EIGE
European Institute for Gender Equality

Gender Equality Index 2017

Methodological Report

Acknowledgements

The authors of the Gender Equality Index 2017. Methodological report are: Davide Barbieri, Dr Marre Karu, Dr Irene Riobóo Lestón, Blandine Mollard, Dr Jolanta Reingardė.

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Abbreviations

AHP	analytic hierarchy process
EIGE	European Institute for Gender Equality
EHIS	European Health Interview Survey
EIGE WMID	EIGE Women and Men in Decision-Making database
EM	expectation-maximisation
EQLS	European Quality of Life Survey
EU	European Union
EU SILC	European Union Statistics on Income and Living Conditions
EU LFS	European Union Labour Force Survey
EWCS	European Working Conditions Survey
FRA	European Union Agency for Fundamental Rights
FTE	full-time equivalent
EHIS	European Health Interview Survey
ISCED	International Standard Classification of Education
PCA	principal component analysis
PPS	purchasing power standard
SES	Structure of Earnings Survey
SD	standard deviation
OECD	Organisation for Economic Cooperation and Development

Contents

Introduction

The Gender Equality Index is a comprehensive measure for monitoring progress in gender equality across the EU over time. It measures gender gaps and takes into account the context and different levels of achievement of Member States across a range of relevant policy areas. It shows the different outcomes of EU and national policies for women and men and contributes to the development and implementation of evidence-based policymaking in the area of gender equality. The Gender Equality Index 2017 provides scores for 2005, 2010, 2012 and 2015.

This report gives a specific focus to describing the methodology underpinning the Gender Equality Index. It presents the different steps taken in the computation of the Gender Equality Index 2017 as well as the changes made to the methodological and measurement framework in the process of updating the Index. Section 1 provides a brief overview of the main steps in building the Gender Equality Index. Section 2 presents in greater depth the steps taken and the methodological considerations and choices that were made during the development and calculation of the core Gender Equality Index. The satellite domains and their links to the Gender Equality Index are presented in Section 3. An extensive list of annexes provides important data and information in relation to the calculation of the Gender Equality Index based on data of 2005, 2010, 2012 and 2015.

The conceptual framework of the Index was designed by considering different theoretical approaches to gender equality and EU policy priorities identified through an analysis of relevant strategic policy documents. A more detailed discussion of the conceptual framework is presented in the 1st edition of the Gender Equality Index (EIGE, 2013). It describes gender equality in several areas of economic and social life in the EU and in the Member States. These areas are summarised into a hierarchical structure of domains (core and satellite) and sub-domains. The core domains — of work, money, knowledge, time, power and health — constitute the core index. In addition, two satellite domains are identified: violence and intersecting inequalities. They are called satellites, and therefore are not included in the core Index, because they focus on specific phenomena that apply only to a selected group of the population. The domain of violence measures gender-based violence against women, while intersecting inequalities examines gender gaps among specific population groups (people with disabilities, lone parents, migrants, etc.).

The conceptual framework captures the areas of interest that are measured by a composite indicator on gender equality at EU level. The main challenge in the development of the Index was to translate the conceptual framework, underpinned by policy and theory, into a measurable structure, which is supported by data and statistical considerations.

The development of a measurement framework, consistent with the identified conceptual framework, was carried out applying a solid statistical methodology. The resulting framework allows full comparability of the results across the different domains and sub-domains, and consequently the identification of the strengths and weaknesses in gender equality of each Member State. Additionally, it permits comparability across Member States and over time.

1. Main steps in building and calculating the Gender Equality Index

As with any other composite indicator, the Gender Equality Index is a measure obtained by compiling individual indicators ([1]) on the basis of an underlying multidimensional concept of gender equality. In other words, it is a mathematical combination of a set of individual indicators, which aims to provide a summary of a complex reality of gender equality.

Measuring gender equality through a single index raised several empirical challenges during the development phase, principally related to data availability, data quality, selecting variables or aggregating them. These challenges were overcome using a solid methodology based on sound statistical principles, consisting of much more than just the combination of variables. In particular, by using a solid methodology, the Gender Equality Index provides a more realistic picture of the global level of gender equality in the EU than the individual variables can do separately.

The computation of the Gender Equality Index is based on the internationally accepted 10-step methodology on building composite indicators developed by the European Commission's Joint Research Centre (JRC) and the Organisation for Economic Co-operation and Development (OECD) (Nardo et al., 2008):

1. **Developing a theoretical framework** that defines and structures what is measured and provides the basis for the selection and combination of variables into a meaningful index.
2. **Selecting variables** based on the analytical soundness, measurability, country coverage, cross-country comparability, and relevance of indicators.
3. **Imputing missing data** in order to obtain a complete dataset for all countries.
4. **Conducting a multivariate analysis** to study the overall structure of the dataset, assess its suitability, and guide subsequent methodological choices.
5. **Normalising the data**, if needed, to ensure the comparability of variables.
6. **Weighting and aggregating indicators** according to both the theoretical framework and the results of the multivariate analysis.
7. **Conducting an uncertainty and sensitivity analysis** to assess the robustness of the index in terms of all possible sources of uncertainty in its development (choice of imputation method, normalisation scheme, weighting system or aggregation method).
8. **Returning to the data** in order to analyse what domains and sub-domains are driving the index results.
9. **Identifying possible association with other variables** and existing known indicators.
10. **Presenting and disseminating the index results** in a clear and accurate manner.

The measurement framework of the Gender Equality Index includes the development of both a metric to calculate gender gaps and the methodology to aggregate gender gaps in sub-domains, domains and the Gender Equality Index. It includes the calculation of final scores of the Gender Equality Index for each Member State and the EU-28. The calculation of the different elements of the Gender Equality Index is briefly summarised in Box 1.

([1]) In this document the terms 'indicator' and 'variable' are considered as synonyms and therefore used interchangeably.

Box 1: Calculating the Gender Equality Index in brief

1. **Selection and processing of indicators.** The Gender Equality Index is composed of 31 indicators, divided between 14 sub-domains, which make up the six domains (work, money, knowledge, time, power and health).

2. **Calcutating gender gaps.** A single measure of gender equality for the indicators is developed. Gender gaps are calculated and transformed so that the value of 1 can be interpreted as full achievement of gender equality, while any value below 1 indicates some degree of gender inequality in a given indicator. The value of 0 theoretically refers to full inequality.

3. **Calculating the correcting coefficient.** Correcting coefficients are calculated and applied to each gender gap. This means that Member States with similar gender gaps are treated differently if their levels of achievement differ. The higher the level of achievement, the lower the correction of the gender gap.

4. **Calculating the gender gap metric.** The final metric for each indicator is a combination of the gender gap and the correcting coefficient. It is dimensionless (allowing comparability since measurement units of variables have been eliminated), and bound between [1; 100].

5. **Calculating the Index (aggregating, weighting, and normalisation)**

    1. Aggregation of variables of each sub-domain, creating indices at the subdomain level (value bound [1; 100]), and using arithmetic mean of the metrics of the indicators.

    2. Aggregation of the sub-domains into domains, using geometric means of the scores of sub-domains (value bound [1; 100]).

    3. Aggregating the scores of the domains into overall Gender Equality Index, using geometric means of the six scores of the domain, by applying experts' weights to the domains, obtained through the analytic hierarchy process (AHP). The Gender Equality Index takes a value on a scale of 1 to 100, where value of 100 stands for complete gender equality, and 1 for full gender inequality.

2. Gender Equality Index: the core domains

2.1. Indicators and measures

2.1.1. Selecting indicators

A further important consideration in the development of the Gender Equality Index was the choice of variables to be included in a composite indicator that could adequately measure the conceptual framework and meet a number of methodological criteria. An initial selection of variables framed the review of the main official statistical sources at European level, with criteria applied that were both conceptual and statistical. Conceptually, all the variables included needed to:

- measure a relevant aspect of gender equality;
- reflect an equal share of assets and resources;
- focus on individuals, rather than on institutions or countries (for example, to include 'healthy life years', rather than 'health care expenditure');
- consist of outcome variables, which measure a current status as opposed to process or input variables (for example, by selecting 'time spent on care activities', rather than 'provision of childcare services').

Next, the quality criteria defined by Eurostat (2011) in its Code of Practice were used together with other quality criteria needed for the computation of synthetic indicators. Variables were considered provided they were sex disaggregated and they met the following criteria:

- Harmonised at EU level and thereby comparable between Member States;
- Accessible, updated on a regular basis, punctual and comparable over time;
- Accurate, measuring in a reliable way the phenomenon it intends to measure, and sensitive to change;
- Comprehensive and easily interpretable, intuitive and sufficiently simple to be unambiguously interpreted in practice;
- With a clear meaning with respect to gender inequality or equality;
- With no more than 10 % of missing data points.

Additionally, preference was given to the indicators developed in the framework of the Beijing Platform for Action in the EU and Europe 2020 indicators. The application of those criteria provided a potential set of variables to be used in the computation of the Index.

Finally, after applying the mentioned criteria and the statistical analysis presented in section 2.4, **31 indicators** were used for the calculation of the 3rd edition of the Gender Equality Index (EIGE, 2017a). Gender Equality Index 2017 contains several updates regarding the selection of the indicators (see Box 2). The list of indicators can be found in Annex 1.

Box 2: Main updates regarding the selection of the indicators in the Gender Equality Index 2017

- The sub-domain of social power (in the domain of power) and the sub-domain of behaviour (in the domain of health) are populated with data. They had been left empty in previous editions due to lack of suitable indicators.
- Age ranges for the reference populations are more harmonised, and the range of age has been extended, when possible.
- The indicator on 'Tight deadlines' (in the domain of work) has been replaced by Eurofound's 'Career Prospects Index'. The new indicator measures the continuity of employment as assessed through a person's employment status and type of contract, job security, and career prospects (Eurofound, 2016).
- The indicator 'Time spent on care activities' (in the domain of time), previously from the European Working Conditions Survey (EWCS), has been replaced by a new indicator from the European Quality of Life Survey (EQLS). The new indicator covers the whole adult population (aged 18+), regardless of their employment status, whereas previously it just covered the working population. In addition the indicator 'Care for children and grandchildren ' was extended and includes for the first time 'Caring for elderly and disabled people'. The indicator 'Cooking and houseworking' has also been extended to overall population (+ 18).
- The indicators in the domain of power have been calculated on the basis of a 3-year average in order to avoid sharp fluctuations in the time series where there have been small changes in the actual number of women in small decision-making bodies. For example, depending on the country, there are some decision-making bodies with only 5-8 members and therefore having one more or one less woman might lead to a large increase or decrease in percentage.

2.1.2. Processing indicators

In this step the indicators selected were processed in order to ensure that they measured gender equality in a homogenous way. This is particularly the case when it comes to the sign or the direction in the interpretation of the variable. In this case, the direction of all indicators included in a composite index needed to be homogenous. For the Gender Equality Index it was decided that all variables would have a positive sign, i.e. higher value would indicate being closer to EU targets or 'desirable situation'. In practice, the majority of the preselected variables already had a positive sign, so higher values could be regarded positively. For example, variables measuring 'participation in tertiary education' or 'healthy life years' have a positive direction, as it is desirable to increase educational attainment or to live a long healthy life. On the contrary, the variable measuring 'being at risk of poverty' implies a negative sign or interpretation, which means that for the Index the indicator was reversed to 'not being at risk of poverty'. Two ways of reversion (directional adjustment) of the variables was used:

- Calculation of the complementary value to 1 (1-value). This is the case of 'population at risk of poverty', where 20 % of people at risk of poverty is equivalent to 80 % not at risk of poverty.
- Calculation of its inverse (1/value). This is the case of the variable 'income quintile share'. The S80/S20 income quintile share compares the 20 % of the population with the highest income with the 20 % of the population with the lowest, while its inverse, S20/S80, keeps comparing the same percentages, meaning the higher the share the greater the equality.

The next step in the processing of the indicators was related to the expression of most variables in relative terms. This was done in order to facilitate the comparison of populations with different structures and sizes. Ratios were obtained by dividing the variable of interest by its closest reference population. Annex 1 shows the reference population used to transform each variable. For example, to measure the population without 'unmet needs for medical examination', the number of women and men with those unmet needs was divided by the total population aged 16 years or over. In a further example, the indicator for the 'labour force participation' is measured as women and men in employment (FTE, Full-time employment) out of the total reference population (population of 15 years old or over; either women, men, or total), as indicated in the Annex 1.

The variables were converted in relative terms according to the following formula:

$$\widetilde{X}_{it}^{k} = \frac{X_{it}^{k}}{\text{reference population}_{it}^{k}} \quad (1)$$

where the variable X for group k, women (w), men (m), average (a) or total (T); for the i-th country in the period t is divided by the closest reference population in order to be expressed in relative terms ($\widetilde{X}_{it}^{k}$). When the variable does not need to be expressed in relative terms (for example mean income), then $\widetilde{X}_{it}^{k} = X_{it}^{k}$.

The transformation to relative terms was not carried out for variables where the unit of measurement did not relate to persons. For example, 'duration of working life' is measured in years. In relation to monetary variables analysed, such as 'mean monthly earnings' that is measured using the purchasing power standard (PPS), which enables comparability using an artificial currency that accounts for differences in price levels between Member States ([2]).

