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Quality of Life in Europe

Empirical evidence

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1 Introduction

What does quality of life mean? Most of the studies in the field of social sciences have answered this question referring the concept of quality of life (QoL) to "the overall well-being of individuals in a broad and multidimensional sense" (Böhnke, 2005). This large definition emphasises three main aspects that can represent a good starting point for the conceptualization of quality of life/individual well-being (Saraceno, 2004):

a. Although "quality of life" has been often analysed as a property of society on the whole, it mainly refers to resources, conditions or evaluative judgments from a micro-perspective. Therefore, quality of life should be best conceptualized in terms of individuals' life situations.

b. Quality of life cannot be defined with reference to a single aspect only, such as the disposable income. Instead, the notion of "quality" should apply to several domains that may affect human life experience. It follows that any attempt to analyse quality of life should take into consideration the multidimensional nature of this concept. This implies analysing the different aspects that contribute to individual well-being as well as their interactions.

c. Hence, "quality of life" should be defined "in a broad sense", also because we should consider both its objective and subjective facets.

A comprehensive review of the studies on quality of life is out of the scope of this report. Nevertheless, we will briefly review the main domains that have been used in order to operationalise the elusive concept of quality of life. Despite the plurality of perspectives on quality of life and the recognition of his multidimensional nature, there is a large consensus in literature regarding the identification of these domains. Cummins (1996) made an attempt to identify core quality of life dimensions, grouping 173 domains, mainly used in the studies on quality of life based on the subjective perspective, in seven categories: material well-being, relationships with family and friends, health, subjective well-being, work and productive activity, feeling part of one's local community, and personal safety. Schalock (2004), for example, singles out eight "core domains" of quality of life: material well-being (income, employment, housing); interpersonal relations (social networks, family/friends); physical well-being (health, activity of daily living); subjective well-being (satisfaction, self-esteem, lack of stress); personal development (education, personal competence, performance); self-determination (personal control, goals and personal values, choices); social inclusion (community integration and participation, community roles, social support); rights (human and legal).

A way to classify quality of life domains, which is alternative to the theoretical approaches explained above, is to look at social monitoring research carried out at national level. Several dimensions recur in national investigations (Fahey et al., 2003; Sharpe and Smith, 2005). As for the economic issues, the most common aspects included in the analyses are related to employment and working conditions, transport, income and income distribution and consumption. Looking at social issues, some domains, such as social inclusion, education, housing and health, are present in (almost) each national report. The importance of these core domains is also confirmed by international indexes of

development and quality of life (for a review see: Hagerty et al., 2001): the main dimensions of quality of life turn out to be economic resources; health and expectancy of life; literacy, education, knowledge and culture; political resources and participation; and environment.

Resuming, the following dimensions appear to be particularly important in determining individual well-being: material well-being, housing and living environment; health; social well-being; subjective well-being. In this report, we focus on these dimensions according to data availability. Employment and working conditions are also widely recognized as a domain of quality of life. However, we will not directly focus on the latter domain since we are interested in studying in depth the relationship existing between domains of quality of life and job quality[1].

In Chapter 1, we focus on **material well-being, housing and living conditions**. This is considered a crucial domain in research based on the Swedish "level of living" approach and in studies on poverty and deprivation. The emphasis here is on the material aspects of well-being, i.e. on the possession of a certain level of material living standards usually assumed as essential for participating in normal life. In more detail, we will look not just at household income but at non-monetary resources (such as having a phone, a TV, a car, a washing machine, or paying for one week annual holiday) and the role of the context and circumstances in which people live (i.e. housing and area characteristics). Therefore, we will adopt a multidimensional perspective, focusing on a plurality of items that are commonly considered as very important for full enjoyment of life and participation in society, especially with reference to the European context. The main idea is that people possessing these resources are better able to choose their own lifestyle and pursue their goals than people who do not possess such resources, regardless of actual use.

In Chapter 2, we focus on **social integration**. We will firstly pay attention to interpersonal relationships with friends, parents or kin and to the availability of support (emotional, financial or physical) from them. Next, we will look at the degree of civic participation, i.e. the integration of individuals in social networks through, among others, their membership in organizations or associations (no profit associations, churches, political parties, trade unions). In this case, the idea is that voluntary participation in these kinds of networks may provide new contacts and information which can be useful, for example, if you are looking for a (new) job or if you need some help to solve a problem. Finally, we focus on leisure social activities as natural context for bridging social capital formation.

In Chapter 3, we focus on **health**. This domain regards health-related concerns that affect quality of life, such as personal health status and access to health services. In particular, we will analyse self-reported health conditions and the existence of obstacles that may limit the possibility to meet medical care needs, such as cost, distance, waiting list and not having enough time because of work or family duties.

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[1] In the framework of the Walqing research, Holman and McClelland (2011) deeply analyze quality of work in growing sectors as domain of quality in individual life, while for the purpose of this report aspects of quality of work are only considered in interaction to the other domains and to individual characteristics.

In Chapter 4, we look at the **subjective dimension of well-being**, focusing on the personal evaluation of overall life satisfaction and happiness and on the sense of individual fulfilment. The attention given to this domain must not simply be read as the recognition of the importance of subjective indicators in the study of quality of life. On the contrary, this domain will represent a rather distinct and complementary dimension of quality of life, alongside material, environmental, physical and social well-being. The assumption is that subjective well-being is crucial for quality of life since it reflects the degree to which people meet their (adapted) needs. As stated by W.I. Thomas, "If men define situations as real, they are real in their consequences" (Thomas, 1928; 512-572); therefore the subjective perception of life experiences will have a value for quality of life *per se*, without reducing the overall quality of life to this aspect, or using evaluative judgments only as a check for other information gathered through more "objective" measures.

Finally, conclusions are drawn in Chapter 5 trying to flesh out the existence of quality of life deficits or deprivations on a plurality of dimensions. In particular, our findings regard the interplay between the quality of employment relationship and the analyzed aspects of human well-being.

2   Income, essential commodities and housing deprivations

2.1 Introduction

Income, essential commodities and housing are undoubtedly some of the main components of QoL. Effective integration into society and employment are dependent on having the basic need of shelter met, while having a good home is important for family life and social relationships (Anderson et al., 2009). Generally, the living environment may profoundly affect other QoL outcomes, such as employment and health (i.e. Jencks and Mayer, 1990; Ellen and Turner, 1997; Lupton, 2001; Buck, 2000; Friedrichs, 1997; Sommerville, 1998; Power, 2000; Kain, 1968, 1992; Wilson, 1996). The basic idea is that outcome in life-chances and opportunities might vary if one lived or grew up in different types of area (i.e. areas with high concentration of poverty, deprivation and/or unemployment).

In this section, we provide fresh statistical evidence regarding deprivation in the EU, using the 2007 EU-SILC data and applying cross-section weights as appropriate. The perspective adopted is in essence multidimensional, even though the constituent indicators are then summarized in dichotomous indicators of deprivation. This inevitably entails selecting the most relevant characteristics for individual well-being and developing aggregation procedures[2]. Choices regarding these points are made following the guidelines of previous literature and the data availability.

The analysis will first document deprivation at the EU level. Next, it will identify the subgroups of the population that are more exposed to the risks of deprivation, according to a number of simple measures of deprivation. Finally, it will attempt at uncovering the association between the risks of deprivation and the labour market status of the individual.

2.2 Deprivation: concepts and definitions

In the analysis that follows, we focus on three different, but correlated, definitions of deprivation.

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[2] The expanding literature on multidimensional well-being has brought forth many methods to establish aggregation and weighting systems: (i) a simple addition of the commodities not possessed by an individual or household (i.e. Townsend, 1979; Mack and Lansley, 1985; (ii) a weighing addition of necessary commodities, where the commodities enjoyed by most of society were given more weight (i.e. Desai and Shah, 1988); (iii) identification of individuals suffering from deprivation as those that do not reach a minimum threshold, i.e. a minimum level in at least one (or two) of the functionings or 60% of the median of a distribution obtained summing up the (weighted) number of achieved functionings (Böhnke and Delhey, 1999; Brandolini and D'Alessio, 2000; Martınez and Ruiz-Huerta, 2000; Muffels and Fouarge, 2001; Tsakloglou and Papadopoulos, 2002; Poggi, 2007a, 2007b; Devicienti and Poggi, 2010); (iv) complex methods requiring the use of multivariate analysis techniques as main components analysis (Hutton, 1991; Muffels and Vriens, 1991; Kamanou, 2000), factorial analysis (Callan et al., 1993; Layte et al., 2001) and latent variable models (Gailly and Hausman, 1984; Perez-Mayo, 2005; Navarro and Ayala, 2008); (v) the fuzzy sets approach (Cerioli and Zani, 1990; Chiappero, 1994, 1996, 2000; Cheli and Lemi, 1995).

Our first measure is a traditional poverty indicator based on the monetary approach, and identifies the poor in terms of low income, as this remains one of the main routes towards material deprivation and social exclusion. The definitions that are used in this case are fairly standard in the international literature on low income (e.g., Jarvis and Jenkins, 1997; Jenkins, 2000; Cappellari and Jenkins, 2004; Biewen, 2006; Cantó Sanchez, 2003; Valletta, 2006). The unit of analysis is the individual, rather than the household; however, the relevant income measure to define the poor is a household's total income. In each survey year, the household income refers to the previous year and is computed by summing all incomes of all household members, including income from employment, investment, private property, private transfers, pension income and other social transfers. In order to account for varying household size and composition (and related economies of scales within the household), household net income is then divided by the OECD-modified equivalence scale, and the resulting value is equally attributed to all household members. Poor in a given survey year is anybody whose *household net equivalent income per person* (equivalent income, for short) is below the poverty line set for the same year. Following EU practice (e.g. Trinczek, 2007) the poverty line for year *t* has been fixed at 60% of the country-specific median equivalent income of the same year.

Our second way of identifying those living in deprivation, inspired by Sen's capability approach (Sen, 1985), is based on assembling the available EU-SILC information on individual deprivation of a plurality of items whose large diffusion in European society make them tantamount to "essential" durable goods and services (see also Deutsch and Silber, 2005; Whelan and Maitre, 2006). The following list of eight items will be considered in the analysis, where in each case the lack of possession is indicative of an individual's inability to afford the item due to its financial situation: (1) eating meat, fish or vegetarian equivalent every second day; (2) paying scheduled rent/mortgage payments and utility bills; (3) having a telephone; (4) having a television; (5) having a computer; (6) having a washing machine; (7) having a car; (8) paying for one week annual holiday away from home. Our deprivation indicator, which we shall call "commodities deprivation", is constructed as follows. First, for each of the eight indicators, we construct corresponding dummy indicators, which are equal to 1 when the individual is deprived in the item, 0 if not deprived, and is missing when the individual does not answer the question. Second, subsets of the elementary dummy indicators are aggregated into a smaller number of categories, which in turn attempt at identifying distinct "functionings". The first category is called "basic deprivation ", which is equal to one (indicating deprivation) if the individual is deprived in either the elementary indicator number 1 (eating meat, fish or vegetarian equivalent every second day) or in the elementary indicator number 2 (paying as scheduled rent/mortgage payments and utility bills), or both. The second category is called "life-quality deprivation", and is equal to 1 if the individual is deprived in at least three of the "goods" listed above (telephone, television, computer, washing machine, car, and a week annual holiday away from home). Finally, an overall indicator of "commodities deprivation" is constructed, which is equal to 1 if the individual is deprived at least one of the two "functioning" ("basic" and "life-quality"), and is zero otherwise. Note that, unlike the

income deprivation indicator, the threshold used to define commodities deprivation is the same for each EU country.[3]

Our third deprivation measure is defined in relation to the adequacy and quality of the accommodation/area where the individual lives. We use a notion of area deprivation as an insufficient basic functioning (Sen, 1985, 1992, 2000). The main idea is the following: despite having a dwelling, individuals may suffer from insufficiencies in some commodity's basic conditions and/or experience socio-ecological problems as consequences of living in a certain neighbourhood. Thus, both indoor living environment (i.e. adequate housing) and outdoor living environment (i.e. crime, pollution, accessibility to services) matter in determining the individual QoL. In the analysis, we considered the following relevant characteristics (Townsend, 1979; Townsend and al., 1998; Mack and Lansley, 1985; Hausman, 1989; Nolan and Whelan, 1996; Brandolini and D'Alessio, 2000; Poggi, 2007a, 2007b; Devicienti and Poggi, 2009, 2010; Martınez and Ruiz-Huerta, 2000; Muffels and Fouarge, 2001; Tsakloglou and Papadopoulos, 2002; Lee and Murie, 1997; Kearns et al., 2000; Mercer, 2009; Morris and Carstairs, 1991): (i) *lack of basic housing facilities*, such as overcrowding, lack of hot running water, heating and bath; (ii) *structural housing problems*, such as leaky roof, damp and rot in floors and window frames; (iii) *outdoor living deprivation*, such as noise, pollution and crime; (iv) *barriers to services*, such as great difficulties of access to compulsory schools, grocery services, banking services, postal services, public services, and primary health care services. We construct four indicators (lack of basic housing facilities, housing problems structural, outdoor living deprivation, and barriers to services*)* where each indicator is constructed as follows. We add up dwelling deprivations using equal weights for each dimension; and we define an individual as suffering deprivation in that dimension if she or he experiences at least two deprivations[4]. Then, we define an individual as suffering area deprivation if she experiences lack of basic housing facilities, structural housing problems, outdoor living deprivation and/or barriers to services.

2.3 Deprivation: an empirical overview

2.3.1   Employment versus unemployment

We provide a comprehensive picture of deprivation in Europe, by computing the measures discussed in the previous sections. Table 2.1 reports the proportions of the active population experiencing various types of deprivations. The overall incidence of income

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[3] We have also constructed a version of our commodities deprivation measures where country specific thresholds are used. In this case, we first derive individual deprivation scores by summing up all elementary indicator dummies (using equal weights). Second we compute country-specific thresholds for each category (basic and life-quality) by taking 60% of the median scores for each country. These thresholds are then used to construct corresponding dummy indicators for both the "basic" and "life-quality" functionings . The results, however, are very similar to the ones discussed in the main text, and are not shown for the sake of brevity.

