Measuring progress towards the knowledge-based society, quality of working life and gender equality

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December 2004

WELLKNOW - HPSE-CT-2002-00119

Project report no. 3

This report is written as a part of the EU funded project: *From welfare to knowfare. A European Approach to Employment and Gender Mainstreaming in the Knowledge Based Society* (see: www.bifrost.is/wellknow). The project receives funding during the period 2003-2005 from the EU's fifth framework programme as a part of the specific programme: Improving the human research potential and the socio-economic knowledge base.

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Acknowledgements

This report has profited greatly from discussions among the Wellknow group of experts, Peter Steiner (Institute for Advanced Studies, Austria), Oriol Homs (CIREM, Spain) and Sebastia Sarasa (University Pompeu Fabra, Spain).

Thanks are also due to the following Wellknow experts for their cooperation in the statistical work: Seppo Roivas, responsible for the ECHP calculations with the collaboration of Jordi Potrony; and László Neumann and Lilja Mósesdóttir, involved in the search for missing data for Hungary and Iceland.

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INTRODUCTION

This is the third report of the project *From welfare to knowfare. A European Approach to Employment and Gender Mainstreaming in the Knowledge Based Society* (Wellknow). Its purpose is to develop a system for measuring, ranking and benchmarking the progress towards the knowledge-based society (KBS) from the perspective of gender mainstreaming and focusing on the main employment and gender challenges.

The report is divided in four chapters. The first chapter presents an overview of current debate on synthetic indices, dealing with some established indices in the fields of KBS and gender equality. The second chapter develops a conceptual framework on employment and gender challenges in the transition towards the KBS, defining concepts and dimensions, clarifying purposes and selecting indicators. Four different indices are proposed:

— A knowledge-based society index for benchmarking economic, technical and social performance in the transition towards the KBS

— A gender equality index in the knowledge-based society, for measuring the extent of gender inequality in the transition towards the KBS

— A quality of working life index, for benchmarking the quality of working life in the transition towards the KBS

— A gender equality index in the quality of working life, for measuring the extent of gender inequality in the quality of working life in the transition towards the KBS

The third chapter presents the main empirical results for each index, covering the EU-15 Member States plus Iceland and Hungary. First, results for each dimension are analysed; second, results for the overall index are described; third, main trends over the last five years are presented. Finally, the report ends with a final chapter of concluding remarks.

1. SYNTHETIC INDICES: AN OVERVIEW

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Synthetic indices, or composite indicators, are a mathematical aggregation of a set of indicators that have no common meaningful unit of measurement and no obvious way of being weighted (JRC, 2002:5). Indices summarise a set of indicators and are considered useful for both monitoring complex processes and policies and facilitating communication to a wide audience. However, the value of producing such summary measures has been hotly debated in both political and academic terms. The simple "big picture" results may send misleading policy messages, even when indices are conceptually well constructed. Besides, the specifics of the way the index itself is constructed can always been questioned as they involve several stages where a judgement has to be made. As pointed out by Fahley et al (2003: 58):

> *How do we reach agreement on which indicators to use, and even more on how much weight to give to each? If a society has a relatively low level of average income but above-average life expectancy, to use perhaps the most obvious but striking example, how would we place a value on one versus the other in constructing a summary measure?*

It therefore seems clear that indices must at least be conceptually grounded and transparent in methodological terms. To gain insight into the aspects that should be taken into account when composing an index, the following sections will describe several indices in the field of KBS and gender equality, ending with a set of concluding remarks.

1.1. KBS indices

One of the most important authoritative outcomes of current concerns about measuring human progress on a global and comprehensive scale has been the 'Human development report', a compilation of data and commentary on global living conditions, which has been produced annually since 1990 by the United Nations Development Programme (UNDP). The 'Human development index' (HDI), an index that combines three dimensions (longevity, educational attainment and access to resources) is the core summary measure of these reports. However, HDI and similar indices are constructed to reflect sharp global inequalities rather than to capture the finer distinctions that arise between the more developed western countries (Fahley et al: 23-24). Yet, for these countries there is no equivalent comprehensive index, at least with a similarly

wide impact in terms of policy. More specific indices can be found in the fields of knowledge, technology and ICT, but the construction of such summary measures is far less widespread –and more questioned- with regard to social conditions and the quality of life.

1.1.1. Indices on human development

Three key dimensions are summarised in HDI:

— Longevity: the capability of living a long and healthy life. This is measured by life expectancy at birth;

— Educational attainment: capability of acquiring knowledge, communicating and participating in the life of community. This is measured by the adult literacy rate and the gross combined primary, secondary and tertiary enrolment ratio;

— Access to resources: needed for a decent standard of living; this is measured by the real GDP per capita.

The HDI is the unweighted mean of the indices of these three components. The component indices are calculated in more or less the same way from a general formula:

Index component = Actual xi value – minimum xi value/maximum xi value – minimum xi value.

The maximum and minimum values are fixed and could be considered as long-term goals. The maximum value of the HDI is one.

As the 1990s progressed, the UNDP approach to the measurement of human development was refined. Two poverty indices were introduced: the 'Human poverty index–1' (HPI–1), which measures poverty in the developing world, and the Human poverty index–2'(HPI–2), which measures poverty in the industrialised world. Both these indices focus on three kinds of deprivation – longevity, knowledge and a decent standard of living – but treat them in different ways. Furthermore, as will be explained below, a gender version of the HDI index has been constructed and complemented with other gender equality indices.

The main purpose of the HDI was to score and rank a wide number of countries according to a single development scale. In turn, these scores had significant impact on national debate and policy development in developing countries. By 1998, 100 countries, mainly in the Third World, had produced national development reports with UNDP assistance. Yet it also led to a substantial amount of discussion focusing on the political and policy relevance of the index, its validity and the reliability of the data used. The HDI is intended as a comprehensive measure of

human development and is based on three indicators. However, the HDI proves to be strongly correlated with one of these indicators, namely per capita GDP. This means that the ranking of countries hardly changes when including the other two indicators, which questions the added value of the HDI as an index.

1.1.2. Indices on knowledge, technology and ICT

A recent report from the Joint Research Centre provides a good methodological overview of some of the most relevant indices in the fields of knowledge, technology and ICT (JRC, 2002). This section is mainly based on this report.

Technology Achievement Index

The Technology Achievement Index (TAI), also developed by UNDP, is intended to measure the performance of countries in creating and diffusing technology and in building a human skills base. The index uses data from eight indicators grouped into four dimensions

- Technology creation as measured by the number of patents granted to residents per capita and by receipts of royalties and license fees from abroad per capita.
- Diffusion of recent innovations, as measured by the number of Internet hosts per capita and the share of high-and medium-technology exports in total goods exports.
- Diffusion of old innovations, as measured by telephones (mainline and cellular) per capita and electricity consumption per capita.
- Human skills, as measured by mean years of schooling in the population aged 15 and above and the gross tertiary science enrolment ratio.

The observed minimum and maximum values for each indicator are chosen as markers and the performance in terms of each indicator is expressed as a value between 0 and 1. The sub-index for each dimension is then calculated as the simple average of the indicators in that dimension. In turn, the TAI is the simple average of these four sub-indices.

Investment and performance in the knowledge-based economy

Following the Commission's decision to construct these indices in 2001, DG RTD has developed two synthetic indices "Investment in the knowledge-based economy" and "Performance in the knowledge-based economy". Both indicators are still in preparation,

although the initial results have been presented in the Key figures 2003 of science, technology and innovation (EC, 2003b).

The "investment" index aims to summarise several indicators concerning national investment in highly qualified human resources in science, technology, research and education, so as to benchmark countries' efforts to support developments in these fields. Preliminary versions of this index combine seven indicators related to the number of researchers, the number of new doctors in science and technology (annual influx), domestic expenditure on R&D, expenditure on information technologies and imports of high-tech products. All sub-indicators are measured per capita to neutralize the effect of the size of the countries. More sub-indicators are forecast to be included in the list, such as: the number of new higher-education graduates in science and technology, expenditure on education, and the imports side of the technological balance of payments.

Standardisation procedures can be briefly explained as follows:

— The mean and standard deviation are calculated for each indicator for a reference year for all EU countries;
— Country by country and year by year, the original values for each indicator are converted into z-scores by centring them on this mean and dividing them by this dispersion index. This harmonizes all the indicators, so that the distances between two countries can be compared for every indicator and for different years.
— Finally, the value of the index for each country and for each year is the weighted average of the values of all the indicators.

The "performance" index aims to benchmark countries' performances in converting knowledge into economic and technological progress, increasing both economic competitiveness and social well-being. This index combines six indicators: the number of EPO and USPTO patents, the number of publications, production of high-tech exports, employment in the high-tech production and GDP per capita. Standardisation and aggregation procedures are similar to those applied for calculating the "investment" index.

ICT indices

ICT is a field of great interest to both the public and business sector, and several indices have recently been created for ranking countries according to their progress towards the "information society". Two of these indices are briefly described as examples.

The "information and communication technologies" index aims at providing an overall picture of a country's situation regarding its development and application of information and communication technologies. Five rather simple indicators (such as the number of mobile telephones or number of Internet users) are used. The countries are then ranked according to each indicator and the index is calculated as the sum of the rankings. In this way, the index only shows the order of countries but does not measure how close or far countries actually are.

The "information society index", prepared since 1995 by two private companies, provides a single measure of a country's performance in the field of the information society, based on twenty-three indicators grouped into four dimensions:

— Computer infrastructure, measured by indicators such as PCs installed per capita and PCs per student
— Internet infrastructure, measured by indicators such as the number of internet users and amount of e-commerce
— Information infrastructure, measured by indicators such as cable subscribers and cellular phones per capita
— Social infrastructure, measured by indicators such as secondary and tertiary school enrolment and newspaper readership

1.1.3. Indices on living conditions and the quality of life

Hagerty et al (2001) recently carried out an in-depth review of twenty-two of the most-used indices for "quality of life" in a broad sense. They concluded that many of the indices are successful in that they are reliable and potentially useful for public policy. However, they recommended research to improve them further, since many fell short in some key areas: they vary greatly in coverage and definition, none of them has examined convergent validity compared with each other and they are difficult to relate to the public concepts of input, throughput and output (Hagerty et al, 2001:1).

The "index of economic well-being" (IEWB) and the "index of social progress" (ISP) are among the most reliable indices reviewed. The IEWB, developed in the late nineties, is based on the view that the economic well-being of a society relies on four main components:

— Effective per capita consumption flows;
— Net society accumulation of stocks of production resources;
— Poverty and inequality; and

— Economic security from job loss and unemployment, illness, family break-up and poverty in old age

The weight attached to each of these components of economic well-being will vary, depending on the values of different observers (Hagerty et al, 2001:24-27).

The main purposes of the ISP, developed in the early eighties, are to:

— Identify significant changes in the "adequacy of social provision" (the capacity of governments to provide for the basic social, material and other needs of people living within their boundaries) occurring throughout the world; and
— Assess national and international progress in providing more adequately for the basic social and material needs of the world's growing population.

The ISP consists of forty-six social indicators that have been subdivided into ten sub-indexes: Education, Health Status, Women Status, Defence Effort, Economics, Demographic, Geography, Political Participation, Cultural Diversity and Welfare Effort. It is claimed that all indicators are recognised as valid indicators of social development and most of them are employed regularly by researchers of socio-economic development (Hagerty et al, 2001, 51-54).

In this review, both the German and the Swedish systems of social indicators are particularly well assessed for their grounded theoretical approach and the comprehensive nature of the domains covered. It is striking, however, to note that both of them explicitly refuse to construct any global index. Whilst the German system prefers each reader to decide their own weights for combining domains, the Swedish position is that there is no obvious theoretical foundation for such constructs: "simple additive indexes without theory may not contribute to our understanding, but could obscure reality" (quoted in Hagerty et al, 2001; 71).

1.2. Gender indices

One of the first attempts to develop a single index on gender inequality is the Gender Related Development Index (GDI) as developed by the UNDP. This index, intended for global comparison, has induced a lot of discussion and has inspired the development of alternative indices. In addition to a few global indices, the section will describe indices developed to compare countries and indices to compare municipalities within countries1.

[1] This overview is based on Plantenga et al. (2003) and Plantenga & Remery (2002)

1.2.1. Global indices

GDI

As explained above, since 1990 the UNDP publishes yearly the Human Development Report. The Human Development Index (HDI) is the main indicator of development in this report and the GDI is the 'gender version' of the HDI.

The GDI is based on the same dimensions and indicators as the HDI. The aim is to rank countries according to both their absolute level of human development and their relative scores on gender equality. In fact, achievements measured by the various indicators are revalued by the extent of gender inequality with a substantial discount if the gender inequality is high. The components of the GDI are calculated as follows:

$$X_{ede}=(p_f X_f^{1-e} + p_m X_m^{1-e})^{1/1-e}.$$

P_f and p_m are the population proportions of males and females respectively and X_f and X_m are the male and female achievements. E is a value that reflects the preference for gender equality. UNDP sets E equal to two, implicating a fairly strong preference for gender equality. The GDI is the unweighted average of the three component indices, which are computed similar to the indices of the HDI. Equality between men and women assumes a GDI of 1.

GEM

In addition, the UNDP has developed another gender measure: the Gender Empowerment Measure (GEM). GEM provides a measure on gender inequality in the areas of power. The indicators that compose the GEM are the female share in parliament, the female share in professional and technical positions, the female share in administrative and management positions and the share in earned income. The components are calculated in a similar way as the components of the GDI.

Discussion

As explained above, the HDI has been criticised because its strong correlationship with per capital GDP. With regard to GDI, a similar argument is made by Dijkstra & Hanmer (2000) who show that the GDI scores are strongly positively related to per capita GDP: the GDI

increases as countries get richer. This means that when ranking countries, including gender equality in a development measure hardly changes the result, which raises again the question what added value gender equality in the index has.

One of the main points in the discussion is that the GDI and the GEM do not measure gender inequality in itself, but a combination of gender inequality and levels of achievement (e.g. Dijkstra & Hanmer, 2000; Dijkstra, 2002). Countries may have high gender equality but low absolute levels of well-being and as a result get a low score on the GDI. This is partly related to the way the different sub-indices are computed (for details, see Dijkstra, 2002). For both practical and theoretical reasons, however, an argument can be made in favour of an index which concentrates on gender (in)equality as such, that is an index which abstracts from the absolute level of education, employment, poverty etc. Whatever the absolute level of socio-economic indicators a high degree of gender inequality is an ethical problem as such and should concern policy.

Furthermore, an important part of the discussion refers to its validity: are the dimensions and variables used relevant for measuring inequality and does the index apply correct weights for the different indicators. The specific indicators and data used in composing the GDI and GEM seem to be rather limited. It can be argued that the UNDP indices ignore important variables with respect to gender equality. For example, (unpaid) care activities are not taken into account. More generally, the indicators tend to neglect intra-household inequalities.

With respect to the data, there appear to be several problems. For example, the income data which are used in both the GDI and the GEM are based on non-agricultural wages; rural wages and the informal sector are not taken into account. As a result, this indicator may be gender biased. Dijkstra & Hanmer (2000) assume that male/female wage differences are larger in the rural and informal sector. This means that the relative wage share may be overestimated. In addition, data on urban wages by gender are only available for 30 percent of the countries. For the other countries, an average ratio was used of female to male wage (75 percent). When computing the sub index of income, the next step is to multiply the relative wage by the female share in employment. UNDP uses the economically active population, which may underestimate the female share. Moreover, Dijkstra & Hanmer point out that intra household income distribution is neglected. When women have little control over the household income, the female share of earned income indicates little about the disparities between men and women.

Main critique on dimensions of the GEM, besides the objections against the income indicator, is the limited relevance of the female share in parliamentary seats. For example, this share used to

be high in former socialist countries, but the power of parliaments in these countries was limited (Dijkstra, 2002). This could be solved by adding other indicators such as female representation on the local level. However, such data are not systematically available. With respect to the construction of the overall index, differences in variance of the indicators may cause problems. When the variance of indicators differs widely, the indicator with the largest variance has the strongest weight in the overall index. In the calculation of the GDI the income indicator proves to have a substantially larger variance than the other two indicators. As a result, this indicator has the largest weight (Dijkstra, 2002). This may be avoided by standardising the data.

RSW

The discussion on GDI and GEM stimulated the development of alternative gender indices. The indicators and the way each of the indices is calculated will be described. According to Dijkstra & Hanmer (2000) a gender (in)equality index should measure the position of women compared to that of men and should not take the level of well-being into account. Therefore, they developed an alternative index: the Relative Status of Women (RSW) index. The RSW is based on the same indicators as used for the GDI and is calculated as follows:

$$RSW= 1/3(E_f/E_m+L_f/L_m+w_f*/w_m*)$$

E_f and E_m is the male and female educational attainment index, L_m and L_f is the male and female life expectancy index and w_m and w_f is the male and female return to labour time. If RSW equals 1 there is equality between men and women. If RSW < 1, women are discriminated against. The GDI and RSW values are different, though generally the direction is the same. RSW values tend to be smaller than GDI values.

The relationship between RSW and GDP per capita proves to weak. This implies that RSW provides additional information above GDP.

SIGE5

The RSW is a more direct measure of gender equality, calculated by using relative achievements. However, it is based on the indicators of the GDI only. Moreover, part of the criticisms still holds. For example, the income variable refers only to urban wages and important variables, such as referring to unpaid care activities, are not included. Therefore, Dijkstra (2002) developed an alternative index. She intended to include indicators on four factors: culture, power, access to social assets and access to economic assets. However, due to problems

with data availability not all indicators could be included. The result was a Standardised Index of Gender Equality (SIGE5), which measures gender equality as such and is based on the indicators that construct both the GDI and the GEM. The variables used are relative female/male access to education, relative female/male longevity, relative female/male labour market participation, female share in technical and professional, and administrative and management positions, and female share in parliament. In addition, in order to avoid unintended overweighing of one of the indicators, the scores are standardised to z-scores. Z-scores transform data to a new set with a mean of 0 and a standard deviation of 1. A positive (negative) z-score implies that the observed score is above (below) the sample mean. Plantenga et al. (2003), however, point out that a disadvantage of z-scores is that they cannot be interpreted as a measure of the *extent of* equality, since they only relate countries to the overall spread and not to the situation of 'total' equality. In addition, z-scores seem less appropriate for comparisons over time. Changes in z-scores of a country may be the result of a change in the mean, whereas the actual country score remains the same

1.2.2. European indices

EU gender equality index

Plantenga et al. (2003) have developed a gender equality index with the aim to identify the extent of gender (in)equality at a certain point in time and to compare the European member states. This index is based on a broad definition of gender equality given by Fraser (1997) and takes into account five dimensions that together should cover the relevant aspects of civil life, namely equal sharing of paid work, money, decision-making power, knowledge and time. Each dimension is specified in two sub-dimensions:

Dimensions	***Subdimension 1***	***Subdimension 2***
Equal sharing of paid work	*Labour force participation*	*Unemployment*
Equal sharing of money	*Pay*	*Income*
Equal sharing of decision-making power	*Political power*	*Socio-economic power*
Equal sharing of knowledge	*Participation in education and training*	*Educational attainment*
Equal sharing of unpaid time	*Caring time*	*Leisure*

The index focuses on gender (in)equality as such, that is the absence of gender gaps. According to Plantenga et al. 'Whatever the absolute level of socio-economic indicators a high degree of gender inequality is an ethical problem as such and should concern policy' (2003: 8). Positive or negative gender gaps are treated in the same way. That is: an unemployment situation in which women face an unemployment rate of 7 percent and men of 14 percent is treated in the same way as an unemployment situation in which the figures are opposite.

The authors have chosen a method of standardisation comparable to the one of the UNDP. The formula is:

Standardised value = (| actual value X_1 | - minimum value X_1) / (maximum value X_1 _ minimum value X_1)

The actual value is the national score on indicator X_1, the maximum value of X_1 is the theoretical maximum value in case of full equality (always 0, indicating the absence of gaps) and the minimum value of X_1 is a situation of inequality; the value is set at a level which is a little below the actual minimum value within the EU member states.

The standardised value on an indicator has a maximum of 1, which corresponds to a situation of equality. Scores below 1 indicate the actual distance from full equality. The composite index is calculated by adding the standardised scores and dividing the total score by the number of indicators. This implies that all indicators weigh equally. Comparisons over time are possible by applying the same values for the minimum value.

Based on conceptual reasons Plantenga et al. have included only outcome or dependent variables as indicators. When independent indicators are also included, this may result in double-counting and in overestimating differences.

An advantage of this method is that it gives, in one single figure, information on the distance of a country towards equality. This figure, however, gives no indication whether the actual inequality refers to a gender gap in the advantage or disadvantage of women. Moreover, movements in time may be difficult to evaluate because the gender gap at the expense of women can be reduced through an improvement in the situation of women or a worsening of the situation of men (Plantenga et al., 2003: 48). This implies that the index should always be supplemented with information on the backgrounds and the context.

Benchmarking equal opportunities

Another method of combining gender equality indicators in one measure is benchmarking (Plantenga & Hansen, 1999). Benchmarking means measuring the performance of country against a standard. Plantenga & Hansen use two approaches. The first one focuses on gender equality as such and aims to assess the division of paid and unpaid work between men and women. The benchmark chosen is country U (Utopia) where an equal division of paid and unpaid work has already been achieved. The other approach focuses on women's absolute

performance in the labour market. Here, the benchmark is the mean of the three European countries with the highest (most positive or least negative) score on the given indicator. Countries' scores on the different indicators are compared with the benchmarks. The method of the radar chart approach is chosen to identify best performances. This method results in a SMOP index (Surface Measure of Overall Performance). The advantage of the approach of Plantenga & Hansen is that both gender gaps *and* levels of achievement are taken into account. Moreover, they take both paid and unpaid work into account.

Indicators of the distribution of paid and unpaid work are:

- Employment rate of women compared to men's (head count)
- Employment rate of mothers with young children (age seven or less) compared to that of fathers (full-time equivalents)
- Relative concentration of women in higher positions compared to men
- Male-female wage gap
- Proportion of women earning less that 50 percent of national median income (on a yearly basis) compared to the corresponding proportion of men
- Male-female gap in unpaid time spent on caring for children and other persons

Indicators of women's position on the labour market are:

- Female employment rate (head count)
- Employment rate of mothers with children aged seven or less (full-time equivalents)
- Employment rate of women aged 50-64 (full-time equivalents)
- Proportion of women in higher positions
- Female unemployment rate
- Female youth employment rate

The SMOP's of both approaches are integrated in a single composite index by adding the values and dividing them by two.

As stated, the advantage of this method is that also the level of achievement is taken into account. A disadvantage, however, is using a benchmark based on the three best performers. Since these best performers may change, comparability of the outcomes over time are limited. With respect to the benchmark defined as the absence of gaps, the same argument as applies as mentioned at the gender equality index above: the gender gap at the expense of women can be reduced through an improvement in the situation of women or a worsening of the situation of men (Plantenga & Hansen, 1999: 377).

1.2.3. National gender equality indices

Swedish gender equality index

Statistics Sweden has developed a gender equality index in order to compare gender equality in municipalities and counties. This index also combines gaps with levels of achievement. Moreover, it takes care activities into account by including indicators on parental leave. In addition, women's political representation on the local level is included. The index is based on 13 variables for which differences between men and women are calculated. Then, the municipalities are ranked: the municipality with the smallest difference ranks number 1, the one with the largest difference ranks lowest (289, the number of municipalities). In addition, levels of achievement are taken into account for a few variables: unemployment, sickness rates and proportion of low-income earners. This means that for example, the municipality with the highest unemployment rate (among either men or women) gets the lowest ranking. The index is the average of the ranks on all variables. This implies that all variables weigh equally.

The indicators which compose the index are:

- Proportion of people with post-secondary education (difference)
- Proportion of people in gainful employment (difference)
- Proportion of job seekers (difference and level)
- Total income from gainful employment (difference)
- Low incomes (under 50% of the median wage) (level)
- Uneven gender distribution by sector (difference)
- Days of parental leave benefit, proportion of gender (difference)
- Days of temporary parental leave benefit, proportion of gender (difference)
- Sickness rates, days of sickness, (difference and level)
- Young adults, 25-34 years old, (difference)
- Municipal council, proportion of gender (difference)
- Municipal executive board, proportion of gender (difference)
- Entrepreneurs with at least 10 employees, proportion of gender (difference)

From a statistical point of view, the advantage of a within-country comparison is that the necessary data can be collected by a national statistical office. In addition, indicators can be refined in order to take into account regional differences. Regional data may not be available on an EU level, which makes it difficult to use this index for between-country comparison. In

particular comparable data such as days of parental leave benefit, availability of public day care, sickness rates etc. are scarce. Problematic of this index is that dependent as well as independent indicators are included. For example, the number of days of (temporal) parental leave benefit is included as well as the proportion of people in gainful employment. It may well be that these variables are strongly correlated. Another limitation is that the index only provides a general ranking of municipalities in relation to each other and no insight into the extent of gender (in)equality. The actual difference in (in)equality between a municipality ranking high and a municipality ranking low may be very small.

Norwegian regional gender equality index

A similar index is constructed by Statistics Norway (Kjelstad & Kristiansen, 2001). This Norwegian index is developed to measure gender equality in municipalities. As the Swedish index, it takes care activities into account by including childcare coverage (under the assumption that "a high enrolment would render the best possibilities for mothers of small children to combine childcare and paid work").

Their index is composed of nine indicators:

- Percentage children in public day care
- Female percentage in municipal council
- Percentage women with higher education
- Female/male high-education ratio
- Female/male population ratio 20-39 years (as a proxy for women-friendliness of the local labour-market; this variable is based on the assumption that young adult women move out of the community if this fails to offer suitable employment)
- Percentage women in the labour force
- Female/male labour force participation ratio
- Average gross income women
- Female/male income ratio

The six indicators on education, labour force and income were reduced to three by adding each absolute and relative scores and dividing by two. The distribution of the remaining six indicators was grouped in quartiles. The best 25 percent gets four points, the second best 25 percent three etc. Finally, the scores on the six indicators are summed and divided by six (the number of indicators). This means that all indicators get the same weight. The index has a maximum of four and a minimum of one. The results show that some indicators are more

strongly related to the index than others. The highest correlation is found for relative labour force participation of women to men (0.65). However, generally no municipality scores among the highest or among the lowest on all the included indicators. Again, this index provides only a general ranking of municipalities and no information on the extent of (in)equality.

1.2.4. Other indices

OECD index on reconciling work and family

The indices discussed above focus mainly on socio-economic equality. An index that exclusively focuses on reconciliation of work and family is the one developed by OECD. The OECD (2001) summarises different indicators of work/family policies in one composite index.

This index is composed of 5 variables:

- Child-care coverage for under-3s;
- Maternity pay entitlement (product of duration of maternity leave and the earnings replacement rate);
- Voluntary family leave in firms (average of data on sick child leave, maternity leave and parental leave);
- Flexi-time working;
- Voluntary part-time working.

All indicators are put onto a common scale (z-scores) in order to equalise the degree of variation and put them on a common scale. The indicators are weighted equally with the exception of voluntary leave in firms, which is weighted half. Reason of this last weighting is: "to acknowledge the fact that extra-statutory provision of firms is generally of considerably less importance than national provision)" (OECD, 2001: 152). The resulting index gives in one figure the state of affairs with respect to facilities to reconcile work and family life. Since z-scores are used, the same critic as described above applies.

Combining 'indices'

The indices described so far are one-dimensional and focus on gender (in)equality as such. It may be interesting to study the relation of gender equality with other concepts, for example economic growth. Indices of gender equality may also be combined with other indices. For example, Plantenga (2004) studies the interrelation between flexibilisation and equal

opportunities and combines a rating of gender equality with a rating of flexibility. In order to scale countries on gender equality, three indicators are used:

— Standardised gender gap in employment;
— The gender pay gap;
— The working time segregation index.

Three indicators of flexibility are:

— The shape of the working time distribution of all employees;
— The percentage of persons usually working in the evening;
— Persons usually working at home.

These indicators are transformed to z-scores in order to facilitate the comparison of scores on different measurement items. Per dimension, cumulative scores are calculated. Combining the two dimensions equality and flexibility gives four quadrants which can be used to group countries. A disadvantage of z-scores is that they cannot be interpreted as a measure of the extent of equality, since they only relate countries to the overall spread. In addition, z-scores are less appropriate for comparisons over time. Changes in z-scores of a country may be the result of a change in the mean, whereas the actual country score remains the same (see also Plantenga et al., 2003).

1.3. Concluding remarks

Indices summarise a set of indicators and are useful for monitoring, evaluating and assessing complex processes and policies. At the same time, indices should not be taken 'absolutely', but always be seen into perspective. That is: an index is not a goal in itself but a method for understanding the complex reality. This implies that index scores and rankings always need to be contextualised. As the overview of indices shows, there are several options when composing indices and each index seems to have advantages as well as disadvantages. The following (interrelated) aspects seem relevant when composing a synthetic index: the purpose of the index, the choice of indicators, calculation of the index and the weighting of indicators. With regard to gender equality indices, it is particularly important to clarify whether the index is meant to measure gender (in)equality as such or only gender inequality in the disadvantage of women or a combination of gender (in)equality with levels of achievement. Related to this is the definition of equality to be used.

These aspects direct the choice of dimensions and indicators which is the most important step in composing an index. The relevance of an index, its feasibility and reliability depend to a large extent on these choices (Plantenga et al., 2003: 47). A first remark is that it appears to be sensible to limit the number of dimensions and indicators, as a large collection could obscure the most salient developments (ibid: 9). Moreover, dimensions should be operationalised into a few indicators/variables in order to add stability and reliability to the index. In this respect, a distinction should be made between dependent and independent variables. Including both types of variables may result in double-counting and in overestimating differences. Therefore, an index should be based only on dependent (outcome) variables. In addition, indicators may be sensitive to economic conditions, such as unemployment (Plantenga and Hansen, 1999: 377). This should be taken into account when interpreting results. Finally, the use of comparable, harmonised data is essential for a reliable index.

The next step is calculation of the index by standardising the values of variables that are measured on different scales. There are several options. A rather simple method is to rank countries and take the number of the rank as a basis for calculation. The result is an index based on average ranking of all indicators. The advantage is that such an index is easy to calculate. A disadvantage is that there is no insight into the extent of differences between countries.

Values may also be standardised to z-scores. Z-scores transform data to a new set with a mean of 0 and a standard deviation of 1. The advantage of z-scores is that it is a comprehensible method, which is especially useful to compare variables that are measured in different units. A positive (negative) z-score implies that the observed score is above (below) the sample mean. Z-scores can, however, also not be interpreted as a measure of the *extent of* gender equality, since they only relate countries to the overall spread and not to the situation of 'total' equality. In addition, z-scores seem less appropriate for comparisons over time since changes in z-scores of a country may be the result of a change in the mean, whereas the actual country score remains the same. Z-scores seem, however, very useful for indices meant to compare performance on a variety of issues, for example KBS.

Another method is standardisation according to the benchmarking procedure, resulting in information on the distance of a country to a benchmark. From a gender perspective, the advantage is that one can focus both on gender equality as such and women's performance. In addition, one can compose different benchmarks, for example based on a selection of best performers or the total average. A disadvantage of using a benchmark based on best performance is that the comparability of the outcomes is limited, since this best performance

may change. The benchmark based on true gender equality does not have this disadvantage, as the value of this benchmark remains the same over time.

Finally, one could standardise according to the min-max procedure, resulting in a value that gives information on the distance of a country to total gender equality. This method is very similar to the benchmarking procedure focussing on gender equality as such. The only difference is the method of calculation. The advantage of both methods is that they result in an indication of the distance to total equality and may be used for comparisons over time. When using the min-max procedure, however, the chosen minimum value must remain the same. Both methods also have the same disadvantage with respect to comparisons over time: a reduction in inequality may be the result of an improvement in the position of women or a worsening in the situation of men.

Another relevant issue that arises is the weighting of indicators. Most indices weigh indicators equally; differences in weighting are often hard to justify, so equal weighing seems an appropriate strategy. In that case, the variance of variables has to be studied, since variables with a large variance have a larger weight in the index (though standardisation solves this issue to a large extent).

2. EMPLOYMENT AND GENDER CHALLENGES IN THE TRANSITION TOWARDS THE KNOWLEDGE-BASED SOCIETY: DEFINING CONCEPTS AND SELECTING INDICATORS

Maria Caprile

The purpose of this chapter is to develop a tool for monitoring progress towards the KBS from the perspective of gender mainstreaming, focusing on employment and gender challenges. A conceptual framework is therefore needed, one which clearly indicates the meanings assigned to the core concepts of:

— Knowledge-based society

— Employment challenges

— Gender challenges

This conceptual framework should be as scientifically grounded and robust as possible, with coherent underlying criteria concerning what is to be monitored, a clearly defined set of distinct areas and dimensions and a consistent approach across these dimensions, which will serve to guide and justify the selection of indicators included. The chapter is therefore divided in two parts. The first part deals with the conceptual framework, defining concepts and dimensions and clarifying purposes, whilst the second part makes an overall presentation of the indicators selected.

