

The Relative Impact of Income and Health on the Subjective Well-Being
across Generations in Europe

Eric Bonsang¹

CREPP, HEC-Management School
University of Liège

CREPP Working Papers 2006/01

Abstract

The relative importance of the components contributing to individual well-being are likely to change over the life-cycle. Any social policy, whose the main role is to promote the well-being of the population as a whole, neglecting this aspect will redistribute inefficiently the resources across age categories. This paper analyses the life-cycle preferences over income and health. We estimate the relative effects of health and income shocks on individual well-being across age categories by using subjective measure of well-being from the European Community Household Panel (ECHP) from 1994 to 2001. The analysis uses self-reported satisfaction with different domains of life (main activity, income, health, free time and housing) to construct a measure of individual well-being. The analysis concludes that the effect of household income on the well-being of the elderly is lower than it is for the young. Moreover, illness is associated to a higher drop in the well-being of the elderly than it is for the young. The larger impact of illness on the well-being of the elderly is due to the fact that health disease has more impacts on the other domains of life (i.e. satisfaction with main activity and satisfaction with free time) than for the young suggesting that illness is more depressing among the elderly because it decreases their functioning in the different domains of life preventing them to enjoy their daily activities.

¹ Author address : CREPP - Université de Liège, Boulevard du Rectorat, 7 (B31), 4000 Liège – Belgium
Tel. : +31 (0)4 366 31 10 ; Fax : +311 (0)4 366 31 06 ; E-mail : Eric.Bonsang@ulg.ac.be

1. Introduction

The main objective of social policy is to promote the well-being of the population as a whole. A major problem posed by this goal is that this concept is difficult to define and measure objectively. Indeed, well-being encompasses many components that are more or less measurable. Standard of living, the amount of money and access to goods and services that a person has, is fairly easy to measure but other components of well-being such as freedom, environmental quality, health or social life are much more difficult to assess accurately. Most of the policy decisions are thus mainly driven by economic outcomes, which are easily measurable, although economic indicators omit, or even mislead about, much of what individuals in the society value (Diener and Seligman, 2004). As long as well-being and economic outcomes are closely linked in the same way across individuals, any redistribution policy could be driven according to these measures. But, if the importance of economic resources in well-being differs across individuals, any redistribution policy that ignores these differences will reallocate resources inefficiently among the population. Income and health appear as being important factors that contribute to individual well-being. Van Praag et al (2003) have estimated from German data that the two main determinants of satisfaction with life are the financial situation and health. These estimates refer to the whole population and do not take into account the possible preference heterogeneity within the population. In a context of ageing society, it is important to understand how older individuals value income and health in order to perform accurate policies that preserve them from falling into poor living conditions.

This paper tests the hypothesis that older individuals attribute more importance to health and less to income than the young do by using subjective measure of well-being available in the European Community Household Panel (ECHP) and compares the results across eight European countries (Belgium, Denmark, France, Greece, Ireland, Italy, Portugal and Spain). If it is true, it may have important implications for the redistribution issues across generations. Financial transfers to the elderly may not be sufficient to preserve this population to fall in poor living conditions. It would justify policies that allow older individuals to have an easier access to health care. To our knowledge, this issue has not yet been investigated empirically. Older individuals are here defined as being 65 year-old and over. This age limit has been chosen because it is the normal age of retirement in most countries and thus reflects the society view of who is old and who is young.

For a long time economists, contrary to psychologists and sociologists, have been reluctant to use subjective measures such as satisfaction with life as a proxy for well-being or utility. They argue that such a measure is unneeded because the axiomatic rational choice implies that individuals' utility is fully revealed by their decisions, which are precisely intended to maximise it. Moreover, measuring utility implies cardinality, which is in contradiction with the ordinal representation of preferences that bans any interpersonal comparison. However, the use of subjective measures in economics has been developing since the 1970's with the Leyden school's approach and a large corpus of economic studies using subjective data have burgeoned since the late 1990's (see e.g. Clark and Oswald, 1994; Di Tella, MacCulloch and Oswald, 2001; Easterlin, 2001; Ferrer-I-Carbonell, 2005; Frijters, 2000; Frey and Stutzer, 2000; McBride, 2001).

The paper is structured as follows. Section 2 presents the data, the estimation procedure and a method to construct the SWB measure from the satisfaction questions about the different domains of life. Section 3 discusses the empirical findings on the relationship between SWB, income and health among the young and the elderly for the pooled countries and for each country separately. Moreover, we analyse the impact of health and income on the different domains of life. Section 4 concludes.

2. Data and estimation procedure

2.1. Data

The European Community Household Panel (ECHP) is a longitudinal survey that has been conducted originally by 12 EU countries beginning in 1994 and finishing in 2001 constituting 8 waves. Austria joined the ECHP in 1995 and Finland in 1996. In the first wave (in 1994) a sample of some 60,500 nationally representative households - i.e. approximately 130,000 adults aged 16 years and over - were interviewed in the then 12 Member States. The questionnaire has been centrally designed by Eurostat, the Statistical Office of the European Communities, in consultation with the Member States. It provides a large amount of information concerning individuals and households that are comparable across European countries. The survey includes information about income and employment, housing, education, social relationships, health and the degree of satisfaction with various aspects of life. Details of the ECHP are available on the Eurostat web site². Since data of several countries are not available during the whole period 1994-2001, our investigation focuses on eight countries that are Belgium, Denmark, France, Greece, Ireland, Italy, Portugal and Spain. Observations with missing values for our variables of interest are discarded from the analysis. Moreover, the individuals being less than 25 years old are excluded from the analysis. The resulting sample constitutes an unbalanced panel with 511.438 observations³. Table 1 presents summary statistics.