[4] In this context, this procedure is equivalent to computing a distribution of achieved functionings for every dimension and defining as deprived in such dimension individuals with scores below the 60% of the median distribution.

deprivation is at about 15%, whereas the incidence of commodities deprivation is at about 20%. The incidence of area deprivation is at about 23%. In particular, we observe that about 1.5% and 8.3% of the European active population experience basic facilities deprivations and structural problems respectively; about 1.6% and 15.4% of the active population experience respectively barriers to services and outdoor living deprivations. As expected, the incidence of deprivation is lowest among those who are employed and highest amongst the unemployed. A clear link therefore emerges between the labour market status and the deprivation status of the European population of working age.

Table 2.1:   Proportion of deprived active population by employment status

	Active Population	Employed	Unemployed
Income deprivation	**14.99%**	**12.56%**	**39.33%**
Commodities deprivation	**19.50%**	**16.92%**	**45.37%**
Basic deprivation	**13.91%**	**11.72%**	**35.91%**
Not eating meat, fish or vegetarian equivalent every 2nd day	7.47%	5.95%	22.68%
Arrears in scheduled rent/mortgage payments and utility bills	8.50%	7.17%	21.83%
Life-quality deprivation	**2.58%**	**1.73%**	**11.11%**
Not having a telephone	0.64%	0.41%	3.00%
Not having a television	0.30%	0.22%	1.18%
Not having a computer	7.29%	6.05%	19.80%
Not having a washing machine	0.68%	0.50%	2.58%
Not having a car	6.46%	5.13%	19.85%
Not able to pay for one week annual holiday	30.02%	26.70%	63.33%
Area deprivation	**22.87%**	**21.87%**	**33.41%**
Basic facilities and overcrowding:	**1.55%**	**1.25%**	**4.60%**
No bath or shower in dwelling	1.25%	1.01%	3.68%
No indoor flushing toilet for sole use of household	1.50%	1.26%	3.92%
Inadequate heating facilities	4.54%	4.09%	9.08%
Severely overcrowded (No. of persons per room > 1.5)	5.60%	5.09%	10.75%
Structural problems:	**8.31%**	**7.68%**	**14.70%**
Inadequate electrical installations	7.26%	6.87%	11.20%
Inadequate plumbing/water installations	7.71%	7.34%	11.53%
Leaking roof, damp walls etc.	17.26%	16.20%	27.90%
Problems with the dwelling: too dark	8.01%	7.64%	11.75%
Outdoor living environment:	**15.44%**	**14.89%**	**20.98%**
Noise from neighbours or from the street	23.20%	22.60%	29.21%
Pollution, grime or other environmental problems	17.04%	16.60%	21.49%
Crime violence or vandalism in the area	15.87%	15.49%	19.71%
Barriers to services	**1.58%**	**1.49%**	**2.56%**
Accessibility with great difficulty:			
of grocery services	1.73%	1.61%	2.92%
of banking services	2.94%	2.79%	4.48%
of postal services	4.04%	3.93%	5.16%
of public transport	4.34%	4.30%	4.78%
of primary health	2.67%	2.55%	3.95%

Source: Our elaboration from EU-SILC 2007.

Focusing on the spatial dimension of deprivation, we could argue that, to the extent that disadvantaged individuals are concentrated in geographically defined areas, disadvantage becomes a characteristic of the areas too. Thus, we compute the proportion of unemployed and deprived individuals in each European region (i.e. regions are defined according to the classification Nuts 1)[5]. Table 2.2 shows high levels of correlations between a region's poverty, economic deprivation and area deprivation. Moreover, areas with high levels of deprivation are also characterized by other forms of disadvantages, such as unemployment and bad quality of employment (in terms of career and job security). Therefore, we find some preliminary evidence of spatial concentration of disadvantages (area deprivations, poverty and unemployment). Further analysis, as well as studies focusing on smaller geographical areas (i.e. municipalities), are necessary.

Table 2.2: Correlations

Correlations	Unemployment	Temporary low paid	Discontinuity	Poverty	Economic deprivation
Poverty	0.7125	0.6433	0.6955	1	
Economic deprivation	0.3877	0.1085	0.2474	0.3503	1
Area deprivation	0.5133	0.1808	0.4879	0.4401	0.3435

Source: Our elaboration from EU-SILC 2007.

Note: The sample is the active population; the unit of analysis is the geographical area defined at level Nuts 1.

2.3.2   Vulnerable groups

We now focus on the employed population: in particular, we focus on the employees only. We examine the extent of deprivation across various population subgroups, in order to provide a first assessment of the identity of the groups who are more vulnerable to the three types of deprivation. Results are reported in Table 2.3 and Table 2.4. Four main conclusions can be drawn from this analysis[6].

First, we can identify some groups of workers having the highest risk of experiencing poverty, commodities deprivation and area deprivations: low educated people, young workers (aged 16-29) and workers born abroad (outside the EU24).

Second, we observe that workers in low skilled occupations experience, on average, a higher proportion of deprivations than other workers do. This is especially true for workers in growing sectors[7] such as workers in the elementary occupations of sale and related

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[5]   About spatial scale, the literature normally refers to small area as municipalities or neighborhoods. In our dataset, individuals are asked to answer questions about the areas (i.e. municipalities or neighborhoods) they live in. But, unfortunately we can study the extent disadvantaged individuals are concentrated in geographically defined areas only considering large regions (i.e. normally NUTS 1): This is the most detailed geographical disaggregation included in the data.

[6]   Multivariate analysis (ordered logit model) confirms these conclusions. Regression estimates are available upon request from the authors.

[7]   Growing sectors in the EU are identified by Vandekerckhove, Capéau and Ramioul (2010).

services; in construction; manufacturing and transport and real estate; and also for agricultural, fishery and related labourers; labourers in mining and extraction.

Table 2.3:   Proportion of deprived workers by population subgroups

Workers	Income poverty	Commodities deprivation	Area deprivation
All workers	7.47%	12.99%	22.37%
Males	7.51%	12.87%	22.15%
Females	7.42%	13.13%	22.61%
Low education (≤ lower secondary education)	13.83%	18.72%	27.09%
Medium education (upper secondary & post secondary)	7.19%	14.46%	21.56%
High education (tertiary education)	3.26%	5.93%	20.80%
Age: 16-29	9.87%	16.71%	23.88%
Age: 30-49	7.28%	12.75%	22.54%
Age: 50+	5.87%	10.39%	20.70%
Country of birth: EU24 or local	6.91%	12.47%	21.78%
Country of birth: other	14.84%	20.04%	29.95%
Single	8.45%	14.84%	24.23%
Living in consensual union	6.67%	11.50%	20.83%

Source: Our elaboration from EU-SILC 2007.
Note: Tot.Obs. 163 903.

Third, there are some sectors where workers experience particularly high proportions of deprivations. These sectors are: agriculture, hunting, forestry and fishing; hotel and restaurants; other community, social and personal service activities, private households with employed persons, extra-territorial organizations and bodies; construction; and wholesale, retail trade, repair of motor vehicles, motorcycles and personal and household goods.

Fourth, in South and Eastern European Countries, we observe workers having the highest risk of experiencing poverty, commodities deprivation and area deprivations.

Table 2.4:   Proportion of deprived workers by population subgroups

Workers	Income poverty	Commodities deprivation	Area deprivation
All workers	7.47%	12.99%	22.37%
11 Legislators, senior officials and managers	2.35%	3.84%	21.28%
12 Corporate managers	1.73%	4.21%	16.18%
13 Managers of small enterprises	6.57%	9.86%	22.39%
21 Physical, mathematical and engineering science professionals	2.33%	4.07%	18.68%
22 Life science and health professionals	3.03%	5.37%	18.86%

Continued on next page.

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Workers	Income poverty	Commodities deprivation	Area deprivation
23 Teaching professionals	2.68%	5.90%	20.40%
24 Other professionals	2.73%	5.02%	20.39%
31 Physical and engineering science associate professionals	3.21%	8.59%	20.23%
32 Life science and health associate professionals	4.11%	8.26%	21.44%
33 Teaching associate professionals	3.54%	8.94%	21.98%
34 Other associate professionals	4.41%	9.47%	21.90%
41 Office clerks	4.78%	9.64%	21.58%
42 Customer services clerks	6.92%	10.07%	22.25%
51 Personal and protective services workers	9.03%	14.79%	22.74%
52 Models, salespersons and demonstrators	10.61%	17.83%	22.28%
61 Skilled agricultural and fishery workers	24.24%	21.13%	22.79%
71 Extraction and building trades workers	12.08%	18.92%	23.93%
72 Metal, machinery and related trades workers	6.33%	16.07%	22.74%
73 Precision, handicraft, craft printing and related trades workers	8.68%	16.03%	21.99%
74 Other craft and related trades workers	12.05%	20.33%	22.70%
81 Stationary-plant and related operators	6.33%	14.56%	20.96%
82 Machine operators and assemblers	7.89%	15.84%	21.69%
83 Drivers and mobile plant operators	8.89%	17.21%	22.62%
91 Sales and services elementary occupations	16.43%	22.43%	28.85%
92 Agricultural, fishery and related labourers	33.10%	30.31%	28.18%
93 Labourers in mining, construction, manufacturing and transport	13.23%	21.23%	24.76%
01 Armed forces	2.80%	7.52%	18.66%
Sector A+B Agriculture; Hunting, forestry and fishing	22.81%	21.83%	23.21%
Sector C+D+E Mining and quarrying; Manufacturing; Electricity, gas and water supply	6.26%	14.08%	21.58%
Sector F Construction	11.60%	17.98%	22.78%
Sector G Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods	9.09%	15.01%	22.72%
Sector H Hotels and restaurants	12.92%	20.91%	26.87%
Sector I Transport, storage and communication	6.41%	12.78%	21.40%
Sector J Financial intermediation	2.73%	6.03%	19.75%
Sector K Real estate, renting and business activities	6.76%	10.79%	22.41%
Sector L Public administration and defence, compulsory social security	3.40%	8.23%	21.32%
Sector M Education	4.54%	9.06%	21.91%
Sector N Health and social work	5.76%	10.72%	22.73%
Sector O+P+Q Other community, social and personal service activities; Private households with employed persons; Extra-territorial organizations and bodies	12.48%	15.39%	25.75%
Continental Countries	7.26%	11.31%	22.05%
Ireland and United Kingdom	5.94%	7.10%	20.29%
Eastern European Countries	8.03%	27.51%	22.12%
Southern European Countries	8.95%	11.63%	27.11%
Scandinavian Countries and Netherlands	4.83%	5.30%	14.43%

Source: Our elaboration from EU-SILC 2007.

Note: Tot.Obs. 163 903.

2.4 Deprivation and job quality

We now focus on some aspects of job quality: career and job security (i.e. type of contract, wage, discontinuous career, involuntary part-time[8]), skills development (i.e. workers with supervisory responsibility), and reconciliation of working and non-working life (i.e. long working hours, full/part-time). See Table 2.5. We observe the following groups of workers having the highest risk of experiencing poverty, commodities deprivation and area deprivations: low paid and temporary workers, workers with discontinuous careers, involuntary part-time workers, workers without supervisory responsibility and workers with long working hours. Thus, a link between deprivation and quality of job seems to emerge.

Table 2.5:   Proportion of deprived workers by population subgroups[9]

Workers	Income poverty	Commoditiesdeprivation	Area deprivation
All workers	7.23%	13.65%	23.32%
Permanent workers	5.50%	11.93%	22.70%
Temporary workers	16.06%	22.43%	26.65%
Not low paid workers	2.94%	10.91%	22.46%
Low paid workers	20.57%	22.20%	26.03%
Temporary and low paid workers	24.70%	26.72%	27.92%
Involuntary part-time workers	24.87%	27.83%	29.67%
Workers with no too discontinuous careers	5.99%	12.66%	22.83%
Workers with discontinuous careers	13.08%	18.35%	25.73%
Workers with supervisory responsibility	3.39%	8.49%	22.02%
Workers without supervisory responsibility	8.41%	15.26%	23.73%
Workers working less than 48 hours per week	7.06%	13.26%	23.14%
Workers working more than 48 hours per week	8.42%	16.40%	24.63%
Full-time workers	6.31%	13.42%	23.22%
Part-time workers	11.87%	14.85%	23.80%

Source: Our elaboration from EU-SILC 2007.

Note: Tot.Obs. 116 456.

2.4.1   Deprivations and career/job insecurity

In this section, we focus on two important aspects of career and job insecurity: (i) working with temporary contracts and low wages; and (ii) having a discontinuous career. These types of "bad jobs" are probably more concentrated in some sectors/occupations than in others. Moreover, the probability of experiencing deprivation is higher for individuals working in certain sectors/occupations (see Section 2.3). We now investigate whether there exists a link between "bad jobs" and deprivation at sector/occupation level. According to our definition, the sector/occupation level distinguishes white and blue-collar occupations across sectors. Hence, we compute the percentage of workers experiencing

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[8]   In this context, involuntary part-time needs to be interpreted as the impossibility to have a full-time wage.

[9]   This table is based on a subsample with nonmissing values in the variables of interest.

deprivation and having "bad jobs" in each sector and occupation (defined as blue or white collars). Therefore, the unit of analysis is the sector/occupation. Table 2.6 shows high levels of correlations between poverty, economic deprivation and area deprivation. Moreover, sectors with high levels of deprivation are also characterized by bad job quality (in terms of career and job security).

Figure 2.1 permits to identify the sectors/occupations having the highest percentage of deprived workers and the highest levels of career/job insecurity. As expected, blue-collar workers generally experience above-average levels of job insecurity. They are also at higher risk of experiencing deprivations than the average worker. Of more interest, white collars working in certain sectors are also related with both high risks of deprivation and high levels of insecurity: hotel and restaurants; other community, social and personal service activities, private households with employed persons, extra-territorial organizations and bodies; wholesale, retail trade, repair of motor vehicles, motorcycles and personal and household goods. We must not forget that, according to Vandekerckhove, Capéau and Ramioul (2010), hotel and restaurants and other community, social and personal service activities are identified as growing sectors in the EU.