2.1. Conceptual framework

2.1.1. Knowledge-based society

Drawing on previous Wellknow reports (Serrano-Pascual and Mósesdóttir (eds), 2003; Sjørup (ed.), 2004) it can be said that there is a unanimous view among politicians and researchers that knowledge is becoming an increasingly important driving force for prosperity and well-being. However, there is no generally accepted view as to what knowledge means and what constitutes a KBS, and there is uncertainty as to its implication in terms of social cohesion and gender equality. The general picture is that there are different models/options of KBS and different implications in terms of social and gender inequality. As a result, the main conclusion of Serrano-Pascual and Mósesdóttir (2003:) is that there are no black and white dichotomies, but growing complexities as concerns employment and gender relations in the transition toward the

KBS. As they stress, there is room for political choices as to how much social and gender inequality is built into the KBS.

Beyond the uncertainties and divergences that exist concerning the concept of the KBS per se, there is broad consensus regarding some of its basic characteristics, both at a political level and from the perspective of social sciences:

— The large-scale diffusion and use of new information and communication technologies (ICT);
— The intensification of innovation (organisational as well as technological) within all kinds of organisation;
— The development of service economies, where service sectors not only dominate economic activity and employment but knowledge-intensive services also play a major role;
— The trend towards higher educational attainments and more intense life-long learning.

The extent to which these changes are taking place is contested, and the same holds for their implications in terms of economic growth within a framework of intensification of competition pressures in most markets. Technological innovation and the development of high-tech industries and knowledge-intensive sectors are largely seen as factors of increasing importance for competitiveness. But agreement is less clear-cut regarding organisational innovation (with intense debate not only concerning its impact but also its characteristics and the real degree of implementation), the extension and use of ICT for purposes that are not strictly professional and the increase itself in educational levels (as shown by the debate concerning "over-qualification").

However, the main issue at stake is that of social impacts, where it is possible to identify two opposing poles in academic and political debate. The "optimistic" approach claims that the KBS will lead to greater social cohesion, whilst an alternative approach stresses that there is no direct link between technological/economic and social progress. Empirical evidence shows that technological development and economic growth may coexist with high levels of unemployment, feelings of job insecurity and growing income inequality and poverty. This approach also stresses the emergence of new risks of social exclusion that arise from skill obsolescence (closely linked to people's social and cultural background) and new political approaches (such as the deregulation of labour markets and a more individualised approach to unemployment). From a gender perspective, the risk of growing social inequality among women is highlighted, as well as the emergence of new forms of gender inequality.

Taking this debate into account, four key dimensions have been identified in order to compare, in a rather simple way, the technical, economic and social performance of countries in the transition towards the KBS: ICT, competitiveness, knowledge and social inclusion. As the aim is to measure and compare facts, not political measures, the focus is on dependent/outcome dimensions and indicators.

2.1.2. Employment challenges

The main employment changes claimed to be a part of the transition towards the KBS are a shift in employment from goods production to the provision of services, an expansion of work organisations that are less hierarchical, more skill-intensive and more flexible, and a growth of occupations with a high information and knowledge content in their activity. However, the extent to which these changes have taken place and are associated with greater or fewer skills, inequalities and risks is contested. As it is whether these changes are leading to a more balanced way of combining working and non-working life.

As stated by Gospel (2003), the more optimistic approach emphasizes the development of more desirable and challenging work, improved working conditions, greater employee voice and rising productivity and well-being for workers and society. This approach, which is by no means new, has traditionally been based on different perspectives:

- From a technological perspective, it is argued that technical change leads to the elimination of less desirable jobs, a gradual upskilling of work, better working conditions and greater responsibility and involvement of more skilled workers in their working lives;
- From a stratification perspective, it is argued that, since manual work has declined and as white-collar, professional and managerial work has increased, employees in general have better jobs, are given more discretion at work and are more generously rewarded;
- From a more managerial perspective, it has been suggested that more complex organizations, in more competitive environments, require a move away from systems of management via control and the stick, to systems of management based on the carrot and commitment, with workers generally being treated better and enjoying more autonomy at work.

An alternative approach has a more negative message. It has traditionally been argued that technological change may lead to an upskilling of some jobs, but also to a process of downskilling and skill polarisation. Assessing recent developments, it is stated that an accelerated process of sector and technological change is coming about, with a marked decline in traditional low-skilled jobs, whilst low-skilled workers have also fallen behind in the process

of work skills development and in-work training carried out by more highly skilled workers. This double process accentuates the risks of instability, unemployment and social exclusion for this group, normally workers with a very low educational level and long work experience in poor content jobs. This view also suggests that intensification of competition leads to high levels of pressure at work, longer hours and rising job insecurity, together with the extension of new production methods that involve the use of outsourcing, down-sourcing and the parallel growth of atypical forms of work, far less favourable in terms of working hours, pay and security than 'standard' jobs. Finally, it is stressed that the employment growth in services is both skilled and unskilled, as is shown in the expansion of poorly skilled jobs in supermarkets, call centres, hotels and catering. In short, it is claimed that work is becoming more and more diversified and that labour markets are increasingly divided by skill, security and pay, that some jobs offer neither the minimum level (or security) of income nor the intrinsic benefits (such as self development and motivation) for being considered a decent job, and that the most vulnerable social groups are at risk of entrapment in a never-ending rotation between poor jobs and unemployment that may lead to poverty and social exclusion.

The extent to which jobs are more demanding and lead to more unbalanced ways of combining working and non-working life is also at stake. While some argue that current developments may provide workers with more satisfaction at work, more control over their working time and therefore greater opportunities for combining work and private life, others stress that work is increasingly intense and time-consuming, either because of career ambition, job insecurity or financial necessity, leading to new problems of work-related stress and more imbalances between working and non-working lives.

As can be seen, the discussion of employment challenges not only focuses on the more objective changes that are in place at work, but also on the overall impact on workers attitudes, well-being and quality of life. From this point of view, what needs to be compared is the quality of working life in the transition towards the KBS. To have actual job opportunities (i.e. no unemployment), decent pay, healthy work and a decent work/life balance are important dimensions for any approach to this issue. Drawing on current discussions, three additional dimensions seem relevant for our purpose: to what extent the work is more skilled, to what extent it is more autonomous and complex and to what extent the risks of entrapment in low paid jobs and unemployment are avoided. Again, as the aim is to measure and compare facts, not political measures, the focus is on dependent/outcome dimensions and indicators.

2.1.3. Gender challenges

Discussion on the gendered opportunities and imbalances in the transition towards the KBS show wide divergences. The most optimistic approaches state that changes in place have the potential of replacing prevailing gender inequalities as concerns working conditions and the division of paid and unpaid work with more equitable patterns and practices. Alternative approaches show empirical evidence of a more complex frame of social and gender inequalities: social inequalities among women are growing, whilst old and new gender inequalities are more and more unevenly distributed. In short, women can be both winners and losers in the transition towards the KBS.

Any approach to this issue should rely on a clear concept of what gender equality means. It may refer to a concept of formal equality, centring on equal starting points (equal opportunities), or it may indicate the achievement of equal results. Defining gender equality in terms of equal results seems far more ambitious, as the focus shifts from procedures to outcomes, asking not where people start out but where they end up (Plantenga et al, 2003: 6). As stated in Sjørup and Behning (2003:76-77), such a point of departure tries to go beyond the feminist debate of 'equality' and 'difference': if diversity between women and men should be recognised, the question will immediately be whether diversity will always be hierarchical and whether diversity will always reflect a disadvantage for women.

From this point of view, gender equality in the transition towards the KBS, as well as in the quality of working life, could be approached as the extent of equal results in the different dimensions already identified. Equal access to ICT, equal contribution to competitiveness, equal access to knowledge and equal access to social inclusion, as far as the KBS is concerned; and an equal sharing of decent pay, healthy work, skilled work, autonomous and complex work and a decent work/life balance, together with an equal sharing of the risks of entrapment and unemployment, with regard to the quality of working life. However, there are some gender-sensitive dimensions that should also be taken into account: first, the extent of equal pay and equal sharing of paid and unpaid work between women and men, which are core issues for any approach to gender equality; and second, the extent of gender segregation, as most studies show that traditional patterns of gender segregation acquire great relevance in the transition towards the KBS.

2.1.4. Clarifying purposes

Drawing on the previous sections, four indices are initially proposed:

— A knowledge-based society index for benchmarking economic, technical and social performance in the transition towards the KBS (KBS)
— A gender equality index in the knowledge-based society, for measuring the extent of gender inequality in the transition towards the KBS (GE-KBS)
— A quality of working life index, for benchmarking the quality of working life in the transition towards the KBS (QWL)
— A gender equality index in the quality of working life, for measuring the extent of gender inequality in the quality of working life in the transition towards the KBS (GE-QWL)

The table below presents an overview of these four indices in terms of purpose and dimensions.

Index	**KBS**	**GE-KBS**
Purpose	Benchmarking economic, technical and social performance in the transition towards the KBS	Measuring the extent of gender (in)equality in the transition towards the KBS
Dimensions	1. ICT	1. Equal access to ICT
	2. Competitiveness	2. Equal contribution to competitiveness
	3. Knowledge	3. Equal access to knowledge
	4. Social inclusion	4. Equal access to social inclusion
		5. Gender desegregation in the KBS
		6. Equal pay
		7. Equal sharing of caring work
Index	**QWL**	**GE-QWL**
Purpose	Benchmarking quality of working life in the transition towards the KBS	Measuring the extent of gender (in)equality in the quality of working life in the transition towards the KBS
Dimensions	1. Decent pay	1. Equal sharing of decent pay
	2. Healthy work	2. Equal sharing of healthy work
	3. Skilled work	3. Equal sharing of skilled work
	4. Autonomous and complex work	4. Equal sharing of autonomous and complex work
	5. No entrapment	5. Equal risk of entrapment
	6. No unemployment	6. Equal risk of unemployment
	7. Decent work/life balance	7. Equal sharing of decent work/life balance

2.1.5. Other conceptual issues

Normative/scientific dimension

A final conceptual remark refers to the dual nature, both normative and scientific, of synthetic indices of the type being considered here (Fahley et al. 2003: 9-11). Concepts of human well-being (such as gender equality or the quality of working life) are culturally relative and essentially normative in nature. They draw their authority from the degree of consensus and legitimacy they attain in particular cultural contexts. The point being made here is that this kind of monitoring process is, by its nature, normative, and this should be clear from the outset. The more explicit and transparent the goals, the more straightforward the monitoring of this progress will be. In this respect, it should be stressed that the immediate normative basis behind these indices derives from the policy principles officially set by the European Union as central elements of the European social model in the transition towards the knowledge-based society: 1) to become 'the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion' and 2) 'incorporating equal opportunities for women and men into all Community policies and activities'. Although framed in rather general trends, these principles are, in fact, a point of reference when it comes to individual indicators.

The scientific dimensions of social indicators come into play when normatively determined concepts of gender equality must be acted upon and measured, that is, when they have to be captured through social science methods and instruments. To be useful as monitoring tools, such statistics or empirical fieldwork must meet a series of requirements. Some of these are strictly technical and pose practical rather than intellectual or analytical problems (such as the need for harmonised, reliable and consistent series over time). In addition to such practical data requirements, the appropriate construction of social indicators poses serious analytical challenges and creates methodological demands that social sciences are only partially equipped to meet. One of these challenges concerns the avoidance of gender biases.

Gender biases

The quality of empirical indicators is very closely related to the quality of available harmonised sources and the quality of statistical classifications. Indicators have to be based on harmonised statistical sources for an accurate analysis, but the level of harmonised information varies greatly depending on the country and area of study. It is worth noting that not all harmonised

sources of information provide gender-disaggregated statistics. Besides, most statistics and classifications are conceptually male-dominated, even if they intend to be "gender neutral": gender-sensitive issues are not well covered (i.e. black and white definitions of employment and unemployment; no accurate information on the division of paid and unpaid work) or some concepts are male-oriented under the appearance of gender-neutrality (i.e. the definition of skills and knowledge-intensive occupations). A more in-depth critical discussion of this point is useful for establishing clearly what our limits and constraints are for measuring employment and gender equality challenges.

Objective vs. subjective indicators

Finally, it should also be noted that both objective and subjective indicators are useful for dealing with issues such as the quality of working life and the extent of gender (in)equality. As Gospel points out (2003), if only objective indicators are collected, valuable information is overlooked about how people evaluate the conditions of their working lives, how people feel about aspects of their work and employment. According to Fahley et al (2003:55) subjective measures have a relevant value as indicators of a gap between expectations and realities. Although subjective indicators should not substitute measures of more objective conditions, they do serve as a useful complement in assessing the quality of working life or the extent of gender (in)equality.

2.2. Selecting indicators

2.2.1. Points of departure

Thanks to the efforts made by Eurostat, the level of harmonisation and availability of statistical sources at European level has significantly improved in recent years. Moreover, since the launch of the EES in 1997, the European Commission has carried out extensive work on social indicators that might be considered, at least, as our starting point for selecting indicators. Namely:

- The so-called "structural indicators", i.e. the indicators included in the statistical appendix to the annual report from the European Commission to the European Council[2] ;
- The set of indicators specifically used for monitoring the EES from 1997 onwards, as agreed by the Employment Committee on an annual basis[3];
- The proposal of indicators related to the quality of work, as developed in the EC Communication *Employment and Social Policies: A Framework for Investing in Quality* (European Commission, 2001a);
- The indicators on social inclusion for the "open method of co-operation of social inclusion"[4];
- The set of 'Science and Technology Indicators for the European Research Area' (STI-ERA) developed by the European Commission in order to benchmark progress towards the KBS[5].

The indicators on working conditions and quality of life, developed by the European Foundation for the Improvement of Living and Working Conditions, should also be taken into account. The same holds for several reports of the European Commission's Expert Group on Gender and Employment, which can be very useful for our purpose, namely:

- *Towards an EU gender equality index* (Plantenga et al, 2003);
- *Indicators on Gender Equality in the European Employment Strategy* (Rubery et al., 2001);

[2] Definitions and data (early nineties-2002) available at Eurostat's website: http://europa.eu.int/comm/eurostat/Public/datashop/print-product/EN?catalogue=Eurostat&product=1-structur-EN&mode=download)

[3] Definitions for 2002 and data 1997-2002 available at the EES' website: http://www.europa.eu.int/comm/employment_social/employment_strategy/indic/list_from_compendium_jer2002.pdf http://www.europa.eu.int/comm/employment_social/employment_strategy/indic/compendium_jer2002.pdf)

[4] Definitions available at http://www.europa.eu.int/comm/employment_social/news/2002/jan/report_ind_en.pdf

[5] STI-ERA are also available at http://www.europa.eu.int/comm/research/era/sti_en.html

— *Indicators on gender equality in the European Employment Strategy. Country Fiche Files* (EGGE, 2001).

In the field of KBS, we might also take the following into account:

— The activities undertaken by the "Women and Science" unit of DG-Research since the "Glover Report": *Women and Scientific Employment: Mapping the European data - A directory investigating data availability in EU countries* (European Commission (2000)[6]. The most recent publications are *She figures* (European Commission, 2003) and *Women in industrial research: analysis of statistical data and good practices of companies* (Meulders et al, 2003)[7];
— Some of Eurostat's research and publications on the analysis of scientific and technological employment (human resources in science and technology, high-tech sectors) following the Canberra Manual guidelines (some findings have been recently published in *Science and Technology in Europe – Statistical Pocketbook* (Eurostat, 2002); there are also several "statistics in focus");
— Some 4th and 5th Framework research projects on developing ICT indicators or KBS indicators (see Sibis[8]), as well as some projects carried out by the European Foundation for the Improvement of Living and Working Conditions dealing with the KBS (i.e. 'Knowledge society indicators').

Finally, the main harmonised statistical sources for micro-analysis in our study are:

— The Community Labour Force Survey (LFS) for the analysis of employment, working and living conditions;
— The European Community Household Panel (ECHP) for the analysis of wage and income, as well as a wide range of other aspects related to employment, working and living conditions.

It should be noted, however, that these are European surveys and, as such, do not cover other OECD countries such as the US or Japan. The coverage of the ECHP is even more restricted since, unlike the LFS, new EU member states are not included and EU 15 member states are not

[6] Quantitative studies together with statistical data are available at the Women and Science website, (http://europa.eu.int/comm/research/science-society/women-science/women-science_en.html). Thanks to the Helsinki group, there are also statistical data available from associated countries.
[7] Other reports from this unit can be also useful (ETAN, 2000; Helsinki Group, 2002)
[8] SIBIS *(Statistical Indicators Benchmarking the Information Society)* is a project in the "Information Society Programme" of the European Commission (www.sibis-eu.org/).

equally covered. Unfortunately, the degree of harmonised sources of information for other OECD countries is far behind and the coverage of the indices must be restricted to the EU-15 member states plus Iceland and Hungary. The LIS (Luxembourg Income Study) is the only harmonised source on wages and income, but it is highly insufficient for other employment and personnel-related variables.

However, methodological guidelines and harmonised information from the OECD can be very useful for our purpose. The OECD provides harmonised information on some aspects particularly related to our project, such as R+D, KBS and ICT in the series *Employment outlook*; *Education at a glance*, *Information Technology Outlook; Science, Technology and Industry Scoreboard* (see OECD references). Moreover, the OECD is the organisation responsible for the core guidelines for comparative statistics in the field of human resources in science and technology (HRST, Canberra Manual, OECD 1995) and R+D (Frascati Manual, OECD 2002c). In the field of KBS, the OECD is also intensifying efforts to improve statistical sources and to build reliable and relevant indicators. *Science, Technology and Industry Scoreboard 2003* (OECD, 2003b) provides a comprehensive set of indicators in four areas: 1) creation and diffusion of knowledge 2) information economy 3) global integration of economic activities and 4) productivity and economic structure.

2.2.2. Indicators on knowledge-based society and gender equality

The table below presents an overview of the indicators selected for the KBS and GE-KBS indices. Each dimension is measured by two complementary indicators. Selection criteria and definitions are presented in the next sections, whilst Appendix A provides further details on definitions and sources.

KBS and GE-KBS: selected indicators

KBS		**GE-KBS**	
Dimensions	Indicators	Indicators	*Dimensions*
1. ICT	1.1 Households with access to the Internet	1.1 Gender digital gap	*1. Equal access to ICT*
	1.2 Digital literacy	1.2 Gender gap in digital literacy	
2. Competitiveness	2.1 Labour productivity	2.1 Gender gap in managerial and professional positions	*2. Equal contribution to competitiveness*
	2.2 Revealed comparative advantage of high-tech and medium high-tech industries	2.2 Gender gap in high-tech and medium-high-tech industries	
3. Knowledge	3.1 Tertiary education attainment	3.1 Gender gap in tertiary education attainment	*3. Equal access to knowledge*
	3.2 Youth upper-secondary education attainment	3.2 Gender gap in youth upper-secondary education attainment	
4. Social inclusion	4.1 Employment rate in FTE	4.1 Gender employment gap in FTE	*4. Equal access to social inclusion*
	4.2 Poverty rate	4.2 Gender gap in income vulnerability	
		5.1 Gender gap in science and engineering	*5. Gender desegregation in the KBS*
		5.2 Gender pay gap for tertiary education graduates	
		6.1 Hourly gender pay gap	*6. Equal pay*
		6.2 Monthly gender pay gap	
		7.1 Gender gap in caring time for children	*7. Equal sharing of caring work*
		7.2 Gender gap in caring time for dependent adults	

However, some initial methodological remarks are needed on how to measure gender gaps in the most appropriate way, insofar as the consistency and reliability of an index such as the GE-KBS also depends, to a large extent, on the overall coherence and accuracy of these measures.

As is well-known, the methods for measuring gender gaps can be divided into two groups, depending on what is being compared. When the aim is to compare men's and women's average scores (i.e. men's and women's earnings), it is generally agreed that the best way for measuring the gender gap is to calculate the difference between men's and women's average scores as a percentage of the men's average score:

$$\text{Gender gap} = (M-W)*100/M$$

where M=male average score; W=female average score.

Yet the situation changes when the aim is to compare male and female rates. A very usual way for measuring the gender gap is to calculate what is known as the 'absolute' gender gap: the difference, in percentage points, between the male and the female rates. However, such a measure gives no indication of the size of the gender gap in relation to the overall rate and can be misleading when used for comparisons when there are sharp differences in the overall rates (Rubery et al, 2001). For the purpose of the GE-KBS index, it is indeed a great problem, not only because rates vary greatly among countries but, above all, because this index includes very different rates: for example, the poverty rate (ranging from 10 and 20%) and the rate of young people having attained at least upper-secondary education level (40-90%).

The so-called 'standardised' gender gap intends to avoid this problem, measuring the gender gap as the difference between the male and the female rates as a percentage of the male rate (Rubery et al, 2001:23). In this way, the size of the gender gap is related to the overall rate, but other problems arise: among other things, it is not symmetric (it ranges between –infinite and 100), which implies that comparisons are difficult when the male rate is small and, more importantly, that the measurement of gender inequality changes completely depending on which of the two rates, the male or the female, is higher.

In this report we use an alternative way of measuring the gender gap, assuming that rates are, by definition, the ratio between two populations: the denominator is the reference population and the numerator is the subpopulation that shares a specific trend. For measuring the gender gap, instead of comparing the male and the female rates, we compare the extent of gender inequality in these two populations. The gender gap is thus defined as the difference, in percentage points,

between the percentage of women in the reference population and the percentage of women in the subpopulation analysed:

$$\text{Gender gap} = W_P - W_{Pj}$$

where P_m=male reference population, P_f=female reference population, $P=P_m+P_f$=reference population of both sexes;
P_{jm}=male subpopulation in j situation, P_{jf}=female subpopulation in j situation, $P_j=P_{jm}+P_{jf}$=subpopulation of both sexes in j situation;
W_P=percentage of women in population P $[P_f*100/(P_m+P_f)]$;
W_{Pj}: percentage of women in subpopulation P_j $[P_{jf}*100/(P_{jm}+P_{jf})]$.

When the male and the female rates are equal, the female proportions in these two populations are also equal and the gender gap equals 0 (the situation of total gender equality). Conversely, in the situation of maximum gender inequality (W_{Pj} equals 0 or 100), the gender gap equals W_P or W_P –100 (i.e. ranging between 50 and –50 when the reference population has an equal proportion of both sexes). Compared to the 'absolute' gender gap, this way of measuring the extent of gender (in)equality has the advantage of giving a better indication of the size of the gender gap in relation to the overall rate. Compared to the 'standardised' gender gap, its main advantage is that it allows a straightforward comparison of positive and negative gender gaps.

To sum up, GE-KBS gender gaps are measured in two different ways: 1) the difference between men's and women's average scores as a percentage of the men's average score (when the purpose is to compare men's and women's average scores); 2) the difference, in percentage points, between the percentage of women in the reference population and the percentage of women in the subpopulation analysed (when the goal is to compare male and female rates). Moreover, it will be seen that the reference population is always the overall population, where the proportion of both sexes is equal. Therefore, the gender gap is easily calculated as the difference between 50 and the percentage of women in the subpopulation analysed: a value of +/- 50 indicates minimum gender equality and a value of 0 maximum gender equality[9].

2.2.2.1. ICT – Equal access to ICT

ICT indicators can be grouped into different blocks according to theme (Sibs 2003a:15-16): 1) general access and use (such as citizens' and business readiness, basic and utilisation divides); 2)

[9] More exactly, the proportion of both sexes is 'almost equal' (the percentage of women in the overall population ranges between 49% and 51% in the countries analysed). However, such small differences can be ignored.

factors determining internet access and use (related to information security, perceived barriers, digital literacy) and 3) on-line purposes (such as e-commerce, e-work, e-science, e-government, e-health).

However, a common framework for indicators and standard definitions still needs to be developed, tested and shared among countries for a better understanding of technology diffusion and use, communication infrastructures, and services and content. This is one of the main conclusions of the recent statistical workshop[10] held within the framework of the *World Summit on the Information Society*. Although some institutions, such as the OECD (2003c:84), state that great progress is being made in a short period of time, the lack of comprehensive and internationally comparable data is a reality that currently makes it extremely difficult to select the most relevant indicators. A difficulty that increases when noting the relative lack of development of sex-disaggregated and gender-sensitive indicators in this area.

In spite of this, the preliminary work of gathering and analysing the available data[11] yields a relatively clear result. In the absence of better data on the current usage of ICTs, including purpose, frequency and intensity, the more basic indicators on citizen connectivity seem to be not only the most complete in terms of coverage but also the most relevant. In other words, the share of households with Internet access shows a strong correlation with other indicators of ICT infrastructure and the readiness and use of ICT by businesses. This finding is in line with the conclusions of the aforementioned workshop: penetration rates are a must of older and new ICTs, including Internet users, among households and individuals. Following basic connectivity, and depending on the relative stage of development of different countries, the measurements of actual usage of ICTs, including purpose, frequency and intensity, become more important.

In second place, and thanks to the SIBIS project, the need for more accurate indicators on the access and actual usage of ICT and its gender divide has been covered, at least up to a certain point. One of the most relevant indicators of this project is the "digital divide index", which measures the most basic differences in the access and use of computers and Internet of specific population groups (by gender, age, educational attainment and income) with respect to the overall population, providing highly relevant information on the social and gender digital divide (Sibis, 2003b).

[10] Joint UNECE/UNCTAD/UNESCO/ITU/OECD/Eurostat Statistical Workshop *on Monitoring the Information Society: Data, Measurement and Methods* (Geneva, 8-9 December 2003), within the framework of *the World summit on the information society* (Geneva 2003 Tunis 2005). The minutes of the meeting can be consulted in SWMIS, 2003

[11] Based on the most recent publications of the OECD on this area (OECD 2003c) and the Eurostat New Cronos database.

Finally, the SIBIS project also provides an index for "digital literacy" that measures, based on self-assessment, a set of different skills in using the Internet (such as communicating with others, obtaining and installing software, questioning the source of information on the Internet and searching for the required information using search engines). This index (with sex-disaggregated data) means that we can have a measure of the level of skills and self-confidence in the use of ICT in general, as well as the existing differences between men and women.

ICT – Equal access to ICT: selected indicators

KBS 1.1	*Households with access to the Internet*	Percentage of households who have Internet access at home. All forms of use are included.
GE-KBS 1.1	*Gender digital gap*	The gender digital gap is an index that measures the difference between the general population and the women in the following aspects: access of the Internet; use of the Internet; use of a computer.
KBS 1.2	*Digital literacy*	The digital literacy index is a measure that combines four types of skills in using the Internet: communicating with others (by e-mail and other online methods); obtaining (or downloading) and installing software on a computer; questioning the source of information on the Internet; searching for the required information using search engines. The index combines these items, based on self-assessment, into a single scale with a range from 0 (lowest) to 3 (highest).
GE-KBS 1.2	*Gender gap in digital literacy*	Difference between men's and women's average scores in digital literacy as a percentage of men's average score in digital literacy.

2.2.2.2. Competitiveness – Equal contribution to competitiveness

Labour productivity (GDP per hour worked) is commonly accepted as a basic indicator of the relative competitiveness of an economy. An initial exploration also shows a strong positive correlation with other, more specific competitiveness indicators of the KBS developed within the framework of STI-ERA, such as the share of value-added in knowledge intensive sectors.

However, this indicator does not provide information on the specialisation profile or degree of technological competitiveness of each country, something which also has great relevance in the scope of this study. According to the OECD (2003c:150), indicators of "revealed comparative advantage" allow for a good assessment of countries' strengths and weaknesses in terms of technological intensity via the composition of international trade flows. Such indicators are based on the contribution of different industries to the manufacturing trade balance and therefore focus both on exports and imports, indicating whether an industry performs relatively

better or worse than the manufacturing total and whether the manufacturing total itself is in deficit or surplus. If there were no comparative advantage or disadvantage for any industry, a country's total trade balance (surplus or deficit) would be distributed across industries according to their share in total trade. The "contribution to the trade balance" is the difference between the actual and this theoretical balance. A positive value for an industry indicates a structural surplus and a negative one a structural deficit. The rationale behind this is that an appraisal of comparative advantage must not focus solely on exports but must also gauge the role of imports, since exports may depend heavily on imports in the same industry. Therefore the second indicator selected is the contribution of high-tech and medium high-tech industries to the manufacturing trade balance.

The selection of indicators to measure the different contribution of men and women to competitiveness has been more tentative, since there does not seem to be a fully consolidated line of research. The focus adopted has been to reflect the different presence of men and women in those occupations most directly related to the economy's competitiveness. As a result, the first gender gap considered is that in managerial and professional positions (the positions with most capacity for economic and technical decisions); second, the gender gap in high-tech and medium high-tech industries (the sectors with greater technological intensity)[12].

Competitiveness – Equal contribution to competitiveness: selected indicators

KBS 2.1	*Labour productivity*	Gross Domestic Product (GDP) in Purchasing Power Standards (PPS) per hour worked relative to EU-15 (EU-15 = 100).
GE-KBS 2.1	*Gender gap in managerial and professional positions*	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the working population in managerial and professional positions. Managerial and professional positions are defined as ISCO major groups 1, 2 and 3.
KBS 2.2	*Revealed comparative advantage of high-tech and medium high-tech industries*	For high-tech and medium high-tech industries, observed trade balance minus theoretical trade balance, expressed as a percentage of manufacturing trade. The classification of high-tech and medium high-tech industries is based on the OECD's classification (itself based on the ratio of R&D expenditure to GDP or R&D intensity). High-tech industries: aircraft and spacecraft; pharmaceuticals; office, accounting and computing machinery; radio, television and communication equipment; medical, precision and optical instruments. Medium high-tech industries: electrical machinery and

[12] The use of knowledge intensive sectors was also considered initially. However, it was finally ruled out due to the link between the female employment in these sectors (otherwise highly feminised) and the female employment in managerial and professional occupations.

		apparatus, n.e.c. ; motor vehicles, trailers and semitrailers; chemicals excluding pharmaceuticals; railroad equipment and transport equipment, n.e.c., machinery and equipment, n.e.c.
GE-KBS 2.2	*Gender gap in high-tech and medium-high-tech industries*	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the working population in high-tech and medium high-tech industries.

2.2.2.3. Knowledge – Equal access to knowledge

The selection of indicators has focused on the levels of educational attainment, considering that other aspects, such as life-long learning, are more appropriate for the analysis of the quality of working life. Other possible indicators, concerning not so much formal education levels but the cognitive skills acquired, have also been ruled out due to problems of time and geographic coverage.

Two complementary indicators have been selected. Firstly, the share of population 25-64 with a tertiary level of education, which measures the total weight of the population best qualified for full participation in the KBS. Furthermore, the wide age range of 25-64 has been chosen because it shows both present and past trends, an issue that has clear relevance from the point of view of gender. Secondly, the share of population 20-24 with at least upper-secondary education level, which serves to measure the proportion of young people who reach the educational level considered as the minimum for the KBS. In this case, the choice of age range 20-24 focuses on the different levels of current and future performance. In both cases, the level of gender equality is measured by means of the corresponding gender gap.

Knowledge – Equal access to knowledge: selected indicators

KBS 3.1	*Tertiary education attainment*	Percentage of people aged 25-64 years having attained tertiary education level relative to the total population of the same age group. Tertiary education corresponds to ISCED 5 and 6.
GE-KBS 3.1	*Gender gap in tertiary education attainment*	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the population 25-64 with tertiary education level
KBS 3.2	*Youth upper-secondary education attainment*	Percentage of people aged 20-24 years having attained at least upper-secondary education level relative to the total population of the same age group. Upper-secondary education corresponds to ISCED 3 and 4.
GE-KBS 3.2	*Gender gap in youth upper-secondary education attainment*	Difference in percentage points between the percentage of women relative to the overall population (50%) and

	the percentage of women relative to the population 20-24 with at least upper-secondary education level.

2.2.2.4. Social inclusion – Equal access to social inclusion

Social exclusion is commonly considered as a multidimensional process, which not only means insufficient income but also deprivation and lack of participation in social exchanges. In spite of this, an in-depth analysis of the problems of social exclusion is outside the framework of this report, so that the selection of indicators has focused on two basic aspects: employment and poverty. The rationale behind this is that employment is considered as the basic source of income and as a core mechanism of social integration, whilst traditional income inequalities play a major role in social exclusion processes. These are also two highly relevant aspects in terms of gender. Changes in the labour market have eroded the "breadwinner" model because it is increasingly difficult to sustain a family with the earnings of a single low-skilled worker; but the scarcity of economic resources may also be a barrier for access to work for women when work and family responsibilities are *de facto* incompatible. In this context, the dependency and vulnerability of women is accentuated and family breakdown may be a direct way to poverty and social exclusion for women, especially in the case of lone mothers (Esping Andersen et al, 2001).

Employment rates, however, can be measured in different ways. The full employment targets established by the European Employment Strategy refer to employment rates measured in headcounts, i.e. without taking into account the differences in working hours. This leads to serious problems if we take into account the fact that the statistical definition of "employed person" only requires the person to have worked one hour of the previous week, an issue that also has serious connotations from the point of view of gender due to the feminisation of part-time work. If employment rates are used in headcounts, the employment gender gap is seriously underestimated in those countries where part-time work is more common (see among others, Rubery et al, 2001:23; Freyssenet 2004:111). From this point of view, the indicator selected is the employment rate in full-time equivalent. However, it should be noted that the choice between headcounts and full-time equivalent has only a small impact in the overall ranking, although it leads to significant differences in the ranking of countries with relation to the extent of the gender gap in employment[13].