In the case of indicators in the domain of power, the reference population has been chosen as the population over 18 in each country, and as mentioned above, in line with the calculation of the variables in the domain of power, the 3-year average has been used. For example, for the indicators measuring the share of members of the national parliaments, the indicator was calculated as the percentage of women in parliaments averaged over 3 years (i.e. for 2015, using the average of 2014, 2015 and 2016) among the population in each country aged 18 and older (closest reference population) also averaged over the same 3 years. Due to the characteristics of data in the domain of power, which is often provided on a quarterly or biannual basis, a simple average from all available data points for each year has been computed. For a year with data for all four quarters available, for example, the annualised data point for series in year t will be:

$$x_t^{annual} = \frac{x_{t,1}^{quarterly} + x_{t,2}^{quarterly} + x_{t,3}^{quarterly} + x_{t,4}^{quarterly}}{4} \quad (2)$$

The final list of indicators included in the 3rd edition of the Gender Equality Index is presented in the table in Annex 1, which includes the following: name of the indicator, reference population, short name, detailed description (including brief methodological notes and survey questions), data providers, data sources, method of calculation (whether it was EIGE's calculation with microdata or EUROSTAT calculation under request), original code of the variable and the time reference of data used.

2.1.3. Imputation of missing values

In order to work with a complete dataset, the imputation of some missing values needed to be carried out. An imputation is a mathematical procedure which allows the estimation of a data point when it is not available. The different types of imputation used include the following:

- Variable with only 1 year available for all the countries or it is available for only limited number of years. This information is used for subsequent years so that it avoids showing changes in time. For example, using the EWCS survey, which is available only for the years 2005, 2010 and 2015, data for 2012 has been imputed using the 2010 data.
- Variable with a missing value for a certain country in a certain year, but with data available for other years. Missing data is imputed with data from the closest year.
- Variables with missing EU-28 average. The average (non-weighted) of 28 values is imputed.
- Variable with a missing value for a certain country in all years. The missing value is imputed using the expectation-maximisation (EM) algorithm available in SPSS ([3]).

2.2. Gender gap metric

Following the processing of the indicators to improve their comparability and their potential aggregation into an index, the next step was to define a metric that combines the women and men figures in a single measure. The metric selected for this purpose has the following properties:

- The metric measures gender gaps by taking into account the relative position of women and men. In line with the gender perspective of the Gender Equality Index, all gaps, regardless of whether they are to the advantage of women or men, were taken into consideration and treated in the same way. This means that gender equality is posited as being relevant to both women and men in order to emphasise that gender gaps are detrimental to both genders in society. In interpreting the Gender Equality Index, it is important also to emphasise that it measures gender gaps rather than the specific position of women and men

([2]) As Eurostat's glossary states: 'Theoretically, one PPS can buy the same amount of goods and services in each country. However, price differences across borders mean that different amounts of national currency units are needed for the same goods and services depending on the country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities.' (http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Purchasing_power_standard_(PPS)).

([3]) http://www.psych-it.com.au/Psychlopedia/article.asp?id=267

individually. Therefore, it is not possible to derive information about either women or men directly from the scores.

- It identifies the equality point in order to allow for the interpretation and comparison of the scores, ensuring that it comprises a value that can be associated with gender equality.

The metric that combines the values for women and men of each variable, $\Gamma_{(x_{it})}$, can be expressed as:

$$\Gamma_{(x_{it})} = 1 + [\propto_{(x_{it})} \cdot (1 - \Upsilon_{(x_{it})})] \cdot 99 \quad (3)$$

From this step onwards, the original variables disaggregated by sex are no longer in use, and are replaced by their transformation through a metric, which is dimensionless (allowing comparability since measurement units of variables have been eliminated) and bound between [1; 100]. It satisfies the property of interpretability of each variable considered in terms of distance from the equality point, set at 100. This maintains comparability across indicators within each country. An added benefit of using this metric is that the normalisation step (step number 5 in the JRC-OECD methodology) is not needed, since using $\Gamma_{(x_{it})}$ removes the presence of different units of measurement and the distorting effect of different scales, making all indicators comparable across domains and sub-domains, across countries and over time. Figure 1 illustrates the range of the metric applied to each indicator.

As formula 3 shows, the metric is obtained by multiplying two elements, the correcting coefficient $\propto_{(x_{it})}$ and the difference between 1 and $\Upsilon_{(x_{it})}$ (gender gap).. They are rescaled to avoid the presence of zeros, which would impede possibilities to aggregate indicators, sub-domains and/or domains. Those two elements are now explained in more detail.

2.2.1. Gender gaps

$\Upsilon_{(x_{it})}$ measures the gaps between women and men as follows:

$$\Upsilon_{(x_{it})} = \left| \frac{\tilde{x}^{w}_{it}}{\tilde{x}^{a}_{it}} - 1 \right| \quad (4)$$

where the calculation is carried out for the variable X for the i-th country in the period t in order to obtain the percentage that women ($\tilde{x}^{w}_{it}$) represents over the average of the two values of women and men ($\tilde{x}^{a}_{it}$) ([4]). For example, the FTE employment rate for women in 2015 for Belgium is 37.4 %, while the average FTE employment rate for the same country in the same year is 44.5 %. On this basis, the formula (4) would be:

$$\Upsilon_{(x_{it})} = \left| \frac{37.4}{44.5} - 1 \right| = 0.16$$

Figure 1. Range of the metric applied to each indicator

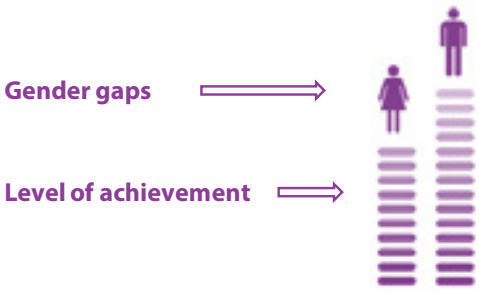
([4]) We are using the average of the two values of women and men (non-weighted average) instead of using the total of the indicator (weighted average) for mathematical reasons, in order to avoid extreme value out of the range 0-1 in case of perfect equality. For example, if the value of FTE employment rate in 2015 of the country X of women is 40 % and the same for men, the formula (3) using the average of women and men (40 %) takes the value of 0 (40/40-1, that reversed will lead to the value of 1, meaning perfect equality). However, considering different size of female and male population in the labour market, the total FTE could differ from 40 % (let's say 39 %) and the formula (3) would not take the value of 0 as expected in the case of perfect equality.

As previously mentioned, the approach followed in the computation of the Gender Equality Index implies that all gaps, regardless of whether they are to the advantage of women or men, were taken into consideration and treated in the same way. However, this means that it is necessary for the metric to ensure that there are no 'compensatory effects'. For example, this prevents a situation arising where a Member State scores high in gender equality because women's bad result in one variable is compensated by men's equally bad result in another variable. This is solved by using absolute values of the gaps, thereby avoiding compensation effects between women and men.

The gender gap is a relative indicator that can be calculated for any values for women and men in the interval [0; 1], identifying gender equality point at 1 and the inequality at 0. For reasons of interpretability, this indicator is reversed by taking its complementary value: $1 - Y_{(X_{it})}$. This yields values where 1 stands for complete gender equality, with any value below that indicating a proportional lack of gender equality in a given indicator, with full gender inequality at 0. In the example given above, the formula takes the value of (1-0.16) = 0.84.

2.2.2. Correcting coefficient

The correcting coefficient $\propto_{(X_{it})}$ is the other element in the metric used to transform the original variables. It makes it possible to take into account the country context by comparing the levels achieved in all Member States for each indicator. In this way, an indicator with a good score is the reflection of both low gender gaps and high levels of achievement.



The purpose of the correcting coefficient is to compare the performance of each country with the best performer in the EU-28. In a particular variable, the further the score of a country diverges from the level of the best performer, the more the score will be adjusted.

The correcting coefficient of the 3rd edition of the Gender Equality Index has been modified. In previous editions of the Index a correcting coefficient was calculated for each year. This was done by taking the quotient of the distance for each Member State of its total level ([5]) in a given indicator (expressed in relative terms and reversed if necessary, $\widetilde{X}_{it}^{T}$) to a benchmark. This means that in every year the benchmark was the highest performing Member State in that same indicator in the same year ($max\widetilde{X}_{it}^{T}$).

Despite the conceptual relevance that the correcting coefficient has in the measurement of gender equality, there were two limitations. First, the denominator was a benchmark that has varied in every edition of the index. It was dependent on the result of the best performing country of each year, making it difficult to carry out a trend analysis of the Index. Second, the impact of the correcting coefficient in the final metric of each indicator was higher when compared to the impact of the actual gender gap. It is desirable to have the contribution of gender equality higher than the contribution of the correcting coefficient, overall as well as for every Member State and each variable.

One of the priorities in the development of the 3rd of the Gender Equality Index was to carry out research and find solutions aimed at overcoming these limitations. In order to solve these issues, two changes have been made. First, the benchmark was frozen and kept constant throughout the years, and second, the formula was modified to increase the impact of the gender gaps.

In relation to the first aspect of benchmarks that changed across the years, the solution was to fix or freeze one benchmark for all years under question. It was decided to take the quotient of the distance for each country of its total level in a given indicator to that of the highest performing Member State for the same indicator in the 2005, 2010, 2012 and 2015, as follows:

$$\max\{\widetilde{X}_{i2005}^{T}, \widetilde{X}_{i2010}^{T}, \widetilde{X}_{i2012}^{T}, \widetilde{X}_{i2015}^{T}\} \quad (5)$$

In this way, the denominator has become a fixed quantity in each edition of the index; in other words the benchmark will not change over the years. If in subsequent years the level achieved in a specific indicator of a specific country is larger than its fixed benchmark, the value of its correcting coefficient will be trimmed to 1 (i.e. there will be no correction applied). When these fixed benchmarks are obsolete, they will be moved and the time series will be recalculated in order to keep time comparability.

([5]) In the 1st Gender Equality Index, this measure considered the average between women and men (unweighted average). In the 2nd edition of the Gender Equality Index (EIGE, 2015) it was modified by taking the values for the total population (weighted average). Totals were available for most indicators, with the exception of the indicators 'life years at birth', 'healthy life years at birth' and 'mean equivalised net income', for which the average is used instead of the total.

In relation to the second limitation, analysis of the contributions that the correcting coefficient and the gender gap have in the metric of each indicator has been done. Several options were tested to find a balance between the impact of the equality component and the level of achievement (see Annex 2 for a detailed explanation of the analysis of the contribution of correcting coefficient).

After testing several options, the new correcting coefficient for a given indicator is expressed as:

$$\propto_{(X_{it})} = \left(\frac{\tilde{X}^{T}_{it}}{\max\{\tilde{X}^{T}_{i2005}, \tilde{X}^{T}_{i2010}, \tilde{X}^{T}_{i2012}, \tilde{X}^{T}_{i2015}\}} \right)^{1/2} \quad (6)$$

Taking the example of one indicator, the FTE employment rate, formula (5) takes the following values:

$$\max\{57.9_{2005}, 58.3_{2010}, 59.6_{2012}, 60.9_{2001}\} = 60.9$$

The correcting coefficient takes values between 0 and 1 and for each indicator penalises countries with low overall achievement. Following this example, the formula (6) for the FTE employment rate in Belgium in 2015 will take the value of:

$$\propto_{(X_{it})} = \left(\frac{43.9}{60.9}\right)^{1/2} = 0.85$$

For example, for the indicator FTE employment rate for Belgium in 2015, the application of formula (3) with the correcting coefficient will lead to a final metric of 71.6.

$$\Gamma_{(X_{it})} = 1 + [0.85 \cdot (1 - 0.16)] \cdot 99 = 71.6$$

In the 3rd edition of the Gender Equality Index, correcting coefficients are applied to most variables. The indicators under the domain of power are not corrected because they represent shares. This means, for example, that when the representation of women and men add up to 100 %, perfect equality is reached only when women and men are equally represented. In addition, the number of persons in decision-making positions is fairly fixed and it is therefore not desirable to maximise the number of these positions. For example, what is important is to increase the share of women on company boards and not to increase the size of boards per se.

Additionally, the two indicators that refer to the share of people who spend their time on caring for dependent family members, and cooking and housework, are also uncorrected because what matters are gender inequalities rather than the level of involvement in these activities, which may depend on other factors, such as fertility rates or cultural traditions of eating out rather than cooking at home. In this case, it is difficult to argue that 100 % of women or men should spend time in caring and/or housework activities (following the principle that the higher the value, the better is the situation).

2.3. Computing the index

The construction of the Gender Equality Index relies on the necessity of choosing between various alternatives related to the imputation of missing data, as well as the methods to be used for normalization, weighing and aggregation. The different choices needed introduce subjectivity in the process of computing the Index.

To reduce this subjectivity as much as possible, the 1st edition of the Gender Equality Index adopted a multi-modelling principle. This means that a set of potential indices were computed in order to select the most robust for the Gender Equality Index. Those sets of potential indices were obtained through the combination of different alternatives related to the formula, that will be presented below and summarised in Table 3. On that basis, 3,636 formulas were considered and therefore 3,636 indices were computed. Then, in order to select the most robust index among them all, a robustness analysis was carried out. This process, which is explained in depth in the section "statistical analysis", provided the formula of the Gender Equality Index, whose characteristics are presented in Table 1.