Table 2.6: Correlations

Correlations	Temporary low paid	Discontinuity	Poverty	Economic deprivation
Poverty	0.9331	0.6554	1	
Economic deprivation	0.8283	0.6486	0.9193	1
Area deprivation	0.6887	0.7549	0.6973	0.7863

Source: Our elaboration from EU-SILC 2007.

Note: Tot.Obs. 116 456.

Note: The sample is composed of employees only; the unit of analysis is the sector/occupation.

Figure 2.1:   Deprivation by occupation/sector[10]
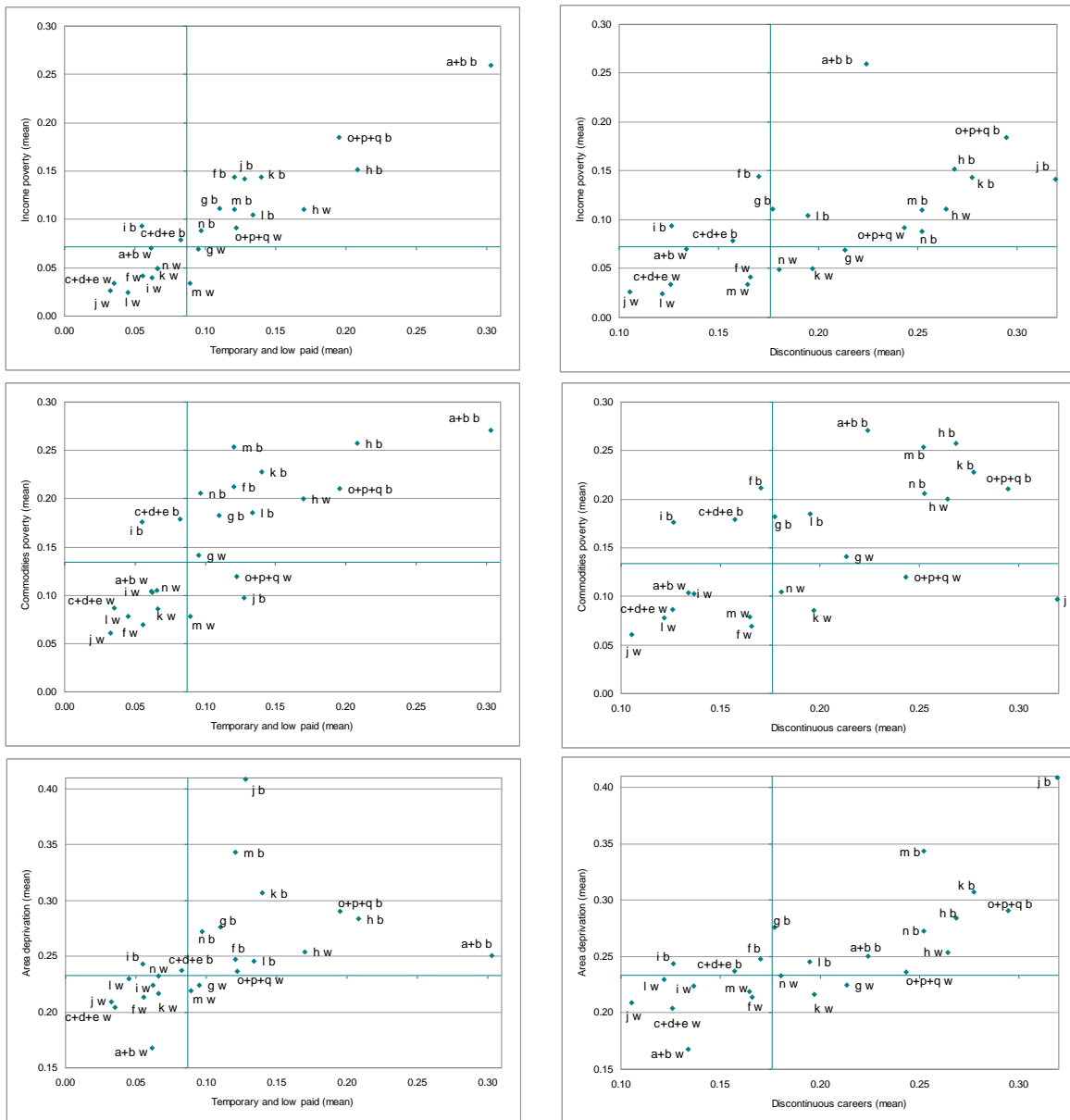
Source: Our elaboration from EU-SILC 2007.

Note: Tot.Obs. 115 730.

[10] Graphs are based on a subsample with nonmissing values in the variables of interest. Moreover people working in the armed forces as occupation are excluded. Guidelines are average values. See Table 7.7 and Table 7.8 for the codification description.

3   Social integration and quality of work

3.1 Introduction

Social integration is a matter of increasing concern regarding quality of life since it represents not only an important resource for enhancing opportunities in a variety of fields but also an important basis for identity building and self realization.

From an institutional point of view, social integration is also attracting growing attention as a policy goal at European level by virtue of its resulting in enhanced health, better educational outcomes, improved child welfare, lower crime rates, higher productivity and higher income of the society (Productivity Commission, 2003). It may represent a key issue in the development of disadvantaged areas in particular in matters of employment (Eurofound, 2005 and 2007). This domain of quality of life is mainly discussed in the literature on social capital. Among the main theoretical conceptions, we principally focus on those of Bourdieu (1986), Coleman (1988) and Putnam (2000).

Over the last decades, many scientists have argued that social capital is a crucial force explaining relevant socio-economic phenomena (Putnam, 2000). Empirical literature showed how social capital could eventually generate social exclusion. When individuals differ in their ability to access social capital, it might also represent a mechanism amplifying the inequalities existing in the society (e.g. Paxton, 1999; Putnam, 2000; Yaojun et al., 2003; Yaojun et al., 2005; Owen and Videras, 2006; Sabatini, 2008, 2009).

Sabatini (2009) also argues that labour precariousness can be a barrier to social integration endangering human and social capital. High levels of employment flexibility hinder training and qualification in the workplace and endanger the formation of durable social ties, inside and outside the workplace. On the contrary, stable and satisfactory work is a source not only of income but also of identity and sense of belonging, while precariousness causes discouragement and distrust (Sabatini, 2009).

The European Survey on Income and Living Conditions (EU-SILC) 2006 includes a special module of secondary target variables that allows us to consider some aspects of individual social capital. Table 3.1 displays the variables of the special module EU-SILC 2006 used in this investigation using cross-section weights as appropriate. We coded all the listed variables as increasing measures of social capital. The data allows for some degree of distinction between formal and informal networks within social capital and between strong and weak ties within informal networks. Following Sabatini's (2008, 2009) implementation of Putnam's (2000) concept, our empirical definition of social capital includes information both on relations with family and friends (bonding social capital, strong family ties) and on the kinds of association people are involved in (linking social capital, formal ties of voluntary organizations). We also added social leisure activities, interpreting them as a natural context for bridging social capital formation (weak informal ties among friends and neighbours).

Table 3.1:   Indicators of social capital: rotated factor loadings[11]

	Factor 1 Recreational activities	Factor 2 Close network	Factor 3 Civic participation
Relatives (frequency of getting together)[12]		0.475	
Friends (frequency of getting together)		0.495	
Relatives (frequency of other contacts)		0.482	
Friends (frequency of other contacts)		0.496	
Going to the cinema	0.725		
Going to live performances	0.741		
Visits to cultural sites	0.688		
Going to live sport events[13]			
Informal volunteer activities			0.450
Political groups			0.434
Professional groups			0.489
Religious groups			0.567
Recreational groups			0.386
Charitable groups			0.541
Other groups			0.376

Source: Our elaboration from EU-SILC 2006.
Note: Tot. Obs. 159 844.

As the main empirical studies suggest[14], in order to interpret how such pieces of information contribute to defining individual social capital and to aggregate them accordingly, we performed a factor analysis on a population of only employed workers from 25 European countries[15]. We obtained three factors whose factor loadings are shown in Table 3.1.

The first factor shapes an indicator indicating the frequency of a variety of social leisure activities. It represents a measure of individual opportunities to both forge new relationships and consolidate existing ones. The second factor is a synthetic measure of the frequency of contacts with relatives and friends signalling the cohesion and solidarity within the group of persons closest to the individual (bonding social capital). Finally, the third factor captures individuals' civic engagement summarizing the kinds and number of associative activities the individual participates in[16] (linking social capital).

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[11] The factor analysis is performed along all the included variables while –for the sake of clarity– only factor loadings higher than 0.3 are displayed. According to Cattel's selection criterion, the factor analysis has been imposed to retain three factors. By construction factors have zero mean and unitary variance.

[12] Variables are referring to relatives and friends who are not living with the respondent.

[13] The factor loading associated with "going to sport event" is not reported since it is lower than 0.3.

[14] E.g. Paxton (1999); Yaojun et al. (2005); Sabatini (2008, 2009).

[15] Austria, Belgium, Cyprus, Czech Republic, Germany, Denmark, Estonia, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Latvia, Netherlands, Norway, Poland, Portugal, Sweden, Slovenia, Slovakia, United Kingdom.

[16] Although some authors measure the number of voluntary organization memberships individuals hold, evidence in the analysis of Yaojun et al. (2003) confirms that membership types provide different kinds of social capital; for this reason it is appropriate to keep them distinct.

3.2 Empirical overview

3.2.1 Vulnerable groups

We analyse the indicators previously described across population subgroups in order to identify workers who are more vulnerable in a social capital perspective. Table 3.2 and Table 3.3 report results. Main conclusions can be:

With the exception that females have more intense close relations than males, there are no relevant gender differences in social capital. Yaojun et al. (2005) confirm "women's capacity for social networking" (p. 116). As we do, they also find that women have stronger civic participation than males and that gender difference is almost negligible.

As has been widely discussed in previous literature[17], social capital endowments are positively related to education. Indeed, low educational levels are associated with deprivation in social capital under the three considered aspects. This result can be related to income and working-hours effects and, even though it requires additional investigation, it can be identified as a vulnerability area since it means that low educated people are not able to respond to bad working conditions with any kind of social capital investments.

Social capital endowments are negatively related to age, with the exception of civic participation whose indicator is instead growing with ageing. Li, Pickles and Savage (2005) also notice that younger people have lower levels of civic engagement and higher levels of social networks than older cohorts have.

Workers living in a consensual union invest less in leisure activities and close relations than singles. In contrast, being a couple enforces civic participation. Once more, we find the same results in Yaojun et al. (2005), who study social capital indicators similar to ours.

Non-EU people who moved from their country to the EU are forced to sever their habitual social ties and thus seem to be socially disadvantaged with respect both to non-EU people who did not move and to EU people who moved within the EU.

Country results highlight known cultural factors: Southern countries have the highest scores for close relations and Northern countries have the highest scores for civic participation. Scandinavian countries and the Netherlands, Ireland and the United Kingdom appear to have quite high scores for all the three considered aspects of social capital. Possible vulnerable areas are Southern, Eastern but also Continental countries, which turn out to be deprived in two aspects out of three.

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[17] E.g. Furstenberg and Huges (1995); Putnam (2000); Yaojun et al. (2005) in particular validate the positive correlation both between social networks and education and between civic participation and education. See also Productivity Commission (2003) for an overview of several studies on the relation between social capital and education.

Table 3.2:   Social capital by population subgroups

Workers	Recreational activities	Close network	Civic participation
All workers	0.000	0.000	0.000
Males	-0.005	-0.067	-0.005
Females	0.006	0.077	0.005
Low education (≤lower secondary education)	-0.405	-0.027	-0.272
Medium education (upper secondary & post secondary)	-0.101	-0.008	-0.005
High education (tertiary education)	0.541	0.039	0.243
Age: 16-29	0.274	0.361	-0.244
Age: 30-49	-0.042	-0.031	0.020
Age: 50+	-0.140	-0.248	0.170
Single	0.268	0.193	-0.119
Living in consensual union	-0.129	-0.092	0.057
Country of birth: EU24 or local	0.011	0.020	0.014
Country of birth: other	-0.156	-0.282	-0.205
Continental countries	0.074	-0.130	-0.104
Ireland and United Kingdom	0.395	0.200	0.423
Eastern European countries	-0.359	-0.213	0.181
Southern European countries	-0.083	0.226	-0.188
Scandinavian countries and Netherlands	0.394	0.140	0.537

Source: Our elaboration from EU-SILC 2006.

Note: Tot. Obs. 159 844.

Looking at vulnerable occupations, we see that blue collars often experience deprivation in the three aspects of social capital. Among them, the groups most exposed to deprivation are: skilled agricultural and fishery workers, extraction and building trade workers, drivers and mobile plant operators, elementary sales and service occupations, agricultural, fishery and related labourers, labourers in mining, construction, manufacturing and transport.

While several sectors are associated with low mean levels of the indicators for recreational activities and civic participation (agriculture; hunting, forestry and fishing; mining and quarrying; manufacturing; electricity, gas and water supply; construction; wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods; hotels and restaurants; transport, storage and communication), three of them are also particularly deprived in terms of close relations: agriculture, hunting, forestry and fishing; construction and transport; storage and communication.