In the field of poverty, the EU Structural Indicator "at-risk-of-poverty rate after social transfers" can be selected as the reference point for measuring the share of population with low income

(i.e. an equivalised net income below the 60% of the national median net income). However, this indicator involves serious problems from a gender perspective. As Atkinson et al (2004: 60) point out, it is widely recognised that its definition is far from being "gender neutral", since it is based on the assumption of an equal sharing of the household income between all its members[14]. The female risk of poverty rate calculated this way does not properly reflect the income dependency of women and their social vulnerability in the case of family breakdown. The way to avoid this problem, in the proposal of a EU gender equality index, has been to concentrate on single households only, measuring the differences in the risk of poverty of single men and women (Plantenga et al, 2003:37). Yet this indicator is not totally satisfactory either, as women's income dependency is also an obstacle for establishing a single household.

An alternative approach is to take into account only the personal (individual) income, defining income vulnerability as having a personal income below 60% of the national median net personal income. The situation of income vulnerability may have very different meanings, such as income dependency to another person, risk of income difficulties in the case of family breakdown or actual poverty, and this indicator does not allow us to distinguish between them. However, it has been selected because it gives, at least, an overall picture of the gender inequality with regard to income risk.

Social inclusion – Equal access to social inclusion: selected indicators

KBS 4.1	*Employment rate in FTE*	Percentage of persons aged 15 to 64 in full-time equivalent employment relative to the total population of the same age group The number of persons in full-time equivalent employment is calculated dividing the total hours worked by the average annual number of hours worked in full-time jobs.
GE-KBS 4.1	*Gender employment gap in FTE*	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the working population 15-64 in full-time equivalent employment.
KBS 4.2	*Poverty rate*	Percentage of persons with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income (after social transfers).
GE-KBS 4.2	*Gender gap in income vulnerability*	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the population in situation of income vulnerability.

[13] The correlation between the GE-KBS index considering gender employment gaps in FTE and the GE-KBS index considering gender employment gaps in head-counts is r=0.99.

[14] The equivalised net income is defined as the household's total net income divided by its "equivalised" size, to take account of the size and composition of the household. Therefore, each person in the same household receives the same equivalised net income.

	The population in situation of income vulnerability is defined as the population with a net personal income below the income vulnerability threshold, which is set at 60 % of the national median net personal income (after social transfers).

2.2.2.5. Gender desegregation in the KBS

The extent of gender segregation in the KBS could be approached in two different ways. One refers to horizontal segregation among highly qualified women and men. The increase in educational attainment is especially pronounced for women and, in general terms, young women have a higher educational attainment than young men. However, the construction of skills is a gender-biased process: skills are not neutral in terms of gender and men dominate those fields of study, occupations and sectors defined as the locomotives of growth and competitiveness in the KBS (see among others Meulders et al, 2003). A useful indicator for analysing the extent of horizontal segregation is the proportion of women among new graduates in science and engineering. Focusing only on new graduates allows for a better understanding of current differences between the countries analysed.

The second indicator refers to vertical segregation among highly qualified women and men. The extent of the gender pay gap among persons with tertiary education (in a number of countries far higher than the gender pay gap for lower educational levels) can be seen as a 'proxy' of the overall vertical segregation of highly qualified women. For this purpose, it seems more appropriate to use hourly wages (instead of monthly wages) in order to control the differences in working hours and take into account both part-timers and full-timers.

Gender desegregation in the KBS: selected indicators

GE-KBS 5.1	*Gender gap in science and engineering*	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the graduates in science and engineering. Science and engineering covers the following fields of study: life sciences; physical sciences; mathematics and statistics; computing; engineering and engineering trades; manufacturing and processing; architecture and building.
GE-KBS 5.2	*Gender pay gap for tertiary education graduates*	Difference between men's and women's average gross hourly earnings as a percentage of men's average gross hourly earnings, for paid employees with tertiary education level.

2.2.2.6. Equal pay

Within the framework of the EU Structural Indicators, the indicator "Gender pay gap in unadjusted form" offers a measure of the extent of differences in men's and women's hourly earnings. It is defined as the ratio of women's gross hourly earnings to men's for paid employees who work at least 15 hours. For the purpose of the GE-KBS index, it seems, however, more appropriate to include all paid employees, although this may lead to some statistical problems[15].

Nevertheless, it is generally agreed that an analysis of the gender pay gap needs to combine hourly and monthly (or annual) earnings, as pay inequalities are a combination of lower hourly earnings, fewer working hours, higher insecurity at work or more frequent breaks (see, among others, Rubery et al, 2001:95). As annual earnings are not easily calculated from the ECHP, the monthly gender pay gap has been selected as the second indicator for the dimension of equal pay.

Equal pay: selected indicators

GE-KBS 6.1 Hourly gender pay gap	Difference between men's and women's average gross hourly earnings as a percentage of men's average gross hourly earnings, for paid employees.
GE-KBS 6.2 Monthly gender pay gap	Difference between men's and women's average gross monthly earnings as a percentage of men's average gross hourly earnings, for paid employees.

2.2.2.7. Equal sharing of caring work

Ideally, indicators measuring the differences in the involvement of men and women in unpaid caring activities should refer to caring for children, elderly people and dependent others. However, data from the ECHP are scarce and their quality differs, depending on whether they refer to caring for children or for dependent adults.

Following the guidelines established for constructing the EU gender equality index, it seems clear that a comparison of the number of women and men involved in caring activities gives no indication of the extent of gender imbalances in the amount of time spent on caring (Plantenga et al, 2003:69-70). In this respect, with regard to caring for children, the best choice seems to be to compare the number of hours spent by women and men in caring for children, for women and men living in households with at least one child under 15 years. The age-category 20-49 is chosen because the weight of care-activities is largest for this age group.

[15] The measurement of hourly earnings for paid employees at work less than 15 hours at week seems to be more erratic, according to Eurostat. See methodological notes for Structural Indicators.

Things are more complicated with regard to the measurement of the amount of time spent on caring for dependent adults, because there is no way to identify the population of 'potential' caregivers from ECHP data: potential caregiver and dependent adults can live in the same household or not. However, the aim is to measure gender imbalances and not the overall amount of time: in that sense, it can be assumed that men and women have the same probability of being potential caregivers and thus that gender equality, in this field, means that women and men spend the same amount of time caring for dependent adults.

Equal sharing of caring work: selected indicators

GE-KBS 7.1	*Gender gap in caring time for children*	Difference in percentage points between the percentage of women in the overall population (50%) and the percentage of women's weekly hours spent looking after children relative to the total number of weekly hours spent looking after children by the 29-49 population with dependent children (0-14) in their household.
GE-KBS 7.2	*Gender gap in caring time for dependent adults*	Difference in percentage points between the percentage of women in the overall population (50%) and the percentage of women's weekly hours spent looking after dependent adults relative to the total number of weekly hours spent looking after dependent adults by the adult population (15+).

2.2.3. Indicators on quality of working life and gender equality

As in the previous chapter, the table below presents an overview of the indicators selected for the QWL and GE-QWL indices. Each dimension is measured by two complementary indicators. Selection criteria and definitions are presented in the next sections, whilst Appendix A provides further details on definitions and sources.

QWL and GE-QWL: selected indicators

QWL		**GE- QWL**	
Dimensions	Indicators	Indicators	*Dimensions*
1. Decent pay	1.1 Low-wage	1.1 Gender gap in low-wage	*1. Equal sharing of decent pay*
	1.2 Working poverty	1.2 Gender gap in working income vulnerability	
2. Healthy work	2.1 Serious accidents at work	2.1 Gender gap in serious accidents at work	*2. Equal sharing of healthy work*
	2.2 Satisfaction with health	2.2 Gender gap in satisfaction with health	
3. Skilled work	3.1 Professional work	3.1 Gender gap in professional work	*3. Equal sharing of skilled work*
	3.2 Life-long learning	3.2 Gender gap in life-long learning	
4. Autonomous and complex work	4.1 Work autonomy	4.1 Gender gap in work autonomy	*4. Equal sharing of autonomous and complex work*
	4.2 Work complexity	4.2 Gender gap in work complexity	
5. No entrapment	5.1 Downward mobility from the lowest pay quintile	5.1 Gender gap in downward mobility from the lowest pay quintile	*5. Equal risk of entrapment*
	5.2 Upward mobility from the lowest pay quintile	5.2 Gender gap in upward mobility from the lowest pay quintile	
6. No unemployment	6.1 Unemployment rate	6.1 Gender gap in unemployment	*6. Equal risk of unemployment*
	6.2 Long-term unemployment rate	6.2 Gender gap in long-term unemployment	
7. Decent work/life balance	7.1 Satisfaction at work	7.1 Gender gap in satisfaction at work	*7. Equal sharing of decent work/life balance*
	7.2 Compatibility between work and family-social commitments	7.2 Gender gap in compatibility between work and family-social commitments	

The conceptual approach for measuring gender gap is similar to that used for GE-KBS. GE-QWL gender gaps are measured in two different ways: 1) the difference between men's and women's average scores as a percentage of the men's average score (when the purpose is to compare men's and women's average scores); 2) the difference, in percentage points, between

the percentage of women in the reference population and the percentage of women in the subpopulation analysed (when the goal is to compare male and female rates).

The main difference between GE-KBS and GE-QWL is the choice of the reference population: as the aim of GE-QWL is to analyse gender differences in the quality of employment, the reference population, as a general rule, is the working population aged 15-64.

2.2.3.1. Decent pay – Equal sharing of decent pay

Decent pay could be measured in several ways, although the scarcity of data on earnings leads to serious restrictions. The group of experts responsible for monitoring the implementation of the European Social Charter recommended fixing the threshold for the minimum wage at 60% of the average wage. The study of Marlier and Ponthieux (2000) defines low-wage as a wage that is less than 60% of the median wage, using both monthly and hourly pay as the reference. For the purpose of the QWL index, the median seems more appropriate, as it provides greater coherence with other indicators (as the threshold for poverty and working poverty).

Here, the choice between monthly and hourly pay is even more unclear than in previous sections, since one key issue inherent in measuring "decent pay" is to ascertain to what extent the earnings constitute a living wage, enabling an independent livelihood. As it has been already explained, this is indeed an issue with serious gender implications, as women more frequently work part-time, have less job security and are more likely to interrupt their careers at different times for family reasons.

A good way of resolving this dilemma seems to combine a measurement of low-wages in terms of hourly earnings with a measurement of the extent of working poverty, one of the indicators used within the framework of the EES. The working poor are defined as working people with an equivalised income below the poverty threshold (which is set at the 60% of the national median equivalised income). The rationale seems clear: the core issue is to what extent pay enables a decent living standard.

However, the indicator on working poverty involves the same problems from the point of view of gender as other indicators on poverty, since it is based on the assumption that household income is equally distributed among all household members. An alternative approach, as in the GE-KBS index, is to take into account only the personal income and analyse gender biases in

the working population in situation of income vulnerability, i.e. the working people with a personal income below the 60% of the national median personal income.

Decent pay – Equal sharing of decent pay: selected indicators

QWL 1.1	*Low-wage*	Percentage of low-wage earners relative to paid employees. Low wage earners are paid employees earning less than 60% of the median hourly wage.
GE-QWL 1.1	*Gender gap in low-wage*	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to low-wage earners.
QWL 1.2	*Working poverty*	Percentage of working poor relative to the working population. Working poor are those individuals classified as "at work" whose household equivalised disposable income is below the poverty threshold
GE-QWL 1.2	*Gender gap in working income vulnerability*	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the working population in a situation of income vulnerability.

2.2.3.2. Healthy work – Equal sharing of healthy work

The indicators most commonly used in the field of health and work (such as occupational accidents and illnesses) are limited in scope and tend to focus on traditional male-dominated industrial work. Yet studies of job quality indicators bring out the difficulties of adequately capturing the extent and complexity of changes at work, including stress and other psychosocial health-related problems (Fahley et al, 2003: 42). The ECHP allows an alternative approach, which is to measure the overall satisfaction with health of the working population. Such an indicator cannot be seen, in the strictest sense, as a measure of health at work . Yet from the broader point of view of quality of working life it can be considered as a good indicator for complementing the most traditional measures of occupational accidents, having more gender-sensitive insight into health and work.

Healthy work – Equal sharing of healthy work: selected indicators

QWL 2.1	*Serious accidents at work*	The incidence rate of serious accidents at work is the number of accidents at work with more than 3 days' absence that occurred during the year divided by number of persons in employment in the reference population and multiplied by 100 000.
GE-QWL 2.1	*Gender gap in serious accidents at work*	Difference in percentage points between the percentage of women relative to the working population and the percentage of women's serious accidents at work relative to the total number of serious accidents at work.
QWL 2.2	*Satisfaction with health*	Average satisfaction with health for the working population. The average is calculated assigning a scale

		from 1=Very bad to 5=Very good.
GE-QWL 2.2	*Gender gap in satisfaction with health*	Difference between men's and women's average scores in satisfaction with health as a percentage of men's average score in satisfaction with health.

2.2.3.3. Skilled work – Equal sharing of skilled work

Even if skills are a key issue for any empirical approach to changes in the field of work and the quality of working life, there is no commonly agreed statistical definition of what skilled work is. Partly because any statistical definition has to rely on the existing occupational classifications (namely ISCO-88), where the distinction between high, medium and low skilled jobs is far from clear for most occupations. As already explained, this is an issue that also has relevant gender implications, since the very definition of skills is a social and gendered process, only partially based on the actual cognitive and technical requirements and job content of occupations (Fagan & Burchell, 2002:31-32).

In absence of high-quality data on skills, the first indicator selected is the share of professionals among the working population, as in this case there seems to be no doubt that professionals do carry out highly-skilled work compared to other workers and, at the same time, gender biases are avoided. Secondly, it has also been considered appropriate to select, as a second indicator, one related to lifelong learning among the working population. The rationale behind this is that, independently of educational attainments and the level of skills required at work, being involved in lifelong learning can be considered as a 'proxy' for the upskilling of job content (or, alternatively, as a proxy for raising expectations with regard to the upskilling of job content). As statistical data on lifelong learning are scarce and unrefined, it is not possible to identify differences in the content or intensity of lifelong learning accurately. The most reliable indicator is therefore the share of lifelong learners among the working population, where lifelong learners are defined as those workers having been involved in any kind of education or training in the last four weeks. In both cases, the level of gender equality is measured by means of the corresponding gender gap.

Skilled work – Equal sharing of skilled work: selected indicators

QWL 3.1	*Professional work*	Percentage of professionals relative to the working population of the same age group. Professionals are those classified in the ISCO-88 major group 2 (professionals)
GE-QWL 3.1	*Gender gap in professional work*	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to professionals.

QWL 3.2 Life-long learning	Percentage of life-long learners aged 25-64 relative to the working population of the same age group. Life-long learners are defined as persons in employment who answered that they had received education or training in the four weeks preceding the survey.
GE-QWL 3.2 Gender gap in life-long learning	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to life-long learners

2.2.3.4. Autonomous and complex work – Equal sharing of autonomous and complex work

Task discretion concerns the extent to which methods and pace of work are set by technology, the employer, the employee or by group norms. However, as stressed by Gospel (2003), the degree of task discretion and related feelings of autonomy at work are a subjective dimension of work organisation. They are a measurement of the extent to which workers feel they have some degree of control over their work. They may therefore be measured by perceived influence over such aspects as the choice of task, effort, method or some time-related issues such as breaks. Something similar could also be said concerning task complexity, since it is inherently related to the extent to which workers feel their tasks are monotonous or complex and that their work entails learning new things or solving new problems.

The best data on these subjective dimensions are those provided by the surveys on working conditions carried out by the European Foundation for the Improvement of Living and Working Conditions. Analysing the last of this surveys, Fagan & Burchell (2003:47) show that most women and men feel that they have some control or autonomy over their methods and speed of work, and to a lesser extent over the order in which they undertake tasks or take their breaks. Taking these four items into account, they build a single scale of work autonomy, defining 'low' autonomy as autonomy on one or none of the four items, 'high' autonomy as autonomy on all four items and 'some' autonomy as any intermediate situation. Their analysis shows that taking method, speed, order of work and breaks together, men have clearly higher levels of autonomy. Furthermore, gender differences do not seem to be related to part-time work, as the levels of autonomy are very similar for full-timers and part-timers. Neither are they only a simple consequence of vertical segregation: autonomy is highest for managerial and professional jobs, but women in these positions have by far less autonomy than their male colleagues. In this respect, the scale of work autonomy seems a good indicator for a gender sensitive approach to autonomy at work.

With regard to job complexity and skills requirements, Fagan and Burchell (2002:33-35) point out that there are few gender differences in some basic issues, such as whether or not jobs involve, to some extent, problem-solving, learning skills, complex tasks, teamwork and planning responsibilities, although men and women are largely segregated into different types of jobs. As expected, task complexity is far higher for managerial and professional jobs whilst part-time jobs, in general, are more monotonous. However, an analysis of the most demanding job requirements by occupation and gender show more consistent gender patterns. The job requirements analysed here are 1) problem-solving 'and' learning, 2) 'only' complex tasks, 3) teamwork 'and' task rotation and 4) 'extensive' planning responsibilities. Within each broad occupational status group, the general picture is that these types of requirements are less prevalent in the jobs that women are employed in than in men's jobs. Moreover, for all occupational groups except professionals, one of the main gender gaps is that women are less likely to report that they have jobs that solely involve complex tasks, and this gender gap is particularly acute for both managers and blue-collar workers. Taking this analysis into account, the second indicator selected is the extent of complex tasks at work.

Autonomous and complex work – Equal sharing of autonomous and complex work: selected indicators

QWL 4.1 Work autonomy	The work autonomy scale measures autonomy at work in four items: work method, speed of work, task order and breaks. Low autonomy refers to autonomy on one or none of the four items and high autonomy refers to autonomy on all four items. The average score is calculated assigning the following scale: 0=Low, 1=Some and 2=High.
GE-QWL 4.1 Gender gap in work autonomy	Difference between men's and women's average scores in work autonomy as a percentage of men's average score in work autonomy.
QWL 4.2 Work complexity	The average score of work complexity is calculated assigning the following scale: 0=Monotonous tasks, no complex tasks; 1=Both monotonous and complex tasks; 1=Neither monotonous and complex tasks; 2=Complex tasks, no monotonous tasks
GE-QWL 4.2 Gender gap in work complexity	Difference between men's and women's average scores in work complexity as a percentage of men's average score in work complexity.

2.2.3.5. No entrapment – Equal risk of entrapment

The panel nature of the ECHP enables an analysis of dynamics over time in key dimensions, such as pay and labour force participation. Dynamic indicators are particularly useful for measuring entrapment, which is an inherently dynamic dimension. It refers to the lack of real

opportunities for workers in low paid and low skilled jobs to improve their working conditions, and can been estimated by the extent of downward and upward mobility from these positions over a period of time. In this respect, two indicators have been selected, the mobility from employment in the lowest pay quintile to unemployment or inactivity (downward mobility) and the mobility from employment in the lowest pay quintile to employment in higher pay quintiles (upward mobility).

Pay quintiles are defined according to monthly earnings, considering that they allow a better approach of decent living standards than hourly earnings. In both cases, the age group is 15-54 in order to avoid gender biases due to women's early age of retirement. With regard to the period of time, it is one year for the first indicator, bearing in mind that workers in a precarious situation might fluctuate between employment, unemployment and inactivity for short periods of time. However, the reference period is three years for the second indicator because upward mobility usually takes more time to consolidate.

Finally, the calculation of the corresponding gender gaps, in this case, needs further explanation. Mobility indicators are rates whose denominator is the working population in the lowest pay quintile, and this is the population to be taken as the reference population for calculating gender gaps. Indeed, the working population in the lowest pay quintile already shows strong gender imbalances, as women are hugely over-represented with respect to their share in the working population. If we took the proportion of women in the working population as the reference for calculating the gender gaps in mobility, the result would be a serious under-estimation of the extent of gender inequalities with regard mobility.

No entrapment – Equal risk of entrapment: selected indicators

QWL 5.1	*Downward mobility from the lowest pay quintile*	Number of employed people in the lowest pay quintile in year t who are unemployed or inactive in the year t+1, as a percentage of the total number of employed people in the lowest pay quintile in year t. For paid employees aged 15-54.
GE-QWL 5.1	*Gender gap in downward mobility from the lowest pay quintile*	Difference in percentage points between the percentage of women relative to the employed people in the lowest pay quintile in year t and the percentage of women relative to those employed people in the lowest pay quintile in year t who are unemployed or inactive in the year t+1.
QWL 5.2	*Upward mobility from the lowest pay quintile*	Number of employed people in the lowest pay quintile in year t who are employed in higher pay quintiles in the year t+3, as a percentage of the total number of employed people in the lowest pay quintile in year t. For paid employees aged 15-54.
GE-QWL 5.2	*Gender gap in upward mobility from the lowest pay quintile*	Difference in percentage points between the percentage of women relative to the employed people in the lowest

	pay quintile in year t and the percentage of women relative to those employed people in the lowest pay quintile in year t who are employed in higher pay quintiles in the year t+3.

2.2.3.6. No unemployment – Equal risk of unemployment

Indicators have long been established in the field of unemployment. The unemployment rate and long-term unemployment rate, both included in the EU Structural Indicators, are the indicators selected. In both cases, the level of gender inequality is calculated by means of the corresponding gender gap.

No unemployment – Equal risk of unemployment: selected indicators

QWL 6.1	*Unemployment rate*	Number of people unemployed as a percentage of the labour force.
GE-QWL 6.1	*Gender gap in unemployment*	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the unemployed.
QWL 6.2	*Long-term unemployment rate*	Number of long-term unemployed people as a percentage of the labour force. Long-term unemployed are unemployed persons for 12 months and more.
GE-QWL 6.2	*Gender gap in long-term unemployment*	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the long-term unemployed.

2.2.3.7. Decent work/life balance – Equal sharing of decent work/life balance

Job satisfaction/dissatisfaction is one of the classic subjective concepts in the area of workers' attitudes and well-being and, over the years, there have been thousands of studies and an on-going debate as to the validity of the notion per se. Operationally, job satisfaction is usually a self-reported measure of either a single overall feeling or set of feelings (e.g. satisfaction with job content, pay and other working conditions). Whilst some studies suggest that a single global measure can be just as valid as one that takes a number of facets and then combines them (Gospel, 2002:33), other studies report that simple survey questions about job satisfaction obtain rather superficial responses, and that more probing questions reveal higher levels of dissatisfaction. From this perspective, it is especially stressed that typically higher levels of job satisfaction among part-timers are only due to higher levels of satisfaction with working hours, whilst part-timers are usually less satisfied than full-timers with other working conditions, such

as pay and promotion opportunities (Fagan and Burchell, 2002:77). However, different surveys on overall job satisfaction show consistency in workers' attitudes over time and reveal a significant minority of workers expressing strong job dissatisfaction (Gospel, 2002: 33-34). Available data on job satisfaction (from both the ECHP and the Working Conditions survey) show the same pattern, with significant differences between countries. It therefore seems more appropriate to include an indicator on overall job satisfaction (the only one available) than to completely exclude this subjective dimension from the analysis.

More direct insights into the overall work/life balance are relatively recent and scarce[16]. However, the Working Conditions surveys of the European Foundation provide some information (based on self-assessment) on the extent of compatibility between working hours and family and social commitments outside work. This indicator seems to be the only reliable indicator with a sex breakdown and good geographical coverage that is available at this moment.

Decent work/life balance – Equal sharing of decent work/life balance: selected indicators

QWL 7.1	*Satisfaction at job*	Satisfaction at job of working population. The average score is calculated assigning a scale from 1=Not satisfied to 6=Fully satisfied
GE-QWL 7.1	*Gender gap in satisfaction at job*	Difference between men's and women's average scores in satisfaction at job as a percentage of men's average score in satisfaction at job.
QWL 7.2	*Compatibility between work and family-social commitments*	Compatibility between working hours and family and social commitments outside work. The average score is calculated assigning a scale from 0=Not at all well to 3=Very well
GE-QWL 7.2	*Gender gap in compatibility between work and family-social commitments*	Difference between men's and women's average scores in compatibility between work and family-social commitments as a percentage of men's average score in compatibility between work and family-social commitments

2.2.4. Final remarks

Appendix A provides further details on definitions and sources of the selected indicators, whilst Appendix B presents the table of correlations. The methodological approach here is that, from an index point of view, indicators should be as independent as possible, otherwise some elements are double counted and differences between countries are over or under-estimated. As

[16] Unfortunately, data from the specific module on this issue prepared for the second round of the European Social Survey are not available yet. The same holds for the quality of life survey recently carried out by the European Foundation for the Improvement of Living and Working Conditions.

can be seen in Appendix B, this rule largely applies. However, in a number of cases, indicators within each dimension are not independent, a fact that needs further explanation:

— The ICT indicators of the KBS index are highly correlated (r=0.8). This correlation, however, is seen as an evidence of the reliability of the overall ICT dimension, insofar as they come from different sources (Community Survey on ICT usage and Sibis surveys) and refer to quite different issues (percentage of households with access to Internet and digital literacy of the population). An additional sign of the overall reliability of the ICT dimension is the fact that it proves to be highly correlated (r=0.9) with the "information society index", which is, as explained in chapter 1, a synthetic index on country's performance in the field of the information society based on twenty-three indicators. The same approach holds for the high correlation between the ICT indicators of the GE-KBS index (r=0.9).

— There is also a high correlation between the indicators on the dimension of equal pay of the GE-KBS index (r=0.8). However, there are no alternative indicators for measuring this dimension and from a conceptual point of view, it seems more accurate to take into account both hourly and monthly gender pay gaps than to just select one of them. The same holds for the indicators on unemployment and long-term unemployment.

— Finally, the indicators on decent work/life balance of the QWL index are also correlated (r=0.9). Again, this is seen as an evidence of the overall reliability of this dimension, as they come from very different sources (ECHP and Working Conditions survey) and refer to different issues (general satisfaction at job and assessment of the degree of compatibility between working hours and family and social commitments). Furthermore, the decision to include both indicators is reinforced by the fact that their gender gaps are largely independent.

3. MEASURING PROGRESS TOWARDS THE KNOWLEDGE-BASED SOCIETY, QUALITY OF WORKING LIFE AND GENDER EQUALITY

Maria Caprile and Jordi Potrony

This chapter presents the main empirical results obtained on measuring progress towards the knowledge-based society, quality of working life and gender equality, covering the EU-15 Members States plus Iceland and Hungary. The first part presents the methodology used for standardising indicators and calculating the indices. Next sections deal with each of the four indices separately: first, the results for each dimension are analysed; second, the results for the overall index are described; third, the main trends over the last five years are presented. Finally, the chapter ends with some further insights on the overall results obtained.

3.1. Methodological remarks

As already explained, all methods of calculating a synthetic index must transform indicators that are measured in different units into the same unit. This process is called standardisation. Several statistical methods of standardisation are available and the choice between them depends, to a large extent, on the purpose of the index.

Both KBS and QWL indices are meant to compare the countries' performance on a variety of issues, without establishing any "absolute" goal. For this purpose, z-scores seem to be the best option of standardisation. As is well-known, z-scores transform data to a new set with a mean of 0 and a standard deviation of 1. A z-score indicates how far and in what direction a case deviates from the mean of the variable, expressed in units of its distribution's standard deviation: a positive (negative) z-score implies that the observed score is above (below) the sample mean. KBS and QWL indicators have been therefore standardised as z-scores, according to the following formula:

$$y_{ji} = (x_{ji} - x_{jmean}) / \sigma_j$$

where x_{ji} is the value of indicator j for country i, x_{jmean} is the sample mean of indicator j and σ_j is the standard deviation of indicator j. Once the indicators are standardised, the next step is to calculate the overall score for each dimension, adding the z-scores for each indicator and dividing by the number of indicators; finally, the same procedure is used for calculating the

overall score of the index (in other words, all indicators weight equally). One of the disadvantages of z-scores is that they do not allow a straightforward comparison over time, since changes in z-scores of a country may be the result of a change in the mean, whereas the actual country score remains the same. For comparisons over time, z-scores must be recalculated, taking the mean and the standard deviation of one specific year as the basis. Here, 1997 has been chosen as the base year for comparisons over the period 1997-2002. Finally, for calculating percentage change, z-scores must be recalculated again as the ratio between the actual value of indicator j for country i at a time t divided by the standard deviation of indicator j for the base year. This operation purely re-scales the scores along the same axis, allowing to calculate percentage changes.

Things are different for the GE-KBS and the GE-QWL indices, as their purpose is to measure the extent of gender (in)equality. In this case, it is possible to establish full equality as the "absolute" goal, being the min-max procedure the best option for standardisation. GE-KBS and GE-QWL indicators have been therefore standardised according to the following formula:

$$y_{ji} = (\,|\text{actual value } x_{ji}| - \text{minimum value } x_j) \,/\, (\text{maximum value } x_j - \text{minimum value } x_j)$$

The actual value x_{ji} is the value of indicator j for country i; the maximum value of x_j is the theoretical value of indicator j in case of full equality (always 0, indicating the absence of gaps) and the minimum value of x_j is the value of indicator j in case of maximum inequality. For allowing inter-countries and over time comparisons, this minimum value is set at a level which is a little below the actual minimum value of the countries analysed over the period 1997-2002. The standardised value of an indicator has a maximum of 1, which corresponds to a situation of equality, whilst scores below 1 indicate the actual distance from full equality. As already explained, this procedure of standardisation gives no indication whether the actual inequality refers to a gender gap in the advantage or disadvantage of women: the rationale behind is that gender gaps should always be considered as a problem. Once the indicators are standardised, the next step is to calculate the overall score for each dimension, adding the standardised scores for each indicator and dividing by the number of indicators; finally, the same procedure is used for calculating the overall score of the index (again, all indicators weight equally).

Finally, it should be noted that for several countries harmonised data are missing for some indicators. In a few cases, national data from Iceland and Hungary have been used, although they might be not fully comparable. However, the general rule, following the criteria established in other indices (see Plantenga et al, 2003) has been to use the average when there is a missing value. Evidently, this may result in an over- or underestimation of the real country score.

However, this choice seems better than simply excluding the indicator concerned, as in this case it is assumed that the standardised value of the missing indicator is comparable to the standardised values of the other indicators.

3.2. KBS index

3.2.1. ICT

The table below shows the country ranking on the ICT dimension. The share of households with access to the Internet varies greatly, from 68% in Iceland to 5% in Hungary. The north/south divide seems quite relevant, with shares well above 50% in countries such as the Netherlands, Sweden and Denmark whilst they are below 30% in the Mediterranean countries. With respect to digital literacy, differences are also quite extensive: the highest score is found in Denmark (1.4) and the lowest again in Hungary (0.3). The ranking of the overall scores shows that Iceland, Denmark and the Netherlands score highest, followed by Sweden, United Kingdom, Finland, Ireland, Germany and Luxembourg. Scores are negative in the remaining countries (a fact that indicates that they are below the mean), being particularly low in Greece, Portugal and Hungary.

Country ranking based on the dimension of ICT

	Values		Standardised scores (z-scores)		Overall score
	KBS 1.1 (2002) Households with access to the Internet	KBS 1.2 (2002) Digital literacy	KBS 1.1 Households with access to the Internet	KBS 1.2 Digital literacy	
			Mean=39,8 std=18,4	Mean=0,9 std=0,3	
Iceland	68,4	1,3	1,56	1,41	1,48
Denmark	55,6	1,4	0,86	1,66	1,26
Netherlands	65,5	1,1	1,40	0,73	1,06
Sweden	64,2	1,0	1,33	0,42	0,87
United Kingdom	49,7	1,2	0,54	1,04	0,79
Finland	44,3	1,1	0,25	0,73	0,49
Ireland	47,9	1,0	0,44	0,42	0,43
Germany	43,3	0,9	0,19	0,11	0,15
Luxembourg	39,9	0,9	0,01	0,11	0,06
Austria	30,9	1,0	-0,48	0,42	-0,03
Belgium	40,9	0,7	0,06	-0,52	-0,23
Spain	29,5	0,7	-0,56	-0,52	-0,54
Italy	27,3	0,7	-0,68	-0,52	-0,60
France	35,5	0,5	-0,23	-1,14	-0,69
Greece	12,2	0,5	-1,50	-1,14	-1,32
Portugal	15,9	0,4	-1,30	-1,45	-1,37
Hungary	5,4	0,3	-1,87	-1,76	-1,82

KBS 1.1 - Source: Eurostat, Structural indicators; Hungary: Hungarian Household Budget Survey (HBS); exception to the reference year: Iceland (2001)
KBS 1.2 - Source: SIBIS, 2003c; own estimated value for Iceland

3.2.2. Competitiveness

The table below shows the country ranking of the competitiveness dimension. The results should be read with caution in the case of Hungary, as harmonised data on labour productivity are missing (the average is inserted instead, according to the established methodology on the imputation of missing data). The same holds for Luxembourg, regarding to the second indicator. From the table it appears that inter-country differences with regard to labour productivity are large: labour productivity is below 75% of the EU-15 average in Portugal and Greece, whilst it is above 120% in Belgium and France (and Luxembourg too, although the meaningfulness of labour productivity figures for very small countries remains unclear). The indicator on revealed comparative advantage shows that few countries are specialised in high and medium-high technology: Ireland, Germany and the United Kingdom (where the trade surplus in these industries is around 4% of the total manufacturing trade) and, to a lesser extent, France (2.5%), whereas Hungary shows a balanced situation (slightly over 0). The indicator has a negative value in the rest of the countries, indicating that they have a comparative advantage in medium-low and low technology industries. With regard to the overall ranking, Ireland and France score highest, whereas scores are negative for Spain, Finland, Portugal, Greece and Iceland.