Considering that this 3rd edition of the Gender Equality Index has included new indicators and new aspects of the methodology, the robustness analysis was carried out again in order to confirm that the formula used in the computation of the Index remains the most robust, that is to say, the one that depends more on the values of the variables rather than on the formula used.

Table 1: Characteristics of the Gender Equality Index

	Variables	Sub-domains	Domains
Weighting	Equal	Equal	Experts (AHP)
Aggregation	Arithmetic	Geometric	Geometric
Normalisation	Metric by construction acts as a normalisation method		
Imputation	Closest values Average of MS for EU-28 Expectation-Maximisation (EM)	No imputation	No imputation

2.3.1. Weighting

The first key decision taken concerned the weights assigned to each variable, sub-domain and domain during the aggregation process. These were then tested in the multi-modelling procedure of the Index. Four methods for assigning weights were tested: equal weights, a modified version of equal weights, weights retrieved from statistical analysis, and finally weights derived from expert opinions (using the analytic hierarchy process AHP).

In the first method, all domains, sub-domains and variables are assigned equal weights (or equivalently no weights are assigned). Although equal weights may appear to be a simple solution, it is far from a neutral one, and as with any other weighing method, involves a normative judgement. Due to differences in the spread of values, or alternatively high correlations, some elements can have a greater degree of influence in the final composite score.

Secondly, a modification to the methods of equal weights was also tested with the variable of Segregation in work. Although conceptually Segregation was placed as a separate sub-domain, the multivariate analysis presented a structure where Segregation was consistently loaded with another sub-domain. This is symptomatic of a high degree of correlations between related issues. As a result, this method attributed a weight representing half the sub-domain, distributing the other half equally among the remaining indicators.

The third method, as an alternative, retrieves weights endogenously from the data. The multivariate analysis, used to confirm the structure of the Index using principal component analysis (PCA), provides correlations between the indicators used and their respective domains. These correlations, called 'factor loadings', can be used to determine weights by rescaling them so they add up to one in each domain. This weighting method can only be applied at the sub-domain level, since the PCA can only be used to reify the structure at this level ([6]). It is important to note that this weighting method only corrects for overlapping information, as evidenced by correlated variables, and is not a measure of theoretical importance among the variables.

Finally, the fourth weighting method tested was based on experts' opinion. It is a participatory method which requires the input of gender experts (Nardo et al, 2008). This method is particularly relevant since the Gender Equality Index is underpinned by EU policy and this method provides a basis to assess and discuss gender policy action. It is based on experts' opinion rather than technical measurements. Its strength is thus in providing a systematic representation of experts' opinion and in increasing the transparency and legitimacy of the Gender Equality Index as a tool to support gender equality policy in the EU. The experts consulted consisted of members of EIGE's Working Group on Gender Equality Index and EIGE's Expert Forum ([7]). Experts' opinion on weights were sought at the domain level, including only core domains, using a participatory approach called analytic hierarchy process (AHP). This consultation process was undertaken in the last quarter of 2012.

Analytic hierarchy process (AHP) is time-consuming but easy to perform, even though assigning weights to a complex phenomenon such as gender equality is not an easy task. It combines both qualitative, by asking to express

([6]) The data matrix the gender equality index uses has not enough degree of freedom. In statistics we refer to degree of freedom (df) as the number of values in a final calculation of a statistics that are free to vary. If n is the number of observation and k the number of independent variables the df is (n-k). In other words the df is the minimal number of values which should be specified to determine all the data points. In the Index case the data matrix is 28x31, which returns 0 df.

([7]) The Working Group is a board officially established by EIGE's Management board in 2011 to provide the technical support in the construction of the Gender Equality Index and in developing a strategy to disseminate it. The Expert Forum is the Institute's advisory body. Its principle function is to provide expertise knowledge in the field of gender equality.

a preference between two domains, and quantitative aspects, by assigning a score to the preference intensity. The AHP is based on ordinal pair-wise comparison of domains. Experts were first asked to make a pair-wise comparisons of domain, and secondly, to assign a strength of preference to the selected domain on the scale from 1 (equal importance of domains) to 9 (the most important domain). The relative weights assigned by each expert can then be computed in order to obtain the overall score for each domain ([8]). The procedure also tests whether weights are consistent, that is if they are numerically coherent across pair-wise comparisons. For example, if work is more important than power, and power more important than health, then health cannot be more important than work. However, since incoherence is an integral part of human thinking, an inconsistency threshold is generally tolerated (Saaty, 1990). The AHP, while solving for inconsistency, was able to keep 60 % of experts' weights. These experts' weights were averaged before being tested. Only average experts' weights were used.

There is no general consensus as to what an appropriate weighing measure should be. Furthermore, there exists an inherent bias in the selection of a weighting method, as they all represent a subjective choice which has a bearing on the final scores. The selection of a weighing method goes hand-in-hand with choices of aggregation methods. The final decision of weighting was made through robustness analysis involving all relevant aspects to calculate a composite indicator.

The robustness analysis confirmed the use of equal weights in the aggregation of the indicators at sub-domain level and in aggregating sub-domain's score at domain level. Additionally, different weights used to aggregate the score of the different domains to calculate the Gender Equality Index have been confirmed. Table 2 sets out the weights used for the Gender Equality Index in each of the six domains.

2.3.2. Aggregation

This step groups the variables in order to create indices at the sub-domain level, at the domain level and at the level of the overall Gender Equality Index. Three main aggregation methods were tested for their applicability in forming a composite indicator: arithmetic, geometric and harmonic means. The arithmetic mean allows full compensability, offsetting a poor performance in some variables by a sufficiently large advantage in other variables, while the geometric and harmonic decrease the potential compensatory effect. The phase of aggregation and weighing is highly interconnected. In all cases of arithmetic, geometric and harmonic aggregation, the weights represent trade-offs between the variables. Moreover, the compensability between variables is higher in the combination of arithmetic aggregation and equal weights.

Aggregation methods have remained the same in the 3rd version of the Gender Equality Index, notably resulting in arithmetic means to aggregate the indicators in the sub-domains, geometric means to aggregate sub-domains in the domains, and to aggregate domains to calculate the Gender Equality Index.

2.3.3. Normalisation

Despite the multi-modelling approach used in the previous steps, the Gender Equality Index uses the metric introduced in formula (3) as a unique normalisation method. This metric is considered as a normalisation method since it adjusts for the measurement unit and it corrects for the range of variation of each variable by bounding it between [0; 1]. Additionally, it satisfies the property of interpretability of each variable considered in terms of distance from the equality point, set at 1, and keeps comparability among variables within each country. As a result, no new normalisation method has been introduced in the 3rd edition of the Gender Equality Index.

Table 2: Mean experts' weights used for the Gender Equality Index (rounded) ([9])

Work	Money	Knowledge	Time	Power	Health
0.19	0.15	0.22	0.15	0.19	0.10

([8]) The overall score for each domain for each expert are calculated using the Saaty's eigenvector method (EM) (Saaty, T. L. (1990), Eigenvector and logarithmic least squares, *European Journal of Operational Research* 48, 156-160).

([9]) Weights with 15 digits, used in the calculation of Gender Equality Index, are the following: (Work, 0.193293420026752) (Money, 0.154066793988684) (Knowledge, 0.216676323111808) (Time, 0.14589100376959) (Power, 0.190954414426013) (Health, 0.0991180446771528).

2.3.4. Calculating the final metric

Having followed these steps, the calculation of the Gender Equality Index becomes possible. It follows aggregation steps provided by the measurement framework, as confirmed by statistical assessment, multivariate analysis and robustness analysis. First, all variables within each subdomain are aggregated, creating indices at the subdomain level. Second, these are aggregated at the domain level. Finally, all the domain indices are aggregated, creating the overall Gender Equality Index.

The final metric of Gender Equality Index is the following:

$$I_{\mathrm{i}}^{t} = \prod_{d=1}^{6}\left\{\prod_{s=1}^{ns_d}\left[\sum_{v=1}^{n_s}\frac{\Gamma(X_{itv})}{n_s}\right]^{\frac{1}{ns_d}}\right\}^{w_{AHP_d}} \quad (7)$$

$i = 1, \ldots, 28$
$d = 1, \ldots, 6$
$s = 1, \ldots, 14$
$v = 1, \ldots, 31$
$n_s =$ number of indicators in the sub − domain s
$ns_d =$ number of sub − domains in the domain d
$w_{AHP_d} \in [0,1]$

where I_{i}^{t} identifies the best Gender Equality Index for the i-th country during the time t, $\Gamma(X_{ivt})$ is the metric described in formula 3, used at variable level (v), while w_{AHP_d} is the expert weights used at domain level and retrieved from the analytic hierarchical process (AHP) with the network of EIGE's experts in the 1st edition of the Gender Equality Index (see Table 2).

Using the example, the indicator of FTE employment rate has been aggregated at sub-domain level together with the indicator of duration of working life (DWL), using the average of the metric of the two indicators. For FTE employment rate the metric is 71.6, and for DWL it is 83.4. The average of the two is 77.5 which is the score of the sub-domain of participation. Next, the scores of the sub-domain of participation (77.5) and the sub-domain of quality of work and segregation (70.2) are aggregated using the geometric mean with equal weights, in order to obtain the score for the domain of work (73.8). Finally, the scores of the six domains are aggregated using the geometric mean with different weights for the domains, using the experts' weights defined with the analytic hierarchical process (AHP).

The final score of Belgium is thus calculated as:

$$I_{\mathrm{i=BE}}^{2015} = (73.8^{0.19}) * (87.5^{0.15}) * (71.1^{0.22}) * (65.3^{0.15}) * \\ * (53.4^{0.19}) * (86.3^{0.10}) = 70.5$$

2.4. Statistical analysis

A number of statistical steps were followed to inform and verify the final selection of the indicators in the Gender Equality Index. The pre-selected variables, that fulfil the conceptual and statistical criteria, were processed to ensure that they all measured gender equality aspects in a homogeneous way. Once the preselected variables had been transformed in relation to the direction of their interpretation, their expression in relative terms and their aggregation into gender gaps adjusted by level of achievements, they then went through an in-depth statistical analysis in order to decide on their inclusion in the final list of indicators used in building the Gender Equality Index. The statistical analysis of the preselected variables provides information about their individual quality and also about their global internal consistency. These following statistical steps formed the basis of the final selection of the indicators in the Gender Equality Index.

The main **descriptive statistics** of each metric $\Gamma_{(\mathrm{X_{it}})}$, and the gender gap adjusted by level of achievement, are presented in Annex 3. The third column is the standard deviation, showing that those with greater variability will have a greater impact in the computation of the Index. For example, the indicator 'Share of members of public research funding' has a higher standard deviation, and, therefore, a higher impact in the Index, than the indicator 'Life expectancy'. The two last columns make is possible to identify the presence of outliers ([10]). As there are no cases with simultaneous 'anomalous' values of Skewness and Kurtosis, no outlier correction was needed.

Next, a **multivariate analysis** was carried out to examine the structure of the data by measuring the extent to which the conceptual framework has statistical support from the preselected variables. Two methods, which are described below, have been applied to $\Gamma_{(\mathrm{X_{it}})}$: cross-correlations analysis and principal component analysis (PCA). The results obtained informed the decision of the final list of indicators to include in the computation of the Gender Equality Index (see Annex 1).

The first of these two methods, **cross-correlations analysis,** measured the association between variables. This tool had a double aim: to understand the inter-relationship

([10]) Outliers defined as cases with |skewness|>2 and |kurtosis|>3.5. Skewness is a measure of the asymmetry of a distribution. It is equal to 0 if the distribution is symmetric (same tails on both sides and distribution balanced around the mean). It is negative if the left tail is longer and the mass of the distribution is concentrated on the right side, and it is positive in the opposite case. Kurtosis is a measure of the shape of a distribution. It measures how tall and sharp the central peak is.

between the variables, and to further refine the dataset, keeping only variables with meaningful and coherent correlations. The correlation matrix of the dataset, calculated with the Pearson's correlation coefficient, is presented in Annex 4 ([11]). Although the data originates from different sources and variables are measured mainly at macro level, significant levels of association between variables can be observed. Additionally, attention was given to selecting variables for each domain that did not present significant negative correlations among them. Also it was important to avoid double counting of the selected variables. This means that there is no pair of variables with a Pearson's correlation coefficient greater than 0.92 ([12]). Finally, all variables present significant positive correlations with their own sub-domain and the majority of them have a positive and significant correlation with the Index. These associations are the pillars of the statistical structure of the data.

The correlation analysis was followed by a statistical procedure called **principal component analysis** (PCA) that attempted to find natural groupings (factors or components) based on the internal relationship of the variables. The main difficulty resided in finding a suitable set of variables that together form statistically coherent groupings that can be related to the conceptual framework. Taken together, these factors provide the measurement framework used for the Gender Equality Index. Initially, variables were grouped according to their meaning within domains and sub-domains, which were established using conceptual mapping. Next, the PCA was applied for 2010 at domain level, allowing for the development of factors that could map sub-domains. This was applied to each domain separately because of the high number of variables used for the analysis relative to the number of observations (28 countries) which prevented the use of a PCA technique to confirm the overall theoretical structure. Data referred to 2010, and was used to not only determine the structure of the Index as originally defined in the 1st edition, but also the formula (aggregation and weighting) as is presented below (robustness analysis).

