (rural or urban), gender, presence of a partner in the household and the presence of a child in life are all factored in as socio-demographic variables.

## Life satisfaction in 2011 and 2016

After omitting respondents who did not provide a measure of their income and/or did not respond to other questions deemed necessary for the purpose of this study, a total of 8,869 complete observations remain available for the year 2011 and 7,747 for 2016.

**Chart 1**
**DISTRIBUTION OF LIFE SATISFACTION RESPONSES (1-10)**
*(per cent)*



2011 (N = 8,869)    2016 (N = 7,747)
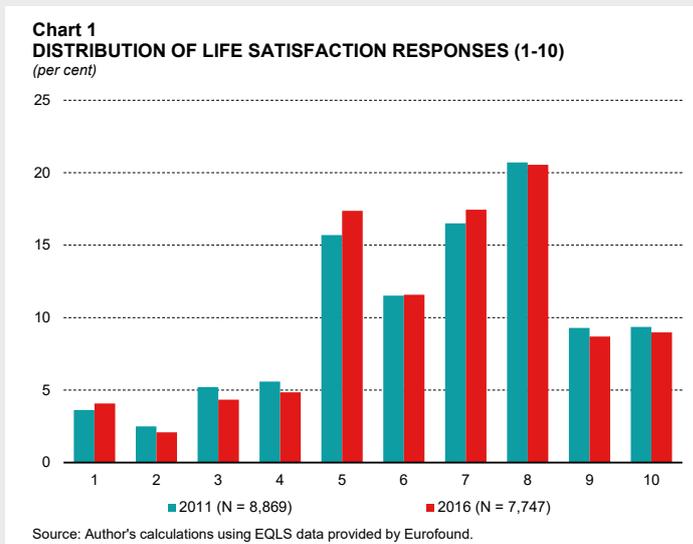Source: Author's calculations using EQLS data provided by Eurofound.

Chart 1 shows the distribution of life satisfaction scores for 2011 and 2016 as reported by respondents in the ten countries considered in this study. The level of life satisfaction is captured through the question "all things considered, how satisfied would you say you are with your life these days?". On a scale of 1 (very dissatisfied) to 10 (very satisfied), the mean life satisfaction in 2011 stood at 6.53 while the corresponding value in 2016 was 6.52. In both editions of the survey, a relative majority of respondents reported a life satisfaction of eight. Additionally, half of the respondents reported a life satisfaction level ranging between four and seven, around 40% of respondents reported a life satisfaction of eight or higher while the remaining 10% had a life satisfaction of three or less at the time of the survey.

## Results

A well-being model is estimated for the years 2011 and 2016, respectively. Due to the ordinal nature of the dependent variable, and in line with existing well-being studies, an ordered logit model is employed and interpreted in terms of average marginal effects. Since differences between adjacent life satisfaction scores may not be significant, responses to the life satisfaction question (on a 10-point scale) are re-grouped into three levels of life satisfaction: low (1-3), medium (4-7) and high (8-10). Given the cross-sectional nature of the data, heteroscedasticity-robust standard errors are obtained for each regression. Country dummies are also included in each regression while a readily available weighting appropriate to account for different population sizes among the countries considered in this study is used. The results are presented in Table 2.

Consistent with *a priori* expectations, results unequivocally show that the household equivalised level of income available to the respondent plays a significant role in determining

**Table 2**
**REGRESSION ANALYSIS**
*Dependent Variable - Life Satisfaction* [1]

| | Ordered Logit | | Marginal Effects (predict outcome 3 - high) | |
| --- | --- | --- | --- | --- |
| | 2011 | 2016 | 2011 | 2016 |
| Income | 0.28 *** | 0.16 *** | 0.06 *** | 0.03 *** |
| Religious | | | | |
|   Never (benchmark) | | | | |
|   Occasional | 0.10 | 0.09 | 0.02 | 0.02 |
|   Frequent | 0.28 *** | 0.45 *** | 0.06 *** | 0.09 *** |
| Sport | | | | |
|   Never (benchmark) | | | | |
|   Occasional | 0.02 | 0.17 | 0.00 | 0.03 |
|   Frequent | 0.24 *** | 0.46 *** | 0.05 *** | 0.09 *** |
| Volunteer | | | | |
|   Never (benchmark) | | | | |
|   Occasional | 0.22 *** | 0.13 | 0.05 *** | 0.03 |
|   Frequent | 0.05 | -0.01 | 0.01 | 0.00 |
| Housing | 0.45 *** | 0.57 *** | 0.09 *** | 0.11 *** |
| Environment | 0.25 *** | 0.05 | 0.05 *** | 0.01 |
| Trust in Government | 0.13 *** | 0.12 *** | 0.03 *** | 0.02 *** |
| Illness | -0.49 *** | -0.47 *** | -0.10 *** | -0.09 *** |
| Unemployed | -0.56 *** | -0.55 ** | -0.12 *** | -0.11 ** |
| Tertiary | 0.20 ** | 0.32 ** | 0.04 ** | 0.07 ** |
| Age | -0.08 *** | -0.09 *** | -0.02 *** | -0.02 *** |
| Age2 | 0.001 *** | 0.001 *** | 0.000 *** | 0.000 *** |
| Residence | 0.04 | -0.10 | 0.01 | -0.02 |
| Gender | 0.01 | -0.15 | 0.00 | -0.03 |
| Partner | 0.37 *** | 0.57 *** | 0.08 *** | 0.11 *** |
| Children | 0.02 | -0.20 | 0.01 | -0.03 |
| N | 8,869 | 7,747 | | |
| Log-likelihood | -4,387.37 | -3,331.90 | | |
| Pseudo R-squared | 0.10 | 0.12 | | |
| Prob>chi2 | 0.00 | 0.00 | | |
| Country Dummies | ✓ | ✓ | | |

Source: Author's calculations using EQLS data provided by Eurofound.