2.2. The subjective well-being measure

The common question used to measure SWB asks individuals how satisfied they are with their life. Unfortunately, the ECHP does not contain such a question. Instead, the survey includes a series of subjective questions that ask the respondent how satisfied they are regarding different aspects of their life. These domains of life are main activity, financial situation, health status, free time and housing. Individuals are asked to answer these questions using a six-points scale ranging from “very dissatisfied” (= 1) to “fully satisfied”(= 6)⁴. Figure 1 presents the percentage of individuals being satisfied⁵ with the different domains of life by age category for all countries. The percentage of individuals being satisfied with main activity remains constant around 40% but starts to decline from 70 years old. Notice that main activity is defined as the principal occupation that the individual has and is not restricted to professional activity. Satisfaction with financial situation slightly increases, as individuals grow old. However, we notice a slight decline at the oldest-age. Satisfaction with health continuously declines with age. Around 90% of individuals in the youngest age category (25-

² <http://forum.europa.eu.int/irc/dsis/echpanel/info/data/information.html>

³ The empirical analysis conducted in this paper has also been tested on a balanced panel and results appears as being close to those presented in this paper.

⁴ An exception is the health satisfaction variable that has a five-points scale.

⁵ We define an individual as being satisfied in one domain of life when he reports having a degree of satisfaction equal to 5 or higher. The exception is satisfaction with health where the individual is defined as being satisfied with his health if his degree of satisfaction with health equals 4 or 5.

29 years old) are satisfied with their health while they are less than 20% in the oldest one. Satisfaction with free time first declines with age until 35-39 years old where it is the lowest and then rises and reaches a peak at 80-84 year old to slightly decrease afterwards. Satisfaction with housing tends to increase until 55-59 years old and slightly declines afterwards. This figure shows the general trend for the pooled countries but there might exist different patterns across countries. Figure 2 to 9 present the percentage of individuals being satisfied with the different domains of satisfaction by country. We can distinguish different patterns of satisfaction with main activity according to age. Belgium, Denmark, France, Ireland and Spain are countries where satisfaction with main activity is higher among the elderly than for their younger counterparts. However, excepted for Belgium, satisfaction with main activity declines at very old age. On the other side, Greece, Italy and Portugal are countries where satisfaction with main activity is lower among the elderly than it is among the young. Belgium, Denmark, France, Ireland and Spain are countries where the satisfaction with income is slightly higher for the elderly than for the young while it is the reverse for Greece, Italy and Portugal. Satisfaction with health has roughly the same declining trend with age across countries. However, Belgium, Denmark and Ireland experience a lower drop than the other countries. Satisfaction with free time exhibits the same pattern according to age across countries where the minimum is reached for the middle-aged adults and the maximum for the “young” elderly. Satisfaction with housing tends to increase with age in Belgium, Denmark, France and Ireland. In Greece, Italy and Portugal, the satisfaction with housing reaches a peak for the middle-aged adults and tends to decrease afterwards. Finally, satisfaction with housing remains constant according to age in Spain with a slight decline at oldest-age.

The domain-of-life literature states that a person’s life can be interpreted as a general construct of many specific domains and that a person’s life-satisfaction can be viewed as the result of satisfaction in these different domains (van Praag, Frijters and Ferrer-I-Carbonell, 2003). In this paper, we assume that the overall satisfaction (or SWB) only depends on five aspects of life: health, income, main activity, free time and housing. As a result, our conception of well-being is restricted to the satisfaction feeling of the individuals regarding these five domains. It implies that the impact of any other specific domains of life (e.g. love or social life) on well-being are ignored⁶. The question is now to find an elegant way to construct a synthetic indicator of SWB from the five satisfaction questions. Simply summing them to obtain an indicator of well-being would require a too restrictive assumption that would impose that all these domains of life are equally important. Moreover, it would impose that elderly and young attribute the same importance to each satisfaction domain in their general satisfaction. Instead, we propose to perform a principal component analysis on these five domain-satisfaction variables for elderly and young separately and to use the first principal component as a proxy for the SWB of individuals. The advantage of this method is threefold: first, no a priori assumption is made concerning the relative importance of each domain of satisfaction. Second, it allows for differences in tastes between elderly and young and finally, the resulting variable has the advantage of being continuous and thus allows the use of more flexible regression techniques than for categorical variables. The principal component analysis performed on the whole sample reveals that the first principal component explains 44.2% of the information contained in the five domain satisfaction questions for the young and 54.0% for the elderly. The correlation between those factors and the former variables are all large and positive, individuals being satisfied in one satisfaction-domain tend

⁶ However, these specific domains of life are likely to be correlated with our subjective well-being measure if these domains interact with the domains we include in our measure. For example, social life satisfaction is likely to be correlated with satisfaction with free time.

to be satisfied in the other satisfaction-domains. Table 2 presents the scoring coefficients of the first eigenvector associated to domains of satisfaction for the young and the older individuals. The principal component analysis is conducted for the whole sample and for each country separately. These coefficients can be interpreted as the weights attached to each domain of life in individual SWB. In all countries, the weight associated to satisfaction with income is always higher for the young than it is for the older individuals. Table 2 also indicates that more weight is attributed to satisfaction with health among the older individuals than the young in each country except in Greece. Figure 10 shows the evolution of the constructed measure of SWB by age categories. The trend with age exhibits a rather complex pattern. First, SWB tends to increase from 25 years old until it reaches a first peak at 45-49 years old. From there, SWB decreases until 55-59 years old and increases again until 65-69 years old. Finally, the SWB decreases sharply among the oldest-old. The trend that we observe at later age is in accordance with findings of Horley and Lavery (1995) on Canadian data that show that mean levels of life satisfaction increased in the 65-74 years old age group, but appeared to taper off in the 75 and older age group.