Table 3.3: Social capital by population subgroups

Workers	Recreational activities	Close network	Civic participation
All workers	0,000	0,000	0,000
11 Legislators, senior officials and managers	0,622	0,056	0,879
12 Corporate managers	0,525	-0,023	0,267
13 Managers of small enterprises	0,122	0,050	0,131
21 Physical, mathematical and engineering science professionals	0,525	-0,095	0,134
22 Life science and health professionals	0,557	0,046	0,597
23 Teaching professionals	0,679	0,059	0,536
24 Other professionals	0,608	0,028	0,378
31 Physical and engineering science associate professionals	0,188	-0,029	0,018
32 Life science and health associate professionals	0,153	0,117	0,176
33 Teaching associate professionals	0,281	0,149	0,196
34 Other associate professionals	0,215	0,067	0,055
41 Office clerks	0,064	0,109	-0,011
42 Customer services clerks	0,118	0,181	-0,097
51 Personal and protective services workers	-0,077	0,057	-0,084
52 Models, salespersons and demonstrators	-0,191	0,167	-0,200
61 Skilled agricultural and fishery workers	-0,541	-0,182	-0,102
71 Extraction and building trades workers	-0,370	-0,089	-0,216
72 Metal, machinery and related trades workers	-0,230	-0,054	-0,084
73 Precision, handicraft, craft printing and related trades workers	-0,176	0,055	-0,078
74 Other craft and related trades workers	-0,495	-0,059	-0,183
81 Stationary-plant and related operators	-0,362	-0,104	-0,175
82 Machine operators and assemblers	-0,328	-0,108	-0,201
83 Drivers and mobile plant operators	-0,415	-0,161	-0,120
91 Sales and services elementary occupations	-0,469	-0,192	-0,185
92 Agricultural, fishery and related labourers	-0,731	-0,046	-0,246
93 Labourers in mining, construction, manufacturing and transport	-0,356	-0,164	-0,218
01 Armed forces	0,169	-0,117	-0,231
Sector A+B Agriculture; Hunting, forestry and fishing	-0,540	-0,143	-0,091
Sector C+D+E Mining and quarrying; Manufacturing; Electricity, gas and water supply	-0,157	-0,050	-0,064
Sector F Construction	-0,267	-0,064	-0,212
Sector G Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods	-0,102	0,097	-0,178
Sector H Hotels and restaurants	-0,146	0,006	-0,252
Sector I Transport, storage and communication	-0,065	-0,081	-0,019
Sector J Financial intermediation	0,341	0,116	0,054
Sector K Real estate, renting and business activities	0,231	0,015	-0,025
Sector L Public administration and defence, compulsory social security	0,165	-0,015	0,148
Sector M Education	0,417	0,048	0,394
Sector N Health and social work	0,106	0,076	0,222
Sector O+P+Q Other community, social and personal service activities; Private households with employed persons; Extra-territorial organizations and bodies	0,001	-0,055	-0,045

Source: Our elaboration from EU-SILC 2006.

Note: Tot. Obs. 159 844.

3.2.2   Job quality

Table 3.4 focuses on some aspects of job quality and shows that full-time workers are disadvantaged in terms of close network relations and in terms of civic participation with respect to part-time workers. Such a result, which can easily be explained by time constraints, is reversed when we consider involuntary part-time workers[18], who – irrespective of time availabiliy– are deprived in the three aspects of social capital. Temporary and low paid workers, workers without supervisory responsibilities and with highly discontinuous careers are deprived in terms of recreational activities and civic participation while – in comparison to other workers – they appear to be advantaged in terms of close network relations as if family and close friends act as compensation for job problems and social difficulties. Employees working more than 48 hours per week do not fit into the scheme. Indeed their time constraints seem to be so binding as to prevent them from also developing close network relations.

Table 3.4:   Social capital by population subgroups[19]

Workers	Recreational activities	Close network	Civic participation
All workers	0,000	0,000	0,000
Permanent workers	0,024	-0,018	0,020
Temporary workers	-0,104	0,076	-0,085
Not low paid workers	0,059	-0,007	0,040
Low paid workers	-0,214	0,027	-0,145
Temporary and low paid	-0,207	0,038	-0,170
Full-time workers	-0,001	-0,008	0,004
Part-time workers	0,009	0,050	-0,028
Involuntary part-time workers	-0,316	0,000	-0,249
Workers with supervisory responsibility	0,299	0,003	0,129
Workers without supervisory responsibility	-0,101	-0,001	-0,043
Workers working less than 48 hours per week	0,009	0,017	-0,011
Workers working more than 48 hours per week	-0,059	-0,117	0,074
Workers with no too discontinuous careers	0,006	-0,015	0,028
Workers with discontinuous careers	-0,033	0,078	-0,146

Source: Our elaboration from EU-SILC 2006.
Note: Tot. Obs. 77 867.

[18] Part-time workers who would prefer working more hours.

[19] The statistics in this table are based on a subsample of the base population which displays non-missing values in the variables of interest. While the population mean of the three indicators is zero by construction, the subsample mean is not. However, for sake of clarity, the subsample mean has been normalized and consequently all the values have also been normalized. For these reasons, the results reported in this table are not directly comparable to those reported in the previous ones, which are based on a different population.

In order to identify the work activities associating low job quality to low quality of life, and in particular low social integration, the graphs in Figure 3.1 show white and blue-collar workers by sector, relating the mean value of each social capital indicator to the proportion of temporary and low paid workers and to the proportion of workers with discontinuous working lives.

In summary, we notice that:

— There is a positive correlation between social integration and quality of work.

— In most of the sectors blue-collarworkers associate low social capital and low quality of work, while white-collarworkers associate higher social capital and higher quality of work. Only white-collarworkers working in hotels and restaurants appear among the worst-off groups.

— The group of blue-collarworkers working in agriculture, hunting, forestry and fishing associate very low social capital to a very high proportion of temporary and low paid workers. The group of blue-collarworkers working in hotels and restaurants also associate very low social capital to a high proportion of workers with discontinuous working lives, as in the case of the group of blue-collarworkers working in health and social work.

— In one of the growing sectors identified in the WALQING analysis[20], the group of blue-collarworkers working in hotels and restaurants also associates low social capital to high proportion of temporary and low paid workers. Moreover, it displays very low social capital to a high proportion of workers with discontinuous working lives, as in the case of the group of blue-collarworkers working in health and social work.

— White-collarworkers working in education are often the best-off working group.

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[20] Vandekerckhove, Capéau and Ramioul (2010).

Figure 3.1: Social capital by occupation/sector[21]
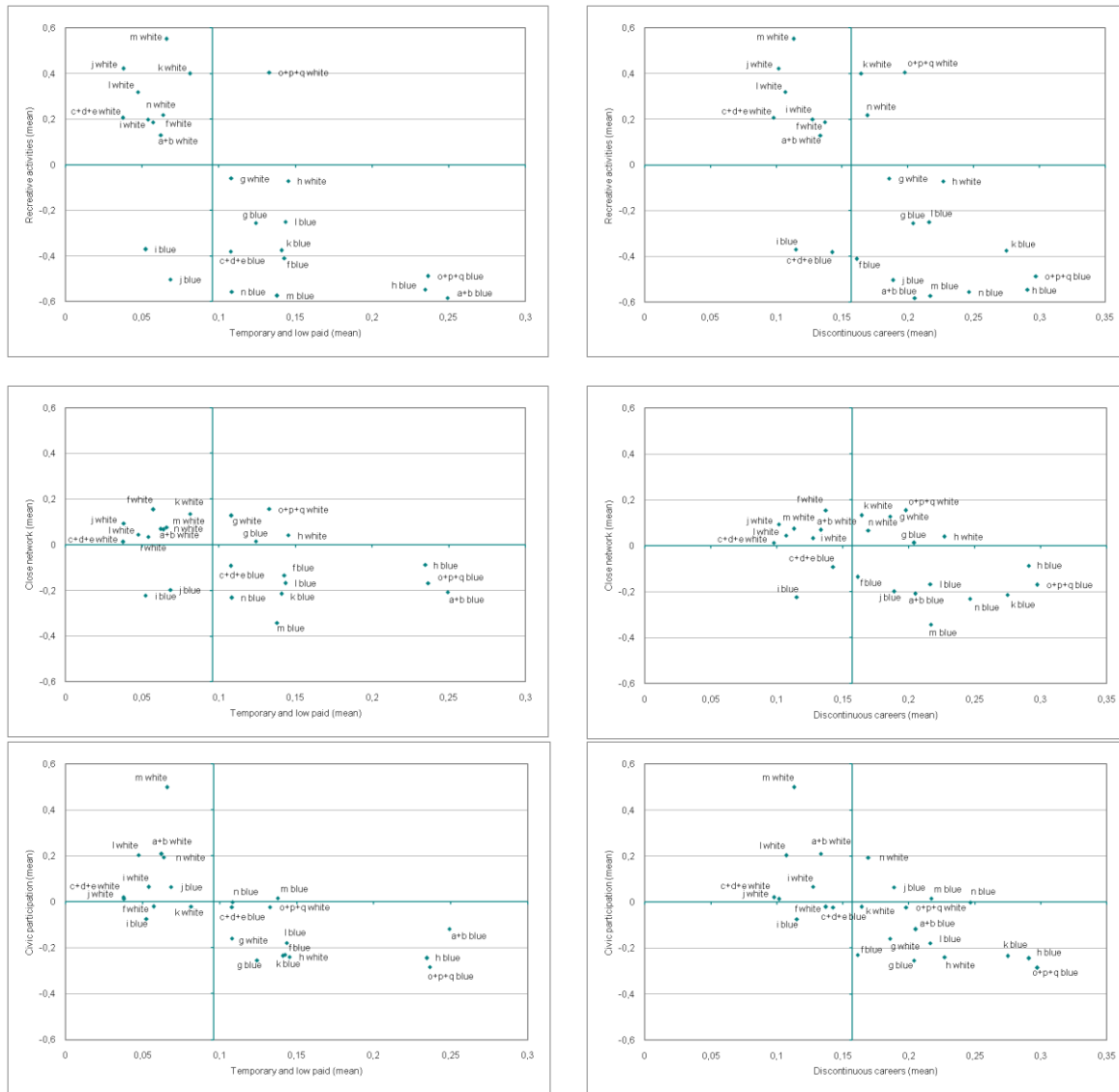
Source: Our elaboration from EU-SILC 2006.

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[21] The horizontal axes of the graphs measure the proportion of workers with low quality of work; the vertical axes measure the three indicators of social capital. The graphs are divided in quadrants according to the mean level of the measured dimensions. Like the statisitics in the previous tables, the graphs are based on a subsample of the base population which displays non-missing values in the variables of interest. Moreover people working in the armed forces have been excluded. As before, the subsample mean has been normalized and consequently all the values in graphs have been also normalized. See Table 7.7 and Table 7.8 for the codification description.

4 Health

Physical well-being represents one of the most important components of a good life. Despite the substantial improvements in average levels of health outcomes in developed countries over the last decades, differences in health continue to exist among populations. In all countries with available data, significant differences in health exist between socio-economic groups, in the sense that people with lower levels of education, occupation and/or income tend to have systematically higher morbidity and mortality rates (Mackenbach et al., 2007).

The extent and the consequences of persistent differences in health by socio-economic groups have long been a serious health policy concern in many European countries and among the EU institutions. The European Council of June 2008 underlined the importance of closing the gap in health and in life expectancy between and within Member States. In 2007, the EU Health Strategy[22] set out the Commission's intention to carry out further work to reduce inequalities in health. This was reiterated in the 2008 Commission Communication on a Renewed Social Agenda[23], which restated the fundamental social objectives of Europe through equal opportunities, access and solidarity and announced a Commission Communication on health inequalities. The recent Commission Communication, "Solidarity in Health: Reducing Health Inequalities in the EU"[24], sets out the actions the European Commission will take to address health inequalities.

Socio-economic inequalities are evident not only in the health status of the population but also in the access to, and use of, health care services. Poorer or less educated persons, despite having higher rates of illness, disease and death, often have difficulties in locating appropriate specialists and preventive health services. They use these services less often and, for certain goods and services, they may be required to pay a proportionately higher share of their income (OECD, 2009).

Ensuring adequate access to essential health services on the basis of individual needs is a health policy goal in all OECD countries. Most countries further endorse the principle of "equal access to equal care for equal needs". Almost all OECD countries have introduced universal health insurance coverage to ensure financial access to a core set of health services (OECD, 2007). Despite this, inequalities in health care access and use remain for different reasons, and these may act to either mitigate or exacerbate inequalities in health status. Health care access means people's ability to obtain appropriate health care services in a timely fashion and without obstacles. Some common barriers to access include financial reasons, a lack of health care providers, excessive travelling distance to providers, and excessive waiting time to see providers.

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[22] COM(2007) 630.

[23] COM(2008) 412.

[24] COM(2009) 567 (references added: see Commission of the European Communities)

4.1 How to measure health status and access to health services

Several measures of health status have been developed, each seeking to calculate the average expectation of years of life in equivalent good health, including the Disability Free Life Expectancy (DFLE), the Health Adjusted Life Expectancy (HALE) and Disability Adjusted Life Year (DALY). These measures may be complex to compute for different socio-economic groups within a population. One of the most widely available and used indicators of health inequalities by groups is based on self-reported health status. There are many surveys that include a question of the form: "How is your health status in general?" with answers ranking from very good to very bad. Although subjective in nature, within particular national cultures, the measure correlates well with other measures of health status, and it has been found to be useful in predicting future health problems and health service use (Miilunpalo et al., 1997). This question, or more elaborate sets of questions on self-reported health, can also be used in the calculation of healthy life expectancies and other summary measures of health (OECD, 2009). Similarly, as for measures of health care access, a widely used indicator takes into account whether people report an unmet care need for some reason (a doctor visit, a dental consultation, a hospital admission or another type of care). Surveys typically ask questions of the nature: "Was there a time in the previous 12 months that you felt you needed health care services but did not receive them?", followed by a question to determine why the need for care was unmet. Both types of questions, health status in general and unmet need for medical examination or treatment during the last 12 months, are included in the EU-SILC survey and used in the present section of the report.