Country ranking based on the dimension of competitiveness

	Values		Standardised scores (z-scores)		Overall score
	KBS 2.1 (2002)	KBS 2.2 (2001)	KBS 2.1	KBS 2.2	
	Labour productivity	Revealed comparative advantage of high-tech and medium high-tech industries	Labour productivity	Revealed comparative advantage of high-tech and medium high-tech industries	
			Mean=99,7 std=17,9	Mean=-2,6 std=5,9	
Ireland	117,7	4,4	1,00	1,20	1,10
France	121,5	2,5	1,22	0,88	1,05
Luxembourg	127,5	*-2,6*	1,55	0,00	0,77
Germany	104,1	4,4	0,24	1,20	0,72
Belgium	120,6	-1,5	1,16	0,19	0,68
Netherlands	113,8	-2,9	0,79	-0,04	0,37
United Kingdom	88,3	4,0	-0,64	1,13	0,25
Hungary	*99,7*	0,1	0,00	0,47	0,23
Austria	101,8	-1,1	0,12	0,26	0,19
Denmark	102,4	-1,3	0,15	0,23	0,19
Italy	103,9	-3,8	0,23	-0,20	0,02

Sweden	96,1	-1,3	-0,20	0,23	0,01
Spain	83,6	-2,6	-0,90	0,01	-0,45
Finland	94,1	-7,1	-0,31	-0,76	-0,54
Portugal	60,0	-6,4	-2,22	-0,64	-1,43
Greece	72,9	-10,8	-1,50	-1,39	-1,44
Iceland	87,4	-18,9	-0,69	-2,77	-1,73

Note: Numbers in italic refer to the average
KBS 2.1 - Source: Eurostat, Structural indicators
KBS 2.2 - Source: OECD, 2003c

3.2.3. Knowledge

The table below shows the country ranking based on the knowledge dimension. The share of population with tertiary level of education ranges from less than 10% in Portugal to more than 30% in Finland, with percentages around 25% for most countries. Differences are also very marked when youth educational attainment is analysed: once again, Portugal has the lowest share of young people with at least upper-secondary education (44%), whilst in Austria, Hungary, Finland and Sweden shares are above 85%. The overall ranking shows that Finland has, by far, the highest score, followed by Sweden, Denmark, Belgium, the United Kingdom and Ireland. At the other extreme, scores are negative and particularly low for Iceland, Italy and, especially, Portugal.

Country ranking based on the dimension of knowledge

	Values		Standardised scores (z-scores)		Overall score
	KBS 3.1 (2002) Tertiary education attainment	KBS 3.2 (2002) Youth upper-secondary education attainment	KBS 3.1 Tertiary education attainment	KBS 3.2 Youth upper-secondary education attainment	
			Mean=22,2 std=6,7	Mean=74,9 std=12,3	
Finland	32,4	86,2	1,52	0,91	1,21
Sweden	26,4	86,7	0,61	0,96	0,79
Denmark	29,0	79,6	1,01	0,38	0,70
Belgium	27,9	81,1	0,85	0,50	0,67
United Kingdom	29,4	77,2	1,06	0,19	0,62
Ireland	25,4	83,9	0,47	0,73	0,60
France	23,5	81,7	0,19	0,55	0,37
Netherlands	24,9	73,3	0,39	-0,13	0,13
Austria	16,9	85,0	-0,80	0,82	0,01
Germany	22,3	73,3	0,01	-0,13	-0,06
Greece	17,6	81,3	-0,69	0,52	-0,09
Hungary	14,0	85,8	-1,22	0,88	-0,17
Spain	24,4	64,9	0,32	-0,81	-0,25
Luxembourg	18,6	69,8	-0,54	-0,42	-0,48
Iceland	25,6	51,1	0,50	-1,93	-0,72
Italy	10,4	69,1	-1,77	-0,47	-1,12

Portugal	9,4	43,7	-1,92	-2,54	-2,23

KBS 3.1 - Source: Eurostat, LFS; calculations by Jordi Potrony
KBS 3.2 - Source: Eurostat, Structural indicators

3.2.4. Social inclusion

The table below shows the country ranking on social inclusion. Again, results should be taken with caution for Iceland, as data are missing for one indicator. The table shows that inter-country differences with regard to employment rates in FTE are quite relevant: from less than 55% in Hungary and Italy to 70% or more in Denmark and Iceland. Differences are also extensive when poverty rates are analysed. The highest poverty rates are found in Ireland, Greece, Portugal, Italy and Spain (between 21% and 19%) and the lowest in Denmark, Finland, Germany, the Netherlands, Hungary and Sweden (11%-10%). The overall ranking in social inclusion shows that Scandinavian countries score highest, whereas scores are negative in a great number of countries, being particularly low in Ireland, Spain, Greece and Italy.

Country ranking based on the dimension of social inclusion

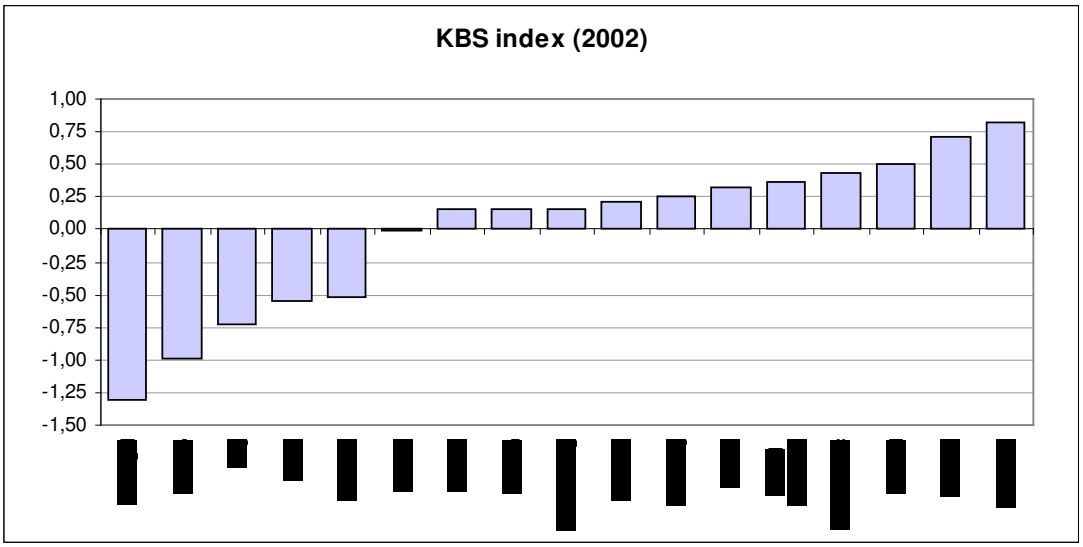
	Values		Standardised scores (z-scores)		Overall score
	KBS 4.1 (2002) Employment rate in FTE	KBS 4.2 (2001) Poverty rate	KBS 4.1 Employment rate in FTE	KBS 4.2 Poverty rate	
			Mean=61,1	Mean=14,5	
			std=6,0	std=4,0	
Denmark	69,7	11,0	1,43	0,88	1,15
Sweden	68,1	10,0	1,17	1,13	1,15
Iceland	72,3	*14,5*	1,86	0,00	0,93
Finland	65,8	11,0	0,78	0,88	0,83
Austria	63,0	12,0	0,32	0,63	0,47
Luxembourg	60,9	12,0	-0,03	0,63	0,30
Germany	58,1	11,0	-0,49	0,88	0,19
Netherlands	58,1	11,0	-0,49	0,88	0,19
France	60,4	15,0	-0,11	-0,13	-0,12
Portugal	67,1	20,0	1,00	-1,38	-0,19
United Kingdom	62,1	17,0	0,17	-0,63	-0,23
Belgium	55,4	13,0	-0,94	0,38	-0,28
Hungary	50,2	10,0	-1,80	1,13	-0,33
Ireland	60,7	21,0	-0,06	-1,63	-0,85
Spain	56,2	19,0	-0,80	-1,13	-0,97
Greece	56,3	20,0	-0,79	-1,38	-1,08
Italy	53,6	19,0	-1,23	-1,13	-1,18

Note: Numbers in italic refer to the average
KBS 4.1 - Source: EC, 2003b and Eurostat, LFS; calculations by Jordi Potrony
KBS 4.2 - Source: Eurostat, Structural indicators

3.2.5. The overall index

The graph below presents the overall scores on KBS, which show a clear divide between Scandinavian and Mediterranean countries. Denmark and Sweden, followed a certain distance by Finland and the Netherlands, score highest. Closing the ranking, Portugal is found in the worst position, followed by Greece, Italy, Spain and Hungary.

However, as already explained, scores differ substantially across the different dimensions. Denmark, Sweden and Finland have high scores in all dimensions, but their scores are somewhat lower in competitiveness. Among the countries with intermediate scores, the Netherlands, Germany, Austria and Luxembourg have quite a balanced situation, whilst the United Kingdom and Ireland score relatively worse in social inclusion than in other dimensions, and the same holds for France and Belgium with regard to ICT. Turning to the Mediterranean countries, Spain and Italy have a rather unbalanced situation, with particularly low scores in social inclusion; Greece scores among the lowest in all dimensions except knowledge, and the same appears to be the case of Portugal with respect to social inclusion. Finally, the overall scores of Iceland and Hungary are limited because they score particularly low in one dimension, competitiveness and ICT, respectively.



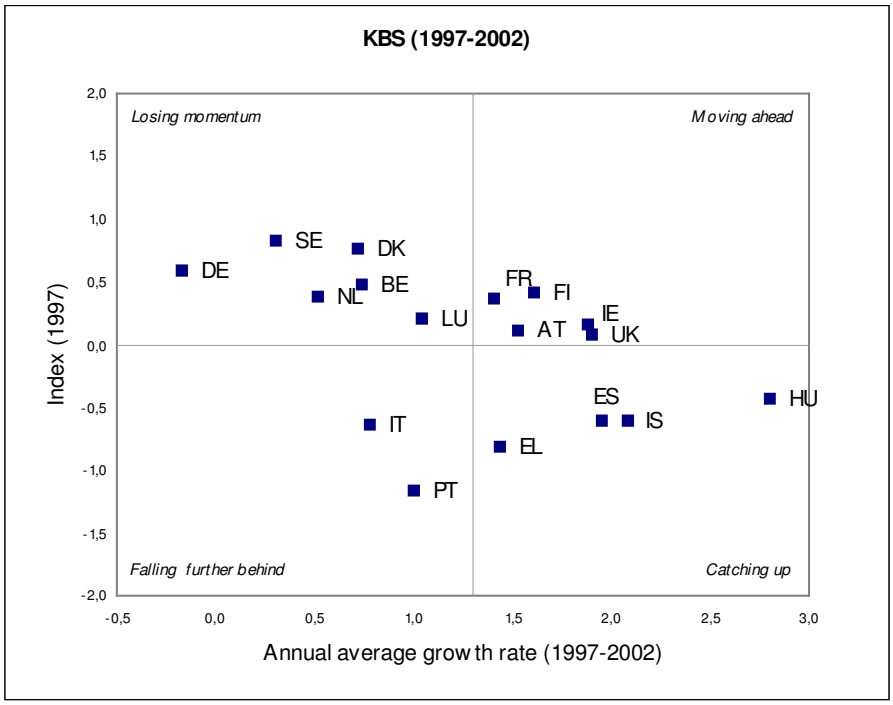
See sections 3.2.1-3.2.4 for sources, notes and exceptions to the reference year.

3.2.6. Monitoring change

The graph below shows the evolution of overall scores on KBS over 1997 and 2002. The horizontal axis measures the average annual percentage change on KBS scores from 1997 to 2002; the vertical axis refers to the overall scores on KBS in 1997. However, figures are not fully comparable to those analysed in previous sections because of the lack of data on ICT for 1997. Scores, therefore, are only based on three dimensions: competitiveness, knowledge and social inclusion.

Combining performance on overall score and percentage change, countries can be roughly divided into four groups: at one extreme, those countries that are falling further behind, having both below average overall scores and below average percentage change; at the other extreme, those countries moving ahead (both overall scores and percentage change are above average). In between, countries can be classified as catching up (overall scores below average, but percentage change above average) or losing momentum (having the opposite situation).

The graph shows that there has been a general improvement on KBS scores, Germany being the only country with a (slightly) negative percentage change. However, the speed of progress differs widely, being highest in most of the countries catching up (Hungary, Iceland and Spain) and lowest in some of the countries having good scores in 1997 (Sweden, the Netherlands, Denmark and Belgium). In the best situation are a number of countries that appear to be steadily moving ahead: United Kingdom and Ireland, followed at some distance by Finland, Austria and France. The worst situation is that of Greece, with a growth only slightly above average, and especially of Portugal and Italy, clearly falling further behind.



The graph refers to the following indicators: KBS 2.1, KBS 2.2, KBS 3.1, KBS 3.2, KBS 4.1, KBS 4.2.
See sections 3.2.1-3.2.4 for sources, notes and exceptions to the reference year 2002.
1997 own estimated values for KBS 1.2
Exceptions to the reference year 1997: KBS 3.1, Iceland (1998); KBS 3.2, Iceland (1998); KBS 4.1, 1998 for all countries except Hungary and Iceland.

As expected, evolution trends are substantially divergent when each dimension is analysed. Inter-country differences are quite extensive for competitiveness. Some countries with negative scores in 1997 (i.e. under average) appear to be steadily catching up (Hungary and Portugal), whilst others are clearly falling further behind (Iceland and Spain, where competitiveness decreased). The countries with positive scores in 1997 show also different patterns. Competitiveness decreased in Germany, Sweden and, especially, Italy, whilst other countries appear to be moving ahead. This is particularly the case of Ireland, the country with the most outstanding improvement of competitiveness over this period.

With respect to knowledge, the overall picture is a clear improvement in most countries. The main exception is Portugal, the country with already the lowest score in 1997, which keeps falling further behind. Finally, all countries show an improvement with regard to social exclusion. The only exception is Denmark, although its score was the highest in 1997 and remains so in 2002. It is also worth noting that some countries scoring very low in 1997 appear to be steadily catching up: this is particularly the case of Spain, due to a strong increase in the employment rate over this period. To a lesser extent, the same holds for Portugal and Italy.

3.3. GE-KBS index

3.3.1. Equal access to ICT

The table below shows the country ranking on the dimension of equal access to ICT. It should be noted that Icelandic scores refer to the average, since harmonised information for Iceland is completely missing for this dimension. The table shows that women have less access to ICT than men in all countries (gender gaps are always positive), although differences in this field also appear to be marked. By far the highest gender digital gap is found in Greece (almost 40), followed by Italy, Luxembourg and Portugal (about 22), and the lowest in Ireland (5) and Finland (4). A similar situation is found with regard to the gender gap in digital literacy, as the correlation between both indicators is high. Overall scores reflect these differences, showing a great distance between Ireland and Finland, having scores above 0.8, and the countries closing the ranking: Italy, Luxembourg, Portugal and, still further behind, Greece.

Country ranking based on the dimension of equal access to ICT

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 1.1 (2002)	GE-KBS 1.2 (2002)	GE-KBS 1.1	GE-KBS 1.2	
	Gender digital gap	Gender gap in digital literacy	Gender digital gap	Gender gap in digital literacy	
			Min=42 Max=0	Min=63 Max=0	
Ireland	5,0	13,0	0,88	0,79	0,84
Finland	4,0	15,0	0,90	0,76	0,83
United Kingdom	7,0	26,0	0,83	0,59	0,71
Austria	7,0	29,0	0,83	0,54	0,69
Denmark	7,0	29,0	0,83	0,54	0,69
Sweden	9,0	34,0	0,78	0,46	0,62
Netherlands	11,0	34,0	0,74	0,46	0,60
Spain	17,0	32,0	0,59	0,49	0,54
Iceland	*15,0*	*37,1*	0,64	0,41	0,53
France	12,0	46,0	0,71	0,27	0,49
Belgium	18,0	43,0	0,57	0,31	0,44
Hungary	19,0	42,0	0,55	0,33	0,44
Germany	19,0	46,0	0,55	0,27	0,41
Italy	23,0	46,0	0,45	0,27	0,36
Luxembourg	22,0	49,0	0,47	0,22	0,35
Portugal	22,0	52,0	0,47	0,17	0,32
Greece	38,0	57,0	0,09	0,09	0,09

Note: Numbers in italic refer to the average
GE-KBS 1.1 - Source: SIBIS, 2003b; own estimated value for Hungary
GE-KBS 1.2 - Source: SIBIS, 2003c

3.3.2. Equal contribution to competitiveness

The table below shows the country ranking of the dimension of equal contribution to competitiveness. Again, the table should be read with caution in the case of Iceland, since reliable data for one of the two indicators are not available. The general picture is that women are under-represented in both higher positions and high-tech industries, with few exceptions (Iceland, with a balanced situation in higher positions and Hungary, with a certain gap but negative). However, gender gaps are much more pronounced in the field of high-tech industries, with Netherlands having the largest gap (above 30) followed closely by a great number of countries. Only in Hungary, Ireland and Portugal can the gender gap in high-tech industries be considered small, at least in comparative terms (it is still about 12). With regard to the overall ranking, Portugal, Denmark and Hungary score highest, whilst the United Kingdom, Netherlands and Greece are found in the worst positions. Sweden, Finland and Germany show quite a balanced situation with regard to higher positions, but their overall scores are limited because of the large gap in high tech-industries. The opposite seems to be the case of Ireland.

Country ranking based on the dimension of equal contribution to competitiveness

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 1.1 (2002) Gender gap in managerial and professional positions	GE-KBS 1.2 (2002) Gender gap in high-tech and medium-high-tech industries	GE-KBS 1.1 Gender gap in managerial and professional positions	GE-KBS 1.2 Gender gap in high-tech and medium-high-tech industries	
			Min=16 Max=0	Min=41 Max=0	
Iceland	-0,1	*22,9*	0,99	0,43	0,71
Portugal	5,2	12,3	0,67	0,70	0,68
Denmark	3,4	18,3	0,79	0,55	0,67
Hungary	-5,8	13,5	0,63	0,67	0,65
Sweden	2,0	24,1	0,87	0,40	0,64
Finland	2,5	24,9	0,84	0,39	0,61
Ireland	7,8	12,3	0,51	0,70	0,60
Germany	2,9	26,3	0,82	0,35	0,58
France	5,5	22,3	0,65	0,45	0,55
Belgium	5,6	25,5	0,65	0,37	0,51
Luxembourg	9,8	15,6	0,38	0,61	0,50
Austria	5,7	26,7	0,64	0,34	0,49
Italy	7,3	27,2	0,54	0,33	0,43
Spain	7,5	27,7	0,53	0,32	0,42
United Kingdom	9,6	27,5	0,40	0,32	0,36
Netherlands	7,4	32,7	0,54	0,19	0,36
Greece	9,2	29,8	0,42	0,26	0,34

Note: Numbers in italic refer to the average
GE-KBS 2.1 - Source: Eurostat, LFS; calculations by Jordi Potrony
GE-KBS 2.2 - Source: Eurostat, LFS; calculations by Jordi Potrony; low reliable data for Luxembourg; no reliable data for Iceland

3.3.3. Equal access to knowledge

The table below shows the country ranking of the dimension of equal access to knowledge. In general trends, gender differences are far less pronounced than in other fields and, unlike other dimensions, relevant gender gaps tend to be negative: in other words, women tend to be over-represented in higher and medium levels of education. The most striking exceptions are Germany (with the largest positive gap in tertiary education, above 10) and Luxembourg (where gender gaps are large and positive in both tertiary education and youth upper-secondary education). In the overall ranking, a great number of countries score very close to the top, having almost nil or very small gender gaps (either positive or negative): Belgium, France, Hungary and the United Kingdom. On the other hand, Portugal scores by far the lowest, because women are largely over-represented in both tertiary (-12) and youth upper-secondary (-9) education.

Country ranking based on the dimension of equal access to knowledge

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 3.1 (2002)	GE-KBS 3.2 (2002)	GE-KBS 3.1	GE-KBS 3.2	
	Gender gap in tertiary education attainment	Gender gap in youth upper-secondary education attainment	Gender gap in tertiary education attainment	Gender gap in youth upper-secondary education attainment	
			Min=17 Max=0	Min=12 Max=0	
Belgium	-0,7	-1,7	0,96	0,85	0,90
France	-2,4	-0,8	0,85	0,93	0,89
Hungary	-3,0	0,4	0,82	0,97	0,89
United Kingdom	2,9	0,5	0,82	0,96	0,89
Austria	4,4	-0,3	0,73	0,97	0,85
Ireland	-2,1	-2,3	0,87	0,80	0,84
Italy	0,4	-3,8	0,98	0,67	0,83
Sweden	-6,1	0,3	0,63	0,98	0,80
Spain	0,9	-4,2	0,95	0,63	0,79
Netherlands	5,7	-1,5	0,66	0,87	0,76
Denmark	-3,2	-3,3	0,81	0,72	0,76
Greece	1,8	-4,6	0,89	0,60	0,75
Finland	-5,0	-2,4	0,70	0,79	0,75
Iceland	0,1	-6,2	1,00	0,46	0,73
Germany	10,5	-0,7	0,37	0,94	0,65
Luxembourg	8,7	3,6	0,47	0,69	0,58
Portugal	-12,0	-9,2	0,27	0,20	0,24

GE-KBS 3.1 - Source: Eurostat, LFS; calculations by Jordi Potrony
GE-KBS 3.2 - Source: Eurostat, LFS; calculations by Jordi Potrony

3.3.4. Equal access to social inclusion

The table below shows the country ranking of the dimension of equal access to social inclusion. Again, in the case of Hungary and Iceland, results should be taken with caution as harmonised information is missing for one of the two indicators. From the table it appears that women are clearly at a disadvantage (gaps are positive for employment and negative for income) although inter-country differences are quite marked. The gender employment gap in FTE ranges from 14 in Spain to 3 in Finland, whereas the gender gap in income vulnerability is as high as –31 in Luxembourg and nil in Sweden. Sweden has by far the highest overall score, having a balanced situation in income and a rather small gap in employment. Although employment gaps are also small in Finland and Denmark, their overall scores are somewhat lower because gender differences in income vulnerability are much more pronounced. Luxembourg, the Netherlands and Spain close the ranking, with large gender gaps in both employment and income vulnerability. Austria and Belgium also have large gaps in income, but their overall score is somewhat improved because their employment gaps are smaller.

Country ranking based on the dimension of equal access to social inclusion

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 4.1 (2002)	GE-KBS 4.2 (2000)	GE-KBS 4.1	GE-KBS 4.2	
	Gender employment gap in FTE	Gender gap in income vulnerability	Gender employment gap in FTE	Gender gap in income vulnerability	
			Min=21 Max=0	Min=34 Max=0	
Sweden	5,4	-0,3	0,74	0,99	0,87
Finland	2,7	-10,7	0,87	0,68	0,78
Denmark	5,7	-8,1	0,73	0,76	0,74
Hungary	2,9	*-19,5*	0,86	0,43	0,64
Portugal	5,7	-17,8	0,72	0,47	0,60
Iceland	7,2	*-19,5*	0,65	0,43	0,54
France	7,0	-21,7	0,66	0,36	0,51
Ireland	10,7	-18,9	0,48	0,44	0,46
United Kingdom	10,1	-22,7	0,51	0,33	0,42
Germany	10,4	-22,8	0,50	0,33	0,41
Italy	13,3	-18,0	0,36	0,47	0,41
Austria	8,9	-25,6	0,57	0,24	0,41
Greece	12,3	-20,6	0,41	0,39	0,40
Belgium	11,0	-23,5	0,47	0,31	0,39
Spain	14,3	-23,1	0,31	0,32	0,32
Netherlands	13,8	-28,2	0,33	0,17	0,25
Luxembourg	12,7	-30,6	0,39	0,10	0,24

Note: Numbers in italic refer to the average
GE-KBS 4.1 - Source: Eurostat, LFS; calculations by Jordi Potrony
GE-KBS 4.2 - Source: Eurostat, ECHP, Germany (SOEP), Luxembourg (PSELL), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.3.5. Gender desegregation in the KBS

The table below shows the country ranking of the gender desegregation dimension in the KBS. For a number of countries, harmonised data are missing for one of the two indicators and overall scores should be read with caution (Sweden, Greece, Iceland, Hungary and the Netherlands). Furthermore, in the case of Luxembourg, harmonised information is completely missing for this dimension. The overall picture is the existence of strong gender segregation patterns among highly-qualified individuals, in both horizontal and vertical terms. Women and men tend to be segregated in different fields of study and science and engineering remains largely male-dominated. However, inter-country differences are quite extensive: the gender gap in science and engineering is above 30 in the Netherlands and below 10 in Portugal. With regard vertical segregation, in all countries women with tertiary education earn less than men, though once again countries differ with respect the extent of the gender pay gap: from almost 30 in Austria to 16 in Italy and Belgium. The highest scores in the overall ranking are found in Italy, Portugal and Ireland, although they show that there is still a long way to achieve gender equality (the highest score is 0.57, still very far from 1, the situation of total equality).

Country ranking based on the gender desegregation dimension in the KBS

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 5.1 (2002) Gender gap in science and engineering	GE-KBS 5.2 (2001) Gender pay gap for tertiary education graduates	GE-KBS 5.1 Gender gap in science and engineering	GE-KBS 5.2 Gender pay gap for tertiary education graduates	
			Min=37 Max=0	Min=33 Max=0	
Italy	13,7	16,5	0,63	0,51	0,57
Portugal	9,0	22,5	0,76	0,33	0,54
Ireland	14,5	20,3	0,61	0,39	0,50
Sweden	15,4	*20,5*	0,59	0,39	0,49
United Kingdom	17,2	19,2	0,54	0,43	0,48
Greece	*20,2*	17,0	0,46	0,49	0,48
Iceland	16,7	*20,5*	0,56	0,39	0,47
Denmark	21,5	19,0	0,43	0,43	0,43
France	20,3	20,3	0,46	0,39	0,43
Luxembourg	*20,2*	*20,5*	0,46	0,39	0,42
Belgium	25,4	16,2	0,32	0,52	0,42
Hungary	22,2	*20,5*	0,41	0,39	0,40
Spain	19,2	24,5	0,49	0,27	0,38
Germany	27,0	18,8	0,28	0,44	0,36
Finland	23,3	23,6	0,38	0,29	0,34
Netherlands	32,2	*20,5*	0,14	0,39	0,26
Austria	25,7	28,4	0,31	0,15	0,23

Note: Numbers in italic refer to the average

GE-KBS 5.1 - Source: Eurostat, New Cronos; calculations by Jordi Potrony; exceptions to the reference year: Denmark, France, Italy and Finland (2001)
GE-KBS 5.2 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.3.6. Equal pay

The table below shows the country ranking of the equal pay dimension. Overall scores should be read with caution in Luxembourg, Sweden and Hungary, as harmonised data are missing for one of the two indicators. Furthermore, figures for Iceland, Hungary and Sweden are not fully comparable to that of the other countries (see Appendix A for further details). However, from the table it appears that women earn less than men in all countries, the gender pay gap being larger for monthly earnings. The hourly gender pay gap is highest in Iceland (almost 30) and lowest in Italy (less than 5); in between, most countries vary a few percentage points around 20. The monthly gender pay gap is far larger (from 48 in the Netherlands to 20 in Portugal) although it is strongly correlated to the hourly gap. With regard to the overall scores, Italy and Portugal score highest and well ahead the other countries, whilst the Netherlands and Iceland score lowest and fall largely behind in the ranking. It should be noted, however, that gender inequality is still marked, being the best score as low as 0.73.

Country ranking based on the dimension of equal pay

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 6.1 (2001) Hourly gender pay gap	GE-KBS 6.2 (2001) Monthly gender pay gap	GE-KBS 6.1 Hourly gender pay gap Min=32 Max=0	GE-KBS 6.2 Monthly gender pay gap Min=53 Max=0	
Italy	4,8	21,3	0,85	0,60	0,73
Portugal	9,7	19,8	0,70	0,63	0,66
Denmark	12,2	25,7	0,62	0,52	0,57
Belgium	11,7	30,0	0,64	0,44	0,54
France	14,5	26,4	0,55	0,50	0,53
Finland	16,1	25,8	0,50	0,52	0,51
Greece	18,8	28,3	0,42	0,47	0,44
Luxembourg	*17,2*	*31,8*	0,47	0,40	0,43
Spain	17,7	31,0	0,45	0,42	0,43
Sweden	18,0	*31,8*	0,44	0,40	0,42
Hungary	19,0	*31,8*	0,41	0,40	0,41
Ireland	17,9	33,7	0,45	0,37	0,41
Austria	20,1	35,6	0,38	0,33	0,35
Germany	21,4	39,7	0,34	0,25	0,30
United Kingdom	20,7	40,9	0,36	0,23	0,29
Netherlands	23,2	47,8	0,28	0,10	0,19
Iceland	29,3	39,0	0,09	0,27	0,18

Note: Numbers in italic refer to the average
GE-KBS 6.1 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); Iceland: Institute of Labour Market Research; Hungary and Sweden: Eurostat, Structural Indicators; ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

GE-KBS 6.2 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); Iceland: Institute of Labour Market Research, own estimated value; ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.3.7. Equal sharing of caring work

The table below shows the country ranking of the dimension of equal sharing of caring work. Once again, the scope of benchmarking is rather limited due to data constraints: harmonised information is missing for one of the two indicators in the United Kingdom, whilst information on this dimension is completely missing for Germany, Hungary, Iceland, Luxembourg and Sweden. It seems clear, however, that women spend much more time in caring than men (gaps are always negative), whilst only in few countries can gender gaps be considered relatively small: the lowest gender gaps in caring time for children are found in Denmark (-14) and Finland (-15); the same holds for the United Kingdom, the Netherlands and Finland with regard to dependent adults (from –9 to –15). Finland scores highest in the overall ranking, having similar and rather small gaps in both aspects: however, its score (0.66) shows that achieving equal sharing of caring work is still a long way off. The lowest overall score is found in Portugal, with very large gaps in both caring for children (-35) and for dependent adults (-41), followed very closely by Greece.

Country ranking based on the dimension of the equal sharing of caring work

	Values		Standardised scores (min-max)		Overall score
	GE-KBS 7.1 (2001) Gender gap in caring time for children	GE-KBS 7.2 (2001) Gender gap in caring time for dependent adults	GE-KBS 7.1 Gender gap in caring time for children	GE-KBS 7.2 Gender gap in caring time for dependent adults	
			Min=42 Max=0	Min=46 Max=0	
Finland	-14,7	-15,0	0,65	0,67	0,66
Denmark	-13,4	-22,5	0,68	0,51	0,59
United Kingdom	*-28,8*	-9,1	0,31	0,80	0,56
Netherlands	-24,8	-13,7	0,41	0,70	0,55
Belgium	-30,6	-19,4	0,27	0,57	0,42
France	-28,7	-22,2	0,32	0,51	0,41
Germany	*-28,8*	*-24,8*	0,31	0,46	0,39
Hungary	*-28,8*	*-24,8*	0,31	0,46	0,39
Iceland	*-28,8*	*-24,8*	0,31	0,46	0,39
Luxembourg	*-28,8*	*-24,8*	0,31	0,46	0,39
Sweden	*-28,8*	*-24,8*	0,31	0,46	0,39
Italy	-30,8	-27,5	0,27	0,40	0,33
Austria	-32,9	-31,7	0,22	0,30	0,26
Ireland	-36,3	-28,6	0,14	0,37	0,25
Spain	-34,1	-31,0	0,19	0,32	0,25
Greece	-35,3	-35,2	0,16	0,23	0,19

Portugal	-35,1	-41,4	0,16	0,09	0,13

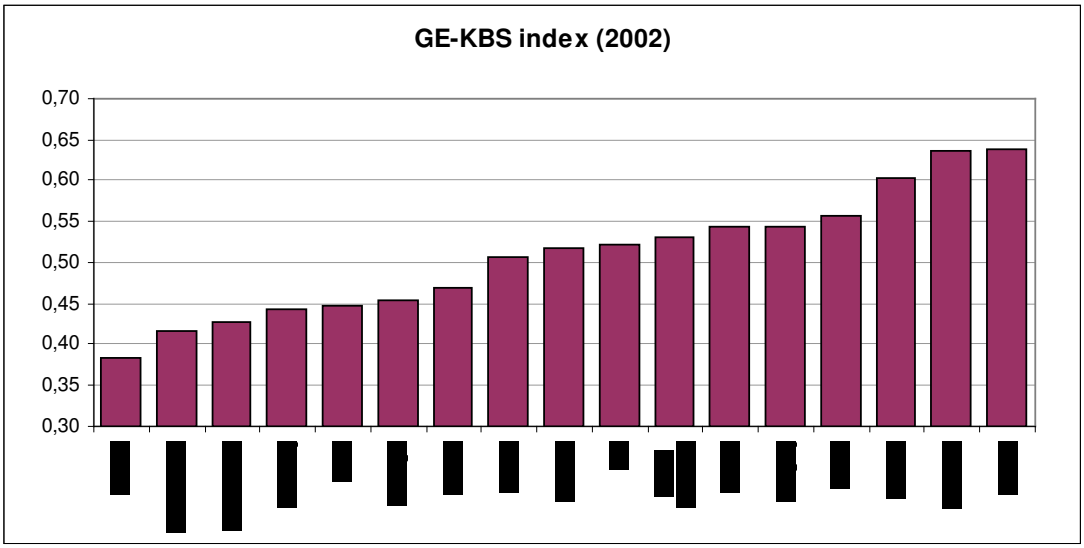
Note: Numbers in italic refer to the average
GE-KBS 7.1 - Source: Eurostat, ECHP, Germany (SOEP); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony
GE-KBS 7.2 - Source: Eurostat, ECHP, United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.3.8. The overall index

The graph below presents the overall scores for GE-KBS. Again, Scandinavian countries score highest (indeed, with the overall score of Sweden probably being under-estimated because of missing data for some dimensions), but in this case Mediterranean countries are not found, as a homogenous group, in the worst positions. Although Greece has the lowest score, Italy scores rather well in the middle of the ranking, and Portugal and Spain show a slightly better situation with regard gender equality than countries such as Germany, Netherlands and Luxembourg.