2.3. Estimation method

Results regarding the analysis of the determinants of SWB are quite sensitive to the estimation method used. Ferrer-I-Carbonell and Frijters (2004) state that it is important to control for individual time-invariant characteristics such as personality traits to correctly estimate the determinants of SWB. Indeed, it has been found that personality traits account for a large part of the variance of the SWB (Argyle, 1999; Diener and Lucas, 1999; Gonzalez Gutierrez, Moreno Jimenez, Garrosa Hernandez and Penacoba Puente, 2005). Moreover, personality traits are very likely to be correlated to observables and thus this may bias estimates if we do not control for them. As a result, we use panel data fixed-effects linear regressions in order to evaluate the determinants of happiness among the young and the older individuals. The equations to be estimated can be described as follows:

$$SWB_{it}^y = H_{it}^y \beta_H^y + \log(Y_{it}^y) \beta_Y^y + X_{it}^y \beta_x^y + \alpha_i^y + \varepsilon_{it}^y \quad (1)$$

$$SWB_{it}^o = H_{it}^o \beta_H^o + \log(Y_{it}^o) \beta_Y^o + X_{it}^o \beta_x^o + \alpha_i^o + \varepsilon_{it}^o \quad (2)$$

where SWB_{it}^j is the estimated SWB of individual i in the j -category (y -superscript is the young category (25-64 years old) and o -superscript is the older category (65 years old and more)) at time t , H_{it}^j represents a vector related to objective health variables, Y_{it}^j is household income, X_{it}^j is a vector of other control variables, α_i^j represents the time-invariant individual characteristics and ε_{it}^j is the error term that has expectation 0 and is orthogonal to H^j , Y^j and X^j for $j = y, o$. Household income⁷ is introduced in logarithmic form because it is widely accepted that the utility function is increasing and concave in income. The health-related variables included in the model contain a dummy variable (that we call “illness/injury”) that is equal to one if the individual declares that he had to cut down things he usually does about the house, at work or in free time because of injury or illness during the last two weeks. The two other health-related variables are a dummy that is equal to one if the individual is hampered *to some extent* in his activities of daily living (ADL) by any physical or mental health problem and another dummy that is one if the individual is *severely* hampered in his ADL. The control variables of the model include the number of adults and children in the household, a dummy

⁷ The household income of each country has been converted in euros, adjusted to purchasing power parity and are indexed to 2001-prices.

variable that is one if the individual lives in a couple (married or not) and age. Moreover, we include the labour status (working, unemployed or inactive) in the equation for the young because it has been showed that unemployment is associated with a significant non-pecuniary loss of utility (Clark and Oswald, 1994; Thodossiou, 1998; Winkelmann and Winkelmann, 1998). The omission of such a variable would thus overestimate the impact of income on utility among the young as income is likely to be negatively correlated to unemployment. The introduction of fixed effects necessary to control for unobserved individual heterogeneity requires a quite strong assumption that admits that satisfaction judgements measure well-being in a cardinal way. However, Ferrer-I-Carbonell and Frijters (2004) show that assuming ordinality or cardinality of happiness score makes little difference on estimation results.

3. Estimation results

3.1. The impact of income and health on the subjective well-being

This section presents the estimation results from equations (1) and (2) for all countries together. Table 3 contains the estimation results from the fixed effects model. Age has a significant positive impact on SWB for the young and a negative one for the older population. These estimates have to be interpreted with caution, as the use of fixed effects does not allow for separating time and age effects. Being in couple has a significant positive effect on the young's SWB but unexpectedly, the coefficient is negative for the elderly. The most common transition in the marital status of individuals being more than 65 years old is from married couple to widowed (around 95% in our sample). Figure 11 shows the evolution of the SWB measure around widowhood (two years before and after the transition). The SWB experienced by the individuals preceding widowhood tends to be rather low and declines until it reaches its minimum at the year of transition. Afterwards, the SWB increases during the following periods. This result is in accordance with similar findings of Clark, Diener, Georgellis and Lucas (2003) and Diener and Seligman (2004). As a result, the fixed effect coefficient related to the fact of being in couple is negative (the average SWB is higher after widowhood than before). However, the SWB of the widowed are lower than individuals that have not experienced such an event (the average SWB of all the population is 0 which is higher than the SWB of those experiencing widowhood for each period). The number of adults in the household has a significant negative impact for both age-categories and the coefficient associated with the number of children is negative for the young while it exhibits no significant impact on SWB for the elderly. These results are in accordance with most SWB studies that found negative or no significant impact of the number of children on SWB (Clark and Oswald, 1994; Ferrer-I-Carbonell, 2002). The labour status variables for the young indicate that those working are happier than inactive individuals while those unemployed have a much lower SWB. Income has a significant positive impact on the SWB for the young and the older population but the magnitude of the effect is significantly higher for the younger

individuals (the t-statistic $\frac{\beta_Y^y - \beta_Y^o}{\sqrt{\sigma_{\beta_Y^o}^2 + \sigma_{\beta_Y^y}^2}}$ equals 5.55). However, these coefficients are likely to

be overestimated if an unobserved variable is correlated to household income and the SWB. I argue that this potential endogeneity bias is likely to be stronger for the young than the elderly. The reason for this is that income variations among the elderly are likely to be exogenously determined because their main source of income comes from public transfers while the main source of income of the young is earnings. An income variation among the young can reflect an unobserved life's event (e.g. having a job promotion) that influences the SWB in a non-pecuniary form. As a result, the impact of this income variation on the SWB

will reflect both the impact of an income increase and the impact of the life's event. We will assess the importance of this potential endogeneity bias in the next section. The effects of the health disease variables are negative for both age-categories but the importance of these diseases is stronger for older individuals than for their younger counterparts although the variation is only significantly different from zero for the Illness/injury dummy (the t- statistic

$\frac{\beta_H^y - \beta_H^o}{\sqrt{\sigma_{\beta_H^o}^2 + \sigma_{\beta_H^y}^2}}$ equals 5.96). All these results tend to support our hypothesis that older

individuals attach more importance to health and less to income than the younger generations does. As the determinants of SWB are likely to differ across countries because of cultural and institutional differences, it is interesting to obtain the SWB equations for each country separately. Table 4 presents the coefficients associated to illness and income for the young and the elderly in the SWB equations by country⁸. The income coefficients of the young are always higher than those of the elderly excepted for Italy. However, these differences are only significantly different from zero for Denmark and France. Regarding the impact of illness on SWB, the illness/injury coefficient is always significantly higher for the elderly than for their younger counterparts excepted for Greece and Portugal where the difference in the coefficients is not significantly different from zero.