As far as health is concerned, thus, data do not provide information on the actual health status of the individual but only information about how individuals assess their own health status according to two or more categories; e.g. "poor", "fair", "good", "very good", "excellent". It is generally assumed that individuals will report the self-assessed health in accordance with their true health status, which is defined a latent variable. The true health status (the latent variable) is assumed to be composed by observable and unobservable components. The observable component is given by socio-economic conditions while the unobservable component is related to individual aspects, which are inherited and difficult to change. It is thus possible to specify a regression model for the health status of an individual (y_i):

$$Y_i = \beta x_i + \varepsilon_i$$

where x_i is a vector of socio-economic conditions of the ith individual, as defined above, and ε_i is the unobserved component, considered random, normally distributed with zero mean and variance equal to 1. The above model can be estimated by ordered probit or logit using the self-assessed health level as a measure of the true health status. From this estimation, it is possible to recover a predicted value of the latent variable, which can be considered as a measure of the health status of the ith individual. This measure, once re-scaled to the interval [0,1], is generally used as a health indicator (Van Doorslaer and Jones, 2003)[25].

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[25] There-scaled variable y2 can be calculated as y2= (y1 − ymin) / (ymax − ymin), where y1 is the predicted linear index from the ordered probit/logit model, ymax the largest individual prediction and ymin the smallest.

The same approach can be extended to access to health care, which represents in this case the latent variable of the model. The latent variable is measured by the self-reported unmet care needs. The vector of observable characteristics take into account and compensate for people's differing needs for care, using available information including also their self assessed health status. Since generally the variable available is a dichotomous one (yes/no to the question, "Did you face an unmet health care need?"), logit or probit model are applied.

This approach is applied in what follows to compute indicators for health status and access to health care services. The questions of interest are the self-assessed health status (five-point scale) and the self-reported unmet need for medical examination or treatment (yes/no). For some countries, the number of missing values for these two questions is particularly high. To our knowledge, there is no explanation for this. This should be kept in mind when looking at the results.

Data were weighted at individual level (cross-sectional weights provided by the EU-SILC) to make the results representative for the national general population. Robust estimators of variance that account for the effects of weighting were used.

The variables included in the model to measure socio-economic status for each individual (the observed component of health status) are the following: age, gender, civil status, ethnic group, highest educational qualifications, household income, labour market status, presence of chronic illness or limitation in daily activities and specific country effects. For medical access, self-reported health status is also included. Respectively ordered probit and probit model have been applied.

4.2   Health status and access to health services across groups

The following tables report the indicators of health status and medical access for various groups. Higher values of the indicators mean better health status and better access to health care services. Groups with lower levels of health are also those having the most difficulties in having access to and using medical services, providing that the two aspects reinforce each other. The two indicators are in fact highly correlated among workers: the overall correlation coefficient is 0.46 (significance level > 0.01); moreover, the correlation is found to be higher among the groups showing the worst health status.

Table 4.1 highlights the importance of economic aspects in determining the health status: the health level in fact varies considerably by employment status. This is a well-known, widely documented effect (see Mackenbach et al., 2007, for a review). Unemployed people have the worst health, followed by inactive and employed individuals[26].

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[26] Here we do not search for causalities: clearly labour participation is influenced by health and vice versa.

Table 4.1:   Indicators of health status and access to health services by employment status

Groups	Health status	Access to health care services
Employed	0.65	0.55
Unemployed	0.57	0.49
Inactive	0.58	0.56

Source: Our elaboration from EU-SILC 2007.

Important differences are found among groups within employed people too (Table 4.2): Not surprisingly, older workers have a worse health status than their younger counterparts. Less obvious, but widely documented, is the result that less educated and less skilled workers have lower health status than better educated and better skilled ones. Empirical studies showed that, indeed, poor-rich differences in health can in part be attributed to the underlying effects of education, or factors closely associated with educational achievement during adolescence even if differences in health cannot be explained entirely by education (Mackenbach et al., 2007). Finally, looking at country clusters, Eastern European Countries report the lowest level of health while Ireland and UK the highest, followed by the Scandinavian countries[27].

Table 4.2:   Indicators of health status and access to health services by socio-economic groups, workers only

Groups	Health status	Access to health care services
All workers	**0.65**	**0.55**
Males	0.65	0.56
Females	0.64	0.55
Low education (≤ lower secondary education)	0.61	0.56
Medium education (upper secondary & post secondary)	0.64	0.54
High education (tertiary education)	0.68	0.58
Age: 16-29	0.72	0.57
Age: 30-49	0.65	0.55
Age: 50+	0.57	0.56
Country of birth: EU24 or local	0.65	0.56
Country of birth: other	0.64	0.53
Single	0.64	0.53
Living in consensual union	0.65	0.57
Continental countries	0.64	0.54
Ireland and United Kingdom	0.72	0.60
Eastern European countries	0.60	0.49
Southern European countries	0.64	0.58
Scandinavian countries and Netherlands	0.68	0.61

Source: Our elaboration from EU-SILC 2007.

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[27] This last results is however influenced in the uneven distribution of missing data among countries (see Table 5).

Finally, there are differences in health status across wage levels, occupations and sectors. The importance of economic conditions in determining health is reflected also in the positive association between wages and health indicators (Table 4.3)[28]. This is true both within countries, i.e. if we consider each country wage distribution (panel A), and across the wage distribution of all the countries together considered (panel B).

Table 4.3: Indicators of health status and access to health services by wage quintiles

Panel	Wage quintiles				
A Quintiles computed by country	**1**	**2**	**3**	**4**	**5**
Health status	0.63	0.64	0.64	0.65	0.66
Access to health services	0.55	0.56	0.56	0.57	0.58
B Quintiles computed on the whole sample	**1**	**2**	**3**	**4**	**5**
Health status	0.59	0.62	0.65	0.67	0.68
Access to health services	0.50	0.53	0.59	0.60	0.62

Source: Our elaboration from EU-SILC 2007

Looking at occupations, blue-collar workers have lower values in the health indicators than white collars. Across sectors, workers in agriculture and in the social and personal-service activities display the worst situation while those in the financial and business sectors are better off (Table 4.4).

Table 4.4: Indicators of health status and access to health services

Groups	Health status	Access to health care services
All workers	**0.65**	**0.55**
Blue collars	0.63	0.54
White collars	0.66	0.56
Sector A+B Agriculture; Hunting, forestry and fishing	0.62	0.53
Sector C+D+E Mining and quarrying; Manufacturing; Electricity, gas and water supply	0.64	0.55
Sector F Construction	0.65	0.56
Sector G Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods	0.65	0.55
Sector H Hotels and restaurants	0.66	0.56
Sector I Transport, storage and communication	0.65	0.55
Sector J Financial intermediation	0.67	0.57
Sector K Real estate, renting and business activities	0.67	0.57
Sector L Public administration and defence, compulsory social security	0.64	0.56
Sector M Education	0.65	0.56
Sector N Health and social work	0.64	0.56
Sector O+P+Q Other community, social and personal service activities; Private households with employed persons; Extra-territorial organizations and bodies	0.63	0.55

Source: Our elaboration from EU-SILC 2007.

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[28] Here we do not search for causalities which go in both directions: people with low earnings tent to have lower level of health due to the poor living conditions, on the other hand low health levels affect earnings through the productivity channel.

There are also important differences when occupation and sectors are considered jointly (Figure 4.1), providing that there are strong inequalities in health within sectors, especially within the service ones, depending on the content of occupation.

Blue-collar workers in agriculture have the worst health conditions, together with blue collars in education, who represent, however, a limited share of the sample (1%). On the other hand, white-collar workers in the growing sectors[29] of real estate, renting and business activities and construction have health levels well above the average combined with the highest level of access to medical services.

On average, white-collar workers often display much better values on health indicators than their blue-collar counterparts in the same sector: this is particularly true in real estate, renting and business activities as well as construction.

Figure 4.1: Health indicators across jobs[30]
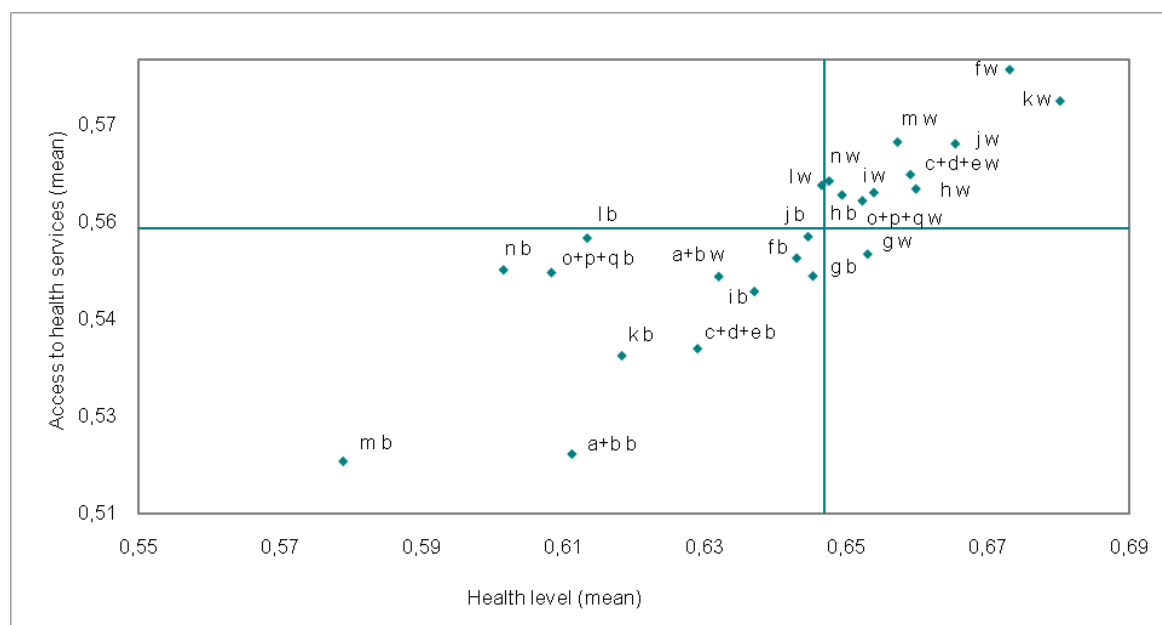
Source: Our elaboration from EU-SILC 2007.

4.3   Health and quality of work

Apart from wages, the empirical evidence regarding the influence of different aspects of quality of work on health follows two main strands of analysis. The first regards the effects of job characteristics, such as psychological or physical workload, stress and control over work on health. Most of these studies make reference to Karasek's model (1979) or the Siegrist et al. model (1990)[31] and present evidence that adverse working conditions have negative effects on health (especially mental health). The second strand of analysis

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[29] Vandekerckhove, Capéau and Ramioul (2010).

[30] See Table 7.7 and Table 7.8 for the codification description.

[31] For a brief discussion on these two different models, see the chapter on 'Subjected well-being' in this report.

regards the influence of contractual conditions on health. Empirical evidence on this point is mixed. Some studies have reported that fixed-term workers have worse physical health than permanent workers have (see, for example, Benavides et al., 2000; Gash et al., 2007). In other studies, fixed-term contracts have been shown to have either no influence (Virtanen et al., 2003; Rodriguez, 2002; Bardasi and Francesconi, 2004) or positive influences on health (Sverke et al., 2000). Benach et al. (2004) analyse the association between general self-assessed health and part-time working arrangements. They show that full-time workers have worse indicators of health compared to part-time workers. Rodriguez (2002) finds that the health status of part-time workers with permanent contracts is not significantly different from those who are employed full-time. According to evidence from more recent papers, however, people with atypical contracts cannot be considered as a homogeneous group. Indeed, in general, they experience a worsening of health only if they are unsatisfied with contractual and working conditions or these are not freely chosen; if their jobs are associated with low levels of employability or they offer no contractual certainty (Artazcoz et al., 2005; Robone et al., 2010; Silla et al., 2005).

Moreover, some caution needs, in general, to be exercised when considering the influence of atypical contractual employment arrangements on health across countries. Differences in national employment rates and employment regulations, for example, will determine what can be considered typical and atypical employment contracts and may serve to moderate their impact on health (Benach et al., 2004).

Our analysis contributes to the debate on the effect of working conditions on health, giving some interesting insights on the issue. In particular, having a temporary contract associated with low pay negatively affects health and reduces the access to health care services especially among adult and older workers. Negative effects on health indicators are found for part-timers and especially for the involuntary ones. Part-timers reporting they would like to work more hours have lower levels of health and access to health care services than the average (Table 4.5).

Finally, no clear-cut evidence appears on the other dimensions of quality of work considered so far: discontinuous careers, skills development (i.e. workers with supervisory responsibility), and reconciliation of working and non-working life (i.e. long working hours)[32].

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[32] These results are not reported but available on request.

Table 4.5:　Indicators of health status and access to health services by jobs of different quality of work

Groups	Health status	Access to health care services
All workers	**0.65**	**0.55**
Full-time workers	0.65	0.55
Part-time workers	0.63	0.56
Involuntary part-time workers	0.62	0.53
Young workers (Age: 16-29) with temporary and low paid jobs	0.70	0.56
(All young workers)	(0.72)	(0.57)
Adult workers (Age: 30-49) with temporary and low paid jobs	0.61	0.52
(All adult workers)	(0.65)	(0.55)
Older workers (Age: 50+) with temporary and low paid jobs	0.52	0.52
(All older workers)	(0.57)	(0.56)

Source: Our elaboration from EU-SILC 2007.

5 Subjective well-being

QoL cannot be adequately measured and described only by objective indicators (income, housing, health, social integration). Subjective measures on satisfaction and happiness are necessary in order to obtain a complete picture on people's well-being. Thus, this section is intended to complement the results on "objective" QoL[33]. Initially, the empirical study of happiness and satisfaction was mainly developed by psychologists. However, there have also been important contributions by sociologists (e.g., Veenhoven, 2002) and political scientists (e.g. Lane, 2000). In recent years, following the seminal contribution by Easterlin (1974), a growing number of economists have investigated the impact of economic conditions on subjective well-being, measured as self-reported levels of happiness or life satisfaction (e.g. Di Tella and MacCulloch, 2006; Van Praag and Ferrer-i-Carbonell, 2004; see Frey and Stutzer, 2002, 2010, for earlier comprehensive reviews). These contributions are mainly based on a subjective view of utility recognizing that everybody has their own ideas about happiness and a good life and that observed behaviour is an incomplete indicator for individual well-being. In this view, people are considered good judges of the overall quality of their lives. Thus the happiness of individuals can be analyzed by asking them how satisfied they are with their lives (Frey and Stutzer, 2010). As argued by Diener (1994), subjective well-being (SWB) encompasses different separate aspects: life satisfaction (a person's overall judgment about their life); the presence of positive feelings (happiness and joy); the absence of negative feelings (anger, depression). The first aspect catches the cognitive component of well-being, while the other two are connected with the affects, i.e. the pleasure-pain component of well-being. Although highly correlated, they reflect different aspects of SWB, and accord with different conceptions of QoL.