The set of variables that work well together, verifying statistically the conceptual framework, represent the final set selected for computing the Gender Equality Index. The results of this exploratory analysis obtained for the final list of variables is shown in Annex 5. The PCA provides the measurement framework for the Gender Equality Index which consists of the six domains of gender equality identified for the Index at theoretical level, 14 sub-domains and 31 variables. Two sub-domains were split in the statistical structure. Within the domain of work, the sub-domain of segregation was merged with quality of work. In the domain of health, the sub-domain of behaviour was split in two in the measurement framework, which was finally solved by aggregating them with a half weight each in a single sub-domain.

Subjectivity is introduced in composite indicators through the choices made to compute them. To remove subjectivity, the Gender Equality Index adopts the principle of multi-modelling. This means than instead of relying on a single model, all possible indices are computed in order to select the one that best measures gender equality. The four main grounds of subjectivity relate to the choices that are made in terms of operational choices such as normalisation, weighting and aggregation at the level of sub-domains and then domains. These different options considered to compute the Gender Equality Index are described in the 1st edition of the Gender Equality Index (EIGE, 2013).

Robustness analysis was carried out next to test several alternative decisions regarding imputation of missing data, as well as the methods used for weighing and aggregation. This 3rd edition of the Gender Equality Index made a number of adjustments to the formula, including adding a number of new variables, and running the robustness analysis again was needed. The procedure is explained in-depth in the 1st edition of the Gender Equality Index (EIGE, 2013, pp. 4952). Since the quality of a model also depends on the soundness of its assumptions, good modelling practice requires that the modeller provide an evaluation of the confidence in the model, assessing the uncertainties associated with the modelling process and the subjective choices taken (Nardo et al., 2008). The choice of one method against another has implications for the final result of the country score as well as its ranking. However, it is possible to evaluate how and by how much the results change when different methodological decisions are made in the computation of the Gender Equality Index. The robustness analysis follows a multi-modelling principle: this means that since it is not desirable to trust one model, the approach is to test a multitude of possible models based on various combinations of the normalisation, weighing, missing data and aggregation decisions that can be made. In other words, since there is no unique recipe in constructing composite indicators, the approach is to compute them all, before making a final selection. The robustness analysis of the Gender Equality Index is based on the combination of the factors presented in Table 3.

([11]) The Pearson's correlation coefficient (r) is a measure of the linear correlation between two variables. It takes values between + 1 and – 1, where 1 is total positive linear correlation (direct proportionality), 0 is no linear correlation, and – 1 is total negative linear correlation (direct inverse proportionality).

([12]) Earnings and Income variables present very high correlations. However, it is conceptually relevant to keep both in the Index because they take into consideration different aspects, including pensions.

Table 3: Source of uncertainty and alternatives tested

Type of uncertainty	Alternatives
Weights	Equal weights
	Modified equal weights
	PCA weights
	Expert's weights (AHP)
Aggregation	Arithmetic mean
	Geometric mean
	Harmonic mean
Missing data	100 simulations for imputed data

The possible alternatives tested within the computation of the Index have involved different combinations based on the four alternatives weights (Equal weights, Modified equal weights, PCA weights, Expert's weights (AHP)) and the three aggregation functions (arithmetic, geometric and harmonic mean). Compensatory methods relating to aggregation have been gradually adopted, which means that the compensation allowed is higher within the aggregation at the level of the variables, where the arithmetic mean is always considered. However, it is gradually less compensatory within the sub-domain and domain level, where only geometric or harmonic means ([13]) are allowed. Weights also present a large source of uncertainty, which needs to be accounted for. The four methods outlined above are used in the robustness analysis. The last source of uncertainty deals with the issue of the estimation of missing data. Estimations for missing data were sampled from their probability distribution through Monte Carlo simulations (100 runs).

The robustness analysis involved combining all possible sources of variations (simulations of imputed data; all weight and aggregation alternatives). Altogether, this resulted in the computation of 3 636 sets of scores. These correspond to the overall Index distribution of all the possible scenarios generated within these assumptions. The selection process for the best Gender Equality Index, first, relied on the identification of the median Index within these 3 636 scenarios. Second, the differences between each scenario and the median index were computed. The best index, according to the robustness analysis, consists of the one that lies closest to the median set of scores. In particular the best Index was chosen considering the Euclidean distance $d_{i,j}$ as sum of squared root of the difference between each index $I^t_{i,j}$ and the overall median index I^t_{me} (see formula 8).

$$d_j = \sqrt{\sum_{i=1}^{28}(I^t_{ij} - I^t_{me})^2} \qquad \begin{matrix} j = 1, \dots, 3636 \\ i = 1, \dots, 28 \\ me = median\ index \end{matrix} \tag{8}$$

The combination closest to the median of the distribution of possible scores, was adopted to compute the Gender Equality Index. Its characteristics rely on the use of the arithmetic mean and equal weights at variable level; geometric mean and equal weights at sub-domain level; and geometric mean and expert's weights at domain level.

The Gender Equality Index, so defined, is the most robust combination of assumptions among all possible scenarios. It provides lower levels of compensability at sub-domain and domain levels since it relies on geometric means. In addition, since it uses equal weights and linear aggregation at the bottom, it allows higher compensability between variables. This approach is not problematic because the correlation matrices do not include high negative correlations.

Conducting a robustness analysis, as described above, allows the level of confidence associated with the selected final Index score to be quantified. Figure 2 illustrates how the main results of the Index can change along with variations in assumptions. It shows the distribution of the difference between all possible ranks obtained out of the 3 636 scenarios considered and the rank of the Gender Equality Index selected. It provides an overview of the robustness of the Index with respect to the sources of uncertainty

([13]) In the geometric mean, each variable is multiplied as opposed to the arithmetic mean where they are summed up. Variables weights are computed as exponents in the multiplication. To avoid close to zero values biasing the geometric mean, the variables were rescaled linearly on the interval [1, 100].

considered and shows a clear peak around zero, which represents no differences in rankings. This is a sign of robustness in itself.

A closer look of the distribution in Table 4 shows that 32 % of cases have not shifted positions and have kept the exact same ranking, while in 59 % the shift in rank is at most of one position, and in 73 % of cases it has changed at most by two positions. Overall, this analysis demonstrates that the Gender Equality Index is robust and stable with respect of the selected sources of uncertainties.

Additionally, in order to assess the structure of the selected index, the correlation matrix between the overall Index, domains and sub-domains was examined (see Annex 6). The Pearson's correlation matrix shows very strong correlations with the domains of both power and time (r = 0.90 and r = 0.89), and the weakest correlation is between the Index and the domain of health (r = 0.65) in 2015. These results confirm the structure of the domains as meaningful in explaining the overall Index. Overall this means that the domains of gender equality selected, individually or together, successfully describe overall levels of gender equality.

Figure 2: Histogram of all possible rank differences (28*3 636 values)

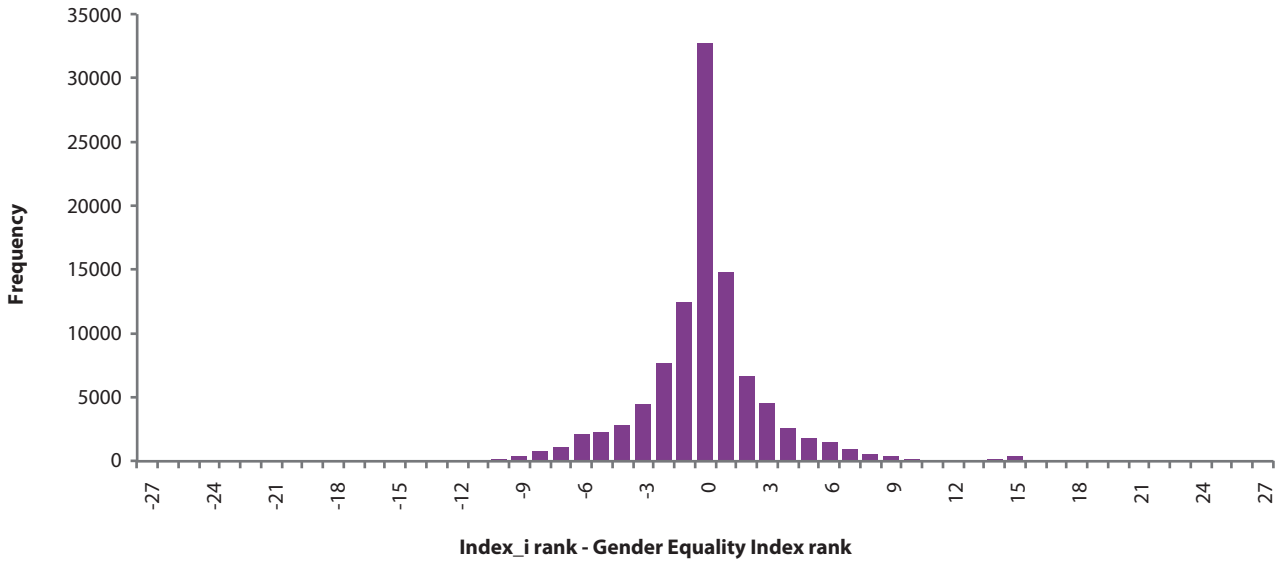


Table 4: Percentage of cases in the shifted rank

Rank difference Interval	Percentage of cases
[– 27, – 13]	0.1
[– 12, – 8]	1.5
[– 7, – 5]	5.3
[– 4, – 2]	14.7
[– 1, 1]	59.0
[0]	**32.2**
[– 2, 2]	**73.1**
[2, 4]	13.6
[5, 7]	4.1
[8, 12]	1.2
[13, 27]	0.6

The structure of the Gender Equality Index is also confirmed at sub-domain level. There are not significant negative correlations among the sub-domains and all of them present significant positive correlations within their own domain. Consistently in almost every case, sub-domains contribute most to their respective domains. For example, Financial resources registers the highest correlation ($r = 0.97$) to its own domain money. A further sign of good fit of the Index resides in the fact that all the domains and sub-domains are significantly correlated with the Index at a 5 % level of significance. Overall, this analysis demonstrates that the Gender Index Equality is a robust measure with an internal structure that is both statistically coherent and consistent with the conceptual framework of the Index.

3. The satellite domains

3.1. The satellite domain of violence

Violence is a satellite domain of the Gender Equality Index. This status stems from both conceptual and statistical considerations. Conceptually, this domain looks at gender based violence against women, since it recognises that violence is an expression of power linked to the domination of some forms of masculinity, mostly over women (EIGE, 2013). It is rooted in the unequal status of men and women in society which implies that violence against women is the corollary of structural inequalities experienced by women in the field of work, health, money, power, education and time use. From this point of view, violence against women must be incorporated alongside the other domains of the Gender Equality Index. From a statistical perspective, the domain of violence cannot be treated in the same way as the other domains of the Gender Equality Index, because it does not measure gaps between women and men. Rather, it measures a phenomenon that applies to women only. The overall objective is not to reduce the gaps of violence between women and men, but to eradicate violence altogether (EIGE, 2013, p. 31). This fundamental difference between the domains of the Gender Equality Index and the domain of violence justifies the fact that this domain is treated as a satellite.

When the Gender Equality Index was first developed in 2013, the satellite domain of violence was left empty due to lack of comparable data across all EU Member States. It was qualified by the authors as the 'largest statistical gap in measuring the progress on gender equality at EU level' (EIGE, 2013, p. 139). The completion of an EU-wide survey on violence against women by the European Agency for Fundamental Rights (FRA) in 2012 constituted an unprecedented advance in assessing the magnitude of the issue in the EU.

Building on the FRA survey findings, the 2nd edition of the Gender Equality Index (EIGE, 2015) presented a first attempt at populating the satellite domain of violence by constructing a composite indicator of direct violence against women. The report did not provide scores for individual Member States but instead clustered them into three broad groups according to their levels of disclosed violence in relation to the EU average (EIGE, 2015, p. 131).

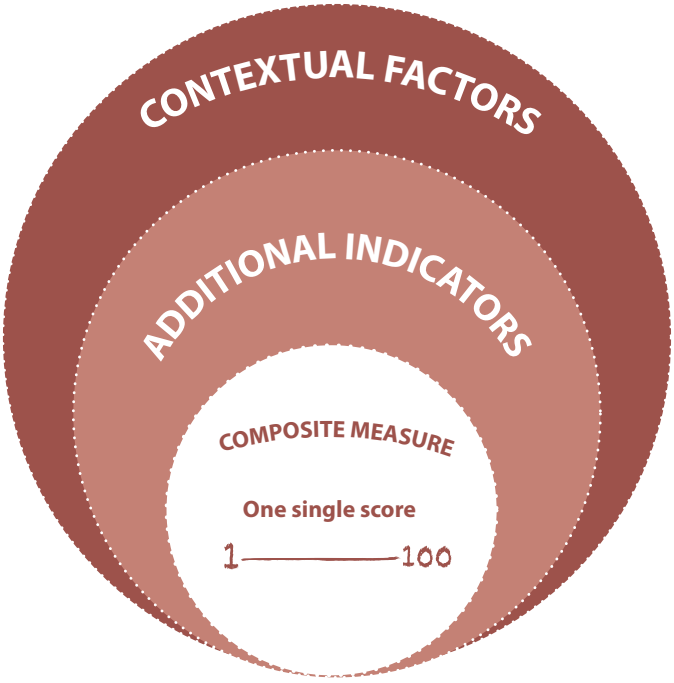
For the 3rd edition of the Gender Equality Index, the satellite domain of violence sought to achieve the three following objectives ([14]):

- To provide a user-friendly statistical tool to monitor the extent of the most common forms of violence against women in the EU in a comparable manner.
- To identify additional forms of violence against women in need of regular monitoring and for which data collection requires more coordination and efforts.
- To define a set of contextual factors likely to affect the extent of violence against women. The analysis of those factors is expected to provide insights into which macro-level aspects of society are likely to alleviate the risk of women being subjected to violence and to support the analysis of what constitutes a successful integrated approach to prevent and address the phenomenon. The structure is presented in Figure 3.