3.2. The impact of income and health on the different domains of satisfaction

We can estimate the same regression for each satisfaction domain in order to decompose the impact of health and income on the SWB. Although the dependent variables are ordinal, we present the results from a fixed-effect OLS. As noted previously, Ferrer-I-Carbonell and Frijters (2004) showed that assuming cardinality or ordinality makes little difference on the estimation results⁹. Table 5 presents the coefficients related to income and illness for the five satisfaction-domains¹⁰ for the pooled countries. Once we observe the impact of household income on the five domains of satisfaction of the young and the elderly, we see that the main source of difference in the impact of income on the SWB comes from the financial satisfaction. Indeed, we observe that the impact of income on financial satisfaction is much higher among the young than the elderly while the differences in the impact are almost negligible for the other satisfaction domains. However, we observe that income has a significantly higher impact on the satisfaction with main activity for the young, suggesting that the endogeneity bias discussed in the previous section is stronger for the young than for the elderly.

We can also decompose the effect of illness on the SWB of the young and the elderly. Surprisingly, we observe that the impact of health disease on satisfaction with health is significantly higher for the young than it is for the elderly. However, we have seen that the overall impact of health disease on SWB was higher for the elderly than for the young. The explanation can be found by looking at the effect of health on the other satisfaction domains. The coefficients associated with illness or injury are significantly higher (in absolute terms) for the elderly than for the young regarding the satisfaction with free time and main activity. This may be explained by the fact that illness among older individuals has a larger negative impact on their functioning than among the young, causing these older people to be less able to perform everyday tasks and activities and to enjoy it. As Smith, Borchelt, Maier and Jopp

⁸ Full results of the estimation by country is in Appendix.

⁹ We performed the same analysis by assuming ordinality and we obtain results close to those presented in this paper. The model used is a ordered probit with random-effect incorporating the Mundlak (1978) transformation.

¹⁰ The complete results from these estimations are in Appendix.

(2002) argue, in old age, the challenges of dealing with chronic illness and impairments in physical, sensory, and cognitive functioning have a pervasive impact on the nature and routine of everyday life.

4. Conclusion

In this paper, we have empirically examined whether the elderly attribute more importance to health and less to income than the young using the SWB approach. The analysis has been done for eight European countries using data from the ECHP. Since the ECHP does not contain the usual variable used to measure the SWB, we propose a method to get an approximation of the SWB by using satisfaction variables related to several domains of life (satisfaction with main activity, health, income, free time and housing). The estimation procedure used to measure the impact of health and income on the SWB takes into account the time-invariant heterogeneity as it is admitted that SWB estimations are quite sensitive to the time-invariant characteristics such as personality traits. The estimation is performed for the young and the elderly separately and includes health objective variables, the household income and several control variables. Results for the pooled countries indicate that the impact of income on the SWB is significantly higher for the young than for the elderly. However, the estimation results by country show that the difference between the coefficients related to household income is significant for Denmark and France while it is not the case for the other countries. Moreover, illness is associated with an higher loss in SWB among the elderly for the pooled countries estimation. The estimation by country confirms this trend excepted for Greece and Portugal where the difference is not significant. In a second step, we analyse the impact of income and health diseases on the various domains of satisfaction among the young and the elderly. Results indicate that the difference in the impact of income on the SWB between the young and the elderly is mainly due to difference in the impact of income on the financial satisfaction. Regarding health, it appears that illness is associated with an higher drop in the health satisfaction among the young but illness among the elderly is associated with a more important drop in several other domains of satisfaction such as satisfaction with main activity or with free time. This indicates that illness has more impact on the elderly's SWB because it decreases their functioning in other domains of life and prevents them to enjoy their daily activities.