Measures of SWB are generally obtained through self-reports: People are asked to evaluate their lives on the whole or some aspect of it. Research indicates that self-reported measures of well-being are reliable and valid. In particular, the SWB literature pays a lot of attention to the validity of its measures. The conclusion in most of the reviews is that life satisfaction scores and other measures of SWB correlate with other variables that can be plausibly claimed to be associated with true individual well-being (see, for instance, Di Tella and MacCulloch, 2006, Diener, 1994, Diener et al., 1999, Frey and Stutzer, 2002).

At a European level, the European Quality of Life Survey (EQLS), conducted in 2003 and 2007 by the European Foundation for the Improvement of Living and Working Conditions (Eurofound), focuses on quality of life issues in 27 EU Member States (plus Norway, Croatia, Macedonia, Turkey). It collects information on different aspects of subjective well-being as well as on some objective conditions in the domains of employment, economic resources, family life, community life, health, housing and the local environment.

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[33] Following the literature on subjective indicators of happiness and satisfaction, in this section we will mainly use the terms well-being rather than quality of life.

On the meaning of satisfaction questions, psychologists have by and large interpreted the answers as cardinal, while economists have generally assumed that satisfaction answers are only ordinally comparable. However, recent findings (Van Praag and Ferrer-i-Carbonell, 2004, 2006) have relaxed the assumption of interpersonal ordinal comparability, showing that assuming cardinality or interpersonal ordinality of the satisfaction answers makes little difference to the results.

Following these latest findings, in what follows some descriptive statistics on the average scoring by different sub-groups on well-being variables based on EQLS 2007 data are computed using appropriate cross-section weights. In the last section, an analysis of the main determinants of well-being and the role on SWB of working conditions is reported.

5.1 General overview on SWB

The analysis focuses on three different measures of subjective well-being based on EQLS data: Overall Life satisfaction (10-point scale); Happiness (10-point- scale); Sense of fulfilment in life (5-point scale)[34]. These three measures are chosen in order to take into account different aspects of SWB. As last rows of Table 5.1 show, the three measures are correlated among each other but are able to capture different aspects of well-being. For all three questions, lower scores mean lower values of subjective well-being while higher scores indicate higher levels of SWB.

The table reports the average of the indicators for main population sub-groups and country clusters. All values are weighted with the population-adjusted weights provided. One aspect on which all research on subjective well-being agrees and which also emerges from the EQLS data concerns the low levels of life evaluation reported by unemployed people (e.g. Clark and Oswald, 1994). Another important aspect in determining well-being is income level. Finally, as previous research has already pointed out (Eurofound 2004, 2010), there is a large variability also throughout Europe, with a clear division between Nordic countries and Eastern and Southern European countries.

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[34] In EQLS only people aged 18 and over are surveyed. For reasons of homogeneity with the other sections of the report, the analysis is restricted to people aged 18-65 employed as dependent employees in the 24 EU countries + Norway.

Table 5.1:   Indicators of subjective well-being by population sub-groups

	All things considered, how satisfied would you say you are with your life these days?	Taking all things together, how happy would you say you are?	On the whole my life is close to how I would like it to be
All	7.22	7.97	3.43
Employed	7.35	8.03	3.50
Unemployed	5.85	7.23	2.75
People with low income[35]	6.59	7.46	3.10
Continental Countries	7.32	7.81	3.60
Ireland and UK	7.57	8.24	3.54
Eastern EU Countries	6.71	7.98	3.13
Southern EU Countries	6.82	7.55	3.21
Scandinavian and Netherlands	8.21	8.39	3.93
Correlation between satisfaction and happiness	0.22***		
Correlation between satisfaction and sense of fulfilment	0.29***		
Correlation between happiness and sense of fulfilment	0.12***		

Source: Our elaboration from EQLS 2007.

Note: *** means that the finding is significant at the .01 level.

5.2 Main determinants of SWB among dependent employees

One of the most attractive promises of research on subjective well-being is to deliver not just a good measure of the level of QoL, but also a better understanding of its determinants, in order to identify the groups at higher risk of vulnerability. Well-being in fact is affected by a variety of objective features (such as income, health status and education) that simple average values, as those reported in Table 5.1, do not take fully into account. The set of determinants that is most relevant will depend on which aspect of subjective well-being is considered. For example, across individuals, indicators of life circumstances such as household income and marital status are more strongly related to life satisfaction than to positive or negative affect, while features of daily experiences, such as time pressure at work, are more strongly correlated with affect than with (work) satisfaction (Stiglitz et al., 2009).

Existing studies show that a wide variety of factors influences well-being. Van Hoorn (2007) classifies the determinants of subjective well-being into six broad categories and this framework is used here. The six factors are (I) personality factors, (II) contextual and situational factors; (III) demographic factors; (IV) institutional factors; (V) environmental conditions and (VI) economic and job-related factors. This last factor also includes job

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[35] Defined as people whose household income in PPP equivalised by OECD-2 factors is in the lowest income quartile.

characteristics and working conditions. We apply this framework to EQLS data. As the dependent variable is measured on a ranking scale, an ordered logit model with robust standard errors is applied[36]. Table 5.2 reports the values of odd-ratios of our estimation. Well-being is measured by either life satisfaction, happiness or sense of fulfilment. The analysis is performed on dependent employees only. The benchmark is an unskilled manual worker, single male in the 18-30 age group, with a low level of education; values lower than 1 represent a lower level of well-being than the benchmark, values greater than 1 represent a higher level of well-being.

Table 5.2: Ordered logit model results on determinants of SWB

Variable	Employed individuals only		
	Satisfaction	Happiness	Sense of fulfilment
	Odds ratio		
Personality factors			
Trust	1.15***	1.077***	1.132***
Contextual and situational factors			
Educational Level 2	1.051	0.895	1.177**
Educational Level 3	1.104	0.869	1.48***
Consensual union	1.939***	2.375***	2.008***
Health	1.626***	1.908***	1.471***
Social interaction	1.055***	1.041***	1.055***
Demographic factors			
Male, age 30-49	0.82*	0.758***	0.769**
Male, age over 50	0.866	0.834*	1.018
Female, age 18-29	1.223*	1.288**	1.365**
Female, age 30-49	0.97	0.969	0.933
Female, age over 50	1.002	0.881	1.034
Born non EU	0.991	1.262	1.007
Environmental conditions			
Area pollution	1.057***	1.054***	1.043***
Economic factors			
I) Occupations			
Professionals	1.116	0.935	1.527***
Service job	1.334**	1.028	1.383***
White collars	1.203*	0.972	1.406***
Middle managment	1.294*	1.052	1.445***
Skilled manual	1.27*	1.097	1.278**
Unskilled manual	benchmark		

Continues on next page.

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[36] It has been shown that a traditional linear regression estimator may be used once the (ordinal) dependent variable has been properly transformed into a "pseudo" continuous one (Terza, 1987; Van Praag and Ferrer-i-Carbonnell, 2006). This approach, which Van Praag and Ferrer-i-Carbonell (2004) call "Probit Ordinary Least Squares" (POLS), yields approximately the same estimates as a traditional ordered probit or logit regression, except for a multiplying factor that stems from a different normalization. Moreover, the significance of the estimates – e.g. as evaluated by t-values – has been shown to be practically the same for both methods. The advantage of this technique is mainly that estimated coefficients may be interpreted as marginal effects, thus allowing for a direct comparison of the results obtained with different models. Since this is not the scope of the present section, standard ordered logit regression is applied.

Continued from previous page

Variable	Employed individuals only		
	Satisfaction	Happiness	Sense of fulfilment
II) Working conditions			
Precariousness (perceived job security)	0.883***	0.905***	0.899***
Stress-related risks	0.925***	0.908***	0.911***
Health risks	0.969	0.968	0.97
Boredom	0.801***	0.82***	0.862***
Intensity	0.94***	0.924***	0.963
Autonomy	1.085***	1.091***	1.126***
Career opportunities	1.069***	1.087***	1.153***
Adequacy of pay	1.252***	1.168***	1.313***
Permanent contract	1.219***	1.066	1.095
Second job	1.044	0.949	1.051
Part-time	1.114	1.111	1.065
Long hours	1.236*	0.882	0.969
III) Institutional factors			
Country fixed effects	Yes	yes	Yes
N. Observations	11077	11077	11077

Source: Our elaboration from EQLS 2007

Our analysis substantially confirms standard literature findings. Results are differentiated according to the three different measures of well-being adopted. In general, contextual and situational factors affect mainly sense of fulfilment; levels of education do not affect satisfaction and happiness. Demographic factors appear to affect happiness more than satisfaction and sense of fulfilment; finally among the economic factors, occupations affect sense of fulfilment while their effect on satisfaction is limited and they do not influence happiness; working conditions influence all measures of well-being, with sense of fulfilment affected to a slightly lesser extent.

The most vulnerable group in terms of subjective well-being, irrespective of the measure used, are middle-aged men. This result is in line with a research finding indicating that well-being has a u-shaped relationship with age; it is higher among young people, declines in middle age and increases again among older people (Clark et al., 1996). This finding, which refers to the whole population, is confirmed also in the sub-sample of the employed population only. Our analysis also confirms other standard results: that female are in general more satisfied and happy than men, as well as people living in consensual union. Increasing healthy conditions, social interactions and environmental quality increase SWB. Finally, when all other factors are controlled for, no differences are detected between native and foreign people. Turning to the job-related factors, we find, firstly and not surprisingly, that all people working in skilled occupations show higher levels of sense of fulfilment and, to a lesser extent, satisfaction than unskilled manual workers do while happiness is not affected by the form of occupation. On working conditions, several studies present evidence that adverse job quality has negative effects on well-being. This aspect is discussed in more detail in the next section.

5.3 SWB and working conditions

Many of the studies that investigate the effect of working conditions on SWB refer to the influential "demand-control" model developed by Karasek (1979) and the "effort–reward imbalance model" of Siegrist et al. (1990). The first considers the categories of job demand and job control, the second considers the categories of effort, motivation and reward at work in terms of salary, esteem, job stability and available career opportunities. All these aspects are included as regressors in our analysis. Moreover, more recently, a number of studies have looked at the effect of contractual typologies on job satisfaction (among others, Bardasi and Francesconi, 2004; Booth et al., 2002; Origo and Pagani, 2009); these characteristics have also been included in our analysis.

Working conditions affect life satisfaction to a greater extent than happiness and sense of fulfilment. All the variables show the expected results: autonomy, career prospects and adequacy of earnings have a positive effect on well-being while precariousness, work intensity, demanding and stressful jobs as well as boring jobs have a negative effect on well-being. One surprising finding is the absence of any effect on SWB of health-related risk factors associated with the job. One possible explanation is that some of the health-related risk factors are captured by other factors included in the analysis; however it is also possible that the awareness of the importance of health-related risk factors is still low among workers. Well-being is traditionally considered to be negatively affected by fixed-term employment, even if some more recent studies argue that it is not the type of contract per se that matters but rather the perceived job security (Origo and Pagani, 2009). In our analysis both factors influence life satisfaction, while happiness and sense of fulfilment are affected by the perceived job security only. Finally having a second job or working on a part-time contract does not seem to influence SWB (on the latter aspect, the distinction between voluntary and involuntary part-time would be more informative; unfortunately, this information is not available in EQLS).

The Karasek model postulates that negative well-being effects derive not from a single aspect of the work environment but from the joint effect of the demands (intensity) of a work situation and the range of discretion (autonomy) in decision-making available to the workers facing those demands. This model categorizes jobs into four types based on different combinations of demands and control. Workers in jobs with high demands and high control, "active" jobs, have greater job satisfaction because they have intellectual demands that give workers the opportunity to increase their competency, self-efficacy, skill development, and personal growth. Workers in "passive" jobs, or jobs with low demands and low control, have a gradual reduction of general problem-solving activity, increased boredom, and experience job dissatisfaction because the constant repetition of a task results in a decreased capacity for intellectual challenge. Jobs with high demands and low control are defined as "high strain" jobs and are seen as the worst combination for SWB. Finally, there were no hypotheses about jobs with low demands and high control, or "low strain" jobs (Karasek, 1979).

The table below shows the average value of our SWB indicators for the four typologies of working conditions described in the Karasek model.

Table 5.3:   SWB indicators according to the Karasek model's job typologies

	Satisfaction	Happiness	Sense of fulfilment
Passive jobs	6.91	7.90	3.27
Active jobs	7.49	8.00	3.62
High strain jobs	6.76	7.81	3.21
Low strain jobs	7.78	8.30	3.70

Source: Our elaboration from EQLS 2007

For all the three measures of SWB, as predicted by Karasek, "active" jobs are related with higher levels of well-being than "passive" jobs while "high strain" jobs are those with the lowest levels of well-being. However, the low strain jobs, jobs with high levels of autonomy and low levels of intensity, are those producing the highest level of satisfaction, happiness and sense of fulfilment in workers.

To illustrate in which jobs, according to the Karasek model, different groups of workers, defined by occupation, age and gender, are employed, intensity and autonomy levels are combined in Figures 5.1 and 5.2.