The following sections describes the measurement framework of the satellite domain of violence for the 3rd edition of the Gender Equality Index.

([14]) To support this development, the University of Erlangen-Nurnburg, Germany, provided EIGE with some analysis. Professor Monika Schroettle was the project director.

Figure 3: Measurement structure of the domain of violence



3.1.1. Selecting indicators

In line with the objectives stated previously, a three-tiered structure of measurement was defined as the most likely to provide a comprehensive measurement of the phenomenon of violence against women in the EU, including: 1. a set of indicators on the extent of violence against women that will form the composite measure, 2. a set of additional indicators covering a broader range of forms of violence, and 3. a set of contextual factors for the advanced interpretation of the first and second sets of indicators.

In this report only the set of indicators aggregated into a composite measure are described. The full measurement framework of violence against women is presented in 'Gender Equality Index 2017. Measurement framework of violence against women' (EIGE, 2017b).

When selecting indicators to form the composite measure, the specific criteria imposed by the nature of the Gender Equality Index (individual level, outcome based, no more than 10 % of missing values) were applied. Additional criteria were also taken into account.

In particular, EIGE included only the main forms of violence: 1. for which comparable and valid data are available, 2. that potentially concern all women in the general population, 3. whose inclusion does not decrease the meaningfulness of the composite measure, 4. that are widely criminalised, and 5. for which comparison of data between Member States is possible. Finally, to ensure the highest statistical robustness of the composite measure, the number of variables was limited to the minimum.

The composite measure for the extent of violence against women seeks to provide a comprehensive image of the extent of violence against women, its severity and its under-reported nature. To this end, it includes three sub-domains described in Table 5.

Table 5: Structure of the composite measure

Sub-domain	Concept measured
Prevalence	Extent of violence against women
Severity	Heath consequences of violence against women and multiple victimisation
Disclosure	Reporting of violence against women to institutions or disclosing to anyone else

Table 6 presents the details of each variable selected for the composite measure.

Table 6: Indicators included in the composite measure

Sub-domain	Variable	Data source	Denominator
Prevalence	Percentage of women having experienced physical and/or sexual violence since age 15	FRA, 2012	All respondents (18-74)
	Percentage of women having experienced physical and/or sexual violence in the past 12 months	FRA, 2012	All respondents (18-74)
	Percentage of women victims of intentional homicide by a current or former partner or family member, per 100 000 inhabitants	Eurostat crim_hom_vrel	100 000 inhabitants
Severity	Percentage of women who have experienced physical and/or sexual violence from several types of perpetrators (current partner, former partner and/or non-partner)	FRA, 2012	Respondents having experienced physical and/or sexual violence (18-74)
	Percentage of women who experienced health consequences of physical and/or sexual violence since age 15	FRA, 2012	Respondents having experienced physical and/or sexual violence since age 15 (18-74)
	Percentage of women who experienced health consequences of physical and/or sexual violence in the past 12 months	FRA, 2012	Respondents having experienced physical and/or sexual violence in the past 12 months (18-74)
Disclosure	Percentage of women having experienced physical and/or sexual violence in the past 12 months and have not told anyone	FRA, 2012	Respondents having experienced physical and/or sexual violence (18-74)

Note: The indicator on femicide is part of the concept of the composite measure, but it is not included in the measurement due to lack of EU wide official comparable data.

The variable of femicide (measured by the indicator 'Percentage of women victims of intentional homicide by a current or former partner or family member, per 100 000 inhabitants') was excluded from calculation due to the data being available only for a limited number of Member States.

For the measurement of multiple victimisation, several variables were tested and one was discarded. It sought to capture the likelihood of women experiencing violence multiple times in their social, professional or emotional lives. The variable that was excluded was the 'Percentage of women having experienced physical and/or sexual violence more than once'.

However, the FRA questionnaire, is built on the basis of acts of violence (slap, kick), which makes it difficult to distinguish separate episodes of violence and to evaluate to what extent women have gone through several episodes of violence. To compute multiple victimisation, the FRA study included women who experienced at least one violent act several times since the age of 15 or in the 12 months prior to the interview. Therefore, the only difference between multiple victimisation and prevalence was that multiple victimisation excluded the few women who responded 'only once' for all acts of violence. As a result, that variable proved to be too highly correlated to variables in the Prevalence sub-domain.

To overcome this constraint, another approach was taken to the measurement of multiple victimisation. It consisted of measuring whether women had been victimised by several different types of perpetrators such as a current partner, a former partner, a colleague, a family member, or someone unknown. This variable captures the average number of different types of perpetrators involved in women's experiences of violence. For this variable, the denominator is 'all respondents having experienced physical and/or sexual violence'. On average, in the EU, women who have experienced violence were victimised by 1.6 different types of perpetrators. The values ranged from 1.2 types in Greece to 1.8 types in Slovakia. This made visible the important finding that violence is likely to arise from several dimensions in women's personal, professional, social, family and other lives.

Due to statistical reasons, the variable on disclosure of lifetime physical and sexual violence had to be excluded from the calculations. It showed negative correlations with other variables, the most significant ones being with the variables of health consequences.

3.1.2. Computing the index for the domain of violence

Variables within each sub-domain were aggregated using an arithmetic mean. Similarly, sub-domains values were then aggregated using an arithmetic mean. No weights were applied.

The current metric is the following:

For indicators:

$$\Gamma_{(X_i)} = 1 + 99 \cdot [\Upsilon_{(X_i)}] \quad (9)$$

For the composite measure:

$$I_i^{violence\ against\ women} = \frac{\sum_{s=1}^{3}\left(\sum_{v=1}^{n_S}\frac{\Gamma(X_{iv})}{n_S}\right)}{s} \quad (10)$$

$i = 1, \ldots, 28$
$v = 1, \ldots, 7$
$s = 1, \ldots, 3$
$n_s = \text{number of indicators in the sub} - \text{domain s}$

The metric of the satellite domain departs from the other domains of the Gender Equality Index in several ways. The most visible difference is the interpretation of the values. While for the Gender Equality Index, 1 means the highest level of inequality and 100 means the most gender equal society, for the satellite domain of violence against women, the scale was reversed in order to align with the common interpretation of data on violence against women. As a result, the higher the value of the composite measure, the more prevalent, severe and under-reported the phenomenon of violence. A value of 1 for the composite measure would describe a situation where no women experience violence while a value of 100 would refer to a situation where violence against women is extremely common, highly severe and not disclosed.

Finally, regarding the linking of this satellite domain with the core Gender Equality Index, EIGE convened a consultation meeting to gather the opinion of various experts on the development of the measurement of violence against women in the EU in Vilnius, in November 2016. This meeting was followed, in February 2017, by a meeting of the Gender Equality Index Working Group. In light of data limitations, it was decided that linking the satellite domain of violence with the Gender Equality Index might negatively affect the robustness and reliability of the Gender Equality Index. It was therefore decided that the composite measure of violence against women would be calculated and analysed, but that it will not affect countries' scores under the Gender Equality Index.

3.2. The satellite domain of intersecting inequalities

Although the Index focuses on gender inequality as the most pervasive and entrenched form of inequality worldwide, it also acknowledges diversities within societies and among women and men. The population consists of people with very different characteristics that intersect and can consequently create and influence the life experiences of and levels of inequality experienced by different groups of women and men. For this purpose, the Gender Equality Index incorporates a satellite domain called 'Intersecting inequalities' that highlights the complexity of gender inequalities by pointing out that some women and men face group-based inequalities rooted in other social and cultural power differentials such as age, ethnicity, race, class, nationality, sexuality, or religion (Kabeer, 2010).

A full understanding of gender inequalities asks that gender gaps are addressed alongside other power asymmetries in society. EIGE's Gender Equality Index measures gender gaps in areas relevant to EU policy; however, for better policymaking and a thorough understanding of gender inequalities, the diversity among men and women needs to be taken into account. In order to produce effective and non-exclusive policy measures and social interventions, systemic social inequalities, their causes and consequences also need to be examined and taken into account.

Sitting alongside the six core domains, intersectionality has been labelled as a satellite domain as it is not a seventh domain in which gender gaps can be found or combined into a composite indicator. Instead, it adds a cross-cutting perspective that unmasks some of the differences among women and among men. By doing so, an intersectional analysis approach is applied to all domains of the Index, to shed more light on multiple inequalities.

The satellite domain of Intersecting inequalities is very different from the satellite domain of Violence. Rather than being a separate domain, it is an analytical tool, applied to the whole Index. This analysis is carried out at the variable level, while for the Index all variables are disaggregated by sex. For intersectional analysis variables are disaggregated additionally by sex and one more intersection at a time (e.g. age and gender; age and education, etc.). As a result, it is possible to see the levels/situations of different sub-groups separately as well as to look at gender gaps within sub-populations. If the gender gaps vary across the sub-populations, it means that gender interacts with other characteristics to create additional inequalities (for

instance, if among the low educated the gender difference is larger/smaller than among the high educated). A situation where the gender gap varies across the groups, such as educational groups, this would be a clear indication of intersectionality. From a policy perspective, it enables EIGE to identify which groups of men and women are least/most disadvantaged and to indicate possible areas where more targeted policy measures are needed.

The first stage involved a theoretical overview of intersectionality (EIGE, 2017c) in order to identify possible intersections (social-demographic characteristics) that would be relevant from the point of view of the Index. Based on theoretical considerations, previous research and data availability, five intersections were selected for further investigation: family type, age, country of birth, disability and education.

- **Intersection of gender and family type.** Four family types were analysed: 1. Single, 2. Lone parent, 3. Couple without children, and 4. Couple with children. These family types are based on the relationships between the members of the households, i.e. couple is defined as two adults living in the same household and declaring to be in a relationship (married and not). Children are only those economically dependent household members (i.e. aged below 18 or up until 24 years, if in education) who are declared to be children or stepchildren of the couple or one parent (in case of lone parent household). These family types differ from the usual types of households which are based on the composition of the household, i.e. counting of adult and dependent household members, and not dependent on their actual relationship. Not all possible types of family are considered for the analysis — families with different mixed compositions are left out for the clarity of interpretation. The source used for the Health behaviour (EHIS) did not allow any disaggregation in reference to this intersection.
- **Intersection of gender and age.** Where possible four age groups are analysed: 15/16-24, 25-49, 50-64, 65+, but occasionally, depending on the need, more detailed analysis was carried out or other age groups analysed.
- **Intersection of gender and country of birth.** As a proxy for migrant status the variable of country of birth is used. Three categories are distinguished, wherever possible: 1. National born: born in the reporting country, 2. EU born: born in EU-28 countries, except reporting country, and 3. Non-EU born: born in any other country outside of EU-28. Where further disaggregation was not possible, only two intersections were analysed (national-born and non-national born) without differentiating between EU born and non-EU born non-nationals. For this intersection, the data availability is limited and instead of EU-28, the EU average is calculated based on smaller number of countries when a three-category intersection is looked at (national; EU born and non-EU born). For instance, in the data of EU SILC, this disaggregation is available only for 23 countries (data for Germany, Estonia, Latvia, Malta and Slovenia are not available). Also in EU LFS there are missing data.
- **Intersection of gender and disability.** As a proxy for the disability status, a question 'limitations in everyday life' is used. This intersection is not available in EU LFS, EWCS and SES. Where possible EU SILC and EQLS are used as data sources. The questions differ slightly in these surveys, but it is anticipated that they will be still relatively comparable ([15]).
- **Intersection of gender and education.** Three standard levels of education are used: 1. Low educated (ISCED 0-2), 2. Medium educated (ISCED 3-4), and 3. High educated (ISCED 5-8).

The level of detail and the intersections analysed vary across the domains, depending on the data availability. Since the purpose is to shed more light into each of the domains and variables, the comparability of the domains is not needed, and the analysis is flexible and varies across the domains and variables. The following variables are not included to the intersectionality analysis:

- Duration of working life (domain of work);
- Tertiary students in the fields of education, health and welfare, humanities and art (tertiary students) (domain of knowledge);
- Life expectancy in absolute value at birth (domain of health);
- Healthy life years in absolute value at birth (domain of health);
- Domain of power: due to the lack of data on the social-demographic characteristics (other than gender) of the decision-makers, the domain of power is excluded from the intersectionality analysis.

For this 3rd edition of the Gender Equality Index, the intersectionality analysis is done at EU-28 level, covering either 2014 or 2015, depending on the data available and microdata analysis (using EU SILC and EU LFS 2014, EQLS 2015; EWCS 2016).