With respect to the overall scores, however, it should be stressed that, even in Scandinavian countries, full gender equality is still a long way off. Seven countries score below 0.5 and the maximum score does not even reach 0.65, being very far from the value 1 which corresponds to a situation of complete gender equality. Furthermore, scores differ substantially across the different dimensions. As explained above, knowledge is the dimension with the smallest gender gaps and its maximum score is already close to the situation of full gender equality (0.90). At the other end of the scale, gender gaps are largest with regard to caring work (maximum score at 0.66) and desegregation (0.57).

Finally, it should also be noted that the performance of countries varies greatly across the different dimensions. Finland, Denmark and Sweden show high scores in all dimensions except desegregation, where they perform substantially worse. Among those countries with intermediate overall scores, Hungary, France and Belgium show quite a balanced situation, whilst other countries have low scores in one or more dimensions: Ireland and Iceland score particularly low in equal pay, the United Kingdom in competitiveness and equal pay and Italy in caring work and ICT. Finally, in most countries low overall scores are related to a rather unbalanced situation where intermediate scores in some dimensions are combined with very low scores in others. To give an example, the Netherlands scores particularly low with regard to equal pay, desegregation and social inclusion, and the same holds for Spain in caring work and social inclusion. The only exceptions are Germany and Luxembourg, where scores are quite similar (and consistently low) across all dimensions.

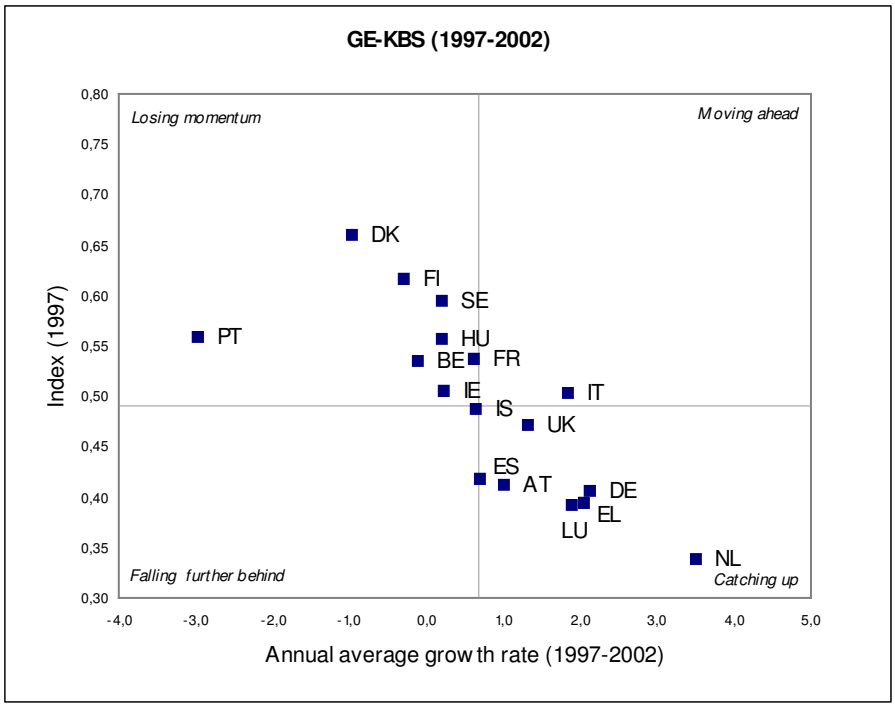


See sections 3.3.1-3.3.7 for sources, notes and exceptions to the reference year.

3.3.9. Monitoring change

The graph below shows the evolution of overall scores for GE-KBS over 1997 and 2002. The horizontal axis shows the average annual percentage change for GE-KBS scores from 1997 to 2002; the vertical axis shows the overall scores for GE-KBS in 1997. Again, figures are not fully comparable to those analysed in previous sections because of the lack of data on ICT for 1997.

Overall, the graph shows a rather contradictory picture. Progress towards gender equality has been especially pronounced in those countries with a more unequal starting point, such as the Netherlands, Germany, Greece and Luxembourg. Yet gender equality has somewhat decreased in Belgium, Finland, Denmark and, especially, Portugal, whilst most countries scoring above average in 1997 have had a rather limited improvement over this period. Italy is the only country showing a fully favourable evolution, with an overall score slightly above average in 1997 and one of the highest rates of progress. In fact, it is worth noting that progress towards gender equality has been less general and intense than progress towards KBS.



The graph refers to the following indicators: GE-KBS 2.1, GE-KBS 2.2, GE-KBS 3.1, GE-KBS 3.2, GE-KBS 4.1, GE-KBS 4.2, GE-KBS 5.1, GE-KBS 5.2, GE-KBS 6.1, GE-KBS 6.2, GE-KBS 7.1, GE-KBS 7.2.
See sections 3.3.1-3.3.7 for sources, notes and exceptions to the reference year 2002.
Exceptions to the reference year 1997: GE-KBS 5.1, all countries refer to 1998 except France, Austria, and Sweden (1999), Belgium and United Kingdom (2000); GE-KBS 6.1, Iceland (1998); GE-KBS 6.2, Iceland (1998).

Trends appear to be even more contradictory when each dimension is analysed in turn. Between 1997 and 2002, most countries have progressed steadily towards a more equal contribution to competitiveness and a more equal access to social inclusion (although there are relevant exceptions: especially Finland, which has had a negative evolution in both fields). However, progress in social inclusion has been mainly related to the growth of female employment rates, with the trends in income being much more divergent: the most striking example is Spain, with a sharp increase in the female employment rate and a parallel increase in the proportion of women in a situation of income vulnerability.

Yet trends are far less favourable with respect to the other dimensions. Between 1997 and 2002, equality in caring work worsened in seven out of eleven countries with complete data for this period: this was mainly the result of a general widening of the gender gap in caring for dependent adults, the gap in caring for children remaining stable or decreasing. In turn, segregation increased in six out of twelve countries, either because the gender pay gap for tertiary graduates increased or the proportion of women among graduates decreased. The same holds for equal pay, with six out of twelve countries registering a widening of the gender pay gap, especially in terms of hourly earnings. Finally, a large number of countries show a negative trend with regard to equal access to knowledge, mainly due to the increasing proportion of women at higher and medium levels of education.

3.4. QWL index

3.4.1. Decent pay

The table below shows the country ranking based on the decent pay dimension. Results for Hungary, Sweden and Iceland should be read with caution, as data are missing for one of the two indicators. The table shows that countries differ largely with regard to the extent of low-wage: the share of low-wage earners is above 12% in Luxembourg, Greece, Netherlands and Spain; at the other extreme, it is below 5% in Portugal, Austria, Denmark, Finland and Belgium. Differences in the field of working poverty are also quite striking: in Portugal and Greece, the working poor make up as high a percentage as 14%-13%; yet in Denmark, Finland, Hungary and Germany their share is about 5%-4%. Overall, the highest scores in decent pay are found in Finland and Denmark, the only countries where the levels of low-wage and working poverty are both among the lowest. The high score of Belgium is mainly due to its very low share of low-wage earners (the level of working poverty being comparatively higher). On the other hand, scores are negative in the Mediterranean countries, France, Netherlands and Luxembourg.

Country ranking based on the dimension of decent pay

	Values		Standardised scores (z-scores)		Overall score
	QWL 1.1 (2001) Low-wage	QWL 1.2 (2000) Working poverty	QWL 1.1 Low-wage	QWL 1.2 Working poverty	
			Mean=8,6 std=4,0	Mean=7,4 std=2,7	
Finland	4,7	5,0	0,96	0,89	0,93
Denmark	4,8	5,0	0,95	0,89	0,92
Belgium	3,4	6,0	1,28	0,52	0,90
Austria	4,8	6,0	0,94	0,52	0,73
Hungary	*8,6*	4,8	0,00	0,96	0,48
Germany	10,2	4,0	-0,41	1,26	0,42
Ireland	6,2	7,0	0,60	0,16	0,38
United Kingdom	9,0	6,0	-0,09	0,52	0,22
Sweden	*8,6*	7,0	0,00	0,16	0,08
Iceland	8,2	*7,4*	0,11	0,00	0,05
Italy	5,4	10,0	0,80	-0,94	-0,07
France	10,7	8,0	-0,52	-0,21	-0,36
Netherlands	12,8	7,0	-1,05	0,16	-0,45
Spain	12,5	8,0	-0,98	-0,21	-0,59
Portugal	4,9	14,0	0,93	-2,41	-0,74
Luxembourg	18,6	8,0	-2,48	-0,21	-1,35
Greece	12,8	13,0	-1,06	-2,04	-1,55

Note: Numbers in italic refer to the average

QWL 1.1 - Source: Eurostat, ECHP, Germany (SOEP), Luxembourg (PSELL), United Kingdom (BHPS); Iceland: Institute of Labour Market Research; ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony
QWL 1.2 - Source: EC, 2003b; Hungary: NAP 2004 (Central Statistical Office); exceptions to the reference year: Hungary (2001)

3.4.2. Healthy work

The table below shows the country ranking based on the healthy work dimension. Again, results for Hungary, Iceland and Luxembourg should be read with caution, as data are missing for one of the two indicators. Inter-country differences are more than marked with regard to accidents at work: from almost 7 per 1,000 in Spain to barely 1,5 in Ireland and Sweden. In Hungary, though the figure may be not fully comparable to that of other countries, the rate of accidents at work also seems to be quite low in comparative terms. To a lesser extent, countries also differ with regard to the average degree of satisfaction with health of the working population, albeit in this case results might be more difficult to interpret, as they are not only related to working conditions. Germany and Portugal score relatively low whilst satisfaction appears to be highest in Ireland and Greece. In overall terms, Ireland scores highest in the healthy work dimension due to its low rate of accidents and its high level of satisfaction with health, whilst France, Germany, Spain and Portugal close the ranking well behind the other countries.

Country ranking based on the dimension of healthy work

	Values		Standardised scores (z-scores)		Overall score
	QWL 2.1 (2001) Serious accidents at work	QWL 2.2 (2001) Satisfaction with health	QWL 2.1 Serious accidents at work	QWL 2.2 Satisfaction with health	
			Mean=3,3 std=1,6	Mean=4,1 std=0,3	
Ireland	1,5	4,5	1,17	1,63	1,40
Greece	2,5	4,6	0,52	1,97	1,24
Hungary	0,7	*4,1*	1,70	0,00	0,85
Sweden	1,5	4,2	1,18	0,43	0,80
Denmark	2,6	4,4	0,45	0,99	0,72
Austria	2,8	4,3	0,37	0,85	0,61
United Kingdom	1,7	4,0	1,07	-0,22	0,42
Iceland	*3,3*	*4,1*	0,00	0,00	0,00
Finland	3,0	3,9	0,23	-0,52	-0,14
Netherlands	3,6	4,0	-0,16	-0,13	-0,15
Belgium	4,2	4,1	-0,58	0,19	-0,19
Luxembourg	4,6	*4,1*	-0,80	0,00	-0,40
Italy	3,8	3,9	-0,28	-0,53	-0,40
France	4,8	3,8	-0,94	-1,06	-1,00
Germany	4,4	3,6	-0,66	-1,71	-1,19
Spain	6,9	4,0	-2,29	-0,21	-1,25
Portugal	4,9	3,6	-0,97	-1,67	-1,32

Note: Numbers in italic refer to the average
QWL 2.1 - Source: Eurostat, New Cronos; Hungary: NAP 2004 (Central Statistical Office Statistical Department of Health Care)
Exceptions to the reference year: Portugal (2000)
QWL 2.2 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.4.3. Skilled work

The table below shows the country ranking based on the skilled work dimension. Differences are very marked when the share of professionals is analysed: from almost 20% in Belgium to less than 8% in Portugal, without any clear typology of countries. Variation is also marked with regard to life-long learning, although in this case at least two groups of countries can be distinguished. In the United Kingdom, Netherlands and the Scandinavian countries the share of life-long learners is above 15%, arriving in some cases to almost 25%; in the other countries it does not reach 10%, being particularly low in the Mediterranean countries, France and Hungary. In overall terms, Netherlands and Scandinavian countries score far highest in the skilled work dimension (with the exception of Denmark, where the share of professionals is only intermediate). At the other extreme, scores are negative for Germany, Austria, Hungary, France and the Mediterranean countries, being particularly low for Portugal.

Country ranking based on the dimension of skilled work

	Values		Standardised scores (z-scores)		Overall score
	QWL 3.1 (2002) Professional work	QWL 3.2 (2002) Life-long learning	QWL 3.1 Professional work Mean=13,9 std=3,2	QWL 3.2 Life-long learning Mean=10,3 std=8,1	
Iceland	15,8	23,4	0,58	1,63	1,11
Netherlands	17,7	18,5	1,19	1,02	1,10
Finland	16,0	21,3	0,67	1,37	1,02
Sweden	17,9	15,4	1,25	0,63	0,94
United Kingdom	12,8	24,3	-0,35	1,74	0,69
Belgium	19,4	7,4	1,72	-0,35	0,68
Denmark	14,1	17,7	0,06	0,93	0,49
Luxembourg	16,4	9,1	0,79	-0,14	0,33
Ireland	16,4	8,3	0,79	-0,24	0,28
Germany	13,4	5,2	-0,14	-0,63	-0,39
Spain	12,2	3,8	-0,52	-0,80	-0,66
Austria	10,3	7,8	-1,11	-0,30	-0,71
Hungary	11,7	3,5	-0,67	-0,83	-0,75
Greece	12,6	0,6	-0,38	-1,19	-0,79
Italy	10,7	3,6	-0,98	-0,83	-0,91
France	11,1	2,2	-0,86	-0,99	-0,93
Portugal	7,4	2,1	-2,02	-1,01	-1,51

QWL 3.1 - Source: Eurostat, LFS; calculations by Jordi Potrony
QWL 3.2 - Source: EC, 2003b and Eurostat, LFS calculations by Jordi Potrony

3.4.4. Autonomous and complex work

The table below shows the country ranking based on the dimension of autonomous and complex work. It should be noted that harmonised information for this dimension is missing completely for Iceland. The overall picture is that levels of autonomy at work are rather similar, whilst differences are somewhat more pronounced for work complexity. The overall ranking should be read with caution, taking into account that inter-country differences are not quite relevant. However, results again show a certain divide between Scandinavian (Denmark, Sweden) and Mediterranean (Portugal, Greece, Spain) countries. High scores are also found in Netherlands and Hungary, whilst Ireland scores almost at the end of the ranking.

Country ranking based on the dimension of autonomous and complex work

	Values		Standardised scores (z-scores)		Overall score
	QWL 4.1 (2000) Work autonomy	QWL 4.2 (2000) Work complexity	QWL 4.1 Work autonomy Mean=1,2 std=0,1	QWL 4.2 Work complexity Mean=1,2 std=0,2	
Denmark	1,4	1,3	1,94	0,44	1,19
Netherlands	1,3	1,3	1,41	0,81	1,11
Sweden	1,3	1,3	1,33	0,61	0,97
Hungary	1,2	1,4	0,20	1,28	0,74
Austria	1,1	1,5	-0,39	1,76	0,69
Finland	1,2	1,2	0,60	0,27	0,43
Luxembourg	1,2	1,2	-0,19	0,29	0,05
Italy	1,2	1,1	0,58	-0,49	0,04
France	1,2	1,1	0,34	-0,30	0,02
Iceland	*1,2*	*1,2*	0,00	0,00	0,00
Germany	1,1	1,4	-1,29	1,28	-0,01
United Kingdom	1,2	1,0	0,18	-0,68	-0,25
Belgium	1,1	1,2	-0,58	0,04	-0,27
Portugal	1,2	1,0	-0,16	-1,05	-0,61
Ireland	1,1	1,0	-0,97	-0,94	-0,95
Greece	1,0	0,9	-1,53	-1,54	-1,53
Spain	1,0	0,8	-1,46	-1,76	-1,61

Note: Numbers in italic refer to the average
QWL 4.1 - Source: European Foundation for the Improvement of Living and Working Conditions, Third European Working Conditions survey (2000, EU-15), 12 Candidate Countries Working Conditions survey (2001); calculations by Jordi Potrony
Exceptions to the reference year: Hungary (2001)
QWL 4.2 - Source: European Foundation for the Improvement of Living and Working Conditions, Third European Working Conditions survey (2000, EU-15), 12 Candidate Countries Working Conditions survey (2001); calculations by Jordi Potrony
Exceptions to the reference year: Hungary (2001)

3.4.5. No entrapment

The table below shows the country ranking based on the dimension of no entrapment. In this dimension, the scope of benchmarking is much more restrained, as harmonised information is completely absent for a number of countries (Hungary, Iceland, Luxembourg and Sweden). In general terms, downward and upward mobility are largely independent from one another and inter-country differences are quite marked for both. In Finland and Spain, about 25% of the employees at the low end of the pay scale lost their job in a year, whilst low-paid jobs appear to be much more secure in Portugal and Austria (below 10%). On the other hand, real opportunities for accessing better paid jobs seem comparatively high in Portugal (above 40%), compared to Greece and Belgium (below 30%). The highest overall score on no entrapment is found in Portugal, which combines low levels of downward mobility and high levels of upward mobility; the opposite occurs in Finland, whose overall score is the lowest. In the rest of the countries, overall negative scores are related to a particularly low score in one of the indicators, but not both.

Country ranking based on the dimension of no entrapment

	Values		Standardised scores (z-scores)		Overall score
	QWL 5.1 (from 1999-2000 to 2000-2001)	QWL 5.2 (from 1997-1998 to 2000-2001)	QWL 5.1	QWL 5.2	
	Downward mobility from the lowest pay quintile	Upward mobility from the lowest pay quintile	Downward mobility from the lowest pay quintile	Upward mobility from the lowest pay quintile	
			Mean=16,2 std=4,7	Mean=34,6 std=4,1	
Portugal	9,8	43,8	1,36	2,24	1,80
Austria	9,1	36,3	1,51	0,42	0,96
Italy	13,5	39,6	0,57	1,22	0,89
Netherlands	14,7	37,9	0,32	0,81	0,57
United Kingdom	13,9	33,9	0,50	-0,18	0,16
Germany	13,9	33,7	0,50	-0,23	0,14
Hungary	*16,2*	*34,6*	0,00	0,00	0,00
Iceland	*16,2*	*34,6*	0,00	0,00	0,00
Luxembourg	*16,2*	*34,6*	0,00	0,00	0,00
Sweden	*16,2*	*34,6*	0,00	0,00	0,00
Denmark	18,7	33,9	-0,53	-0,17	-0,35
Ireland	23,4	37,4	-1,51	0,68	-0,41
France	15,1	30,1	0,23	-1,10	-0,43
Greece	15,0	29,3	0,25	-1,31	-0,53
Belgium	12,8	26,9	0,72	-1,89	-0,58
Spain	24,8	37,1	-1,80	0,61	-0,59
Finland	26,3	30,1	-2,12	-1,11	-1,62

Note: Numbers in italic refer to the average
QWL 5.1 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

QWL 5.2 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.4.6. No unemployment

The table below shows the country ranking based on the dimension of no unemployment. Unemployment rates have been exhaustively analysed for a long time. As is well-known, Spain has the highest rate of unemployment, although closely followed by Finland, Greece and Italy, whereas unemployment is very low in Iceland, Luxembourg and the Netherlands. In general terms, the higher the unemployment rate, the higher the long-term unemployment rate (the correlation is very high). However, the ranking for long-term unemployment changes slightly and the lowest scores are found in Italy, Greece and Germany. Overall scores in the dimension of no unemployment are very high for Iceland, Netherlands and Luxembourg, whilst Germany, Spain, Greece and Italy are in the worst positions.

Country ranking based on the dimension of no unemployment

	Values		Standardised scores (z-scores)		Overall score
	QWL 6.1 (2002) Unemployment rate	QWL 6.2 (2002) Long-term unemployment rate	QWL 6.1 Unemployment rate	QWL 6.2 Long-term unemployment rate	
			Mean=6.3 std=2.8	Mean=2.2 std=1.6	
Iceland	3,0	0,4	1,17	1,15	1,16
Netherlands	2,6	0,7	1,33	0,98	1,15
Luxembourg	2,6	0,7	1,30	0,94	1,12
Denmark	4,3	0,8	0,70	0,87	0,78
Ireland	4,3	1,3	0,70	0,61	0,66
Austria	4,9	1,0	0,49	0,77	0,63
Sweden	5,0	1,0	0,45	0,76	0,61
United Kingdom	5,1	1,2	0,44	0,67	0,56
Portugal	4,8	1,7	0,53	0,34	0,43
Hungary	5,6	2,5	0,24	-0,17	0,04
Belgium	6,9	3,4	-0,22	-0,73	-0,47
France	8,7	2,9	-0,85	-0,38	-0,61
Finland	10,5	2,2	-1,47	0,03	-0,72
Germany	8,6	4,0	-0,80	-1,10	-0,95
Spain	11,2	3,8	-1,71	-0,97	-1,34
Greece	9,8	5,1	-1,25	-1,79	-1,52
Italy	9,3	5,5	-1,06	-1,99	-1,53

QWL 6.1 - Source: Eurostat, Structural indicators
QWL 6.2 - Source: Eurostat, Structural indicators

3.4.7. Decent work/life balance

The table below shows the country ranking based on the dimension of a decent work/life balance. Once again, results should be taken with caution, as there are missing data for Sweden, Luxembourg, Germany and Hungary (one indicator) and Iceland (both). The overall picture is that satisfaction with work is strongly related to the degree of compatibility between working hours and family and social commitments, being inter-country differences rather pronounced. Denmark has, by far, the highest overall score in work/life balance, followed by Austria, Ireland and the Netherlands whereas Mediterranean countries rank the lowest.

Country ranking based on the dimension of a decent work/life balance

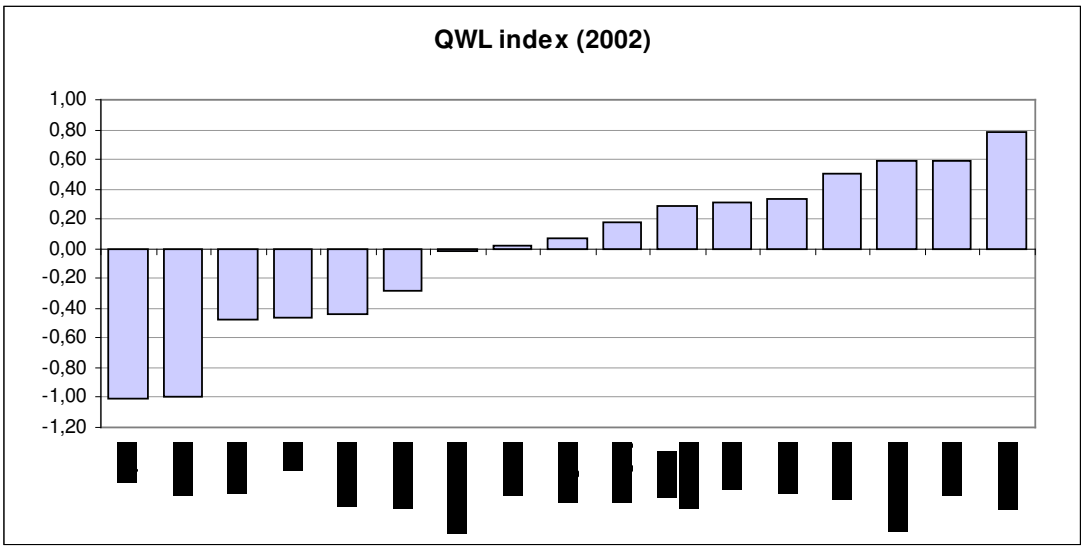
	Values		Standardised scores (z-scores)		Overall score
	QWL 7.1 (2001) Satisfaction at job	QWL 7.2 (2000) Compatibility between work and family-social commitments	QWL 7.1 Satisfaction at job	QWL 7.2 Compatibility between work and family-social commitments	
			Mean=4,4 std=0,3	Mean=2,1 std=0,2	
Denmark	4,9	2,5	1,64	1,86	1,75
Austria	4,9	2,3	1,67	0,76	1,22
Ireland	4,7	2,3	0,76	0,85	0,81
Netherlands	4,8	2,2	1,05	0,44	0,75
Belgium	4,5	2,3	0,14	0,63	0,39
Finland	4,5	2,2	0,37	0,12	0,24
United Kingdom	4,4	2,2	-0,15	0,52	0,18
Sweden	*4,4*	2,2	0,00	0,35	0,17
Luxembourg	*4,4*	2,2	0,00	0,34	0,17
Germany	*4,4*	2,1	0,00	0,08	0,04
France	4,4	2,1	0,01	0,06	0,03
Iceland	*4,4*	*2,1*	0,00	0,00	0,00
Hungary	*4,4*	2,1	0,00	-0,20	-0,10
Spain	4,2	1,9	-0,64	-1,29	-0,96
Portugal	4,0	2,0	-1,55	-0,71	-1,13
Italy	4,1	1,8	-1,23	-1,30	-1,26
Greece	3,8	1,6	-2,08	-2,50	-2,29

Note: Numbers in italic refer to the average
QWL 7.1 - Source: Eurostat, ECHP; United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony
QWL 7.2 - Source: European Foundation for the Improvement of Living and Working Conditions, Third European Working Conditions survey (2000, EU-15), 12 Candidate Countries Working Conditions survey (2001); calculations by Jordi Potrony; Exceptions to the reference year: Hungary (2001)

3.4.8. The overall index

The graph below presents the overall QWL scores. Denmark scores highest, followed a certain distance by Austria, the Netherlands and Sweden (whose performance is probably under-estimated in some of the dimensions where data are missing), whilst Spain and Greece close the ranking, well behind the other countries. Negative scores, although not so low, are also found in France, Italy, Portugal and Germany.

In most countries, scores differ rather substantially across the different dimensions, although no clear typology can be identified. To give a few examples, Denmark scores very high in all dimensions except no entrapment, and the same holds for Austria with respect to skilled work and the Netherlands for decent pay and healthy work. Germany scores rather well in most dimensions, but its overall score is negative due to its very low scores on healthy work and unemployment. At the bottom of the ranking, Greece scores very low in all dimensions except in healthy work, where it is one of the highest.



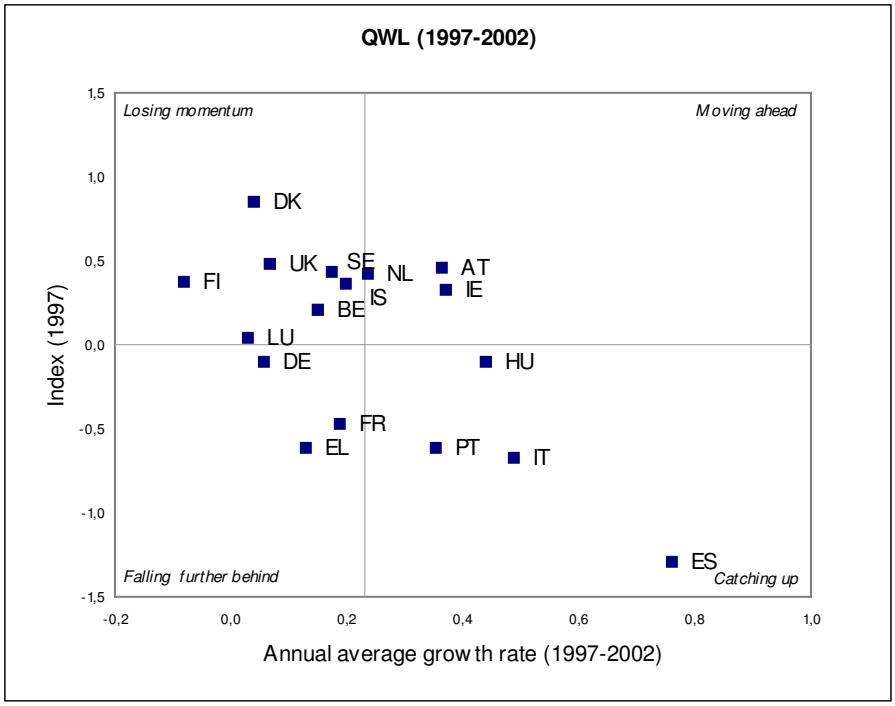
See sections 3.4.1-3.4.7 for sources, notes and exceptions to the reference year.

3.4.9. Monitoring change

The graph below shows the evolution of overall QWL scores over 1997 and 2002. The horizontal axis measures the average annual percentage change of QWL scores from 1997 to 2002; the vertical axis refers to the overall QWL scores in 1997. However, figures are not fully comparable to those analysed in previous sections due to the lack of 1997 harmonised data on

the dimension of autonomous and complex work, as well as on one of the indicators of the dimension of a decent work/life balance.

In general terms, the graph shows that there has been some improvement in QWL scores, Finland being the only country with a negative percentage change. Again, however, the pace of progress differs widely, being highest in some of the countries with negative scores in 1997 (Spain, Italy, Hungary and Portugal). Ireland and Austria are the countries in the best situation, having both above average scores and growth rates, whilst the opposite applies to France, Greece and Germany.



The graph refers to the following indicators: QWL 1.1, QWL 1.2, QWL 2.1, QWL 2.2, QWL 3.1, QWL 3.2, QWL 5.1, QWL 5.2, QWL 6.1, QWL 6.2, QWL 7.1.
See sections 3.4.1-3.4.7 for sources, notes and exceptions to the reference year 2002.
Exceptions to the reference year 1997: QWL 1.1 Iceland (1998); QWL 1.2, all countries refer to 1998; QWL 2.2. : Luxembourg (1996); QWL 3.2, United Kingdom (1999); QWL 5.1 from 1994-1995 to 1995-1996; QWL 5.2 from 1994-1995 to 1997-1998; QWL 7.1, Germany (1996).

Again, evolution trends are substantially divergent when each dimension is analysed. In most countries, scores on decent pay worsened over this period and negative and positive trends are combined in other dimensions: healthy work, skilled work, no entrapment and decent work/life balance. The overall negative percentage change in Finland is mainly related to a marked worsening in decent pay and no entrapment. Other countries with relevant negative changes in some dimensions are the Netherlands and France (decent pay), Sweden and Spain (healthy work), the United Kingdom (skilled work) and finally, Germany, Denmark and Ireland (no entrapment).

3.5. GE-QWL index

3.5.1. Equal sharing of decent pay

The table below shows the country ranking based on the dimension of the equal sharing of decent pay. Results for Sweden and Iceland should be read with caution, as data are missing for one of the two indicators (especially in the latter, because information on the available indicator might be not fully comparable. See Appendix A for further details), whilst information on this dimension is completely missing for Hungary. The table shows that women are at a great disadvantage, both in low-wage and in working income vulnerability (gender gaps are negative and large): the only exceptions are Sweden and Finland, without any gap with respect to working income vulnerability, and especially Denmark, with very small gaps for both aspects and an overall score as high as 0.96 (which means, in fact, that equality is already almost achieved). In the other countries, the gender gap in low wage ranges from –25 (Luxembourg) [17] to –10 (Finland), and from –32 (the Netherlands) to –11 (Italy) with respect to working income vulnerability. Overall, most countries are found very close to the bottom of the ranking , having very low scores: Spain, Portugal, Germany, Greece, United Kingdom, Netherlands, Austria, Luxembourg and Iceland.

Country ranking based on the dimension of the equal sharing of decent pay

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 1.1 (2001) Gender gap in low-wage	GE-QWL 1.2 (2000) Gender gap in working income vulnerability	GE-QWL 1.1 Gender gap in low-wage	GE-QWL 1.2 Gender gap in working income vulnerability	
			Min=48 Max=0	Min=47 Max=0	
Denmark	-2,6	-1,7	0,95	0,96	0,96
Finland	-10,1	-0,1	0,79	1,00	0,89
Sweden	*-19,2*	0,8	0,60	0,98	0,79
Italy	-19,8	-11,8	0,59	0,75	0,67
Ireland	-12,2	-19,3	0,74	0,59	0,66
France	-16,1	-20,7	0,66	0,56	0,61
Hungary	*-19,2*	*-18,5*	0,60	0,60	0,60
Belgium	-13,7	-24,4	0,71	0,48	0,60
Spain	-21,8	-21,7	0,54	0,54	0,54
Portugal	-22,3	-22,6	0,53	0,51	0,52
Germany	-20,9	-24,2	0,56	0,48	0,52

[17] Actually, the largest gender gap is found in Iceland (-43) but, as explained above, this figure should be taken with caution as it might be not fully comparable.