[1] Life Satisfaction is measured on a three-point scale: low (1-3), medium (4-7) and high (8-10).

Note: * significant at the 10% level    ** significant at the 5% level    *** significant at the 1% level.

an individual's life satisfaction. However, results also indicate that in the 5-year period of economic growth in the ten EU Member States considered, the income level lost some of its importance to life satisfaction. In fact, while in 2011 a 1% increase in income (relative to the country's median) was associated with a 6% higher probability of reporting a high level of life satisfaction, this marginal effect declined to 3% in 2016.

In line with previous literature findings, this study finds a significantly positive relationship between life satisfaction and frequent involvement in religious services and sports in

both years. Of particular interest is the observation that these associations strengthened between 2011 and 2016. In fact, the marginal effects associated with frequent attendance to religious activities increased from 6% in 2011 to 9% in 2016, while the corresponding marginal effects associated with frequent participation in sports increased from 5% in 2011 to 9% in 2016. Only occasional volunteering was significantly associated with life satisfaction in 2011, which relationship was not detected in 2016.

Respondents with no accommodation problems in 2016 were 11% more likely to report a high level of life satisfaction. To the contrary, the importance of neighbourhood environment quality is found to have declined significantly between the two waves of the survey while the positive relationship between trust in government and life satisfaction remained broadly stable.

As expected, the probability of reporting a high level of life satisfaction is lower among those suffering from a chronic illness and the unemployed. On the other hand, possession of a tertiary level of education and the presence of a partner in the household are consistently found to be beneficial to well-being, which effects increased further between 2011 and 2016. The study includes both age and age squared (AGE2) to account for possible non-linearities in life satisfaction over the life cycle, as is commonly found in the literature. Subjective well-being is found to be linearly negatively related with age, while the positive coefficient on the variable AGE2 indicates a minimum life satisfaction observed mid-life. Living in rural areas and having kids do not add any predictive value while no gender-based differences in life satisfaction are observed.

## Conclusion

Using microdata from the two most recent EQLS for 2011 and 2016, this study tested the hypothesis that in a period of economic growth, non-income well-being determinants take on a greater role in explaining well-being, potentially at the expense of income. The analysis was applied to the EU Member States that experienced an increase in real GDP per capita of at least 10% between 2011 and 2016. In support of the hypothesis, this study finds evidence that the importance of income to life satisfaction in this group of countries taken together diminished over this period, while housing quality and frequent participation in religious and sporting activities carried substantially greater well-being effects in 2016 compared to 2011. Possession of a tertiary level of education and living with a partner in the household also carried relatively greater well-being benefits. On the contrary, no well-being benefits associated with neighbourhood environment quality were observed in 2016.

In the process of testing its hypothesis, this study's design also served to shed some light on the main well-being determinants in the countries under consideration. Confirming previous findings documented in the well-being literature, this study unequivocally finds important roles for income, health, participation in religious and sporting activities, quality of housing and trust in national government. Human capital and family relationships are also found to be positively associated with higher levels of life satisfaction, while as expected, unemployment is adversely related to life satisfaction.

Some caveats need to be acknowledged in the interpretation of these results. First, while this study takes place in a context of economic growth, it cannot be assumed that the above-mentioned changes in the importance of the respective well-being determinants have been caused directly by economic growth. In the absence of further research into this potential causality, this study's findings can only be interpreted as changes which have accompanied a period of economic growth in the selected EU Member States. Second, the study relies on survey data obtained from subjective reporting and does not consider objective indicators that may be, at least, equally important. The reliability of subjective data is susceptible to respondents' honesty[6] and other factors such as moods.[7] Third, the cross-sectional nature of the data increases the likelihood that other – perhaps more important – predictors of well-being are omitted. Finally, in the absence of measures for individual wealth, this study had to resort to income levels. It is plausible, however, that wealth is a more reliable indicator of respondents' financial situation than income levels.

Despite these caveats, this study's main findings carry important implications for policy makers intended to raise individual well-being. Firstly, the role of income in explaining individual wellbeing should not be diminished. Income remains a key consideration in itself. It also likely affects other factors, such as housing quality, which in turn also matter to individual wellbeing. To this end, initiatives such as lifelong learning that are designed to aid individuals in their pursuit of further education, improve their employment prospects and consequently move them up the income ladder can contribute to higher life satisfaction. However, as is manifested in this study, individual well-being is not reliant solely on income but is also largely influenced by other activities that do not necessarily render additional income. Crucially, this study's findings indicate that in a period of economic growth, individuals may attach greater value to the involvement in activities that help facilitate social interactions, such as religious events and sports. Hence, initiatives such as the promotion of health-enhancing physical activity and policies that provide a better work-life balance, including the provision of flexible employment conditions, can go a long way to raise individuals' well-being.

6   Kenny, C. (2005). "Does development make you happy? Subjective wellbeing and economic growth in developing countries". *Social Indicators Research*, 73(2), pp. 199-219. doi:10.1007/s11205-004-0986-4.
7   Yardley, J. and Rice, R. (1991). "The relationship between mood and subjective well-being". *Social Indicators Research; an International and Interdisciplinary Journal for Quality-of-Life Measurement*, 24(1), pp. 101-111. doi:10.1007/BF00292653.