([15]) EU SILC: HS.3 For at least the past 6 months, to what extent have you been limited because of a health problem in activities people usually do? EQLS: Q50 (Q44) Are you limited in your daily activities by this physical or mental health problem, illness or disability?

Annexes

Annex 1. List of indicators of Gender Equality Index

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Work	Participation	1	Fte	Full-time equivalent employment rate (%, 15+ population)	The Full-Time Equivalent (FTE) employment rate is a unit to measure employed persons in a way that makes them comparable even though they may work a different number of hours per week. The unit is obtained by comparing an employee's average number of hours worked to the average number of hours worked by a full-time worker. A full-time worker is therefore counted as one FTE, while a part-time worker gets a score in proportion to the hours she or he works. For example, a part-time worker employed for 20 hours a week where full-time work consists of 40 hours, is counted as 0.5 FTE.	Eurostat, EU LFS Eurostat calculations according to EIGE's request	2005 EU-28: Non-weighted average	2010	2012	2015
		2	Dwl	Duration of working life (years, 15+ population)	The duration of working life indicator (DWL) measures the number of years a person aged 15 is expected to be active in the labour market throughout his/her life. This indicator is calculated with probabilistic model combining demographic data (Life tables available from Eurostat to calculate the survival functions) and labour market data (Labour Force Survey activity rates by single age group). Exact calculation methodology can be requested from Eurostat.	Eurostat, EU LFS Duration of working life - annual data [lfsi_dwl_a]	2005	2010	2012	2015
	Segregation and quality of work	3	Seg_W	Employed people in education, human health and social work activities (%, 15+ employed)	Percentage of people employed in the following economic activities out of total employed (based on NACE Rev 2) are included: P. Education + Q. Human health and social work, as percentage from TOTAL activities (All NACE activities).	Eurostat, EU LFS Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) – 1,000 [lfsa_egan2] Employment by sex, age and economic activity (1983-2008, NACE Rev. 1.1) (1,000) [lfsa_egana]	2005	2010	2012	2015
		4	Flexibility	Ability to take an hour or two off during working hours to take care of personal or family matters (%,15+ workers)	Q47. Would you say that for you arranging to take an hour or two off during working hours to take care of personal or family matters is:...? 1 Very easy; 2 Fairly easy; 3 Fairly difficult; 4 Very difficult Percentage of persons who answered 'very easy' out of total (1, 2, 3, 4).	Eurofound, EWCS EIGE's calculation with microdata	2015	2015	2015	2015
		5	Prospects	Career Prospects Index (points, 0-100)	The Prospects Index is one of job quality indexes developed by the Eurofound. It combines the indicators of employment status (self-employed or employee), type of contract, the prospects for career advancement as perceived by the worker, perceived likelihood of losing one's job and experience of downsizing in the organisation. It is measured at the scale of 0-100 where the higher the score, the higher the job quality. Exact methodology can be requested from Eurofound.	Eurofound, EWCS Calculated by Eurofound	2015	2015	2015	2015

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Money	Financial resources	6	Earnings	Mean monthly earnings (PPS, working population)	Mean monthly earnings in PPS (Purchasing Power Standard), in the sectors of Industry, construction and services (except public administration, defence, compulsory social security) (NACE_R2: B-S_X_O, total age group, working in companies 10 employees or more)	Eurostat, SES Mean monthly earnings by economic activity, sex, age [earn_ses06_20] Mean monthly earnings by sex, age and economic activity [earn_ses10_20] Mean monthly earnings by sex, age and economic activity [earn_ses14_20]	2006 EU-28: EU-27 used HR 2010	2010	2010	2014 EL and HR 2010
		7	Income	Mean equivalised net income (PPS, 16+ population)	Equivalised disposable income in PPS (Purchasing Power Standard), is the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members converted into equalised adults; household members are equalised or made equivalent by weighting each according to their age, using the so-called modified OECD equivalence scale.	Eurostat, EU SILC Mean and median income by age and sex [ilc_di03]	2005 EU-28: Non-weighted average BG 2006, HR 2010, RO 2007	2010 EU-28: Non-weighted average	2012 EU-28: Non-weighted average	2015 EU-28: Non-weighted average
	Economic situation	8	Poverty	Not at-risk-of-poverty, ≥60% of median income (%,16+ population)	Reversed indicator of 'at-risk-of poverty rate, calculated as 100 minus "at-risk-of-poverty rate". The at-risk-of-poverty rate is the share of people with an equivalised disposable income (after social transfers) below the at-risk-of-poverty threshold, which is set at 60 % of the national median equivalised disposable income after social transfers.	Eurostat, EU SILC At-risk-of-poverty rate by poverty threshold, age and sex [ilc_li02]	2005 EU-28: Non-weighted average BG 2006, HR 2010, RO 2007	2010	2012	2015
		9	S20/80	Income distribution S20/S80 (16+ population, %)	Calculated as 1/ "S80/S20 income quintile share ratio" * 100. The income quintile share ratio (also called the S80/S20 ratio) is a measure of the inequality of income distribution. It is calculated as the ratio of total income received by the 20% of the population with the highest income (the top quintile) to that received by the 20% of the population with the lowest income (the bottom quintile). For the Index, a 'reversed' version of this indicator is used.	Eurostat, EU SILC Eurostat calculations according to EIGE's request	2005 EU-28: Non-weighted average BG 2007, HR 2010, RO 2007	2010	2012	2015 IE 2014

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Knowledge	Attainment and participation	10	Grad	Graduates of tertiary education (%, 15+ population)	Educational attainment measures the share of high-educated people among men and women. People with tertiary education as their highest level successfully completed (levels 5-8), percentage from total +15 population	Eurostat, EU LFS Eurostat calculations according to EIGE's request	2005 EU-28: Non-weighted average	2010	2012	2015
		11	Part	People participating in formal or non-formal education and training (%, 15+ population)	Percentage of people participating in formal or non-formal education and training, out of total population of 15+. Lifelong learning encompasses all purposeful learning activity, whether formal, non-formal or informal, undertaken on an ongoing basis with the aim of improving knowledge, skills and competence. The reference period for the participation in education and training is the four weeks preceding the interview.	Eurostat, EU LFS Eurostat calculations according to EIGE's request	2005 EU-28: Non-weighted average	2010	2012	2015
	Segregation	12	Seg_E	Tertiary students in the fields of education, health and welfare, humanities and art (tertiary students) (%, 15+ population)	Percentage of persons who are studying in the following areas: EF14 (Teacher training and education science) + EF2 (Humanities and arts) + EF7 (Health and Welfare) out of total students. Until 2012 levels ISCED 5-6, after that ISCED 5-8.	Eurostat, Education statistics Tertiary students (ISCED 5-6) by field of education and sex (2005-2012) [educ_enrl5] Students enrolled in tertiary education by education level, programme orientation, sex and field of education (2013-2015) [educ_uoe_enrt03]	2005 EU-28 calculated with original variables FR 2006, LU 2011	2010 EU-28 calculated with original variables LU 2011	2012	2015 EU-28 calculated with original variables EL, IE, 2014

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Time	Care activities	13	Care	People caring for and educating their children or grandchildren, elderly or people with disabilities, every day (%, 18+ population)	Percentage of people involved in at least one of these caring activities outside of paid work every day: care for children, grandchildren, elderly and disabled people. Question: (in general) how often are you involved in any of the following activities outside of paid work? 2016: Q42a Caring for and/or educating your children; Q42b Caring for and/or educating your grandchildren; Q42d Caring for disables or infirm members, neighbours or friends under 75 y.o.; Q42e Caring for disables or infirm members, neighbours or friends aged 75 or over; 2012: Q36a caring for your children/grandchildren; Q36c Caring for elderly or disables relatives; 2007: Q36c Caring for elderly or disables relatives; 2003: Q37a Caring for and educating children; Q37c Caring for elderly or disables relatives	Eurofound, EQLS EIGE's calculation with microdata	2003 EU-28 calculated with original variables CZ, ES, HR, PL, 2007	2007	2012	2016
		14	Cooking	People doing cooking and/or housework, every day (%, 18+ population)	Percentage of people involved in cooking and/or housework outside of paid work, every day. Questions: How often are you involved in any of the following activities outside of paid work? 2016: Q42c Cooking and/or housework; 2012 Q36b Cooking and/or housework; 2007: Q36b Cooking and housework; 2003:Q37b Housework	Eurofound, EQLS EIGE's calculation with microdata	2003 EU-28 calculated with original variables CZ, ES, HR, PL, 2007	2007	2012	2016
	Social activities	15	Leisure	Workers doing sporting, cultural or leisure activities outside of their home, at least daily or several times a week (%, 15+ workers)	Percentage of working people doing sporting, cultural or leisure activities at least every other day (daily+several times a month out of total). Question: 2015 On average, how many hours per day do you spend on the activity? Q95g Sporting, cultural or leisure activity outside your home.	Eurofound, EWCS EIGE's calculation with microdata	2015	2015	2015	2015
		16	Voluntary	Workers involved in voluntary or charitable activities, at least once a month (%, 15+ workers)	Percentage of working people involved in voluntary or charitable activities, at least once a month. Questions: 2015 On average, how many hours per day do you spend on the activity? Q95g Voluntary or charitable activities; daily; several times a week; several times a month; Less often; Never. (1-3 out of total (who answered 1-5)). 2005 (EF4.1a), 2010 (EF3a) In general, how often are you involved in voluntary or charitable activity outside your home outside work? 1 Every day for 1hour or more; 2 Every day or every second day for less than 1 hour; 3 Once or twice a week; 4 Once or twice a month; 5 Once or twice a year; 6 Never. (1-4 out of total (who answered 1-6)).	Eurofound, EWCS EIGE's calculation with microdata	2005	2010	2010	2015

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Power	Political	17	Min	Share of ministers (% W, M)	Share of ministers. Ratio based on three year averages and ratio of each sex in the population (18+). National governments (all ministers: junior ministers + senior ministers). Population statistics is based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	2004-2005-2006, HR: 2007-2008-2009	2009-2010-2011	2011-2012-2013	2014-2015-2016
		18	Parl	Share of members of parliament (% W, M)	Share of members of parliament. Ratio based on three years averages and ratio of each sex in the population (18+). National Parliaments (both houses). Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	2004-2005-2006, HR: 2007-2008-2009	2009-2010-2011	2011-2012-2013	2014-2015-2016
		19	Reg	Share of members of regional assemblies (% W, M)	Share of members of regional assemblies. Ratio based on three years averages and ratio of each sex in the population (18+). If regional assemblies do not exist in the country, local level politics are included. Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	Regional assembly 2009-2010-2011 Local level politics 2011	Regional assembly 2009-2010-2011 Local level politics 2011	Regional assembly 2011-2012-2013 Local level politics 2013	Regional assembly 2014-2015-2016 Local level politics 2015
	Economic	20	Boards	Share of members of boards in largest quoted companies, supervisory board or board of directors (% W, M)	Share of members of boards in largest quoted companies. Ratio based on three years averages and ratio of each sex in the population (18+). Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	2004-2005-2006, HR: 2007-2008-2009	2009-2010-2011	2011-2012-2013	2014-2015-2016
		21	Banks	Share of board members of Central Bank (% W, M)	Share of members of central bank. Ratio based on three years averages and ratio of each sex in the population (18+). Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	2004-2005-2006 HR: 2007-2008-2009	2009-2010-2011	2011-2012-2013	2014-2015-2016

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Power	Social	22	Res	Share of board members of research funding organisations (% W, M)	Members of the highest decision-making bodies of public research funding organisations Ratio based on three years averages and ratio of each sex in the population (18+). Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	2016	2016	2016	2016
		23	Media	Share of board members in publically owned broadcasting organisations (% W, M)	Share of board members in publically owned broadcasting organisations. Ratio based on three years averages and ratio of each sex in the population (18+). Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID EIGE's calculation	2014	2014	2014	2014-2015-2016
		24	Sport	Share of members of highest decision making body of the national Olympic sport organisations (% W, M)	Share of Members of highest decision-making body of the 10 most popular national Olympic sport organisations. Ratio based on three years averages and ratio of each sex in the population (18+). Population statistics are based on Eurostat database.	EIGE, Gender Statistics Database, WMID Data collected by EIGE	2015	2015	2015	2015