Greece	-23,8	-22,0	0,50	0,53	0,52
United Kingdom	-18,2	-28,1	0,62	0,40	0,51
Netherlands	-15,1	-32,3	0,68	0,31	0,49
Austria	-22,5	-25,1	0,53	0,46	0,49
Luxembourg	-25,1	-24,9	0,47	0,47	0,47
Iceland	-43,4	*-18,5*	0,09	0,60	0,35

Note: Numbers in italic refer to the average
GE-QWL 1.1 - Source: Eurostat, ECHP, Germany (SOEP), Luxembourg (PSELL), United Kingdom (BHPS); Iceland: Institute of Labour Market Research; ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony
GE-QWL 1.2 - Source: Eurostat, ECHP, Germany (SOEP), Luxembourg (PSELL), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.5.2. Equal sharing of healthy work

The table below shows the country ranking based on the dimension of the equal sharing of healthy work. Harmonised information for this dimension is completely missing for Hungary and Iceland, whilst in Luxembourg data are missing for one of the two indicators. As expected, the table shows that men have, by far, more accidents at work than women (gaps are always large and positive) although, in most countries, women in employment are slightly less satisfied with health than men (gaps are very small and, in most cases, positive). With regard to the overall ranking, Spain scores highest, having a comparatively small gap in accidents at work (20) and a balanced situation with respect satisfaction with health. At the other extreme, Netherlands scores the lowest, combining the highest men's disadvantage in accidents at work (33) with the highest women's disadvantage in satisfaction with health (3).

Country ranking based on the dimension of the equal sharing of healthy work

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 2.1 (2000)	GE-QWL 2.2 (2001)	GE-QWL 2.1	GE-QWL 2.2	
	Gender gap in serious accidents at work	Gender gap in satisfaction with health	Gender gap in serious accidents at work	Gender gap in satisfaction with health	
			Min=36 Max=0	Min=4 Max=0	
Spain	20,0	0,3	0,45	0,94	0,69
Austria	26,0	0,0	0,29	1,00	0,64
Ireland	21,4	-1,2	0,41	0,73	0,57
Greece	26,8	0,9	0,26	0,79	0,53
Belgium	25,2	1,6	0,31	0,63	0,47
Hungary	*26,0*	*1,6*	0,29	0,63	0,46
Iceland	*26,0*	*1,6*	0,29	0,63	0,46
Luxembourg	26,5	*1,6*	0,27	0,63	0,45
Denmark	25,9	1,7	0,29	0,62	0,45
France	27,5	1,5	0,24	0,65	0,45
Finland	31,2	1,2	0,14	0,73	0,44
Italy	20,8	2,7	0,43	0,37	0,40
Germany	27,4	2,0	0,25	0,54	0,39

Sweden	27,0	2,0	0,26	0,53	0,39
United Kingdom	23,6	3,0	0,35	0,31	0,33
Portugal	28,0	3,2	0,23	0,26	0,25
Netherlands	33,1	3,3	0,09	0,24	0,16

Note: Numbers in italic refer to the average
GE-QWL 2.1 - Source: Eurostat, New Cronos; Hungary: NAP, Central Statistical Office Statistical Department of Health Care
GE-QWL 2.2 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.5.3. Equal sharing of skilled work

The table below shows the country ranking on the dimension of the equal sharing of skilled work. In general terms, women are over-represented among life-long learners (with few exceptions), but trends are more divergent in the field of professional work. In most countries, women are clearly, and even largely, over-represented among professionals. However, the gender gap, either positive or negative, is very small in Luxembourg, the Netherlands, Finland and Sweden and women are somewhat under-represented in the United Kingdom, Denmark, France and Germany. In the overall ranking, Netherlands scores highest at 0.99 (almost total equality) whereas the lowest scores are found in Italy and Portugal, with a large over-representation of women among both professionals and life-long learners.

Country ranking based on the dimension of the equal sharing of skilled work

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 3.1 (2002)	GE-QWL 3.2 (2002)	GE-QWL 3.1	GE-QWL 3.2	
	Gender gap in professional work	Gender gap in life-long learning	Gender gap in professional work	Gender gap in life-long learning	
			Min=21 Max=0	Min=17 Max=0	
Netherlands	0,2	-0,1	0,99	0,99	0,99
Luxembourg	0,8	2,7	0,96	0,84	0,90
Finland	-1,1	-6,7	0,95	0,61	0,78
Germany	7,0	-2,4	0,68	0,86	0,77
Austria	-5,9	-3,4	0,72	0,80	0,76
Denmark	5,1	-5,3	0,76	0,69	0,73
Belgium	-11,2	-1,2	0,48	0,93	0,71
Sweden	-2,0	-9,2	0,91	0,46	0,68
Iceland	-7,0	-6,6	0,68	0,61	0,64
United Kingdom	2,9	-9,9	0,86	0,42	0,64
France	6,8	-10,7	0,68	0,37	0,53
Greece	-10,6	-8,8	0,50	0,48	0,49
Spain	-11,9	-11,5	0,44	0,33	0,39
Hungary	-12,8	-11,5	0,41	0,33	0,37
Ireland	-12,0	-12,6	0,44	0,26	0,35
Italy	-17,6	-10,9	0,18	0,36	0,27
Portugal	-13,7	-15,5	0,36	0,09	0,23

GE-QWL 3.1 - Source: Eurostat, LFS; calculations by Jordi Potrony

3.5.4. Equal sharing of autonomous and complex work

The table below shows the country ranking based on the dimension on the equal sharing of autonomous and complex work. It should be noted that harmonised information for this dimension is completely missing for Iceland. The overall picture is that women enjoy less autonomy at work than men, and their jobs tend to be more monotonous, the gender gaps being very large in some cases. However, results differ for some countries: one striking exception is Spain, where figures show that women's' autonomy at work is considerably higher than men's; the other is Luxembourg, where the situation of women seems to be somewhat more favourable with respect to both autonomy and complexity. In the overall ranking, Germany and Austria score at the top, indeed having scores rather close to 1: in both cases, equality is de facto achieved for work complexity, but there are more gender differences – to the disadvantage of women - with respect to autonomy at work. On the other hand, Spain and the Netherlands score lowest. The Netherlands has large (positive) gender gaps for both aspects while, quite surprisingly, Spain combines the largest positive gender gap in work complexity with the largest negative gender gap in work autonomy.

Country ranking based on the dimension of the equal sharing of autonomous and complex work

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 4.1 (2000)	GE-QWL 4.2 (2000)	GE-QWL 4.1	GE-QWL 4.2	
	Gender gap in work autonomy	Gender gap in work complexity	Gender gap in work autonomy	Gender gap in work complexity	
			Min=22	Min=33	
			Max=0	Max=0	
Germany	3,9	1,0	0,82	0,97	0,90
Austria	6,0	0,7	0,73	0,98	0,86
Luxembourg	-6,4	-3,5	0,71	0,89	0,80
Portugal	-1,5	13,8	0,93	0,58	0,76
Hungary	6,2	7,6	0,72	0,77	0,74
Italy	7,7	7,3	0,65	0,78	0,72
Belgium	7,2	9,0	0,68	0,73	0,70
Iceland	*7,0*	*9,4*	0,68	0,71	0,70
France	4,4	14,7	0,80	0,55	0,68
Denmark	12,1	5,5	0,46	0,83	0,64
United Kingdom	9,6	10,2	0,57	0,69	0,63
Greece	8,6	13,8	0,61	0,58	0,60
Finland	12,9	8,6	0,42	0,74	0,58
Sweden	14,1	8,5	0,37	0,74	0,55
Ireland	20,3	4,4	0,09	0,87	0,48
Netherlands	16,2	18,7	0,27	0,43	0,35

Spain	-9,0	29,7	0,59	0,09	0,34

GE-QWL 4.1 - Source: European Foundation for the Improvement of Living and Working Conditions, Third European Working Conditions survey (2000, EU-15), 12 Candidate Countries Working Conditions survey (2001); calculations by Jordi Potrony
Exceptions to the reference year: Hungary (2001)
GE-QWL 4.2 - Source: European Foundation for the Improvement of Living and Working Conditions, Third European Working Conditions survey (2000, EU-15), 12 Candidate Countries Working Conditions survey (2001); calculations by Jordi Potrony; exception to the reference year: Hungary (2001)

3.5.5. Equal risk of entrapment

The table below shows the country ranking based on the dimension of equal risk of entrapment. As already explained, in this dimension the scope of benchmarking is limited due to the lack of harmonised information in a number of countries (Hungary, Iceland, Luxembourg and Sweden). The overall picture is that low-paid women have fewer possibilities than men to move towards better jobs (gaps are always positive), although countries differ widely with respect to downward mobility: in some countries women are at a disadvantage, too (particularly in Portugal and Ireland), whilst the opposite is especially true in the Netherlands and Germany. With regard to the overall ranking, Greece and Italy score highest, having very small gaps (positive and negative, respectively) in downward mobility and among the lowest in upward mobility. Portugal closes the ranking, well behind the other countries, indicating the most unequal situation (and the most unfavourable for women) with respect to entrapment.

Country ranking based on the dimension of equal risk of entrapment

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 5.1 (from 1999-2000 to 2000-2001) Gender gap in downward mobility from the lowest pay quintile	GE-QWL 5.2 (from 1997-1998 to 2000-2001) Gender gap in upward mobility from the lowest pay quintile	GE-QWL 5.1 Gender gap in downward mobility from the lowest pay quintile Min=15 Max=0	GE-QWL 5.2 Gender gap in upward mobility from the lowest pay quintile Min=21 Max=0	
Greece	1,8	8,5	0,88	0,60	0,74
Italy	-2,1	8,7	0,86	0,59	0,73
Hungary	*0,8*	*11,5*	0,94	0,46	0,70
Iceland	*0,8*	*11,5*	0,94	0,46	0,70
Luxembourg	*0,8*	*11,5*	0,94	0,46	0,70
Sweden	*0,8*	*11,5*	0,94	0,46	0,70
Austria	1,9	10,3	0,88	0,51	0,70
Belgium	3,1	9,7	0,79	0,54	0,67
Finland	-2,2	11,9	0,85	0,44	0,65
Denmark	-4,6	9,1	0,69	0,57	0,63
Germany	7,7	6,8	0,49	0,68	0,59
Netherlands	6,5	10,1	0,57	0,53	0,55
United Kingdom	5,6	11,6	0,63	0,45	0,54
Ireland	-7,2	12,1	0,52	0,43	0,48

France	4,4	16,2	0,71	0,23	0,47
Spain	4,9	15,7	0,67	0,26	0,47
Portugal	-8,9	19,3	0,41	0,09	0,25

Note: Numbers in italic refer to the average
GE-QWL 5.1 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony
GE-QWL 5.2 - Source: Eurostat, ECHP, Germany (SOEP), United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony

3.5.6. Equal risk of unemployment

The table below shows the country ranking based on the dimension of equal risk of unemployment. Results should be read with caution in the case of Iceland, as harmonised data are missing for one of the two indicators. From the table it appears that, in a number of countries, gender differences in unemployment are rather small and, what is more, either to the disadvantage of women or men. However, women are largely over-represented among the unemployed in countries such as Greece or Spain, where the gender gap is above –20, whilst the gender gap is positive and quite relevant in other countries such as Iceland, the United Kingdom and Iceland (above 6). Although long-term unemployment has a high correlation with unemployment, the gender gap in long-term unemployment is more pronounced, especially in those countries where men are disadvantaged: in the United Kingdom and Ireland, it is higher than 16. The same holds for some countries (Denmark and Austria), combining a relatively equal situation with respect to unemployment with a certain over-representation of women among the long-term unemployed. With respect to the overall ranking, Germany scores highest and almost reaches the maximum value of total equality (0.96). At the other end of the ranking, Greece and Spain fall well behind the other countries, having very large negative gaps in both unemployment and long-term unemployment.

Country ranking based on the dimension of equal risk of unemployment

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 6.1 (2002) Gender gap in unemployment	GE-QWL 6.2 (2002) Gender gap in long-term unemployment	GE-QWL 6.1 Gender gap in unemployment	GE-QWL 6.2 Gender gap in long-term unemployment	
			Min=28 Max=0	Min=38 Max=0	
Germany	1,6	-0,7	0,94	0,98	0,96
Denmark	-0,3	-6,8	0,99	0,82	0,91
Finland	1,4	6,8	0,95	0,82	0,89
Austria	3,5	-4,9	0,88	0,87	0,88
Netherlands	-5,8	-5,4	0,79	0,86	0,83
Hungary	4,6	7,1	0,84	0,82	0,83
Iceland	6,7	*-4,4*	0,76	0,89	0,82
Sweden	3,9	9,8	0,86	0,74	0,80
France	-6,3	-8,9	0,78	0,77	0,77

Belgium	-5,8	-9,6	0,79	0,75	0,77
Portugal	-8,6	-9,4	0,69	0,75	0,72
United Kingdom	6,4	16,3	0,77	0,57	0,67
Ireland	5,2	19,7	0,81	0,49	0,65
Luxembourg	-16,0	-14,0	0,43	0,63	0,53
Italy	-15,7	-16,7	0,44	0,56	0,50
Spain	-20,9	-26,5	0,26	0,31	0,28
Greece	-23,2	-27,2	0,18	0,29	0,23

Note: Numbers in italic refer to the average
GE-QWL 6.1 - Source: Eurostat LFS; calculations by Jordi Potrony
GE-QWL 6.2 - Source: Eurostat LFS; calculations by Jordi Potrony; low reliable data for Luxembourg; no reliable data for Iceland

3.5.7. Equal sharing of decent work/life balance

The table below shows the country ranking based on the dimension of the equal sharing of a decent work/life balance. Once again, results should be taken with caution in the case of Sweden, Luxembourg, Hungary and Germany (data are missing for one indicator) whilst harmonised information is completely missing for Iceland. In most countries, gender gaps are nil or very small (either positive or negative) with respect to job satisfaction. The only exception is the United Kingdom, where mens' disadvantage appear to be somewhat larger (-5). On the other hand, the table shows a clear gender imbalance in the work/life balance: the degree of compatibility between work and family or social commitments is higher for women than for men in all countries except in Denmark, Portugal and Austria, where the gender gap is almost nil. The highest overall score is found in Austria, already very close to total equality (0.95), whilst the United Kingdom shows, by far, the most unequal situation, combining the largest gaps in both aspects.

Country ranking based on the dimension of the equal sharing of a decent work/life balance

	Values		Standardised scores (min-max)		Overall score
	GE-QWL 7.1 (2001) Gender gap in satisfaction at job	GE-QWL 7.2 (2000) Gender gap in compatibility between work and family-social commitments	GE-QWL 7.1 Gender gap in satisfaction at job	GE-QWL 7.2 Gender gap in compatibility between work and family-social commitments	
			Min=10 Max=0	Min=19 Max=0	
Austria	0,3	-1,4	0,97	0,93	0,95
Sweden	*-0,2*	-2,5	0,98	0,87	0,92
Luxembourg	*-0,2*	-2,8	0,98	0,85	0,92
Denmark	1,3	-0,7	0,87	0,96	0,92
France	-0,5	-2,5	0,96	0,87	0,91
Portugal	2,4	-0,9	0,76	0,95	0,86
Italy	-1,5	-3,0	0,86	0,84	0,85
Iceland	*-0,2*	*-5,4*	0,98	0,71	0,85

Finland	-1,5	-3,1	0,85	0,84	0,84
Belgium	-1,6	-3,4	0,84	0,82	0,83
Hungary	*-0,2*	-6,4	0,98	0,67	0,82
Germany	*-0,2*	-8,2	0,98	0,57	0,77
Greece	1,8	-7,7	0,83	0,59	0,71
Netherlands	1,7	-8,5	0,83	0,55	0,69
Spain	2,9	-8,2	0,72	0,57	0,64
Ireland	-3,0	-10,5	0,70	0,45	0,57
United Kingdom	-5,1	-17,3	0,50	0,09	0,30

Note: Numbers in italic refer to the average
GE-QWL 7.1 - Source: Eurostat, ECHP; United Kingdom (BHPS); ECHP-UDP vers. 2003 June, University of Tampere, Pertti Koistinen; calculations by Seppo Roivas with the collaboration of Jordi Potrony
GE-QWL 7.2 - Source: European Foundation for the Improvement of Living and Working Conditions, Third European Working Conditions survey (2000, EU-15), 12 Candidate Countries Working Conditions survey (2001); calculations by Jordi Potrony; exceptions to the reference year: Hungary (2001)

3.5.8. The overall index

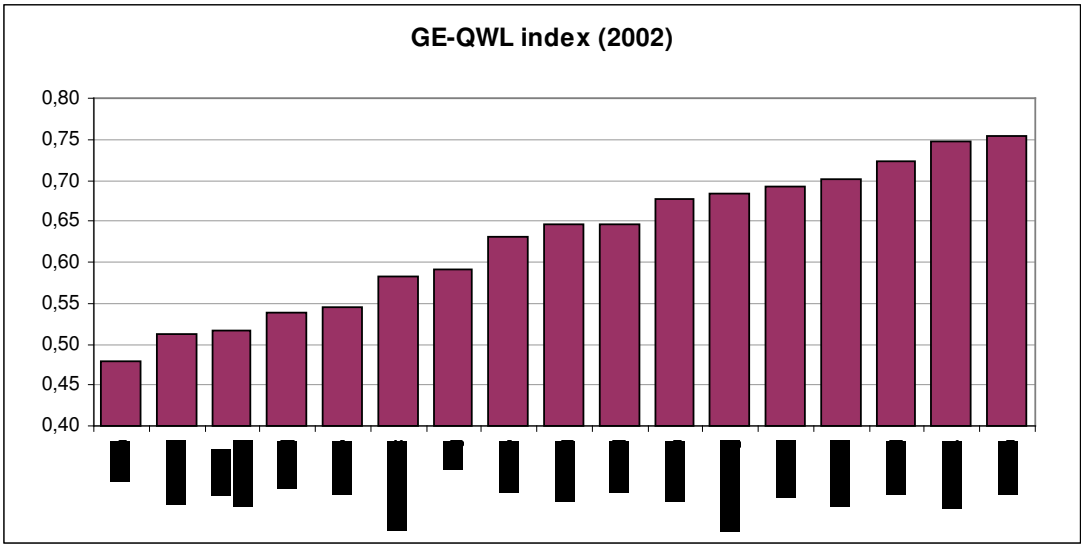
The graph below presents the overall scores for GE-QWL. Austria and Denmark score highest, while Spain is found closing the ranking and well behind the other countries. Again, however, full gender equality is still a long way off, even in those countries with the most favourable situation, as the maximum score does not reach 0.8.

Scores differ substantially across the different dimensions. Some countries show a situation of (almost) full equality for some dimensions: this is the case of Denmark for decent pay (0.96), the Netherlands for skilled work (0,99), Germany for both autonomous and complex work (0.90) and unemployment (0.96) and Austria for work/life balance (0.95). On the other hand, gender gaps are larger for entrapment (with a maximum score of 0.74) and healthy work (0.69).

Furthermore, the performance of the countries varies greatly both within and across the different dimensions. To give just one example: Netherlands scores as high as 0.99 for skilled work; however, the minimum score for this dimension does not even reach 0.25, and the Netherlands scores lowest for healthy work with a score as low as 0.16.

Similar overall scores can, therefore, be the result of very different situations. Austria and Denmark score very closely at the top of the ranking: however, Austria scores quite well in all dimensions except decent pay, whilst Denmark scores very high in decent pay, work/life balance and unemployment, its performance being much worse in other dimensions. Similar differences can be found among the countries closing the ranking. Spain scores consistently low in all dimensions except healthy work, whereas Portugal combines good scores for

work/life balance, autonomous and complex work and unemployment with very low scores for entrapment, healthy work and skilled work.

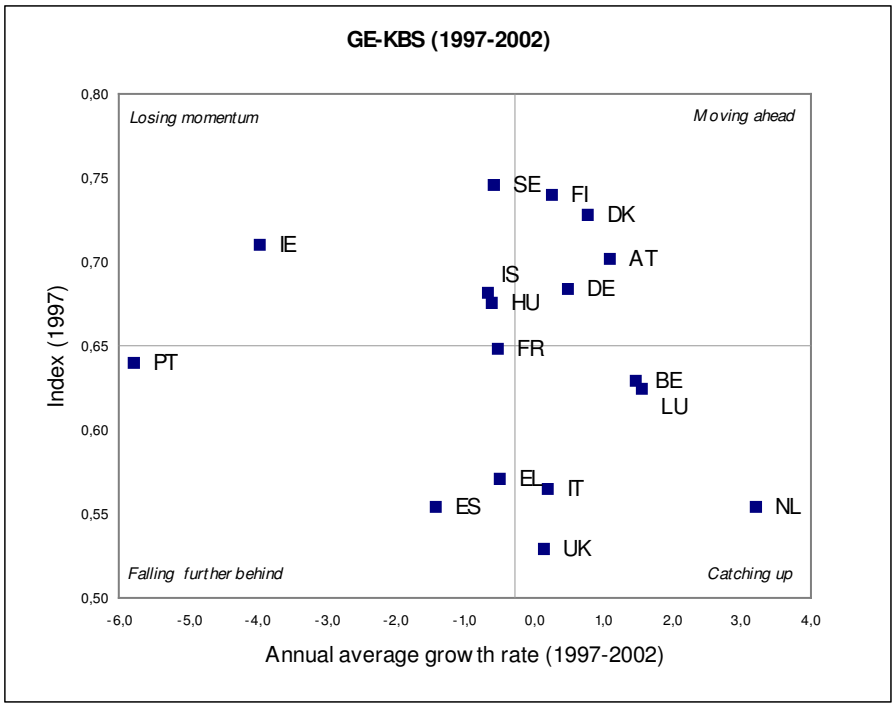


See sections 3.5.1-3.5.7 for sources, notes and exceptions to the reference year.

3.5.9. Monitoring change

The graph below shows the evolution of overall scores for GE-QWL over 1997 and 2002. The horizontal axis shows the average annual percentage change for GE-QWL scores from 1997 to 2002; the vertical axis shows the overall scores for GE-QWL in 1997. Again, the figures are not fully comparable to those analysed in previous sections because of the lack of 1997 data on autonomous and complex work and one of the two indicators of a decent work/life balance.

Overall, the graph shows that progress towards gender equality is far from having been a general trend. In a large number of countries inequality appears to have increased, this negative trend being particularly pronounced in Ireland and Portugal. Changes, when they are positive, are rather limited in general. Among the countries below average in 1997, only the Netherlands, Luxembourg and Belgium seem to be steadily progressing towards gender equality. On the other hand, only Austria, Denmark Germany and Finland combine an above average score in 1997 with a positive trend over this period.



The graph refers to the following indicators: GE-QWL 1.1, GE-QWL 1.2, GE-QWL 2.1, GE-QWL 2.2, GE-QWL 3.1, GE-QWL 3.2, GE-QWL 5.1, GE-QWL 5.2, GE-QWL 6.1, GE-QWL 6.2, GE-QWL 7.1.
See sections 3.5.1-3.5.7 for sources, notes and exceptions to the reference year 2002.
Exceptions to the reference year 1997: GE-QWL 1.1 Iceland (1998); QWL 2.2. : Luxembourg (1996); GE-QWL 5.1 from 1994-1995 to 1995-1996, except Austria (from 1995 to 1996); GE-QWL 5.2 from 1994-1995 to 1997-1998, except Austria (from 1995 to 1998) ; QWL 7.1, Germany (1996).

Negative trends are found in almost all dimensions. Portugal, Spain and Greece show a strong negative evolution with regard to the equal sharing of decent pay. In fact, the proportion of women among low-paid earners increased in a large number of countries, although this negative trend was partially counterbalanced by a more positive evolution in income. With regard to entrapment, negative trends were particularly pronounced for Portugal and Ireland, whilst gender gaps in unemployment increased especially in Spain and Ireland. In all these cases, more inequality means more disadvantage for women. However, men's disadvantage with regard to skilled work also increased in a large number of countries, due to the increasing proportion of women among both professionals and life-long learners.

3.6. Some further insights

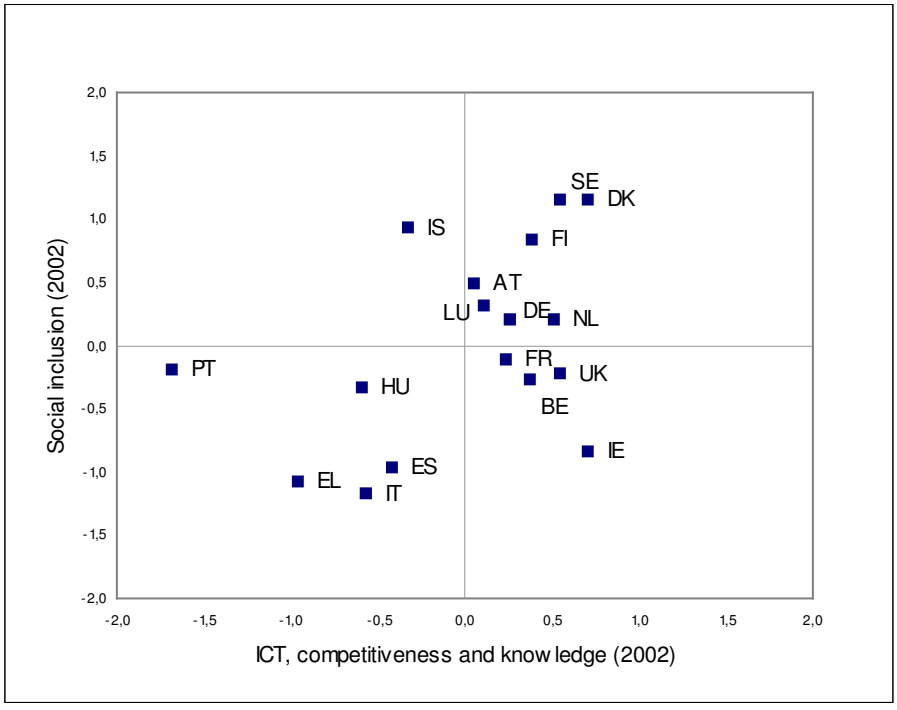
So far, a purely descriptive analysis has been made of the results obtained for each of the four indices, with the aim of measuring the progress achieved in terms of the KBS, quality of working life and gender equality, comparing the situation in the different countries and identifying some of the most recent trends. Without doubt, this is the main objective of this report. However, the empirical work carried out also allows us to take a small step forward, attempting to present the evidence supporting these indices with respect to some of the current

debates on the transition towards the KBS and its social and gender implications. The analysis set out below tackles, firstly, the different models of transition towards the KBS and their implications in terms of social inclusion and quality of working life, going on, in second place, to analyse the consequences in terms of gender (in)equality. The modest objective of this last section is to pose some questions and call attention to results that indicate the need to enhance research in these fields.

3.6.1. KBS, social inclusion and quality of working life

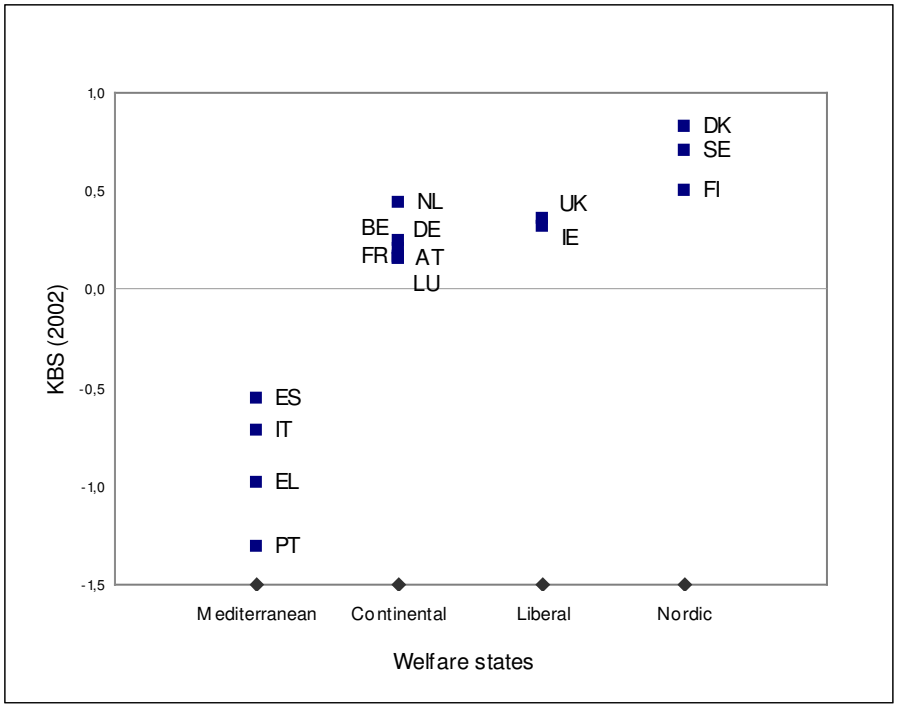
Does progress towards the KBS imply more social inclusion? The analysis carried out does not provide clear evidence in this respect. Using the most recent data, the graph below compares the level of social inclusion with the level of performance in ICT, competitiveness and knowledge (measured as the mean of the overall scores for each of the three dimensions). In some countries, this lineal relationship seems to have become a reality to a certain extent: Sweden and Denmark score highest for both, whilst Greece, Spain and Italy score lowest. However, it is also evident that this relationship is inexistent in many other cases. The correlation between both variables is very weak (r=0.4) and not significant, a similar result being obtained when the recent trends are analysed.

Relationship between scores on ICT, competitiveness and knowledge and scores on social inclusion



It is easier to understand the implications of this lack of a relationship when we realise that balanced progress towards the KBS, which also includes progress towards a more inclusive society, is closely linked to the different models of the welfare state. In this case, the Annova test confirms the existence of a strong relationship between the degree of KBS performance and the different models of the welfare state: mediterranean, continental, liberal and nordic[18]. As shown in the graph below, three broad groups of countries can be distinguished: at one end of the scale are the Mediterranean countries (with low KBS scores), at the other end of the scale the Scandinavian countries (with high scores), whilst the continental and liberal countries occupy the intermediate positions. It should also be added that, as already explained, the main difference between the continental and liberal countries is that the latter have higher levels of social exclusion.

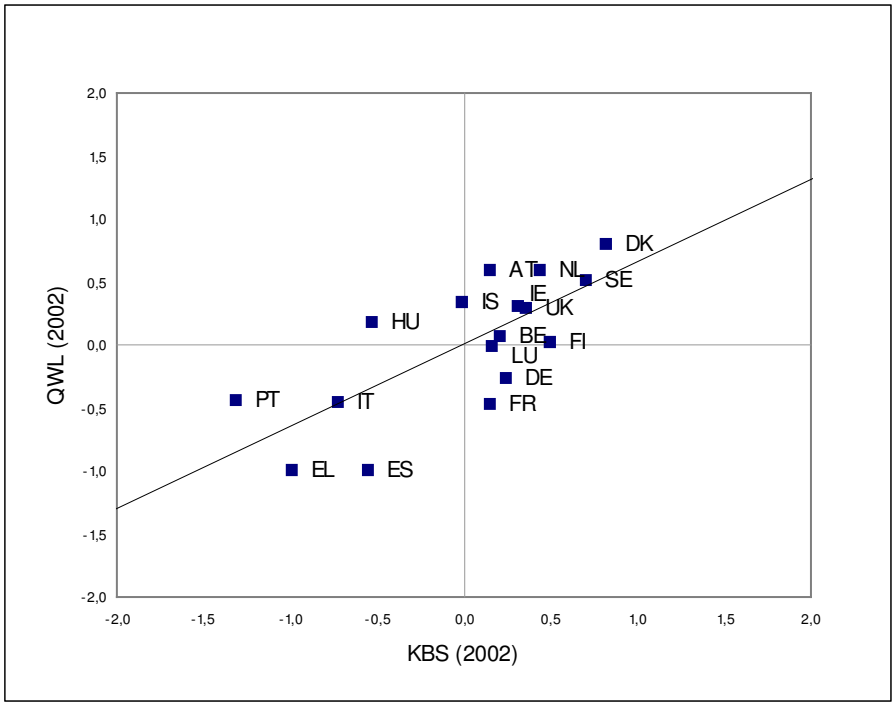
Relationship between welfare state models and KBS scores



Finally, the analysis also confirms that, when there is balanced progress towards the KBS, this progress does appear to be associated with a higher quality of working life. In other words, there is a relevant (r=0.7) and significant (level 0.01) correlation between the KBS and QWL indices, as can be observed in the following graph.