Figure 5.1:   Observed   mean   values   on   autonomy   and   intensity   by occupation (Karasek model)
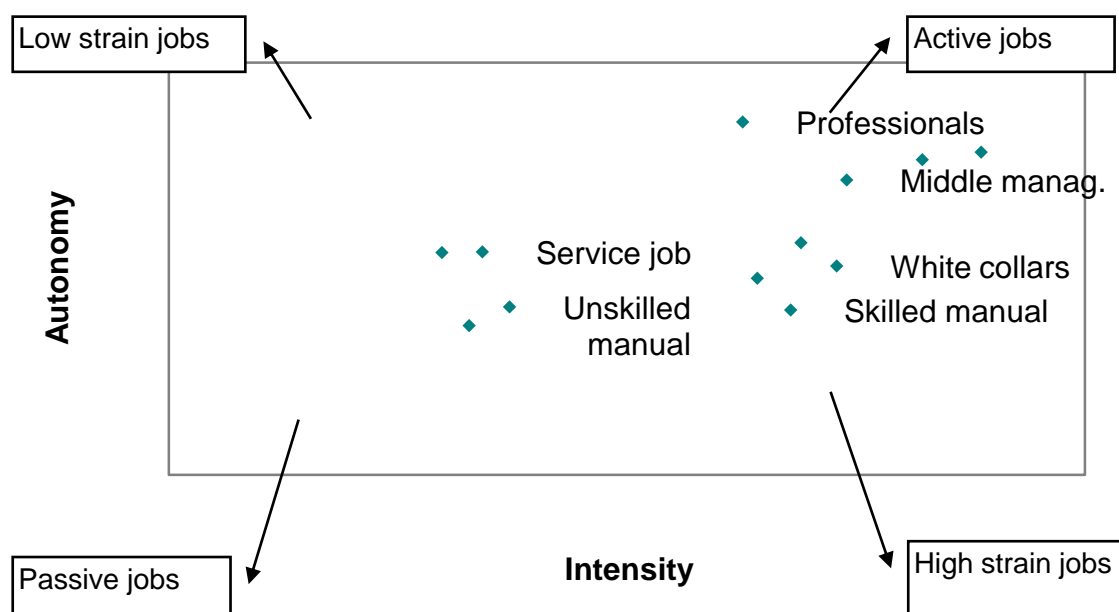
Source: Our elaboration from EQLS 2007

Figure 5.2: Observed mean values on autonomy and intensity by gender and age (Karasek model)
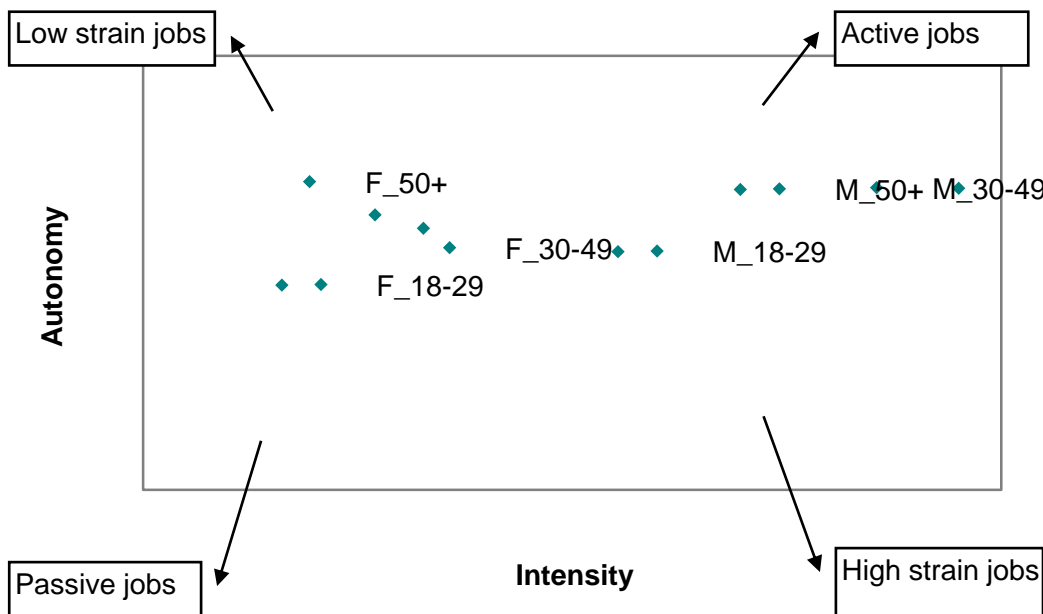
Source: Our elaboration from EQLS 2007

Professionals and middle managers, occupations in which mostly adult and older men are employed, are mainly found in active jobs, which are associated with high levels of satisfaction and well-being. We do not identify any occupations in the low strain jobs (those with the highest levels of associated SWB), however, some older female employees can be found in this type of organizations. Unfortunately, due to the absence of information on sectors and to the scarcity of details on occupations in EQLS data, we are not able to say which jobs are included in the low strain category. The gender differences are particularly pronounced according to this model, with female workers mainly concentrated in passive jobs, especially the youngest ones. The occupations most represented in this category are those related to service jobs and the unskilled manual workers. Finally, white collars and skilled manual workers are found in high strain jobs, mostly dominated by male workers, jobs associated, according to Table 5.3, with the lowest levels of SWB.

6 Conclusion

This report offers fresh empirical evidence on the levels of quality of life reported by the European population in 2006-2007. In particular, we use data from the European Union Statistics on Income and Living Conditions and the second European Quality of Life Survey to draw a complex picture representing the level of well-being experienced by employees in the European countries covered by the surveys. Past literature provides some suggestions for the construction of an analytical framework for studying quality of life. According to this framework, four main domains of quality of life are analyzed: material well-being (disposable income, commodities capacity/deprivation, housing and living environmental), social integration (recreational activities, close networks, civic participation), physical well-being (health status, access to health care services) and subjective well-being (satisfaction, happiness, sense of fulfilment).

Focusing on the overall EU population, we observe that unemployed people report greater deprivation in terms of income, commodities, living conditions and health. We also observe variations in terms of life satisfaction, happiness and sense of fulfilment depending on the **employment status** (unemployed individuals are less satisfied) underlining the existence of a link between domains of quality of life and employment.

Many of the main results in this report underline the important differences in well-being that exist across vulnerable groups of employees. In particular, we observe:

— **Low educated employees**, **employees born outside the EU24**, and **blue-collar workers** report higher levels of (income, commodities and area) deprivation, poorer health and lower social integration in terms of recreational activities, close networks and civic participation;

— Employees working in **six sectors** report lower degrees of both material well-being and social integration: Three of these are growing sectors: construction; wholesale and retail trade; other community, social and personal service activities, private households with employed persons, extra-territorial organizations and bodies. The others are agriculture, hunting, forestry and fishing; mining and quarrying, manufacturing, electricity, gas and water supply; repair of motor vehicles, motorcycles and personal and household goods;

— **Young employees** (**aged 16-29**), and **single employees** report higher levels of deprivation in terms of income, commodities and living conditions.

We do not observe strong differences across gender and age groups. This may be due to self-selection of workers in the best sectors and occupations.

The complex picture of quality of life in many **EU countries** has been simplified with the rather crude device of grouping countries according to their characteristics and geographical position. On one hand, the Southern and the Eastern European countries have lower income levels, greater commodities and area deprivation, poorer health and lower social integration in terms of recreational leisure activities. Nonetheless, Southern European Countries have stronger close family and friends networks. On the other hand, Scandinavian countries and the Netherlands, Ireland and the United Kingdom have

particularly high levels of civic participation, lower commodities and area deprivation, higher income levels and better health.

Other vulnerable groups considered in the analysis are employees experiencing bad working conditions. We achieve the following results:

— **Low paid and temporary employees** and **involuntary part-time employees** report lower levels of material well-being, poorer health and lower social integration in terms of recreational activities, and lower levels of close networks. These results suggest an expected positive correlation between low income/job insecurity and bad quality of life.

— **Employees with discontinuous careers** report lower degrees of material well-being and lower social integration in terms of recreational activities and civic participation. This finding also points to a positive correlation between low income/job insecurity and bad quality of life.

— **Individuals working without supervisory responsibility** report lower levels of material well-being and lower social integration. Thus, a positive correlation between learning at work and bad quality of life emerges. This may be due to the correlation between jobs without supervisory responsibility, low wages, low skilled jobs and difficulties in having career advances without an appropriate learning process.

— **Employees working more than 48 hours per week** (in their main job) report lower social integration (recreational activities and close networks) and higher levels of deprivation in terms of income, commodities and living conditions. This result suggests a positive correlation between difficulties in work-life balance and material deprivation. This is possible when employees reporting long hours in the survey are also individuals with low hourly wages, i.e. people who are forced to work such long hours to climb out of poverty.

— **Satisfaction, happiness and sense of fulfilment** are positively associated with good working conditions and negatively associated with bad working conditions. In particular, employees perceiving job insecurity, experiencing stress-related risks, intensity at work, and performing boring tasks are less satisfied/happy/fulfilled. Instead, employees experiencing autonomy at work, career opportunities and adequacy of pay are more satisfied/happy/fulfilled.

Finally, the report shows how sectors/occupations characterized by high incidence of "bad" working conditions are also characterized by high incidence of "bad" quality of life. For example, at sector/occupation level, we observe **positive correlations between high incidence of temporary contracts paying low wages (or workers experiencing a discontinuous career) and material deprivations**. Generally, focusing on blue-collar employees, independently of the sectors where they are employed, we note high incidences of both job/income insecurity and bad quality of life in terms of material well-being, health and social integration. Surprisingly, white-collar workers working in the following sectors report high levels of both job/income insecurity and deprivations closer to the levels reported by blue-collar workers: hotels and restaurants; wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods.

These conclusions give some indication of the complexity of the relationship existing between quality of life and employment and working conditions. Even if this relationship needs to be further analyzed, some policy suggestions may be drawn. In fact, from our findings emerge some vulnerable groups and some sectors/occupations experiencing high risks of suffering both bad working conditions and bad quality of life. These vulnerable groups and employees working in these sectors/occupations should be the main targets of policies.

7 Data and variables

7.1 Data and variables of EU-SILC 2006 and 2007

The European Community Statistics on Income and Living conditions (EU-SILC) provides comparable cross-sectional and longitudinal micro data mainly referring to objective living and employment conditions (income, poverty and economic deprivation, social exclusion, health). We use cross-sectional data from 2006-2007 EU-SILC in order to analyze information contained in two special modules – one on "social participation" and the other on "housing" – carried out in 2006 and 2007. Because of delays in the implementation process of EU-SILC at national level, data covering all of the EU Member States are not yet available. Therefore, our sample covers 24 EU Member States (excluding Bulgaria, Romania and Malta) and Norway. It is composed of individuals aged 16-65. Individuals reporting missing observations in the variables of interest have been excluded from the sample. Cross-sectional weights have been used as appropriate.

The following tables describe the variables of EU-SILC 2006 and 2007 used in this report. Table 7.1, Table 7.2, Table 7.3 and Table 7.4 show the variables needed in building the indicators of quality of life. Table 7.5 and Table 7.6 display the personal and employment characteristics observed. Finally, Table 7.7 and able 7.8 illustrate the codification of occupations and sectors of employment.

Table 7.1: Variables used in economic deprivation indicators

Variable	Description	Type
Income deprivation	Household's equivalised disposable income < 60% median	Binary (0 - 1)
Commodities deprivation	Commodities availability < 60% median	Binary (0 - 1)
Not eating meat, fish or vegetarian equivalent every second day	Capacity to afford a meal with meat, chicken, fish (or vegetarian equivalent) every second day	Binary (0 - 1)
Arrears in scheduled rent/mortgage payments and utility bills	Whether the household has been in arrears on mortgage or rent payments in last 12 months or whether the household has been in arrears on utility bills (electricity, water, gas) in last 12 months	Binary (0 - 1)
Not having a telephone	Not having it because cannot afford it	Binary (0 - 1)
Not having a television	Not having it because cannot afford it	Binary (0 - 1)
Not having a computer	Not having it because cannot afford it	Binary (0 - 1)
Not having a washing machine	Not having it because cannot afford it	Binary (0 - 1)
Not having a car	Not having it because cannot afford it	Binary (0 - 1)
Not able to pay for one week annual holiday	Capacity to afford paying for one week annual holiday away from home	Binary (0 - 1)

Table 7.2: Variables used in the area deprivation indicator

Variable	Description	Type
Area deprivation	Indicator of area deprivation	Binary (0 - 1)
No bath or shower in dwelling	Whether the dwelling has proper room with a bath or a shower	Binary (0 - 1)
No indoor flushing toilet for sole use of household		Binary (0 - 1)
Inadequate heating facilities	No fixed heating and dwelling not comfortably warm	Binary (0 - 1)
Inadequacy of:	Inadequate installations can be: installations in bad condition, dangerous installations, installations which are regularly out of order, where there is limited availability.	
- electrical installations	Wiring, contacts, sockets and other permanent electrical installations in the dwelling.	Binary (0 - 1)
- plumbing/ water installations	Pipes, taps, drainage and outlets	Binary (0 - 1)
Severely overcrowded	Nr. of persons per room > 1.5	Binary (0 - 1)
Leaking roof, damp walls etc.	Whether, in the judgement of the household respondent, the dwelling has a problem with a leaking roof, damp ceilings, dampness in the walls, floors or foundation or rot in window frames and doors.	Binary (0 - 1)
Problems with the dwelling: too dark	Whether the respondent feels 'the dwelling to dark, not enough light' to be a problem for the household	Binary (0 - 1)
Noise from neighbours or from the street	Whether the respondent feels 'noise from neighbours or from street' to be a problem for the household	Binary (0 - 1)
Pollution, grime or other environmental problems	Whether the respondent feels 'pollution, grime …' to be a problem for the household. Area refers to the place situated close to the place of residence (where you usually shop, walk, the way home)	Binary (0 - 1)
Crime, violence or vandalism in the area	Whether the respondent feels 'crime, violence or vandalism in the area' to be a problem for the household. Area refers to the place situated close to the place of residence (where you usually shop, walk, the way home)	Binary (0 - 1)
Great difficulty to access:	Accessibility: this shall relate to the services used by the household having regard to the financial, physical, technical and health conditions. The accessibility of the services is to be assessed in terms of physical and technical access, and opening hours, but not in terms of quality, price and similar aspects.	
- grocery services	Services which can provide most of the daily needs.	Binary (0 - 1)
- banking services	Withdraw cash, transfer money and pay bills.	Binary (0 - 1)
- postal services	Send and receive ordinary and parcel post.	Binary (0 - 1)
- public transport	Bus, metro, tram and similar.	Binary (0 - 1)
- primary health	General practitioner, primary health centre or similar.	Binary (0 - 1)