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Health	Status	25	SelfPerc	Self-perceived health, good or very good (%, 16+ population)	Percentage of people assessing their health as "Very good" or "Good" out of total. The concept is operationalized by a question on how a person perceives his/her health in general using one of the answer categories very good/good/ fair/bad/very bad.	Eurostat, EU SILC Self-perceived health by sex, age and labour status (%) [hlth_silc_01]	2005 EU-28: Non-weighted average BG 2006, HR 2010, RO 2007	2010	2012 HR, 2011 (M)	2015
		26	Life ex	Life expectancy in absolute value at birth (years)	Life expectancy at a certain age is the mean additional number of years that a person of that age can expect to live, if subjected throughout the rest of his or her life to the current mortality conditions (age-specific probabilities of dying, i.e. the death rates observed for the current period).	Eurostat, Mortality data Healthy Life Years (from 2004 onwards) [hlth_hlye], indicators F_0_LE - Life expectancy in absolute value at birth - females and M_0_LE - Life expectancy in absolute value at birth.	2005 Total: average of women and men EU-28: Non-weighted average	2010 Total: average of women and men IT 2009	2012 Total: average of women and men SE 2011	2015 Total: average of women and men
		27	HLY	Healthy life years in absolute value at birth (years)	Healthy life years measures the number of remaining years that a person of specific age is expected to live without any severe or moderate health problems. HLY is a composite indicator that combines mortality data with health status data from health mini-module (EU-SILC): the self-perceived question, which aims to measure the extent of any limitations, for at least six months, because of a health problem that may have affected respondents as regards activities they usually do.	Eurostat, EU SILC and mortality data Healthy Life Years (from 2004 onwards) [hlth_hlye], indicators F_0_DFLE - Healthy life years in absolute value at birth - females and M_0_DFLE - Healthy life years in absolute value at birth - males	2005 Total: average of women and men EU-28: Non-weighted average BG 2006, HR 2010, RO 2007	2010 Total: average of women and men IT 2009	2012 Total: average of women and men SE 2011	2015 Total: average of women and men
	Behaviour	28	Risk	People who don't smoke and are not involved in harmful drinking (%, 16+ population)	Percentage of people who are not involved in risk behaviour i.e. don't smoke and are not involved in heavy episodic drinking. Heavy episodic drinking is Intake of 6 drinks or 60+ grams of pure alcohol on one occasion, monthly or more often, during the past 12 months. A drink is defined as a glass of wine, glass of beer, shot of whiskey etc. Everyone either smoking and/or is involved in harmful drinking is regarded to exercise risk behaviour.	Eurostat, EHIS Eurostat calculations according to EIGE's request	2014 EU-28: Non-weighted average FR, NL: EIGE estimation	2014 EU-28: Non-weighted average FR, NL: EIGE estimation	2014 EU-28: Non-weighted average FR, NL: EIGE estimation	2014 EU-28: Non-weighted average FR, NL: EIGE estimation

Domain	Sub-domain	N	Short name	Indicator and reference population	Description	Source	2005	2010	2012	2015
Health	Behaviour	29	Behav	People doing physical activities and/or consuming fruits and vegetables (%, 16+ population)	Percentage of people who are physically active at least 150 minutes per week and/or consume at least 5 portions of fruit and vegetables per day. Both reflect the official recommendation of the WHO. Eurostat provides info on the time spent on health-enhancing (non-work-related) aerobic physical activity (in minutes per week), including sports and cycling to get to and from places. Five portions (400g) fruit and vegetables exclude juices from concentrates and potatoes (starches).	Eurostat, EHIS Eurostat calculations according to EIGE's request	2014 EU-28: Non-weighted average BE, NL: EIGE estimation	2014 EU-28: Non-weighted average BE, NL: EIGE estimation	2014 EU-28: Non-weighted average BE, NL: EIGE estimation	2014 EU-28: Non-weighted average BE, NL: EIGE estimation
	Access	30	Medical	Population without unmet needs for medical examination (%, 16+ population)	Self-reported unmet needs for medical examination. The variables refer to the respondent's own assessment of whether he or she needed examination or treatment, but did not have it. Percentage of persons "No unmet needs to declare", Medical care: refers to individual health care services (medical examination or treatment excluding dental care) provided by or under direct supervision of medical doctors or equivalent professions according to national health care systems.	Eurostat, EU SILC Self-reported unmet needs for medical examination by sex, age, detailed reason and income quintile (%) [hlth_silc_08]	2005 EU-28: Non-weighted average BG 2006, HR 2010, RO 2007	2010	2012	2015
		31	Dental	People without unmet needs for dental examination (%, 16+ population)	Self-reported unmet needs for dental examination. The variables refer to the respondent's own assessment of whether he or she needed the examination or treatment, but did not have it. Percentage of persons "No unmet needs to declare". Dental care: refers to individual health care services provided by or under direct supervision of stomatologists (dentists). Health care provided by orthodontists is included.	Eurostat, EU SILC Self-reported unmet needs for dental examination by sex, age, detailed reason and income quintile (%) [hlth_silc_09]	2005 EU-28: Non-weighted average BG 2006, HR 2010, RO 2007	2010	2012	2015
Additional variable				Population in age group 18 and older	Number of people in age 18 and older in country	Eurostat, population statistics (1) Population on 1 January by broad age group and sex [demo_pjanbroad] (2) Population on 1 January by age and sex [demo_pjan]	2004-2005-2006	2009-2010-2011	2011-2012-2013	2014-2015-2016

Annex 2. Analysis of the contribution of the correcting coefficient

The approach of calculation of the contribution of correcting coefficient is based on the decomposition of the corrected gender gap used in the Gender Equality Index (see, for instance, Permanyer, 2015). For example, the metric of each indicator (formula 3) could be simplified and written as:

$$\Gamma = 1 + 99 \propto \mathrm{e}$$

where $\propto$ is the achievement component (component related to level of achievement of the indicator, i.e. the part of the metric derived from the application of the correcting coefficient) and e the equality component (component related to the gender gaps, i.e. the part of the metric derived from the gender gap), applying to the formula (2) the natural logarithm, then the corresponding contributions can be approximated as:

$$C_{\propto} = \frac{\ln(\propto)}{\ln\left(\frac{\Gamma-1}{99}\right)} 100$$

$$C_{\mathrm{e}} = \frac{\ln(\mathrm{e})}{\ln\left(\frac{\Gamma-1}{99}\right)} 100$$

where $C_{\propto} + C_{\mathrm{e}} = 100$.

So, if we take into consideration a single indicator for a single country in 1 year, we could calculate the contribution of the correcting coefficient in the final metric. For example, for the indicator FTE employment rate we have seen that the application of formula 3 for Belgium in 2015 has returned a value of 71.6. Following this approach, the contribution of the gender equality component is 51.6 %, and the remaining 48.4 % is related to the contribution of the level of achievement of Belgium. We can calculate the contribution of the gender equality component and the achievement component for each indicator for each country. The contribution of both components add up to 100. For example, for the Duration of working live indicator the contribution of gender equality component for Belgium in 2015 is 36.3 % (the achievement component is 63.7 %), and so on for all the 31 indicators. For indicators of power and caring and housework the contribution of gender equality component is 100 % since they have not been corrected. We can calculate the average of the gender equality component contribution for the 31 indicators for each country (for example, for Belgium in 2015 the average is 55 %), and we will have an estimation of the impact of gender equality component on the final score of Index for this country.

The new formula of the correcting coefficient increases the contribution of the gender equality component, being the average contribution higher for that component than for the achievement component (light purple highlighted cells in Table 7) in the majority of the countries. For example, the former coefficient implies an average impact of the gender equality component around 43.2 % in 2015 in the EU-28, while with the new one that value increases to 51.9 %. Improvements are registered for all the countries.

Table 7: Mean contribution (%) of the gender equality component of all indicators, by country

MS	With old correcting coefficient				With new correcting coefficient			
	2005	2010	2012	2015	2005	2010	2012	2015
EU-28	43.6	43.5	43.4	43.2	51.9	51.2	51.3	51.9
BE	45.6	46.6	45.9	47.0	53.9	53.3	53.7	55.0
BG	43.9	42.5	41.9	42.3	51.7	51.5	50.9	51.9
CZ	47.2	48.1	49.1	47.3	54.8	56.8	55.1	55.5
DK	59.3	59.5	57.8	57.5	65.2	65.5	65.6	66.4
DE	46.4	46.1	45.6	44.8	54.0	53.6	53.8	55.6
EE	44.5	43.9	45.4	44.5	51.1	51.7	53.1	54.1
IE	51.0	53.0	55.1	51.3	58.1	58.0	58.0	58.1
EL	44.4	44.1	43.2	41.8	51.9	51.5	50.4	49.6
ES	45.4	46.2	45.5	45.3	53.1	53.3	52.5	53.1
FR	44.8	44.8	45.1	45.9	52.7	53.2	53.2	54.0
HR	40.8	41.3	40.6	40.5	48.8	48.3	48.4	49.2
IT	46.2	46.3	46.8	45.3	53.2	53.9	53.9	53.6
CY	47.6	49.5	48.6	46.7	55.2	56.0	56.0	53.5
LV	43.5	41.7	43.0	43.6	52.4	49.1	50.0	52.2
LT	42.3	45.0	44.3	43.8	50.8	50.9	51.6	52.1
LU	55.9	54.9	54.3	55.1	58.5	60.3	59.4	64.7
HU	41.1	44.7	41.8	41.2	49.4	53.2	51.3	51.2
MT	47.6	48.4	49.0	46.9	53.6	53.2	53.3	54.3
NL	58.2	58.2	59.5	58.0	62.1	65.6	66.4	64.3
AT	46.7	45.9	45.9	44.4	54.0	54.3	55.2	53.3
PL	41.4	43.0	42.5	43.7	49.6	49.9	50.5	51.5
PT	46.3	46.6	45.0	45.0	54.2	54.6	52.7	53.7
RO	42.0	40.9	41.1	42.2	50.4	49.7	49.6	50.3
SI	52.3	50.0	51.5	47.5	56.9	57.9	55.5	56.0
SK	43.7	44.0	44.5	46.7	52.7	53.5	53.6	55.4
FI	51.4	51.7	49.8	51.2	58.5	59.7	59.8	60.1
SE	59.7	57.8	58.0	63.2	62.0	64.4	66.3	70.5
UK	52.0	51.6	51.2	49.2	57.6	56.3	55.8	56.6

The following figure presents the mean percentage contribution of the gender equality and achievement components in each indicator by year. In the interpretation of those graphs it is important to consider the indicators of power and time that have not been corrected, that is the value of the final metric of these indicators for each country and EU-28 is completely determined by the gender gap. The mean contribution of the gender equality component varies across the countries slightly, but remains between 49.2 % and 70.5 % in 2015. Between two and four countries have a contribution slightly below 50 %, depending on the year.

Figure 4: Mean percentage contribution of the equality and achievements components in each indicator by year

We can also calculate the percentage of Member States for which the contribution of the gender equality component is higher than 50 %. For example, for FTE employment rate, for 20 Member States the contribution of gender equality component is higher than 50 % (that corresponds to 71.2 % of Member States). The average of the gender equality component for FTE between Member States is 60.7 % for FTE. Additionally, it is possible to calculate the overall percentage of cases (Member States for each of the 31 indicators) for which the contribution of the gender equality component is higher than 50 %.

As Table 8 illustrates, after improvements in the 3rd edition of the Gender Equality Index, the mean gender gap contribution increased to 55.6 % in 2015. The percentage contribution of the equality component to the metric of each indicator is above the threshold of 50 % for all time points, meaning that it is higher than the contribution of the achievement component in at least half of the cases (country-indicators cases). In 52.5 % of the cases (i.e. Member States for each of the 31 indicators) the gender equality component became higher than 50 % in 2015, compared to 43.5 % of cases under the previous methodology.

The change in the formula and increasing the contribution of the gender equality component has the additional implication of increasing the overall levels of the scores of the Index by around 9 points for the EU-28. Detailed information by country can be found in Figure 5, which compares the calculation of the Gender Equality Index using the new and old correcting coefficient.

Table 8: Mean gender gap contribution and percentage of cases with a contribution of the equality component equal or higher than the contribution of the achievement component

	With old correcting coefficient				With new correcting coefficient			
	2005	2010	2012	2015	2005	2010	2012	2015
Mean gender gap contribution (%)	47.5	47.7	47.6	47.2	54.5	55.0	54.8	55.6
Percentage of cases (%) with gender equality component equal or higher than the achievement component	44.4	44.2	45.2	43.5	51.4	52.2	52.1	52.5

Figure 5: Comparison of the Gender Equality Index calculated with the new and old correcting coefficients

Annex 3. Descriptive statistics of the gender gaps adjusted by levels of achievement (metric), 2005-2015