References

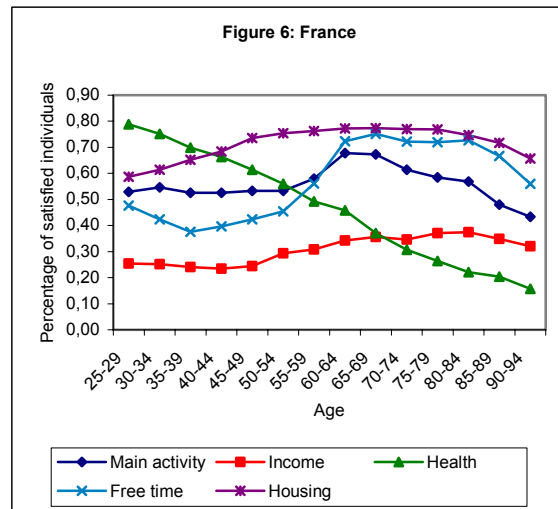
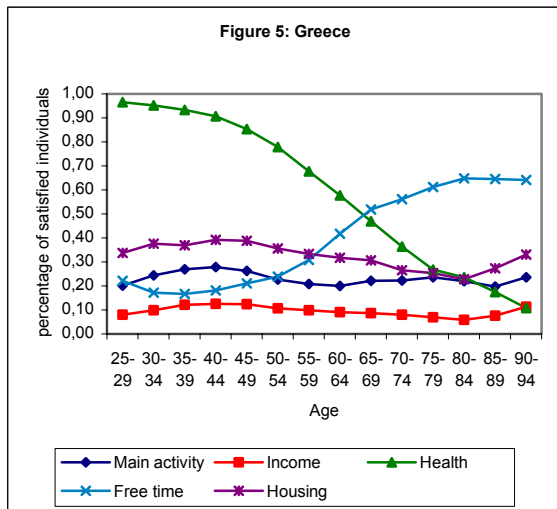
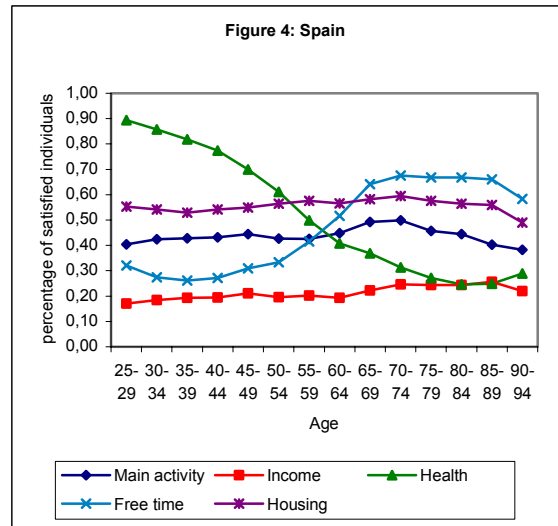
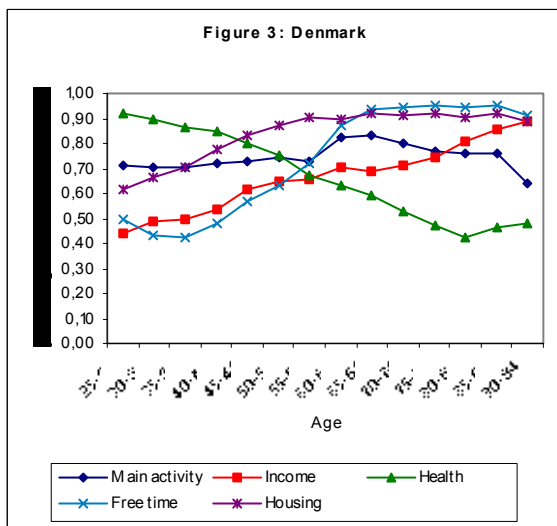
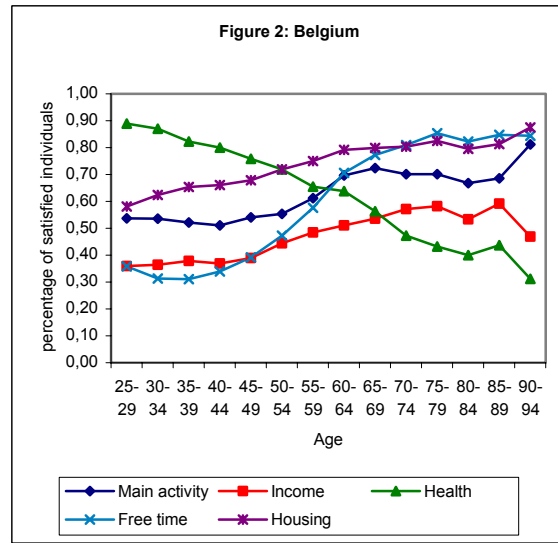
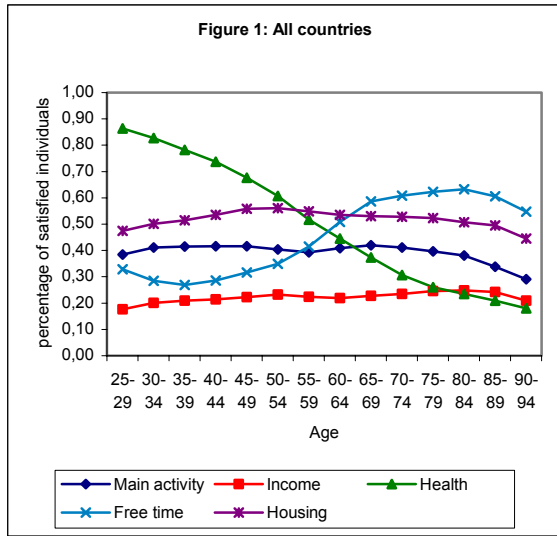
- Argyle, M., 1999, Causes and Correlates of Happiness, in: Kahneman, D., E. Diener and N. Schwarz (Eds.), Well-Being, The Foundations of Hedonic Psychology, Russel Sage Foundation, New-York, chapter 18.
- Clark, A.E. and A.J. Oswald, 1994, Unhappiness and Unemployment, *Economic Journal* 104, 648-659.
- Clark, A.E., E. Diener, Y. Georgellis and R.E. Lucas, 2003, Reexamining Adaptation and Set Point Model of Happiness: Reactions to Changes in Marital Status, *Journal of Personality and Social Psychology*, 84, 527-539.
- Diener, E. and R.E. Lucas, 1999, Personality and Subjective Well-Being, in: Kahneman, D., E. Diener and N. Schwarz (Eds.), Well-Being, The Foundations of Hedonic Psychology, Russel Sage Foundation, New-York, chapter 11.