[18] F=42,15; p<0.01; eta square=0.99

Relationship between KBS scores and QWL scores

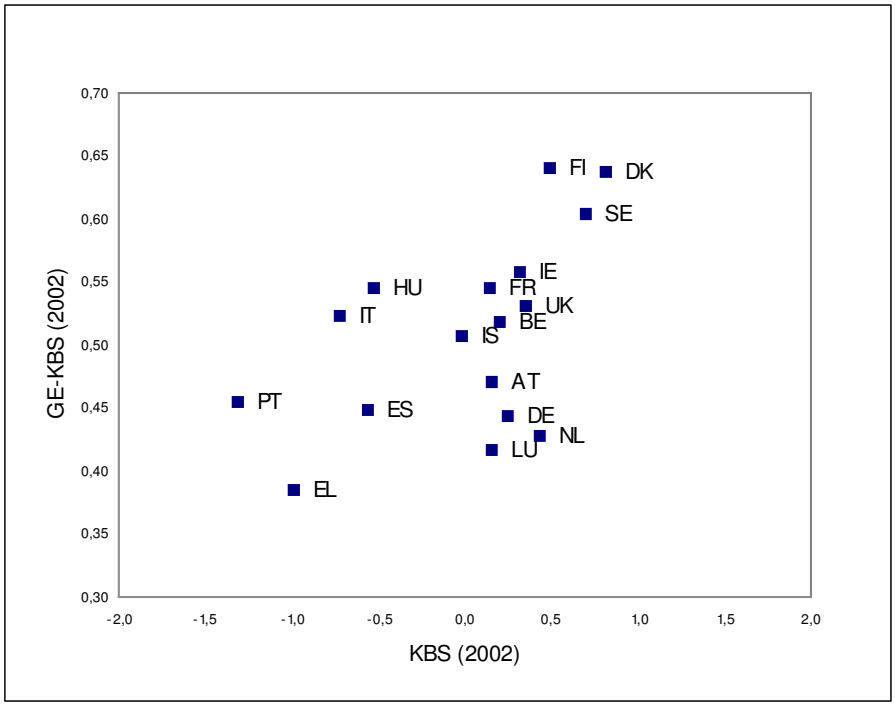


If this analysis provides any empirical evidence, this is in line with the approaches stating that economic and technical progress is not unavoidably associated with social progress. Depending on the country, high levels of ICT penetration, competitiveness and even access to knowledge co-exist with more or less unemployment, poverty and social exclusion. In this respect, the analysis reinforces the idea that "policy matters", establishing a connection between different models of the welfare state and different models of transition towards the KBS, more or less balanced, more or less inclusive and with a higher or lower quality of working life.

3.6.2. KBS and gender equality

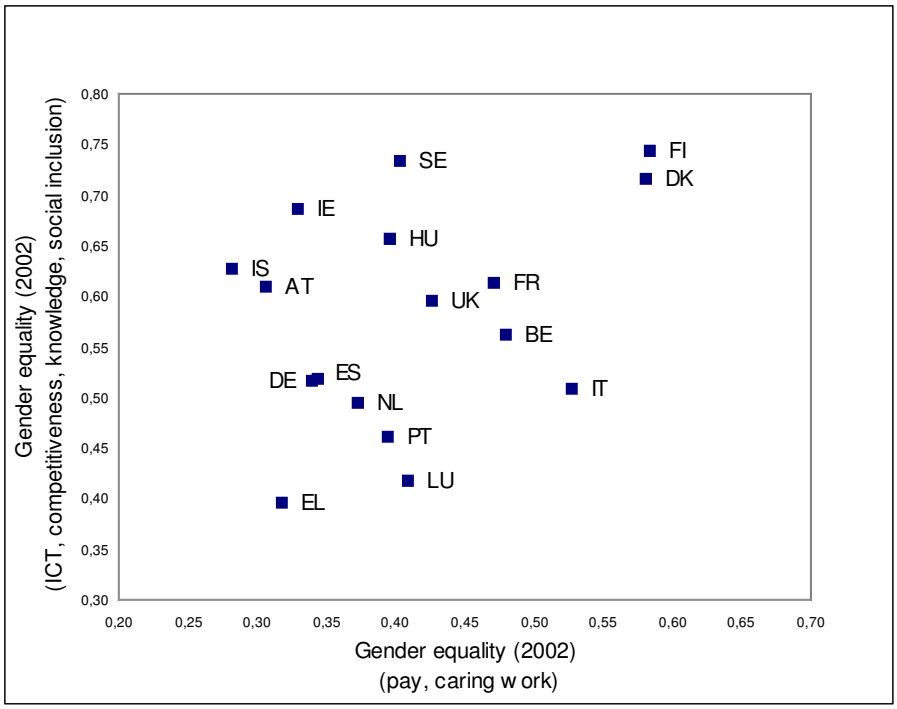
Does progress towards the KBS imply more gender equality? Again, the analysis carried out does not provide evidence in this respect. As shown in the graph below, the relationship between the KBS and GE-KBS indices is very weak (r=0.5). However, the lack of a relationship between gender equality and the different models of transition towards the KBS (and welfare state models) should not be surprising. As is well known, debate still continues concerning how to include the gender dimension fully into an analysis of the welfare state, and naturally the previously used typology does not achieve this. Furthermore, a concept of KBS has expressly been used throughout the study that precludes key aspects of gender equality, such as equal pay and the equal sharing of caring work.

Relationship between KBS scores and GE-KBS scores



From this viewpoint, it is of greater interest to realise the lack of relationship between different aspects of gender equality as such. The following graph compares the level of equality in those aspects more directly related to the performance in KBS (ICT, competitiveness, knowledge, social inclusion), with the equality achieved in pay and sharing of caring work. In both cases, the overall score was calculated as the average of the scores achieved in each of these dimensions. As can be seen, the relationship is non-existent and the same results are achieved by including the desegregation dimension in either of the two axes. Furthermore, the comparison between the GE-KBS and GE-QWL indexes shows that the overall level of gender equality in the transition towards the KBS bears no relation either to the level of gender equality with regard to the quality of working life.

Relationship between overall scores on gender equality in ICT, competitiveness, knowledge and social inclusion and overall scores on gender equality in pay and caring work



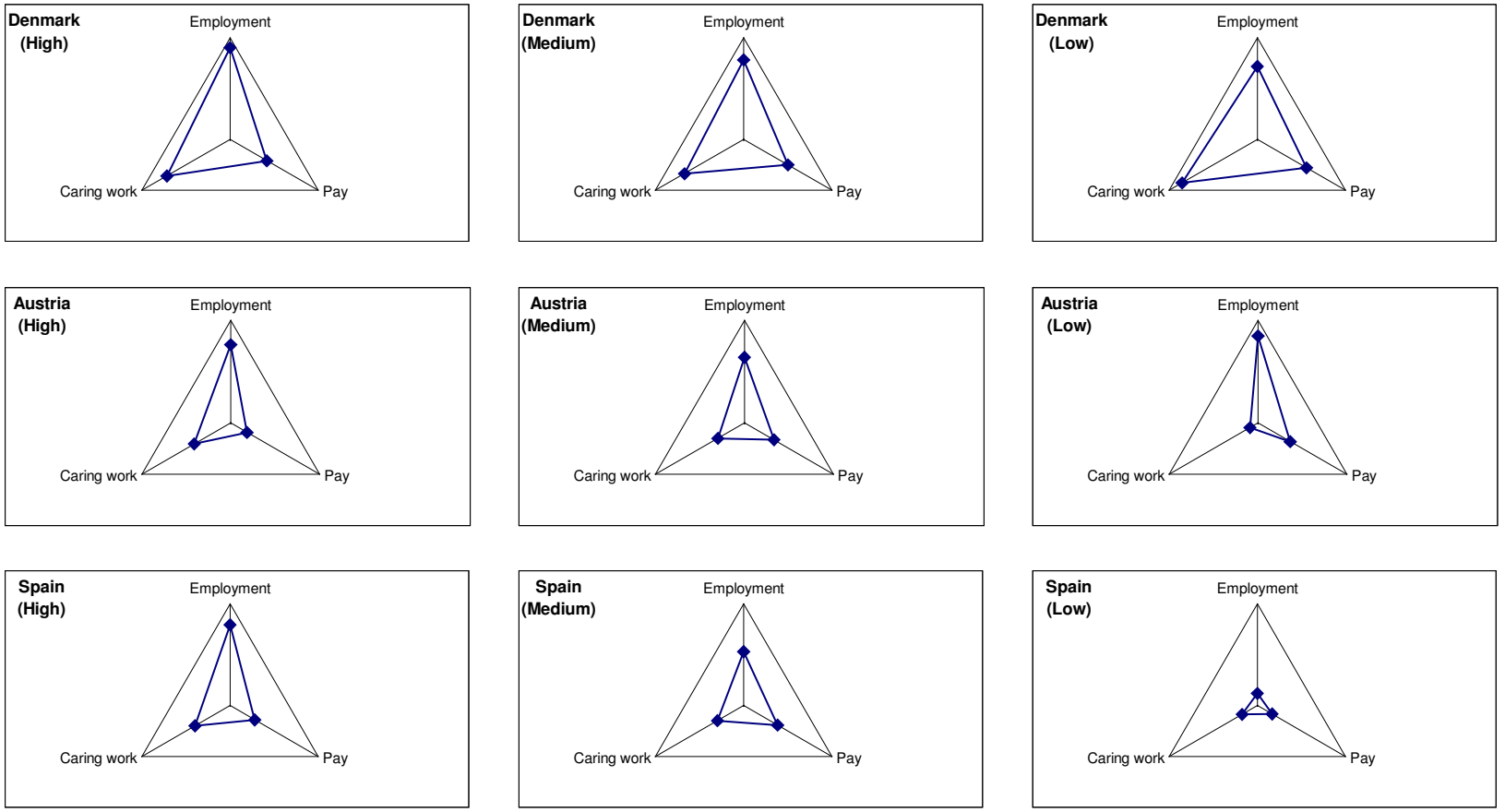
A comparison of gender (in)equalities across different social groups, namely knowledge and non-knowledge workers, might shed some light on these apparent paradoxes. In the line of previous Wellknow reports (Serrano-Pascual and Mósesdóttir, 2003), it should be taken into account that the gender approach is incomplete unless it is integrated with a social (class) approach: gender inequalities and social inequalities are linked and both shape the division between paid and unpaid work, the quality of working life and the risk of poverty and social exclusion. A preliminary approach to this question seems to sustain this statement.

The following graph compares the level of gender equality in three key aspects (employment, pay[19] and caring work) by level of education (high, medium, low). The comparison is made for three countries showing quite different profiles throughout the study: Denmark, Austria and Spain. In terms of progress made towards the KBS and the quality of working life, Denmark is one of the countries in the best situation, Austria is in an intermediate place and Spain falls clearly behind. Furthermore, Denmark combines high levels of gender equality both in the KBS and in quality of working life; Austria has low gender equality in the KBS, but one of the highest levels in quality of working life; and Spain has low gender equality levels in both cases.

As is shown in the graph, the differences between these three countries are reinforced when the level of gender equality is analysed for each educational level. Again, Denmark reveals the best situation, with similar levels of gender equality for the three groups. It is worth noting, however, that the level of gender equality in employment is the highest for people with tertiary education, but the gender pay gap is also the largest. On the other hand, in Austria gender equality levels change substantively with the educational level. Austria shares the fact with Denmark that the gender pay gap is the largest among people with a high level of education. However, equality in employment is maximum among people with low educational levels, where there is also the maximum inequality in caring work. Finally, Spain shows an extreme difference depending on the educational level. The situation in Spain is similar to that of Austria for high and medium educational levels, but it is radically different for the lowest educational level. In this case, inequality is maximum (and very high) in the three dimensions: employment, pay and caring work. Obviously to go into depth on this question lies entirely outside the framework of this study: our, far more limited, objective, is to draw attention to the existence of certain paradoxes and stress the need to enhance research in this field by dealing jointly with gender and social inequalities.

[19] Monthly earnings

Gender equality in employment, pay and caring work by level of education (high, medium and low) 2002



Note: radar charts refer to gender equality scores calculated by min-max procedure. For each dimension, the minimum value is always the same, allowing comparison for both countries and educational levels.

4. CONCLUSIONS

The purpose of this report was to develop a system for measuring, ranking and benchmarking the progress towards the knowledge-based society (KBS) from the perspective of gender mainstreaming and focusing on the main employment and gender challenges. Four different indices have been constructed:

— A knowledge-based society index for benchmarking economic, technical and social performance in the transition towards the KBS (KBS index)

— A gender equality index in the knowledge-based society, for measuring the extent of gender inequality in the transition towards the KBS (GE-KBS index)

— A quality of working life index, for benchmarking the quality of working life in the transition towards the KBS (QWL index)

— A gender equality index in the quality of working life, for measuring the extent of gender inequality in the quality of working life in the transition towards the KBS (GE-QWL index)

The main empirical results for each index, covering the EU-15 Member States plus Iceland and Hungary, are the following:

— KBS overall scores show a clear divide between Scandinavian and Mediterranean countries. Denmark and Sweden, followed a certain distance by Finland and the Netherlands, score highest. Closing the ranking, Portugal is found in the worst position, followed by Greece, Italy, Spain and Hungary. From 1997 to 2002, there has been a general improvement on KBS scores, Germany being the only country with a (slightly) negative percentage change.

— Again, Scandinavian countries score highest on GE-KBS, although in this case Mediterranean countries are not found, as a homogenous group, in the worst positions: Germany, Netherlands, Luxembourg and Greece close the ranking. However, even in Scandinavian countries, full gender equality is still a long way off: the maximum score is below 0.65, being very far from the value 1 which corresponds to a situation of complete gender equality. Trends over 1997-2002 are rather contradictory (gender equality increased in some countries, but decreased in others) and it is worth noting that progress towards gender equality has been less general and intense than progress towards KBS.

— Denmark scores highest on QWL, followed a certain distance by Austria, the Netherlands and Sweden, whilst Spain and Greece close the ranking. In general terms, there has been some improvement in QWL scores from 1997 to 2002, Finland being the only country with a negative percentage change.

— Finally, with regard GE-QWL, Austria and Denmark score highest, while Spain is found closing the ranking and well behind the other countries. Again, however, full gender

equality is still a long way off, even in those countries with the most favourable situation, as the maximum score does not reach 0.8. Furthermore, progress towards gender equality is far from having been a general trend. In a large number of countries inequality appears to have increased from 1997 to 2002.

Finally, the analysis carried out does not provide clear evidence on the relationship between progress towards the KBS, social inclusion and gender equality. However, a more in-depth and contextualised analysis should be needed before drawing any further conclusion.

REFERENCES

Amossé, T. (2004) "Profession au féminin. Représentation statistique, construction sociale", Travail, Gender et Societé, April 2004. Anxo, D. & C. Fagan (2000). 'Service employment: a gender perspective', in D. Anxo, & D. Storrie (2000) *The job creation potential of the service sector in Europe*, 89-111. Brussels: European Commission/DG for Employment and Social Affairs.

Arnal, E., Wooseok O. & Raymond Torres (2001) *Knowledge, work organisation and economic growth,* Labour market and social policy –occasional papers nº 50, OECD, June 2001.

Atkinson, A.B., B. Cantillon, E. Marlier and B. Nolan, *Social indicators: the European Union and social inclusion*, Oxford University Press, 2002.

Atkinson, A.B, E. Marlier and B. Nolan (2004) "Indicators and targets for social inclusion in the European Union" *Journal of Common Market Studies*, 42(1):47-75.

Castells, M. (2000) *Sustaining the new economy. Work, family and community in the informational age,* New York: Sage

Dijkstra, A.G. & L.C. Hanmer (2000), "Measuring socio-economic gender inequality: toward an alternative to the UNDP gender-related development index", *Feminist Economics*, 6 (2) p. 41-75.

Dijkstra, A.G. (2002), "Revisiting UNDP's GDI and GEM: towards an alternative", *Social Indicators Research* (57): 301-338.

ECATT (2000) *Benchmarking telework and E-Commerce in Europe – Final report,* IST Programme, European Commission

EGGE (2001) *Indicators on gender equality in the European Employment Strategy - Country Fiche Files*, European Work and Employment Research Centre, Manchester School of Management, UMIST, http://www2.umist.ac.uk/management/ewerc/index.html

ETAN Expert Group on Women and Science (2000) *Science policies in the European Union – Promoting excellence through mainstreaming gender equality,* A report from the European Technology Assessment Network (ETAN), European Commission. Research Directorate General – Improving the Human Research Potential and Socio-economic Knowledge Base, Luxembourg: Office for Official Publications of the European Communities.

European Commission (2000) *Women and Scientific Employment: Mapping the European data - A directory investigating data availability in EU countries*, "Glover Directory", European Commission. Research Directorate General, Women and Science unit, Luxembourg: Office for Official Publications of the European Communities.

European Commission (2001a) *Employment and Social Policies: A Framework for Investing in Quality* [Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions COM (2001) 313 of 26.6.2001]

European Commission (2001b) *Employment in Europe 2001,* Luxembourg: European Commission

European Commission (2001c) *Towards a European Research Area - Key Figures 2001- Special edition - Indicators for benchmarking of national research policies,* European Commission, Research Directorate General, Luxembourg: Office for Official Publicaitons of the European Communities

European Commission (2002a) *Employment in Europe 2002,* Luxembourg: European Commission

European Commission (2002b) *Towards a European Research Area – Science, Technology and Innovation - Key Figures 2002* European Commission, Research Directorate General, Luxembourg: Office for Official Publicaitons of the European Communities

European Commission (2003a) *Women and Science – Statistics and Indicators* European Commission, Directorate General for Research, Science and Society, Luxembourg: Office for Official Publications of the European Communities.

European Commission (2003b) *Indicators for monitoring the 2003 Employment Guidelines – Latest update: 15/12/2003* European Commission, Directorate General Employment and Social Affairs

Eurostat (2002a) *The life of women and men in Europe. A statistical portrait,* Theme 3: Population and Social Conditions, Brussels: Eurostat

Eurostat (2002b) *Science and Technology in Europe – Statistical Pocketbook*, Luxembourg: Office des publications officielles des Communautés européennes.

Fagan, C. & B. Burchell (2002) *Gender, jobs and working conditions in the European Union,* European Foundation for the Improvement of Living and Working Conditions, Office for Official Publications of the European Communities: Luxembourg

Fahey, T., B. Nolan & C. T. Whelan (2003) *Monitoring quality of life in Europe*, European Foundation for the Improvement of Living and Working Conditions, Office for Official Publications of the European Communities: Luxembourg

Franco, A. & K. Winqvist (2002) "At the margins of the labour market? Women and men in temporary jobs in Europe" *Statistics in focus,* Theme 3, 13/2002

Freyssenet, J. (2004) "Taux de chômage ou taux d'emploi, retour sue les objectifs européens", *Travail, Genre et Sociétés,* nº 11, Avril 2004, pp.109-120

Gallie, D. & S. Paugam (2002) *Social precarity and social integration,* Report written for the European Commission, Directorate-General Employment, October 2002, http://europa.eu.int/comm/public_opinion/archives/eb/ebs_162en.pdf

Gospel, H. (2003) *Quality of working life: a review of changes in work organization, conditions of employment and work-life arrangements,* Conditions of Work and Employment Series No.1, International Labour Office, Geneva

Jackson, A. & P. Kumar (1998) *Measuring and Monitoring the Quality of Jobs and the Work Environment in Canada*, Paper for the Conference of the State of Living Standards and the Quality of Life in Canada, October 30-31, 1998, Ontario

Jencks, C., L. Perman, & L. Rainwater (1998)*"What is a Good Job? A New Measure of Labor Market Success",* American Journal of Sociology, 93 May, 1998.pp. 1322-57

Joint Research Centre – Applied Statistic Group (JRC-ASG) (2002) *State-of-the-art Report on Current Methodologies and Practices for Composite Indicator Development*, Joint Research Centre - Applied Statistics Group, Ispra, June 2002 www.jrc.cec.eu.int/uasa/prj-comp-ind.asp)

Hagerty, M. R., R.A. Cummins, A.L. Ferriss, K. Land, A.C. Michalos, M. Peterson, A. Sharpe, J. Sirgy & J. Vogel (2001) 'Quality of life indexes for national policy: review and agenda for research', in *Social Indicators Research*, No. 55, 2001, pp. 1-96.

Helsinki Group on Women and Science (2002) *National Policies on Women and Science in Europe,* European Commission, Directorate-General for Research, Women and Science, Luxembourg: Office for Official Publications of the European Communities.

Kjelstad, R. & J.E. Kristiansen (2001), "Constructing a regional gender equality index: Reflections on a first experience with Norwegian data", *Statistical Journal of the United Nations* ECE 18, pp. 41-49.

Mandel, H.& M. Shalev (2003) "Class Conditioning of Welfare State Effects on Gender Inequality: a Preliminary Comparative Analysis", Paper prepared for *European Societies or European Society?*, EuroConference on Institutions and Inequality, Helsinki, Finland, 20-24 September 2003.

Merllié, D. & P. Paoli (2001) *Ten years of working conditions in the European Union*. Dublin: European Foundation of Living and Working Conditions.

Meulders, D., R. Plasman, S. Lemière, S. Danis, S. O'Dorchai, I. Tojerow, M. Jepsen, A. Gangji, D. Moreno, M. Caprile; K. Kruger (2003) *Women in industrial research – Analysis of statistical data and good practices of companies,* Directorate-General for Research, Science and Science, Luxembourg: Office for Official Publications of the European Communities

OECD (1995), *Canberra Manual - The Measurement of Scientific and Technological Activities – Manual of the Measurement of Human Resources devoted to S&T, OECD, Paris*

OECD (2001), Balancing work and family life: helping parents into paid employment. In: *OECD Employment Outlook* (2001). Paris: OECD.
OECD (2002a) *Measuring the Information Economy 2002*. Paris: OECD
OECD (2002b) *Information Technology Outlook 2002*. Paris: OECD.
OECD (2002c) *Frascati Manual - Proposed Standard Practice for Surveys of Research and Experimental Development,* Paris: OECD.
OECD (2003a) *Education at a Glance 2003,* Paris: OECD
OECD (2003b) *Employment outlook 2003 - Towards More and Better Jobs,* Paris: OECD
OECD (2003c) *Science, Technology and Industry Scoreboard 2003,* Paris, OECD
Paoli, P. & D. Merllié (2001) *Third European Survey on working conditions 2000,* Dublin: European Foundation of Living and Working Conditions
Plantenga, J. & C. Remery (2002). *Indices: review of the literature*. Utrecht: Institute of Economics (internal document).
Plantenga, J., H. Figueiredo, C. Remery & M. Smith (2003) *Towards an EU gender equality index*, Utrecht: Utrecht School of Economics/UMIST
Plantenga, J. & J. Hansen (1999). "Assessing equal opportunities in the European Union", *International Labour Review*, vol. 138, no. 4, pp. 351-379.
Plantenga, J. (2004) "Changing work and life patterns: examples of new working time arrangements in the European member states", in J. Zollinger G. & E. Holst, *Changing life patterns in Western Industrial Societies. Advances in life course research*. Vol. 8, 1990-135. Amsterdam: Elsevier.
PURE project www.etla.fi/PURE
Rubery, J., C. Fagan, D. Grimshaw, H. Figueiredo & M. Smith (2001) *Indicators on gender equality in the European Employment Strategy*, EWERC, Manchester School of Management, UMIST, http://www.umist.ac.uk/management/ewerc/
Rubery, J., M. Smith, C. Fagan & D. Grimshaw (1998) *Women and European employment*, London: Routledge.
Serrano-Pascual, A. and L. Mósesdóttir (eds.) (2003) *The implications of the KBS for employment and gender relations. Towards a conceptual and analytical framework*. WELLKNOW Project report no. 1, June 2003, http://www.bifrost.is/wellknow/Files/Skra_0002465.PDF
Shaaper, M. (2003) *A proposal for a core list of indicators for ICT measurement* , OECD,http://www.oecd.org/findDocument/0,2350,en_2649_34449_1_119656_1_1_1,00.html
Sibis (2003a) *SIBIS, New eEurope Indicator Handbook* University of Applied Sciences Solothurn Northwest Switzerland, www.sibis-eu.org
Sibis (2003b) *Benchmarking social inclusion in the information society in Europe and the US,* www.sibis-eu.org
Sibis (2003c) *SIBIS Pocket Book 2002/03 - Measuring the Information Society in the EU, the EU Accession Countries*, *Switzerland and the US*, Empirica GmbH, www.sibis-eu.org
Sjørup, K. and U. Behning (2003) "Gender mainstreaming and the European Employment strategy", in Serrano-Pascual, A. and L. Mósesdóttir (eds.) (2003) *The implications of the KBS for employment and gender relations. Towards a conceptual and analytical framework*. WELLKNOW Project report no. 1, June 2003, pp. 65-92 http://www.bifrost.is/wellknow/Files/Skra_0002465.PDF
Sjørup, K (ed.) (2004) *The European Employment Strategy and national employment policies. Addressing the employment and gender challenges of the Knowledge Based Society*, WELLKNOW Project report no. 2, June 2004 http://www.bifrost.is/wellknow/Files/Skra_0005517.pdf
Speckesser, S., H. Schütz & G. Schmid (1998) "Benchmarking labour markets and labour policies performance with reference to the European Employment Strategy, in Tronti, L (dir) (1998) *Benchmarking employment performance and labour market policies: Final report 1997*, Berlin, Institute of Applied Socio-Economics (IAS), pp. 76-97
Star (2001) *ITEC skills and employment - assessing the supply and demand: an empirical analysis*. University of Sussex: SPRU Science and Technology Policy Research.

Statistics Sweden (2004). *EqualX - Gender equality index* http://www.h.scb.se/SCB/BOR/SCBBOJU/jam_htm_en/index.asp

SWMIS [Statistical Workshop on Monitoring the Information Society: Data, Measurement and Methods Monitoring the Information Society] (2003) Joint UNECE/UNCTAD/UNESCO/ITU/OECD/Eurostat Statistical Workshop in the framework of the World Summit on the Information Society, Geneva, 8-9 December 2003.

UNDP (2001) *Human Development Report*, UNDP

Webster, J. (2001) *Reconciling adaptability and equal opportunities in European workplaces. Report for DG-Employment of the European Commission,* April 2001

APPENDICES

A Indicators: definitions and sources

KBS and GE-KBS indicators

KBS 1.1	Households with access to the Internet
Definition	Percentage of households who have Internet access at home. All forms of use are included.
Institutional source	EU – Structural indicators
Survey source	Community survey on ICT Usage in Households and by Individuals (2002 and 2003 surveys); Hungary: Hungarian Household Budget Survey (HBS) (not included in the Structural indicators)
Notes	Data for EU-15 member states provided by Eurobarometer (it only refers to households having a telephone and thus the results are slightly higher than surveys referring the whole population). Data for other European countries provided by National Statistical Institutes. In Hungary, the survey refers to Hungarian citizens living in private households in the country.

GE-KBS 1.1	Gender digital gap
Definition	The gender digital gap is an index that measures the difference between the general population and the women in the following aspects: - Access of the Internet - Use of the Internet - Use of a computer
	The index is calculated according to the following formula $DGG = 100 - \sum_{j=1}^{m} w_j \, p_{wj} / p_j$ where w_j : wheight of indicator j (j=1...m) p_{wj} : value of indicator j for women p_j : value of indicator j for total population j indicator wheight 1: computer usage 0.5 2: Internet usage 0.3 3: Internet usage at home 0.2 (m = 3)
Institutional source	SIBIS project
Survey source	SIBIS GPS 2002; SIBIS GPS-NAS 2003
Notes	The value for Hungary has been estimated from the aggregated data of 10 new/acceding EU member states (Bulgary, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Romania, Slovenia, Slovakia).

KBS 1.2	Digital literacy

Definition	The digital literacy index is a measure that combines four types of skills in using the Internet: - Communicating with others (by e-mail and other online methods) - Obtaining (or downloading) and installing software on a computer - Questioning the source of information on the Internet - Searching for the required information using search engines The index combines these items, based on self-assessment, into a single scale with a range from 0 to 3, with 0 representing the lowest possible digital literacy score and 3 representing the highest.
	The index is calculated according to the following formula: For each respondent, the average digital literacy score is calculated: $COQS_r = \sum^{j}_{j=1} s_j / j$ where $COQS_r$: average score in digital literacy (Communicate, Obtain, Question, Search) per individual respondent r s_j : score for skill j (0=not confident; 3=very confident) j skill 1: communicate 2: obtain 3: question 4: search (j=4) For the total population, the average digital literacy score is calculated: $COQS = \sum^{R}_{j=1} COQS_r / R$ where COQS : average score in digital literacy (Communicate, Obtain, Question, Search) for the total population R: total population
Institutional source	SIBIS project
Survey source	EU15: SIBIS GPS 2002; New/acceding EU MS: SIBIS GPS-NAS 2003
Notes	The value for Iceland has been estimated by a linear regression from the indicators KBS 1.1 and KBS 1.2

GE-KBS 1.2	**Gender gap in digital literacy**
Definition	Difference between men's and women's average scores in digital literacy as percentage of men's average score in digital literacy.
Institutional source	SIBIS project
Survey source	SIBIS GPS 2002; SIBIS GPS-NAS 2003
Notes	

KBS 2.1	**Labour productivity**
Definition	Gross Domestic Product (GDP) in Purchasing Power Standards (PPS) per hour worked relative to EU-15 (EU-15 = 100). Gross domestic product (GDP) is a measure for the economic activity in an economy. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP is expressed at market prices, that is including taxes and subsides on

	production and incomes. For productivity measures, GDP is used at current prices expressed in PPS . PPS are a fictive currency unit that takes into account purchasing powers, i.e. different price levels, They are fixed in a way that renders the average purchasing power of one Euro in the European Union equal to one PPS
Institutional source	EU – Structural indicators
Survey source	GDP is the central aggregate of National Accounts, and it is calculated following the ESA 95 (European System of national and regional accounts of the Community). Hours worked are based on Eurostat figures and OECD data for the average hours worked per person employed per country
Notes	

GE-KBS 2.1	**Gender gap in managerial and professional positions**
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the working population in managerial and professional positions. Managerial and professional positions are defined as ISCO major groups 1 (legislators, senior officials and managers) 2 (professionals) and 3 (technicians and associated professionals).
Institutional source	-
Survey source	LFS
Notes	

KBS 2.2	**Revealed comparative advantage of high-tech and medium high-tech industries**
Definition	For high-tech and medium high-tech industries, observed trade balance minus theoretical trade balance, expressed as percentage of manufacturing trade. A positive value for an industry indicates a structural surplus and a negative one a structural deficit. The classification of high-tech and medium high-tech industries is based on the OECD's classification (itself based on the ratio of R&D expenditure to GDP or R&D intensity): – High-tech industries - Aircraft and spacecraft (ISIC Rev.3 353) - Pharmaceuticals (ISIC Rev.3 2423) - Office, accounting and computing machinery (ISIC Rev.3 30) - Radio, television and communication equipment (ISIC Rev.3 32) - Medical, precision and optical instruments (ISIC Rev.3 33) – Medium high-tech industries - Electrical machinery and apparatus, n.e.c. (ISIC Rev.3 31) - Motor vehicles, trailers and semitrailers (ISIC Rev.3 34) - Chemicals excluding pharmaceuticals (ISIC Rev.3 24 exc. 2423) - Railroad equipment and transport equipment, n.e.c. (ISIC Rev.3 352+359) - Machinery and equipment, n.e.c. (ISIC Rev.3 29)
	The indicator is calculated according to the following formula Contribution to the trade balance = $(X_i - M_i) - (X - M)\ (X_i + M_i)/(X + M)$ where X refers to exports and M refers to imports $(X_i - M_i)$: observed industry trade balance of industry i $(X - M)\ (X_i + M_i)/(X + M)$: theoretical industry trade balance of industry i The indicator is additive and individual industries can be grouped together by summing their respective values: by construction, the sum over all industries is zero.