Table 7.3:   Variables used in social integration indicators

Variable	Description	Type
Recreational activities	Indicator of social integration	Continuous
Close network	Indicator of social integration	Continuous
Civic participation	Indicator of social integration	Continuous
Going to the cinema	Number of times going to the cinema	Categorical (1 - 5)
Going to live performances	Number of times going to live performances (plays, concerts, operas, ballet and dance performances)	Categorical (1 - 5)
Visits to cultural sites	Number of visits to cultural sites	Categorical (1 - 5)
Going to live sport events	Number of times attending live sport events	Categorical (1 - 5)
Relatives (frequency of getting together)	The frequency with which the respondent usually gets together with relatives during a usual year. Only relatives who do not live in the same household as the respondent should be considered.	Categorical (1 - 6)
Friends (frequency of getting together)	The frequency with which the respondent usually gets together with friends during a usual year. Only friends who do not live in the same household as the respondent should be considered.	Categorical (1 - 6)
Relatives (frequency of other contacts)	The frequency with which the respondent is usually in contact with relatives, during a usual year, by telephone, letter, fax, e-mail, sms…. Only relatives who do not live in the same household as the respondent should be considered.	Categorical (1 - 6)
Friends (frequency of other contacts)	The frequency with which the respondent is usually in contact with friends, during a usual year, by telephone, letter, fax, e-mail, sms. Only friends who do not live in the same household as the respondent should be considered.	Categorical (1 - 6)
Informal volunteer activities	Participation in informal voluntary activities	Binary (0 - 1)
Political groups	Participation in activities of political parties or trade unions	Binary (0 - 1)
Professional groups	Participation in activities of professional associations	Binary (0 - 1)
Religious groups	Participation in activities of churches or other religious organizations	Binary (0 - 1)
Recreational groups	Participation in activities of recreational groups or organizations	Binary (0 - 1)
Charitable groups	Participation in activities of charitable organizations	Binary (0 - 1)
Other groups	Participation in activities of other groups or organizations	Binary (0 - 1)

Table 7.4:   Variables used in health indicators

Variable	Description	Type
Health status	Indicator derived from "General health perception" question	Continuous (0 - 1)
Access to health care	Indicator derived from "Unmet need for medical examination or treatment" question	Continuous (0 - 1)

Table 7.5:   Variables on personal characteristics

Variable	Description	Type
Males		Binary (0 - 1)
Females		Binary (0 - 1)
Low education(≤lower secondary)	Highest ISCED level attained	Binary (0 - 1)
Medium education (upper secondary & post secondary)	Highest ISCED level attained	Binary (0 - 1)
High education (tertiary)	Highest ISCED level attained	Binary (0 - 1)
Age: 16-29		Binary (0 - 1)
Age: 30-49		Binary (0 - 1)
Age: 50+		Binary (0 - 1)
Country of birth: EU24 or local	Any European union country (EU25) except country of residence or same country as country of residence	Binary (0 - 1)
Country of birth: other	Any other country	Binary (0 - 1)
Single	Marital status	Binary (0 - 1)
Living in consensual union	Marital status: married or living in a consensual union	Binary (0 - 1)
Continental countries	Austria, Belgium, France, Germany, Luxembourg	Binary (0 - 1)
Ireland and United Kingdom	Ireland and United Kingdom	Binary (0 - 1)
Eastern European countries	Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia	Binary (0 - 1)
Southern European countries	Cyprus, Greece, Italy, Portugal, Spain	Binary (0 - 1)
Scandinavian countries and Netherlands	Denmark, Finland, Netherlands, Norway, Sweden	Binary (0 - 1)

Table 7.6: Variables on employment

Variable	Description	Type
Workers	Self-defined current economic status: full-time and part-time workers	Binary (0 - 1)
Employed	Self-defined current economic status: full-time and part-time workers	Binary (0 - 1)
Unemployed	Self-defined current economic status: unemployed	Binary (0 - 1)
Active	Self-defined current economic status: full-time and part-time workers and unemployed	Binary (0 - 1)
Employees	Status in employment in main job	Binary (0 - 1)
Full-time	Self-defined current economic status: full-time workers	Binary (0 - 1)
Part-time	Self-defined current economic status: part-time workers (< 30 working hours/week)	Binary (0 - 1)
Involuntary part-time	Reason for working less than 30 hours (in main and other jobs): cannot find a job(s) or work(s) of more hours	Binary (0 - 1)
Permanent	Type of contract: permanent job/work contract of unlimited duration	Binary (0 - 1)
Temporary	Type of contract: temporary job/work contract of limited duration	Binary (0 - 1)
Not low paid	Labour income ≥ 60% median	Binary (0 - 1)
Low paid	Labour income < 60% median	Binary (0 - 1)
Temporary and low paid		Binary (0 - 1)
Discontinuity	Ratio between nr. of years from the first working activity and nr. of effective working years	Discrete (0 -1)
Not too discontinuous careers	Discontinuity ≤ 0.3	Binary (0 - 1)
Discontinuous careers	Discontinuity > 0.3	Binary (0 - 1)
With supervisory responsibility	Supervisory responsibility includes formal responsibility for supervising a group of other employees (other than apprentices) whom they supervise directly, sometimes doing some of the work they supervise. It implies that the supervisor or foreman takes charge of the work, directs the work and sees that it is properly done.	Binary (0 - 1)
Without supervisory responsibility		Binary (0 - 1)
Working less than 48 hours per week	Main job	Binary (0 - 1)
Working more than 48 hours per week	Main job	Binary (0 - 1)

Table 7.7:   Variables on occupations: ISCO-88 two digits

Variable	Description	Type
Blue collars	Occupations from 61 to 93 according to ISCO-88 classification (unskilled/manual)	Binary (0 - 1)
White collars	Occupations from 11 to 52 according to ISCO-88 classification[37]	Binary (0 - 1)
Code	Occupation	
11	Legislators, senior officials and managers	Binary (0 - 1)
12	Corporate managers	Binary (0 - 1)
13	Managers of small enterprises	Binary (0 - 1)
21	Physical, mathematical and engineering science professionals	Binary (0 - 1)
22	Life science and health professionals	Binary (0 - 1)
23	Teaching professionals	Binary (0 - 1)
24	Other professionals	Binary (0 - 1)
31	Physical and engineering science associate professionals	Binary (0 - 1)
32	Life science and health associate professionals	Binary (0 - 1)
33	Teaching associate professionals	Binary (0 - 1)
34	Other associate professionals	Binary (0 - 1)
41	Office clerks	Binary (0 - 1)
42	Customer services clerks	Binary (0 - 1)
51	Personal and protective services workers	Binary (0 - 1)
52	Models, salespersons and demonstrators	Binary (0 - 1)
61	Skilled agricultural and fishery workers	Binary (0 - 1)
71	Extraction and building trades workers	Binary (0 - 1)
72	Metal, machinery and related trades workers	Binary (0 - 1)
73	Precision, handicraft, craft printing and related trades workers	Binary (0 - 1)
74	Other craft and related trades workers	Binary (0 - 1)
81	Stationary-plant and related operators	Binary (0 - 1)
82	Machine operators and assemblers	Binary (0 - 1)
83	Drivers and mobile plant operators	Binary (0 - 1)
91	Sales and services elementary occupations	Binary (0 - 1)
92	Agricultural, fishery and related labourers	Binary (0 - 1)
93	Labourers in mining, construction, manufacturing and transport	Binary (0 - 1)
1	Armed forces	Binary (0 - 1)

[37] Blue and white-collar workers have been defined according to Elias (1997).

Table 7.8: Variables on sectors: NACE

Code	Description	Type
Sector A+B	Agriculture; Hunting, forestry and fishing	Binary (0 - 1)
Sector C+D+E	Mining and quarrying; Manufacturing; Electricity, gas and water supply	Binary (0 - 1)
Sector F	Construction	Binary (0 - 1)
Sector G	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	Binary (0 - 1)
Sector H	Hotels and restaurants	Binary (0 - 1)
Sector I	Transport, storage and communication	Binary (0 - 1)
Sector J	Financial intermediation	Binary (0 - 1)
Sector K	Real estate, renting and business activities	Binary (0 - 1)
Sector L	Public administration and defence, compulsory social security	Binary (0 - 1)
Sector M	Education	Binary (0 - 1)
Sector N	Health and social work	Binary (0 - 1)
Sector O+P+Q	Other community, social and personal service activities; Private households with employed persons; Extra-territorial organizations and bodies	Binary (0 - 1)

7.2 Data and variables of EQLS 2007

The second European Quality of Life Survey was carried out in the 27 EU countries and Norway in 2007. It mainly focused on subjective indicators of quality of life in the domains of economic situation (e.g. perceived economic strain, deprivation level), housing and local environment (e.g. housing conditions, satisfaction with accommodation), family relations (e.g. social support), health (e.g. access to health services, quality of health and social services), quality of society (e.g. tension in society; social capital) and – more important for our purposes – on satisfaction (overall life and domain satisfaction), happiness and expectation about the future. For reasons of homogeneity with the analysis performed using EU-SILC, our sample includes people aged 18-65 in the 24 EU countries and Norway. Individuals reporting missing observations in the variables of interest have been excluded from the sample. Sample weights have been used as appropriate.

The following tables describe the variables of EQLS 2007 used in this report. Table 7.9 displays the variables used as indicators of subjective well-being. Table 7.10 and Table 7.11 illustrate the observed variables on personal and employment characteristics.

Table 7.9: Indicators of subjective well-being

Variable	Description	Type
Satisfaction	All things considered, how satisfied would you say you are with your life these days?	Categorical (1 - 10)
Sense of fulfilment	On the whole my life is close to how I would like it to be.	Categorical (1 - 6)
Happiness	Taking all things together, how happy would you say you are?	Categorical (1 - 10)

Table 7.10: Variables on personal characteristics

Variable	Description	Type
Trust		Binary (0 - 1)
Education Level 1		Binary (0 - 1)
Education Level 2		Binary (0 - 1)
Education Level 3		Binary (0 - 1)
Union		Binary (0 - 1)
Health		Binary (0 - 1)
Social interaction		Binary (0 - 1)
M age 18-29	Males aged 18 - 29	Binary (0 - 1)
M age 30-49	Males aged 30 - 49	Binary (0 - 1)
M age over 50	Males aged over 50	Binary (0 - 1)
F age 18-29	Females aged 18 - 29	Binary (0 - 1)
F age 30-49	Females aged 30 - 49	Binary (0 - 1)
F age over 50	Females aged over 50	Binary (0 - 1)
Born non-EU		Binary (0 - 1)
Area pollution		Binary (0 - 1)
Continental countries	Austria, Belgium, France, Germany, Luxembourg	Binary (0 - 1)
Ireland and United Kingdom	Ireland and United Kingdom	Binary (0 - 1)
Eastern European countries	Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia	Binary (0 - 1)
Southern European countries	Cyprus, Greece, Italy, Portugal, Spain	Binary (0 - 1)
Scandinavian countries and Netherlands	Denmark, Finland, Netherlands, Norway, Sweden	Binary (0 - 1)

Table 7.11: Variables on employment characteristics

Variable	Description	Type
Employed	Self-assessed economic status: employed	Binary (0 - 1)
Unemployed	Self-assessed economic status: unemployed	Binary (0 - 1)
People with low income	Household income in PPP equivalised by OECD-2 factors is in the lowest income quartile	Binary (0 - 1)
Professionals	Employed professional (employed doctor, lawyer, accountant, architect); General management, director or top management (managing directors, director general, other director)	Binary (0 - 1)
Service job	Employed position, not at a desk but in a service job (hospital, restaurant, police, fireman, etc.)	Binary (0 - 1)
White collars	Employed position, working mainly at a desk; Employed position, not at a desk but travelling (salesman, driver, etc.); Supervisor	Binary (0 - 1)
Middle managment	Middle management, other management (department head, junior manager, teacher, technician)	Binary (0 - 1)
Skilled manual	Skilled manual worker	Binary (0 - 1)
Unskilled manual	Unskilled manual worker, servant	Binary (0 - 1)
Precariousness (perceived job security)	How likely do you think it is that you might lose your job in the next 6 months?	Binary (0 - 1)
Stress-related risks	My work is too demanding and stressful.	Binary (0 - 1)
Health risks	I work in dangerous or unhealthy conditions.	Binary (0 - 1)
Boredom	My work is dull and boring.	Binary (0 - 1)
Intensity	I constantly work to tight deadlines.	Binary (0 - 1)
Autonomy	I have a great deal of influence in deciding how to do my work.	Binary (0 - 1)
Career opportunities	My job offers good prospects for career advancement.	Binary (0 - 1)
Adequacy of pay	I am well paid.	Binary (0 - 1)
Permanent contract	Type of contract	Binary (0 - 1)
Second job	Apart from your main work, have you also worked at an additional paid job or business or in agriculture at any time during the past four (working) weeks?	Binary (0 - 1)
Part-time	1 to 10 hours per week	Binary (0 - 1)
Long hours	Working more than 60 hours per week	Binary (0 - 1)
Passive jobs	Autonomy and intensity below the average values	Binary (0 - 1)
Active jobs	Autonomy and intensity above the average values	Binary (0 - 1)
High strain jobs	Autonomy below the average and intensity above the average	Binary (0 - 1)
Low strain jobs	Autonomy above the average and intensity below the average	Binary (0 - 1)

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