- Diener, E. and M.E.P. Seligman, 2004, Beyond Money: Toward an Economy of Well-Being, *Psychological Science in the Public Interest*, 5, 1-31.
- Di Tella, R., R.J. MacCulloch and A.J. Oswald, 2001. Preferences over Inflation and Unemployment, Evidence from Surveys of Subjective Well-Being, *American Economic Review* 91, 335-341.
- Easterlin, R.A., 1995, Will Raising the Income of All Increase the Happiness of All? *Journal of Economic Behavior and Organization*, 27 (1), 35-47.
- Easterlin, R.A., 2001, Income and Happiness: Towards a Unified Theory, *Economic Journal* 111, 465-484.
- Ferrer-I-Carbonell, A., 2002, Subjective Questions to Measure Welfare and Well-Being, Tinbergen Institute Discussion Papers.
- Ferrer-I-Carbonell, A. and P. Frijters, 2004, How Important Is Methodology for the Estimates of the Determinants of Happiness?, *The Economic Journal*, 114 (July), 641-659.
- Ferrer-I-Carbonell, A., 2005, Income and Well-Being: an Empirical Analysis of the Comparison Effect, *Journal of Public Economics* 89, 997-1019.
- Frijters, P., 2000, Do Individuals Try to Maximize General Satisfaction?, *Journal of Economic Psychology* 21, 281-304.
- Frey, B.S. and A. Stutzer, 2000, Subjective Well-Being, Economy and Institutions, *Economic Journal* 110, 918-938.
- Gonzalez Gutierrez, J.L., B. Moreno Jimenez, E. Garrosa Hernandez and C. Penacoba Puente, 2005, Personality and Subjective Well-Being: Big Five Correlates and Demographic Variables, *Personality and Individual Differences* 38, 1561-1569.
- Horley, J. and J. Lavery, 1995, Subjective Well-Being and Age, *Social Indicators Research* 34, 275-282.
- McBride, M., 2001, Relative Income Effects on Subjective Well-Being in the Cross-Section, *Journal of Economic Behavior and Organization* 45, 251-278.
- Mundlak, Y., 1978, On the Pooling of Time Series and Cross Section Data, *Econometrica* 46, 69-85.
- Smith, J., M. Borchelt, H. Maier and D. Jopp, 2002, Health and Well-Being in the Young Old and Oldest Old, *Journal of Social Issues* 58, 715-732.
- Theodossiou, I., 1998, The Effects of Low-pay and Unemployment on Psychological Well-Being: a Logistic Regression Approach, *Journal of Health Economics* 17, 85-104.
- Van Praag, B.M.S., P. Frijters and A. Ferrer-I-Carbonell, 2003, The Anatomy of Subjective Well-Being, *Journal of Economic Behavior and Organization* 51, 29-49.
- Winkelmann, L. and R. Winkelmann, 1998, Why Are the Unemployed So Unhappy? Evidence from Panel Data, *Economica* 65, 1-15.

Table 1. Summary statistics

	<u>Belgium</u>		<u>Denmark</u>		<u>France</u>		<u>Greece</u>		<u>Ireland</u>		<u>Italy</u>		<u>Portugal</u>		<u>Spain</u>	
	Young	Older	Young	Older	Young	Older	Young	Older	Young	Older	Young	Older	Young	Older	Young	Older
N	26,357	6,018	25,502	6,183	58,597	16,509	52,515	18,993	25,724	7,118	83,73	18,175	52,915	19,867	69,922	23,313
Age	42.3	73.4	42.8	74.2	43.3	73.4	44.0	73.6	43.4	73.3	42.7	73.4	43.9	73.5	42.7	73.9
Living in couple	81.8%	60.9%	79.8%	56.1%	81.1%	62.1%	80.1%	62.2%	77.1%	55.8%	76.2%	62.5%	79.3%	62.4%	76.1%	60.3%
Number of adults in the hh	2.31	1.80	2.02	1.59	2.30	1.82	2.84	2.35	2.79	2.13	2.94	2.36	2.91	2.29	3.04	2.46
Number of children in the hh	0.89	0.02	0.77	0.00	0.83	0.02	0.73	0.18	1.23	0.08	0.62	0.07	0.75	0.14	0.69	0.12
<u>Employment status:</u>																
Working	74.5%	2.4%	78.5%	4.7%	68.7%	0.9%	62.2%	5.2%	60.5%	9.4%	60.1%	3.7%	70.6%	12.2%	56.2%	1.3%
Unemployed	7.0%	0.2%	6.4%	0.3%	6.7%	0.0%	5.7%	0.2%	5.3%	0.1%	6.7%	0.1%	4.5%	0.2%	9.7%	0.1%
Inactive	<u>18.5%</u>	<u>97.3%</u>	<u>15.1%</u>	<u>95.0%</u>	<u>24.6%</u>	<u>99.1%</u>	<u>32.1%</u>	<u>94.6%</u>	<u>34.2%</u>	<u>90.5%</u>	<u>33.2%</u>	<u>96.2%</u>	<u>24.9%</u>	<u>87.6%</u>	<u>34.1%</u>	<u>98.6%</u>
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Monthly net hh income (ppp-adjusted)	2,390.3	1,513.0	2,395.7	1,260.3	2,412.5	1,772.3	1,693.9	1,062.5	2,374.3	1,389.9	2,044.6	1,594.7	1,544.2	911.4	2,150.2	1,499.2
<u>Health variables:</u>																
Illness/injury	8.6%	16.2%	16.6%	25.1%	5.4%	13.6%	3.8%	14.5%	7.7%	14.1%	3.3%	7.6%	8.9%	25.0%	8.7%	18.7%
Hampered in the ADL to some extend	8.5%	20.2%	14.0%	26.1%	9.9%	25.8%	6.6%	20.3%	10.5%	25.3%	6.1%	18.5%	11.9%	25.2%	8.4%	24.0%
Severely hampered in the ADL	3.5%	15.0%	3.9%	16.7%	7.0%	26.1%	4.5%	18.4%	2.3%	8.4%	2.6%	15.5%	7.6%	23.6%	4.1%	15.2%

Satisfaction with domains of life by age.