Institutional source	OECD
Survey source	
Notes	

GE-KBS 2.2	Gender gap in high-tech and medium-high-tech industries
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the working population in high-tech and medium high-tech industries.
Institutional source	-
Survey source	LFS
Notes	

KBS 3.1	Tertiary education attainment
Definition	Percentage of people aged 25-64 years having attained tertiary education level relative to the total population of the same age group. Tertiary education corresponds to ISCED 5 (first stage of tertiary education – not leading directly to an advanced research qualification) and ISCED 6 (second stage of tertiary education – leading to an advanced research qualification). For calculating this indicator, the denominator consists in the total population aged 25-64, excluding no answers to the questions "highest level of education or training attained"
Institutional source	OECD
Survey source	LFS
Notes	

GE-KBS 3.1	Gender gap in tertiary education attainment
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the population 25-64 with tertiary education level
Institutional source	-
Survey source	LFS
Notes	

KBS 3.2	Youth upper-secondary education attainment
Definition	Percentage of people aged 20-24 years having attained at least upper secondary education level relative to the total population of the same age group. Upper secondary education corresponds to ISCED 3-4, i.e. upper secondary education and post-secondary non-tertiary education. For calculating this indicator, the denominator consists in the total population aged 20-24, excluding no answers to the questions "highest level of education or training attained"
Institutional source	EU – Structural indicators
Survey source	LFS
Notes	

GE-KBS 3.2	Gender gap in youth upper-secondary education attainment
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the population 20-24 with at least upper-secondary education level.
Institutional source	-
Survey source	LFS
Notes	

KBS 4.1	Employment rate in FTE

Definition	Percentage of persons aged 15 to 64 in full-time equivalent employment relative to the total population of the same age group The number of persons in full-time equivalent employment is calculated dividing the total hours worked by the average annual number of hours worked in full-time jobs.
Institutional source	EU – EES indicators
Survey source	LFS
Notes	

GE-KBS 4.1	**Gender employment gap in FTE**
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the working population 15-64 in full-time equivalent employment.
Institutional source	-
Survey source	LFS
Notes	

KBS 4.2	**Poverty rate**
Definition	Percentage of persons with an equivalised disposable income below the risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income (after social transfers). The total net income of each household is calculated by adding together the income received by all the members of the household from all sources. For each person, the 'equivalised total net income' is calculated as its household total net income divided by equivalised household size according to the modified OECD scale (which gives a weight of 1.0 to the first adult, 0.5 to other persons aged 14 or over who are living in the household and 0.3 to each child aged less than 14). Consequently, each person in the same household receives the same 'equivalised total net income'. The population consists of all the persons living in private households of a country. The term person therefore includes all the members of the households, whether they are adults or children. Persons with missing 'equivalised total net income' are excluded from the calculations (ie. people with missing household income or households with missing composition details).
Institutional source	EU – Structural indicators
Survey source	ECHP
Notes	

GE-KBS 4.2	**Gender gap in income vulnerability**
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the population in situation of income vulnerability. The population in situation of income vulnerability is defined as the population with a net personal income below the income vulnerability threshold, wich is set at 60 % of the national median of total net personal income (after social transfers), for those persons with personal income over 0. The population consists of all adult persons (15 years and more).
Institutional source	-
Survey source	ECHP
Notes	

GE-KBS 5.1	**Gender gap in science and engineering**

Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women relative to the graduates in science and engineering . Science and engineering covers the following ISCED fields of study: - life sciences (ISC42) - physical sciences (ISC44) - mathematics and statstics (ISC46) - computing (ISC48) - engineering and engineering trades (ISC52) - manufacturing and processing (ISC54) - architecture and building (ISC58) Graduates refers to new graduates in the reference year, not the whole population with tertiary level of education.
Institutional source	-
Survey source	Eurostat, New Cronos, Education database
Notes	

GE-KBS 5.2	**Gender pay gap for tertiary education graduates**
Definition	Difference between men's and women's average gross hourly earnings as percentage of men's average gross hourly earnings, for persons with tertiary education level. The indicator refers to paid employees with earnings over 0 and aged 15+.
Institutional source	-
Survey source	ECHP
Notes	

GE-KBS 6.1	**Hourly gender pay gap**
Definition	Difference between men's and women's average gross hourly earnings as percentage of men's average gross hourly earnings. The indicator refers to paid employees with earnings over 0 and aged 15+.
Institutional source	-
Survey source	ECHP and national sources
Notes	For Iceland, only employees in enterprises with 10 or more employees are included; For Hungary, only full-time employees in enterprises with more than 20 employees (1995 – 97) and more than 5 employees (1998 -) are included; For Sweden, data are based on full-time equivalent monthly salaries, not hourly earnings.

GE-KBS 6.2	**Monthly gender pay gap**
Definition	Difference between men's and women's average gross monthly earnings as percentage of men's average gross hourly earnings. The indicator refers to paid employees with earnings over 0 and aged 15+.
Institutional source	-
Survey source	ECHP
Notes	

KBS 7.1	**Gender gap in caring time for children**
Definition	Difference in percentage points between the percentage of women relative to the overall population (50%) and the percentage of women's weekly hours spent looking after chldren relative to the total number of weekly hours spent looking after children by the 29-49 population with dependent children (0-14) in their household.
Institutional source	-
Survey source	ECHP
Notes	

KBS 7.2	**Gender gap in caring time for dependent adults**

Definition	Difference in percentage points between the percentage of women in the overall population (50%) and the percentage of women's weekly hours spent looking after dependent adults relative to the total number of weekly hours spent looking after dependent adults by the adult population (15+)
Institutional source	-
Survey source	ECHP
Notes	

QWL and GE-QWL indicators

QWL 1.1	**Low-wage**
Definition	Percentage of low-wage earners relative to the paid employees. Low wage earners are paid employees earning less than the 60% median hourly wage. The indicator refers to paid employees earning over 0 and aged 16-64
Institutional source	-
Survey source	ECHP; Iceland: Institute of Labour Market Research
Notes	

GE-QWL 1.1	**Gender gap in low-wage**
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the low-wage earners.
Institutional source	-
Survey source	ECHP
Notes	

QWL 1.2	**Working poverty**
Definition	Percentage of working poor among the working population. Working poor are defined as those individuals who are classified as "at work" (either in wage and salary employment or self-employed) according to the definition of most frequent activity status (the status that individuals declare to have occupied for more than half the total number of months for which information on any status in the calendar of activities is available) whose household equivalised disposable income is below the poverty threshold (60% of national median equivalised income)
Institutional source	EU – EES Indicators
Survey source	ECHP. For Hungary, data provided by the Central Statistical Office (referred in the NAP 2004)
Notes	

GE-QWL 1.2	**Gender gap in working income vulnerability**
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the working population in situation of income vulnerability.
Institutional source	-
Survey source	ECHP
Notes	

QWL 2.1	**Serious accidents at work**

Definition	The incidence rate of serious accidents at work is the number of accidents at work with more than 3 days' absence that occurred during the year divided by number of persons in employment in the reference population and multiplied by 100 000. An accident at work is a discrete occurrence in the course of work that leads to physical or mental harm. This includes accidents in the course of work outside the premises of his/her business, even if caused by a third party, and cases of acute poisoning. It excludes accidents on the way to or from work, occurrences having only a medical origin, and occupational diseases. Statistics on accident at work cover the following NACE sectors: A, D, E, F, G, H, I, J, K. The data relating to the number of persons in employment are provided by the LFS (with some corrections for Spain, Luxemburg and Portugal). The reference population used to calculate the incidence rate is filtered according to the groups actually covered by the national data of accidents at work (e.g., when self-employed are not included in the national data they are also excluded in the reference population). A final adjustment concerns the sectorial coverage of countries: since the activity structure of a country influences the value of its total incidence rate, this one is standardised by giving each of the branches the same weight at national level as at EU level.
Institutional source	Eurostat, New Cronos
Survey source	Administrative data for EU-15 member states; administrative data or statistical business surveys for the new EU member states. Data for Hungary provided by the Central Statistical Office Statistical Department of Health Care (NAP 2004) (not included in New Cronos)
Notes	Figures are not fully comparable between EU 15 member states and new EU member states.

GE-QWL 2.1	**Gender gap in serious accidents at work**
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women's serious accidents at work relative to the total number of serious accidents at work.
Institutional source	-
Survey source	Administrative data for EU-15 member states; administrative data or statistical business surveys for the new EU member states.
Notes	Figures are not fully comparable between EU 15 member states and new EU member states.

QWL 2.1	**Satisfaction with health**
Definition	Average satisfaction with health for working population 15-64. The average is calculated assigning a scale from 1=Very bad to 5=Very good.
Institutional source	-
Survey source	ECHP
Notes	

GE-QWL 2.1	**Gender gap in satisfaction with health**
Definition	Difference between men's and women's average scores in satisfaction with health as percentage of men's average score in satisfaction with health.
Institutional source	-
Survey source	ECHP
Notes	

QWL 3.1	**Professional work**
Definition	Percentage of professionals aged 15-64 among the working population of the same age group. Professionals are those classified in the ISCO-88 major group 2 (professionals)

Institutional source	-
Survey source	LFS
Notes	

GE-QWL 3.1	Gender gap in professional work
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the professionals.
Institutional source	-
Survey source	LFS
Notes	

QWL 3.2	Life-long learning
Definition	Percentage of life-long learners aged 25-64 relative to the working population of the same age group. Life-long learners are defined as persons in employment who answered they received education or training in the four weeks preceding the survey. For calculating this percentage, the denominator (working population of the same age group) excludes no answers to the question 'participation to education and training'.
Institutional source	EU – EES indicators; related also to EU – Structural indicators which provides the same indicator but referred to the overall 25-64 population
Survey source	LFS
Notes	

GE-QWL 3.2	Gender gap in life-long learning
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the life-long learners
Institutional source	EU – EES indicators; related also to EU – Structural indicators which provides the same indicator but referred to the overall 25-64 population
Survey source	LFS
Notes	

QWL 4.1	Work autonomy
Definition	The work autonomy scale measures autonomy at work in four items: work methods, speed of work, task order and breaks. Low autonomy refers to autonomy on one or none of the four items and high autonomy refers to autonomy on all four items. The average score is calculated assigning the following scale: 0=Low, 1=Some and 2=High.
Institutional source	European Foundation for the Improvement of Living and Working Conditions
Survey source	Third European Working Conditions survey (2000, EU-15) and 12 Candidate Countries Working Conditions survey (2001)
Notes	

GE-QWL 4.1	Gender gap in work autonomy
Definition	Difference between men's and women's average scores in work autonomy as percentage of men's average score in work autonomy.
Institutional source	European Foundation for the Improvement of Living and Working Conditions
Survey source	Third European Working Conditions survey (2000, EU-15) and 12 Candidate Countries Working Conditions survey (2001)
Notes	

QWL 4.2	Work complexity

Definition	The average score of work complexity is calculated assigning the following scale: 0=Monotonous tasks, no complex tasks 1=Both monotonous and complex tasks 1=Neither monotonous and complex tasks 2=Complex tasks, no monotonous tasks
Institutional source	European Foundation for the Improvement of Living and Working Conditions
Survey source	Third European Working Conditions survey (2000, EU-15) and 12 Candidate Countries Working Conditions survey (2001)
Notes	

GE-QWL 4.2	**Gender gap in work complexity**
Definition	Difference between men's and women's average scores in work complexity as percentage of men's average score in work complexity.
Institutional source	European Foundation for the Improvement of Living and Working Conditions
Survey source	Third European Working Conditions survey (2000, EU-15) and 12 Candidate Countries Working Conditions survey (2001)
Notes	

QWL 5.1	**Downward mobility from the lowest pay quintile**
Definition	Number of employed people in the lowest pay quintile in year t who are unemployed or inactive in the year t+1, as percentage of the total number of employed people in the lowest pay quintile in year t. The indicator refers to the working population 15-54 with earnings over 0. The lowest pay quintile is calculated taking into account the working population (15+) with earnings over 0.
Institutional source	-
Survey source	ECHP
Notes	In order to improve the reliability of this indicator, data are calculated from two subsequent years (i.e a single indicator from year t /t+1 to years t+1/t+2 is calculated, covering the mobility from t to t+1 and the mobility from t+1 to t+2)

GE-QWL 5.1	**Gender gap in downward mobility from the lowest pay quintile**
Definition	Difference in percentage points between the percentage of women relative to the employed people in the lowest pay quintile in year t and the percentage of women relative to those employed people in the lowest pay quintile in year t who are unemployed or inactive in the year t+1.
Institutional source	
Survey source	ECHP
Notes	

QWL 5.2	**Upward mobility from the lowest pay quintile**
Definition	Number of employed people in the lowest pay quintile in year t who are employed in higher pay quintiles in the year t+3, as percentage of the total number of employed people in the lowest pay quintile in year t. The indicator refers to the working population 15-54 with earnings over 0. The lowest pay quintile is calculated taking into account the working population (15+) with earnings over 0.
Institutional source	-
Survey source	ECHP
Notes	In order to improve the reliability of this indicator, data are calculated from two subsequent years (i.e a single indicator from year t /t+1 to years t+3/t+4 is calculated, covering the mobility from t to t+3 and the mobility from t+1 to t+4).

GE-QWL 5.2	**Gender gap in upward mobility from the lowest pay quintile**

Definition	Difference in percentage points between the percentage of women relative to the employed people in the lowest pay quintile in year t and the percentage of women relative to those employed people in the lowest pay quintile in year t who are employed in higher pay quintiles in the year t+3.
Institutional source	
Survey source	ECHP
Notes	

QWL 6.1	**Unemployment rate**
Definition	Number of people unemployed as a percentage of the labour force. The labour force is the total number of people employed and unemployed. Employed persons are those who during the reference week did any work for pay or profit for at least one hour, or were not working but had jobs from which they were temporarily absent. Family workers are also included. Unemployed persons comprise persons aged 15 to 74 who were: a) without work during the reference week, i.e. neither had a job nor were at work (for one hour or more) in paid employment or self-employment; b) currently available for work, i.e. were available for paid employment or self-employment before the end of the two weeks following the reference week; c) actively seeking work, i.e. had taken specific steps in the four weeks period ending with the reference week to seek paid employment or self-employment or who found a job to start later, i.e. within a period of at most three months. For the purposes of point 1(c), the following are considered as specific steps: - having been in contact with a public employment office to find work, whoever took the initiative (renewing registration for administrative reasons only is not an active step), - having been in contact with a private agency (temporary work agency, firm specialising in recruitment, etc.) to find work, - applying to employers directly, - asking among friends, relatives, unions, etc., to find work, - placing or answering job advertisements, - studying job advertisements, - taking a recruitment test or examination or being interviewed, - looking for land, premises or equipment, - applying for permits, licences or financial resources.
Institutional source	EU – Structural indicators
Survey source	LFS
Notes	

GE-QWL 6.1	**Gender gap in unemployment**
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the unemployed
Institutional source	EU – EES indicators
Survey source	LFS
Notes	

QWL 6.2	**Long-term unemployment rate**
Definition	Number of long-term unemployed people as a percentage of the labour force. Long-term unemployed are unemployed persons for 12 months and more The duration of unemployment is defined as the duration of a search for a job or as the length of the period since the last job was held (if this period is shorter than the duration of search for a job).

Institutional source	EU – Structural indicators
Survey source	LFS
Notes	

GE-QWL 6.2	**Gender gap in long-term unemployment**
Definition	Difference in percentage points between the percentage of women relative to the working population and the percentage of women relative to the long-term unemployed
Institutional source	-
Survey source	LFS
Notes	

QWL 7.1	**Satisfaction at job**
Definition	Satisfaction at job of working population. The average score is calculated assigning a scale from 1=Not satisfied to 6=Fully satisfied
Institutional source	EU – EES indicators provides a similar indicator but calculated only for population working 15+ hours in paid employment
Survey source	ECHP
Notes	In Ireland and in the UK, information on satisfaction is not been collected in proxy interviews. These account for 10-20% of the sample. Consequently, the information has been classified as 'low reliability'.

GE-QWL 7.1	**Gender gap in satisfaction at job**
Definition	Difference between men's and women's average scores in satisfaction at job as percentage of men's average score in satisfaction at job.
Institutional source	-
Survey source	ECHP
Notes	In Ireland and in the UK, information on satisfaction is not been collected in proxy interviews. These account for 10-20% of the sample. Consequently, the information has been classified as 'low reliability'.

QWL 7.2	**Compatibility between work and family-social commitments**
Definition	Compatibility between working hours and family and social commitments outside work. The average score is calculated assigning a scale from 0=Not at all well to 3=Very well
Institutional source	European Foundation for the Improvement of Living and Working Conditions
Survey source	Third European Working Conditions survey (2000, EU-15) and 12 Candidate Countries Working Conditions survey (2001)
Notes	

GE-QWL 7.2	**Gender gap in compatibility between work and family-social commitments**
Definition	Difference between men's and women's average scores in compatibility between work and family-social commitments as percentage of men's average score in compatibility between work and family-social commitments
Institutional source	European Foundation for the Improvement of Living and Working Conditions
Survey source	Third European Working Conditions survey (2000, EU-15) and 12 Candidate Countries Working Conditions survey (2001)
Notes	

B Indicators: tables of correlations

KBS	ICT		Competitiveness		Knowledge		Social inclusion	
	Households with access to the internet	Digital literacy	Labour productivity	Revealed comparative advantage of high-tech and medium high-tech industries	Tertiary education attainment	Youth upper-secondary education attainment	Employment rate in FTE	Poverty rate
Households with access to the internet	1	,855(**)	,369	-,052	,714(**)	,011	,594(*)	-,390
		,000	,159	,847	,001	,968	,012	,135
	17	17	16	16	17	17	17	16
Digital literacy	,855(**)	1	,201	-,078	,674(**)	,068	,634(**)	-,335
	,000		,456	,773	,003	,797	,006	,205
	17	17	16	16	17	17	17	16
Labour productivity	,369	,201	1	,488(**)	,278	,353(*)	-,181	-,546(**)
	,159	,456		,001	,075	,020	,241	,000
	16	16	48	45	42	43	44	44
Revealed comparative advantage of high-tech and medium high-tech industries	-,052	-,078	,488(**)	1	,310(*)	,458(**)	-,218	-,188
	,847	,773	,001		,048	,002	,161	,234
	16	16	45	48	41	42	43	42
Tertiary education attainment	,714(**)	,674(**)	,278	,310(*)	1	,503(**)	,349(*)	-,475(**)
	,001	,003	,075	,048		,000	,020	,002
	17	17	42	41	44	44	44	41
Youth upper-secondary education attainment	,011	,068	,353(*)	,458(**)	,503(**)	1	-,073	-,505(**)
	,968	,797	,020	,002	,000		,634	,001
	17	17	43	42	44	45	45	42
Employment rate in FTE	,594(*)	,634(**)	-,181	-,218	,349(*)	-,073	1	-,348(*)
	,012	,006	,241	,161	,020	,634		,022
	17	17	44	43	44	45	46	43
Poverty rate	-,390	-,335	-,546(**)	-,188	-,475(**)	-,505(**)	-,348(*)	1
	,135	,205	,000	,234	,002	,001	,022	
	16	16	44	42	41	42	43	45

** Significative correlation at level 0,01.
* Significative correlation at level 0,05.

GE-KBS	ICT		Competitiveness		Knowledge		Social inclusion		Desegregation		Pay		Caring work	
	Gender digital gap	Gender gap in digital literacy	Gender gap in managerial and professional positions	Gender gap in high-tech and medium-high-tech industries	Gender gap in tertiary education attainment	Gender gap in youth upper-secondary education attainment	Gender employment gap in FTE	Gender gap in income vulnerability	Gender gap in science and engineering	Gender pay gap for tertiary education graduates	Hourly gender pay gap	Monthly gender pay gap	Gender gap in caring time for children	Gender gap in caring time for dependent adults
Gender digital gap	1	,868(**)	,157	,080	,150	-,283	,369	-,299	-,189	-,457	-,220	-,302	-,507	-,561
		,000	,561	,768	,578	,288	,160	,280	,516	,135	,431	,316	,111	,058
	16	16	16	16	16	16	16	15	14	12	15	13	11	12
Gender gap in digital literacy	,868(**)	1	,046	,027	,123	-,155	,217	-,289	-,089	-,419	-,281	-,286	-,401	-,472
	,000		,866	,922	,651	,566	,419	,296	,763	,175	,311	,343	,222	,121
	16	16	16	16	16	16	16	15	14	12	15	13	11	12
Gender gap in managerial and professional positions	,157	,046	1	,280	,475(**)	-,095	,822(**)	-,608(**)	,006	-,243	-,171	,128	-,439(**)	-,072
	,561	,866		,069	,001	,551	,000	,000	,970	,153	,274	,439	,009	,681
	16	16	45	43	42	42	45	41	41	36	43	39	34	35
Gender gap in high-tech and medium-high-tech industries	,080	,027	,280	1	,174	-,065	,376(*)	-,043	,311	,245	,027	,189	-,027	,202
	,768	,922	,069		,270	,683	,012	,786	,051	,144	,865	,255	,879	,237
	16	16	43	44	42	42	44	42	40	37	42	38	35	36
Gender gap in tertiary education attainment	,150	,123	,475(**)	,174	1	,406(**)	,621(**)	-,584(**)	,544(**)	,032	,389(*)	,551(**)	-,047	,236
	,578	,651	,001	,270		,007	,000	,000	,000	,857	,012	,000	,795	,179
	16	16	42	42	43	43	43	40	39	35	41	37	33	34
Gender gap in youth upper-secondary education attainment	-,283	-,155	-,095	-,065	,406(**)	1	-,053	-,165	,524(**)	,155	,516(**)	,638(**)	,404(*)	,739(**)
	,288	,566	,551	,683	,007		,736	,310	,001	,374	,001	,000	,020	,000
	16	16	42	42	43	43	43	40	39	35	41	37	33	34
Gender employment gap in FTE	,369	,217	,822(**)	,376(*)	,621(**)	-,053	1	-,682(**)	,101	-,218	-,010	,304	-,430(**)	-,049
	,160	,419	,000	,012	,000	,736		,000	,524	,195	,951	,056	,010	,777
	16	16	45	44	43	43	46	42	42	37	44	40	35	36
Gender gap in income vulnerability	-,299	-,289	-,608(**)	-,043	-,584(**)	-,165	-,682(**)	1	-,254	,005	-,320(*)	-,666(**)	,518(**)	,130
	,280	,296	,000	,786	,000	,310	,000		,113	,975	,039	,000	,001	,435
	15	15	41	42	40	40	42	44	40	39	42	40	37	38

Gender gap in science and engineering	-,189	-,089	,006	,311	,544(**)	,524(**)	,101	-,254	1	,225	,411(**)	,405(*)	,281	,304
	,516	,763	,970	,051	,000	,001	,524	,113		,186	,006	,010	,107	,075
	14	14	41	40	39	39	42	40	45	36	43	39	34	35
Gender pay gap for tertiary education graduates	-,457	-,419	-,243	,245	,032	,155	-,218	,005	,225	1	,501(**)	,363(*)	,168	,263
	,135	,175	,153	,144	,857	,374	,195	,975	,186		,001	,023	,328	,116
	12	12	36	37	35	35	37	39	36	39	39	39	36	37
Hourly gender pay gap	-,220	-,281	-,171	,027	,389(*)	,516(**)	-,010	-,320(*)	,411(**)	,501(**)	1	,849(**)	,036	,425(**)
	,431	,311	,274	,865	,012	,001	,951	,039	,006	,001		,000	,832	,008
	15	15	43	42	41	41	44	42	43	39	46	42	37	38
Monthly gender pay gap	-,302	-,286	,128	,189	,551(**)	,638(**)	,304	-,666(**)	,405(*)	,363(*)	,849(**)	1	,009	,472(**)
	,316	,343	,439	,255	,000	,000	,056	,000	,010	,023	,000		,959	,003
	13	13	39	38	37	37	40	40	39	39	42	42	37	38
Gender gap in caring time for children	-,507	-,401	-,439(**)	-,027	-,047	,404(*)	-,430(**)	,518(**)	,281	,168	,036	,009	1	,681(**)
	,111	,222	,009	,879	,795	,020	,010	,001	,107	,328	,832	,959		,000
	11	11	34	35	33	33	35	37	34	36	37	37	37	36
Gender gap in caring time for dependent adults	-,561	-,472	-,072	,202	,236	,739(**)	-,049	,130	,304	,263	,425(**)	,472(**)	,681(**)	1
	,058	,121	,681	,237	,179	,000	,777	,435	,075	,116	,008	,003	,000	
	12	12	35	36	34	34	36	38	35	37	38	38	36	38

** Significative correlation at level 0,01.
* Significative correlation at level 0,05.

QWL	Decent pay		Healthy work		Skilled work		Autonomous and complex work		No entrapment		No unemployment		Work-life balance	
	Low-wage	Working poverty	Serious accidents at work	Satisfaction with health	Professional work	Life-long learning	Work autonomy	Work complexity	Downward mobility from the lowest pay quintile	Upward mobility from the lowest pay quintile	Unemployment rate	Long-term unemployment rate	Satisfaction at job	Compatibility between work and family-social commitments
Low-wage	1	,141	,094	,103	,047	-,237	-,154	-,206	,228	,070	,041	,103	-,131	-,318
		,474	,552	,520	,771	,136	,599	,480	,263	,741	,796	,516	,426	,268
	44	28	42	41	41	41	14	14	26	25	42	42	39	14
Working poverty	,141	1	,295	-,052	-,555(**)	-,491(**)	-,251	-,620(*)	-,078	,206	,071	,234	-,812(**)	-,693(**)
	,474		,107	,787	,001	,005	,348	,010	,706	,323	,703	,205	,000	,003
	28	31	31	29	31	31	16	16	26	25	31	31	25	16
Serious accidents at work	,094	,295	1	-,590(**)	-,392(*)	-,507(**)	-,312	-,360	,046	-,084	,147	,162	-,299	-,268
	,552	,107		,000	,010	,001	,239	,171	,822	,690	,347	,299	,064	,316
	42	31	46	43	42	42	16	16	26	25	43	43	39	16
Satisfaction with health	,103	-,052	-,590(**)	1	,376(*)	,157	-,097	-,069	,314	-,096	-,012	,019	,277	,108
	,520	,787	,000		,017	,334	,741	,815	,119	,649	,941	,907	,088	,713
	41	29	43	43	40	40	14	14	26	25	41	41	39	14
Professional work	,047	-,555(**)	-,392(*)	,376(*)	1	,478(**)	,186	,187	,182	-,266	-,080	-,116	,438(**)	,443
	,771	,001	,010	,017		,001	,491	,489	,374	,199	,601	,447	,008	,085
	41	31	42	40	45	44	16	16	26	25	45	45	36	16
Life-long learning	-,237	-,491(**)	-,507(**)	,157	,478(**)	1	,575(*)	,213	,028	-,004	-,266	-,469(**)	,599(**)	,588(*)
	,136	,005	,001	,334	,001		,020	,428	,890	,984	,078	,001	,000	,017
	41	31	42	40	44	45	16	16	26	25	45	45	36	16
Work autonomy	-,154	-,251	-,312	-,097	,186	,575(*)	1	,440	-,075	,184	-,549(*)	-,580(*)	,492	,547(*)
	,599	,348	,239	,741	,491	,020		,088	,807	,547	,028	,019	,104	,028
	14	16	16	14	16	16	16	16	13	13	16	16	12	16
Work complexity	-,206	-,620(*)	-,360	-,069	,187	,213	,440	1	-,366	-,098	-,403	-,363	,762(**)	,552(*)
	,480	,010	,171	,815	,489	,428	,088		,219	,751	,121	,167	,004	,027

	14	16	16	14	16	16	16	16	13	13	16	16	12	16
Downward mobility from the lowest pay quintile	,228	-,078	,046	,314	,182	,028	-,075	-,366	1	-,125	,633(**)	,488(*)	-,062	,082
	,263	,706	,822	,119	,374	,890	,807	,219		,551	,001	,011	,772	,791
	26	26	26	26	26	26	13	13	26	25	26	26	24	13
Upward mobility from the lowest pay quintile	,070	,206	-,084	-,096	-,266	-,004	,184	-,098	-,125	1	-,372	-,295	-,034	-,101
	,741	,323	,690	,649	,199	,984	,547	,751	,551		,067	,152	,874	,742
	25	25	25	25	25	25	13	13	25	25	25	25	24	13
Unemployment rate	,041	,071	,147	-,012	-,080	-,266	-,549(*)	-,403	,633(**)	-,372	1	,902(**)	-,311	-,603(*)
	,796	,703	,347	,941	,601	,078	,028	,121	,001	,067		,000	,061	,013
	42	31	43	41	45	45	16	16	26	25	46	46	37	16
Long-term unemployment rate	,103	,234	,162	,019	-,116	-,469(**)	-,580(*)	-,363	,488(*)	-,295	,902(**)	1	-,450(**)	-,776(**)
	,516	,205	,299	,907	,447	,001	,019	,167	,011	,152	,000		,005	,000
	42	31	43	41	45	45	16	16	26	25	46	46	37	16
Satisfaction at job	-,131	-,812(**)	-,299	,277	,438(**)	,599(**)	,492	,762(**)	-,062	-,034	-,311	-,450(**)	1	,902(**)
	,426	,000	,064	,088	,008	,000	,104	,004	,772	,874	,061	,005		,000
	39	25	39	39	36	36	12	12	24	24	37	37	39	12
Compatibility between work and family-social commitments	-,318	-,693(**)	-,268	,108	,443	,588(*)	,547(*)	,552(*)	,082	-,101	-,603(*)	-,776(**)	,902(**)	1
	,268	,003	,316	,713	,085	,017	,028	,027	,791	,742	,013	,000	,000	
	14	16	16	14	16	16	16	16	13	13	16	16	12	16

** Significative correlation at level 0,01.
* Significative correlation at level 0,05.

GE-QWL	Decent pay		Healthy work		Skilled work		Autonomous and complex work		No entrapment		No unemployment		Work-life balance	
	Gender gap in low-wage	Gender gap in working income vulnerability	Gender gap in serious accidents at work	Gender gap in satisfaction with health	Gender gap in professional work	Gender gap in life-long learning	Gender gap in work autonomy	Gender gap in work complexity	Gender gap in downward mobility from the lowest pay quintile	Gender gap in upward mobility from the lowest pay quintile	Gender gap in unemployment	Gender gap in long-term unemployment	Gender gap in satisfaction at job	Gender gap in compatibility between work and family-social commitments
Gender gap in low-wage	1	,603(**)	,127	-,065	,021	-,106	,642(*)	-,035	-,073	,048	-,094	-,014	,121	,110
		,000	,436	,688	,897	,513	,013	,905	,730	,818	,553	,934	,469	,709
	44	42	40	40	41	40	14	14	25	25	42	39	38	14
Gender gap in working income vulnerability	,603(**)	1	,188	-,233	-,184	-,431(**)	,314	-,138	-,417(*)	-,033	,239	,154	-,013	,460
	,000		,233	,138	,250	,005	,254	,624	,038	,877	,128	,335	,938	,085
	42	44	42	42	41	40	15	15	25	25	42	41	38	15
Gender gap in serious accidents at work	,127	,188	1	,229	,550(**)	,393(*)	,240	-,064	,104	-,049	,177	,102	,068	,244
	,436	,233		,156	,000	,015	,388	,820	,628	,820	,274	,538	,694	,380
	40	42	43	40	39	38	15	15	24	24	40	39	36	15
Gender gap in satisfaction with health	-,065	-,233	,229	1	,253	,265	-,075	,126	,223	,082	-,085	-,095	,119	,004
	,688	,138	,156		,120	,108	,800	,668	,283	,698	,603	,567	,479	,989
	40	42	40	42	39	38	14	14	25	25	40	39	38	14
Gender gap in professional work	,021	-,184	,550(**)	,253	1	,470(**)	,103	-,230	,468(*)	-,064	,194	,198	-,213	-,072
	,897	,250	,000	,120		,001	,704	,392	,018	,761	,202	,208	,219	,792
	41	41	39	39	45	43	16	16	25	25	45	42	35	16
Gender gap in life-long learning	-,106	-,431(**)	,393(*)	,265	,470(**)	1	-,031	-,414	,271	-,234	-,137	-,147	,072	,131
	,513	,005	,015	,108	,001		,910	,111	,201	,271	,374	,360	,684	,629
	40	40	38	38	43	44	16	16	24	24	44	41	34	16
Gender gap in work autonomy	,642(*)	,314	,240	-,075	,103	-,031	1	-,187	-,212	-,474	,568(*)	,619(*)	-,496	-,195
	,013	,254	,388	,800	,704	,910		,489	,488	,102	,022	,011	,101	,469
	14	15	15	14	16	16	16	16	13	13	16	16	12	16

Gender gap in work complexity	-,035	-,138	-,064	,126	-,230	-,414	-,187	1	,240	,537	-,425	-,381	,516	-,222
	,905	,624	,820	,668	,392	,111	,489		,429	,058	,100	,145	,086	,409
	14	15	15	14	16	16	16	16	13	13	16	16	12	16
Gender gap in downward mobility from the lowest pay quintile	-,073	-,417(*)	,104	,223	,468(*)	,271	-,212	,240	1	-,037	,068	,056	-,117	-,421
	,730	,038	,628	,283	,018	,201	,488	,429		,859	,746	,791	,596	,152
	25	25	24	25	25	24	13	13	25	25	25	25	23	13
Gender gap in upward mobility from the lowest pay quintile	,048	-,033	-,049	,082	-,064	-,234	-,474	,537	-,037	1	,003	,042	-,139	,155
	,818	,877	,820	,698	,761	,271	,102	,058	,859		,990	,841	,527	,614
	25	25	24	25	25	24	13	13	25	25	25	25	23	13
Gender gap in unemployment	-,094	,239	,177	-,085	,194	-,137	,568(*)	-,425	,068	,003	1	,947(**)	-,746(**)	-,163
	,553	,128	,274	,603	,202	,374	,022	,100	,746	,990		,000	,000	,545
	42	42	40	40	45	44	16	16	25	25	46	43	36	16
Gender gap in long-term unemployment	-,014	,154	,102	-,095	,198	-,147	,619(*)	-,381	,056	,042	,947(**)	1	-,801(**)	-,351
	,934	,335	,538	,567	,208	,360	,011	,145	,791	,841	,000		,000	,182
	39	41	39	39	42	41	16	16	25	25	43	43	35	16
Gender gap in satisfaction at job	,121	-,013	,068	,119	-,213	,072	-,496	,516	-,117	-,139	-,746(**)	-,801(**)	1	,489
	,469	,938	,694	,479	,219	,684	,101	,086	,596	,527	,000	,000		,107
	38	38	36	38	35	34	12	12	23	23	36	35	38	12
Gender gap in compatibility between work and family-social commitments	,110	,460	,244	,004	-,072	,131	-,195	-,222	-,421	,155	-,163	-,351	,489	1
	,709	,085	,380	,989	,792	,629	,469	,409	,152	,614	,545	,182	,107	
	14	15	15	14	16	16	16	16	13	13	16	16	12	16

** Significative correlation at level 0,01.
* Significative correlation at level 0,05.