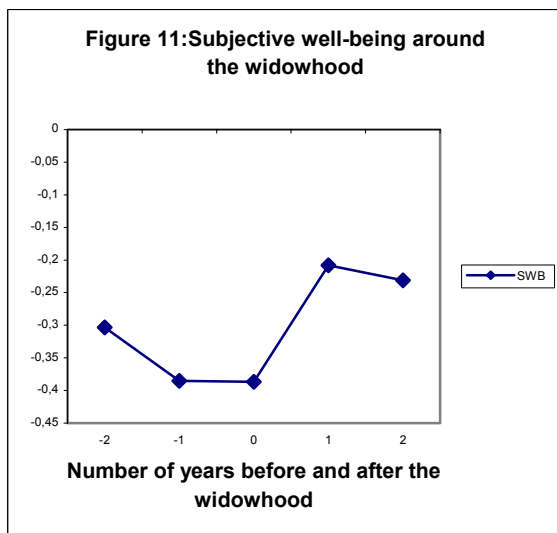
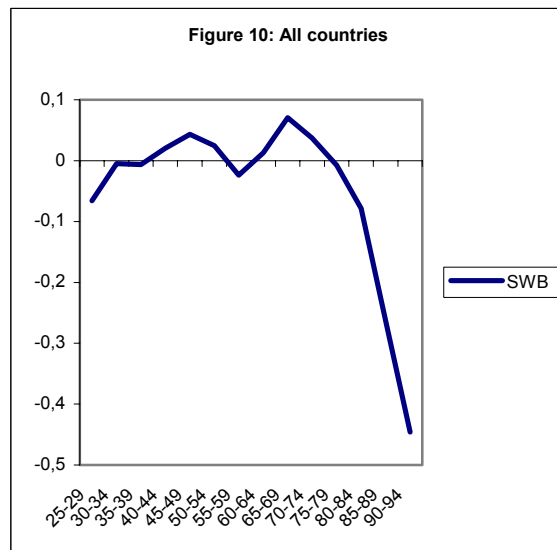
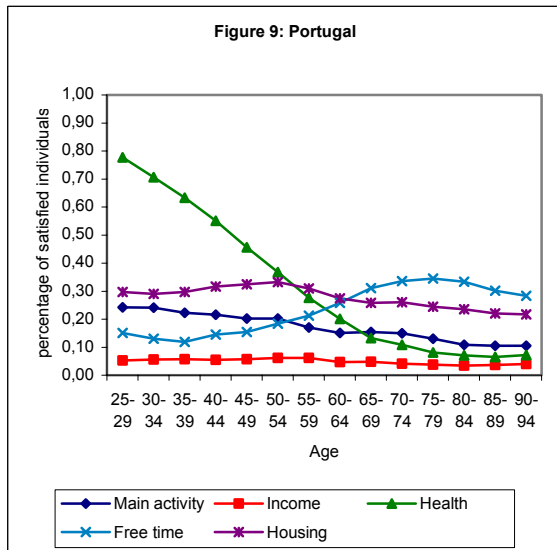
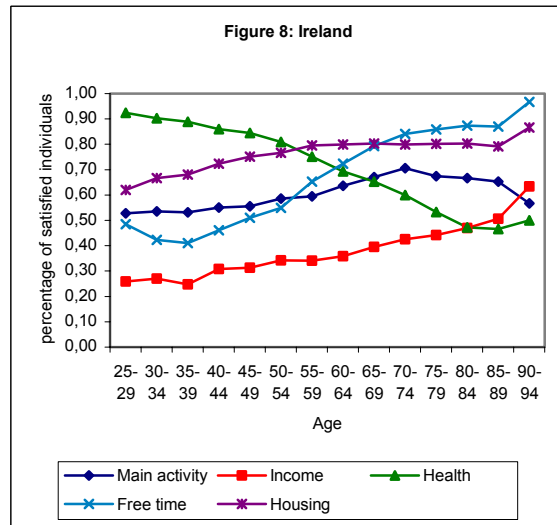
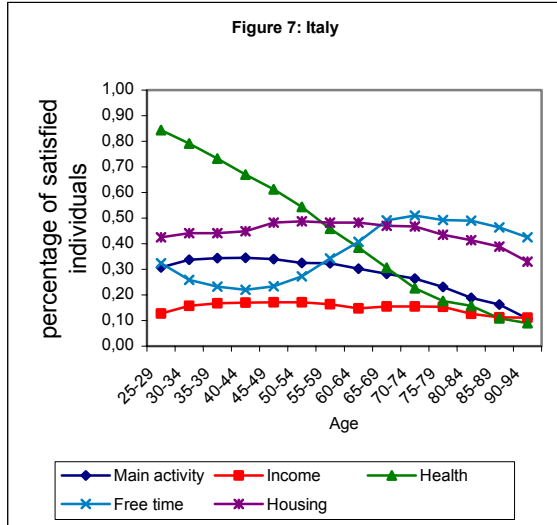


Table 2. Scoring coefficients of the first eigenvectors from the principal component analysis.

	<u>All countries</u>		<u>Belgium</u>		<u>Denmark</u>	
	<u>Young</u>	<u>Older</u>	<u>Young</u>	<u>Older</u>	<u>Young</u>	<u>Older</u>
Satisfaction with main activity	0,528	0,499	0,517	0,503	0,506	0,520
Satisfaction with income	0,542	0,472	0,546	0,464	0,535	0,425
Satisfaction with housing	0,495	0,483	0,474	0,498	0,495	0,456
Satisfaction with free time	0,343	0,432	0,363	0,450	0,415	0,467
Satisfaction with health	0,257	0,330	0,281	0,286	0,202	0,350
	<u>France</u>		<u>Greece</u>		<u>Ireland</u>	
	<u>Young</u>	<u>Older</u>	<u>Young</u>	<u>Older</u>	<u>Young</u>	<u>Older</u>
Satisfaction with main activity	0,523	0,518	0,565	0,521	0,512	0,503
Satisfaction with income	0,522	0,393	0,580	0,512	0,521	0,463
Satisfaction with housing	0,417	0,391	0,518	0,530	0,479	0,485
Satisfaction with free time	0,346	0,475	0,148	0,384	0,417	0,455
Satisfaction with health	0,400	0,445	0,233	0,195	0,252	0,300
	<u>Italy</u>		<u>Portugal</u>		<u>Spain</u>	
	<u>Young</u>	<u>Older</u>	<u>Young</u>	<u>Older</u>	<u>Young</u>	<u>Older</u>
Satisfaction with main activity	0,535	0,503	0,524	0,501	0,532	0,507
Satisfaction with income	0,546	0,479	0,541	0,475	0,560	0,453
Satisfaction with housing	0,503	0,483	0,486	0,499	0,491	0,461
Satisfaction with free time	0,324	0,422	0,352	0,429	0,308	0,458
Satisfaction with health	0,239	0,326	0,269	0,302	0,258	0,338

Table 3. The effects of income and health on the Subjective Well-Being among the young and older population

	All countries			
	Young		Older	
	Coefficient	(Std Error)	Coefficient	(Std Error)
Intercept	-2.280***	(0.048)	0.920***	(0.134)
Age	0.008***	(0.001)	-0.029***	(0.002)
Being in couple	0.065***	(0.011)	-0.053**	(0.022)
Number of adults	-0.089***	(0.003)	-0.096***	(0.010)
Number of children	-0.075***	(0.004)	-0.026	(0.018)
Inactive	Ref.		-	
Working	0.046***	(0.008)	-	
Unemployed	-0.484***	(0.010)	-	
Log (household income)	0.303***	(0.005)	0.236***	(0.011)
Illness/injury	-0.165***	(0.007)	-0.237***	(0.010)
Hampered in the ADL to some extend	-0.232***	(0.007)	-0.211***	(0.009)
Severely hampered in the ADL	-0.490***	(0.011)	-0.516***	(0.012)
σ_{α}	1.165		1.353	
σ_{ε}	0.924		0.957	
ρ	0.614		0.666	
Within-R ²	0.036		0.043	
Between-R ²	0.271		0.194	
Overall-R ²	0.196		0.154	
Number of observations	395,262		116,176	
Number of individuals	78,580		25,032	

Note: The dependent variable is the measure of SWB constructed as described in section 2. The estimation used is the OLS with fixed effects for time invariant unobserved heterogeneity. *, **, *** means that the coefficient estimate is significantly different from zero at the 10%, 5%, 1 %-level respectively.

Table 4. The effects of income and health on the Subjective Well-Being among the young and older population by country

Country	All countries				Test for the difference in slope T-statistics
	Young		Older		
	Coefficient	(Std Error)	Coefficient	(Std Error)	
<u>Coefficients associated to Log (household income)</u>					
Belgium	0.298***	(0.030)	0.280***	(0.075)	0.223
Denmark	0.316***	(0.025)	0.167**	(0.066)	2.111
France	0.294***	(0.015)	0.073**	(0.028)	6.957
Greece	0.445***	(0.014)	0.404***	(0.026)	1.388
Ireland	0.232***	(0.023)	0.205***	(0.052)	0.475
Italy	0.318***	(0.012)	0.323***	(0.030)	-0.155
Portugal	0.265***	(0.014)	0.210***	(0.026)	1.863
Spain	0.309***	(0.014)	0.278***	(0.033)	0.865
<u>Coefficients associated to Illness/Injury</u>					
Belgium	-0.157***	(0.025)	-0.274***	(0.048)	2.162
Denmark	-0.172***	(0.019)	-0.273***	(0.042)	2.191
France	-0.250***	(0.019)	-0.361***	(0.027)	3.362
Greece	-0.237***	(0.030)	-0.227***	(0.032)	-0.228
Ireland	-0.190***	(0.031)	-0.322***	(0.050)	2.244
Italy	-0.090***	(0.022)	-0.248***	(0.037)	3.670
Portugal	-0.162***	(0.020)	-0.205***	(0.024)	1.376
Spain	-0.196***	(0.017)	-0.260***	(0.026)	2.060

Note: The dependent variable is the measure of SWB constructed as described in section 2. The estimation used is the OLS with fixed effects for time invariant unobserved heterogeneity for each country separately. Full results are available in Appendix. *, **, *** means that the coefficient estimate is significantly different from zero at the 10%, 5%, 1 %-level respectively.

Table 5. The impact of income and health on the different domains of life

Dependent variables	All countries				Test for the difference in slope T-statistics
	Young		Older		
	Coefficient	Std Error	Coefficient	Std Error	
<u>Coefficients associated to Log (household income)</u>					
Satisfaction with health	0.032***	(0.003)	0.022***	(0.007)	1,313
Satisfaction with income	0.435***	(0.005)	0.350***	(0.010)	7,603
Satisfaction with main activity	0.183***	(0.006)	0.149***	(0.011)	2,713
Satisfaction with free time	0.021***	(0.006)	0.030***	(0.011)	-0,718
Satisfaction with housing	0.101***	(0.005)	0.116***	(0.010)	-1,342
<u>Coefficients associated to Illness/Injury</u>					
Satisfaction with health	-0.295***	(0.004)	-0.259***	(0.006)	-4,992
Satisfaction with income	-0.058***	(0.007)	-0.062***	(0.010)	0,328
Satisfaction with main activity	-0.118***	(0.008)	-0.198***	(0.011)	5,882
Satisfaction with free time	-0.016*	(0.008)	-0.118***	(0.010)	7,965
Satisfaction with housing	-0.020***	(0.007)	-0.037***	(0.009)	1,491

Note: The estimation used is the OLS with fixed effects for time invariant unobserved heterogeneity. Full results are available in Appendix. *, **, *** means that the coefficient estimate is significantly different from zero at the 10%, 5%, 1 %-level respectively.