2005	Mean	Standard Deviation	Min	1st quartile	2nd quartile	3rd quartile	Max	Skewness	Kurtosis
Fte	73.2	8.4	49.0	66.2	74.2	80.7	84.6	-0.8	0.7
Dwl	81.5	8.1	53.8	77.8	81.3	87.2	94.1	-1.3	3.5
Seg_W	31.7	6.0	24.5	25.8	30.6	37.3	43.2	0.3	-1.5
Flexibility	63.7	12.2	42.6	54.6	60.4	72.8	92.6	0.5	-0.3
Prospects	92.5	4.0	83.4	90.7	93.6	95.6	98.3	-1.0	0.4
Earnings	60.8	14.4	33.8	45.6	64.1	72.9	86.6	-0.2	-1.2
Income	59.0	15.7	32.4	42.7	62.6	70.5	95.7	-0.1	-0.5
Poverty	94.9	2.5	91.0	92.5	94.6	97.2	99.3	0.2	-1.4
S20/80	82.7	10.2	65.1	72.2	83.0	92.2	97.3	-0.3	-1.4
Grad	63.0	12.5	43.3	51.2	61.2	75.1	84.9	0.0	-1.3
Part	62.7	9.7	48.3	54.2	61.3	69.9	86.4	0.7	-0.1
Seg_E	51.9	11.0	28.7	42.3	52.8	58.5	77.0	0.0	-0.1
Care	79.9	8.1	63.9	74.6	80.5	86.2	93.5	-0.4	-0.6
Cooking	61.5	16.4	31.3	47.2	63.4	75.4	86.4	-0.2	-1.2
Leisure	62.3	19.7	31.6	42.7	63.7	79.1	98.0	0.0	-1.2
Voluntary	54.3	17.7	24.9	40.5	55.5	67.3	92.5	0.3	-0.5
Min	41.9	23.8	4.7	24.3	35.5	55.4	94.4	0.8	-0.3
Parl	42.2	19.8	17.0	26.6	36.9	59.9	91.8	0.8	-0.2
Reg	50.5	20.1	22.0	35.9	43.0	65.4	92.9	0.7	-0.5
Boards	20.0	9.8	6.1	12.6	19.2	25.8	45.3	0.7	0.1
Banks	28.2	20.7	1.0	10.0	24.9	44.1	72.2	0.4	-0.6
Res	60.5	24.9	1.0	49.3	63.7	81.1	98.8	-0.9	0.4
Media	52.6	26.6	1.0	33.1	54.7	77.4	95.0	-0.1	-0.7
Sport	26.7	15.3	5.7	17.2	23.5	33.6	83.3	1.9	5.4
SelfPerc	82.7	10.4	56.2	76.0	85.4	91.7	98.9	-0.8	0.0
Life ex	92.4	3.2	85.1	89.7	94.1	95.0	96.0	-1.0	-0.2
HLY	89.1	4.3	79.4	86.0	89.5	92.5	96.2	-0.4	-0.6
Risk	77.1	7.5	57.5	71.6	78.3	83.7	89.6	-0.6	0.1
Behav	70.6	16.5	27.5	63.1	69.3	85.6	93.4	-0.7	0.8
Medical	94.7	4.6	80.0	90.9	96.2	97.9	99.9	-1.5	2.4
Dental	94.7	3.8	84.3	93.3	95.7	97.2	99.9	-1.4	1.9

2010	Mean	Standard Deviation	Min	1st quartile	2nd quartile	3rd quartile	Max	Skewness	Kurtosis
Fte	75.2	7.7	55.3	70.4	75.6	82.1	89.2	-0.6	0.4
Dwl	84.1	7.2	61.8	80.5	84.3	89.9	94.6	-1.1	1.9
Seg_W	32.4	7.2	21.5	25.2	33.4	38.1	48.0	0.1	-0.9
Flexibility	63.7	12.2	42.6	54.6	60.4	72.8	92.6	0.5	-0.3
Prospects	92.5	4.0	83.4	90.7	93.6	95.6	98.3	-1.0	0.4
Earnings	66.3	12.9	40.8	54.2	69.7	76.3	88.6	-0.3	-0.9
Income	64.9	14.0	35.9	50.8	69.1	75.8	93.8	-0.3	-0.9
Poverty	95.1	2.1	91.4	93.2	95.4	96.7	98.7	0.1	-1.0
S20/80	83.6	9.3	61.9	76.9	82.9	91.9	98.8	-0.2	-0.4
Grad	68.0	11.4	47.7	59.3	65.6	78.2	90.1	0.2	-1.1
Part	63.1	9.0	48.8	57.3	62.0	70.5	84.8	0.5	-0.2
Seg_E	53.3	9.0	39.5	44.6	53.3	58.7	72.3	0.4	-0.8
Care	79.2	10.3	47.0	72.3	81.2	84.7	94.3	-1.0	1.8
Cooking	49.5	17.4	21.3	31.9	47.3	64.3	77.5	0.0	-1.4
Leisure	62.3	19.7	31.6	42.7	63.7	79.1	98.0	0.0	-1.2
Voluntary	53.9	16.7	23.9	41.0	51.7	63.8	94.9	0.4	-0.1
Min	45.8	22.8	8.1	29.2	40.0	63.3	97.4	0.6	-0.4
Parl	45.0	19.8	17.9	32.8	38.3	59.4	91.7	0.7	-0.3
Reg	50.6	20.2	22.1	36.0	43.6	65.6	93.5	0.7	-0.5
Boards	23.7	11.3	6.2	13.4	23.5	30.4	51.5	0.6	0.3
Banks	31.0	18.0	1.0	18.3	29.7	46.3	65.9	0.1	-0.7
Res	60.6	25.0	1.0	49.2	63.8	80.7	98.5	-0.9	0.4
Media	52.7	26.5	1.0	32.9	54.7	77.6	95.6	-0.1	-0.7
Sport	26.8	15.4	5.7	17.1	23.6	33.8	83.8	1.9	5.4
SelfPerc	85.4	8.1	68.9	79.2	87.2	91.7	99.3	-0.5	-0.5
Life ex	93.5	2.9	86.9	90.8	95.0	95.9	96.8	-0.9	-0.5
HLY	89.8	3.5	83.6	86.8	90.4	92.7	97.0	-0.1	-0.8
Risk	77.1	7.5	57.5	71.6	78.3	83.7	89.6	-0.6	0.1
Behav	70.6	16.5	27.5	63.1	69.3	85.6	93.4	-0.7	0.8
Medical	96.1	3.0	87.7	95.1	96.8	98.2	100.0	-1.2	1.0
Dental	96.2	2.5	88.9	94.9	97.0	98.1	99.7	-1.2	1.1

2012	Mean	Standard Deviation	Min	1st quartile	2nd quartile	3rd quartile	Max	Skewness	Kurtosis
Fte	75.3	7.3	59.8	71.0	75.5	81.7	91.4	-0.3	0.1
Dwl	85.0	6.6	66.5	80.8	84.8	90.2	96.2	-0.6	0.7
Seg_W	33.5	7.1	22.2	26.0	33.1	40.0	48.5	0.1	-1.0
Flexibility	63.7	12.2	42.6	54.6	60.4	72.8	92.6	0.5	-0.3
Prospects	92.5	4.0	83.4	90.7	93.6	95.6	98.3	-1.0	0.4
Earnings	66.3	12.9	40.8	54.2	69.7	76.3	88.6	-0.3	-0.9
Income	66.0	14.4	36.4	52.1	69.8	78.2	94.5	-0.2	-0.9
Poverty	95.1	2.0	91.2	93.8	95.4	96.6	98.8	-0.1	-0.6
S20/80	83.4	8.8	69.1	75.7	82.7	91.1	97.8	0.1	-1.3
Grad	70.6	11.0	53.8	62.0	68.7	80.5	93.9	0.3	-1.0
Part	63.2	9.0	48.1	56.6	61.9	68.9	84.7	0.5	-0.2
Seg_E	53.8	8.9	38.3	46.7	51.9	60.3	73.0	0.3	-0.7
Care	78.7	6.5	64.1	74.8	80.8	84.4	87.3	-0.7	-0.5
Cooking	62.6	15.1	36.6	51.0	65.1	76.2	85.9	-0.2	-1.0
Leisure	62.3	19.7	31.6	42.7	63.7	79.1	98.0	0.0	-1.2
Voluntary	53.9	16.7	23.9	41.0	51.7	63.8	94.9	0.4	-0.1
Min	45.8	23.0	12.2	28.8	41.4	56.9	98.3	0.6	-0.3
Parl	47.5	19.0	16.8	36.7	42.9	61.3	87.7	0.6	-0.5
Reg	51.2	20.0	18.6	36.9	44.4	65.1	93.0	0.7	-0.4
Boards	27.5	12.4	6.2	17.2	26.0	34.4	53.9	0.5	-0.5
Banks	31.2	20.1	1.0	12.5	32.1	46.4	78.5	0.4	-0.4
Res	60.5	24.9	1.0	49.0	63.8	80.7	98.0	-0.9	0.4
Media	52.7	26.5	1.0	32.8	54.7	77.5	95.7	-0.1	-0.7
Sport	26.8	15.4	5.7	17.0	23.6	33.9	84.0	1.9	5.5
SelfPerc	85.4	8.7	65.8	79.4	87.3	91.6	99.7	-0.8	-0.1
Life ex	93.9	2.8	87.4	91.1	95.3	96.1	97.0	-0.9	-0.5
HLY	90.2	3.4	83.3	87.8	90.6	93.3	98.1	-0.1	-0.3
Risk	77.1	7.5	57.5	71.6	78.3	83.7	89.6	-0.6	0.1
Behav	70.6	16.5	27.5	63.1	69.3	85.6	93.4	-0.7	0.8
Medical	96.3	2.5	90.1	94.6	97.0	98.2	99.9	-0.9	0.1
Dental	96.3	2.3	89.4	95.3	96.8	98.3	99.6	-1.3	1.8

2015	Mean	Standard Deviation	Min	1st quartile	2nd quartile	3rd quartile	Max	Skewness	Kurtosis
Fte	76.5	7.1	60.5	73.1	77.1	80.9	93.2	-0.3	0.5
Dwl	86.3	5.9	72.5	82.7	86.6	91.1	97.5	-0.5	0.2
Seg_W	33.4	7.4	21.1	26.8	33.6	40.0	48.2	0.0	-1.1
Flexibility	63.7	12.2	42.6	54.6	60.4	72.8	92.6	0.5	-0.3
Prospects	92.5	4.0	83.4	90.7	93.6	95.6	98.3	-1.0	0.4
Earnings	69.3	12.5	47.4	56.9	71.3	78.1	96.0	0.0	-0.9
Income	68.3	13.7	39.3	55.5	70.9	79.7	98.0	-0.1	-0.7
Poverty	94.5	2.6	88.5	92.7	94.8	96.6	98.5	-0.6	-0.3
S20/80	81.6	9.7	63.3	71.3	81.0	89.8	97.9	-0.1	-1.2
Grad	74.4	10.5	56.0	64.9	73.9	84.1	96.6	0.1	-0.9
Part	62.6	9.9	45.8	55.2	60.8	67.8	85.0	0.6	-0.3
Seg_E	53.9	8.6	40.5	46.3	50.9	60.8	69.5	0.3	-1.0
Care	81.7	8.0	69.6	74.5	81.6	87.7	97.6	0.3	-0.9
Cooking	58.2	16.5	31.0	40.7	58.2	72.8	86.7	-0.1	-1.2
Leisure	62.3	19.7	31.6	42.7	63.7	79.1	98.0	0.0	-1.2
Voluntary	51.3	14.0	25.5	39.5	53.0	58.4	85.8	0.4	0.2
Min	49.8	23.2	3.7	34.2	47.2	62.6	98.4	0.3	-0.3
Parl	50.7	18.6	18.1	38.4	46.6	68.3	87.5	0.3	-0.8
Reg	53.7	20.1	21.1	38.7	46.0	63.7	95.9	0.6	-0.6
Boards	35.8	15.5	8.5	22.0	34.2	50.3	65.8	0.2	-1.1
Banks	33.4	22.2	1.0	17.0	33.3	49.3	78.6	0.3	-0.5
Res	60.5	24.9	1.0	49.1	63.7	80.5	97.8	-0.9	0.4
Media	55.5	22.7	11.8	34.9	56.2	74.2	97.7	0.0	-1.1
Sport	26.9	15.5	5.7	16.8	23.7	34.1	84.3	1.9	5.5
SelfPerc	85.4	8.6	63.3	81.0	87.0	91.3	99.0	-1.0	0.8
Life ex	94.5	2.7	88.2	91.7	95.7	96.7	97.4	-0.9	-0.5
HLY	89.9	4.0	83.0	86.3	89.4	92.9	99.9	0.5	0.1
Risk	77.1	7.5	57.5	71.6	78.3	83.7	89.6	-0.6	0.1
Behav	70.6	16.5	27.5	63.1	69.3	85.6	93.4	-0.7	0.8
Medical	96.7	2.6	90.6	95.5	97.2	98.8	99.9	-0.9	0.1
Dental	96.7	2.5	90.2	96.1	97.1	98.5	99.9	-1.1	0.8

Annex 4. Correlations between gender gaps adjusted by levels of achievement (metric), 2005-2015

2005		v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20	v21	v22	v23	v24	v25	v26	v27	v28	v29	v30	v31	Index
v1	Fte	1.00																															
v2	Dwl	0.83	1.00																														
v3	Seg_W	-0.31	0.01	1.00																													
v4	Flexibility	-0.30	-0.04	0.40	1.00																												
v5	Prospects	0.16	0.25	0.36	0.19	1.00																											
v6	Earnings	-0.18	0.16	0.67	0.41	0.20	1.00																										
v7	Income	-0.33	-0.07	0.69	0.47	0.11	0.88	1.00																									
v8	Poverty	0.02	0.21	0.49	0.08	0.49	0.34	0.36	1.00																								
v9	S20/80	-0.05	0.01	0.42	0.06	0.35	0.39	0.47	0.85	1.00																							
v10	Grad	0.22	0.34	0.46	0.30	0.20	0.48	0.45	0.07	0.09	1.00																						
v11	Part	-0.42	-0.26	0.65	0.40	0.53	0.39	0.40	0.49	0.41	0.07	1.00																					
v12	Seg_E	0.35	0.57	0.41	0.33	0.49	0.42	0.32	0.42	0.24	0.53	0.29	1.00																				
v13	Care	0.55	0.53	-0.01	-0.15	0.41	0.10	-0.14	0.28	0.11	0.10	0.09	0.47	1.00																			
v14	Cooking	0.44	0.54	0.30	0.13	0.66	0.12	-0.01	0.26	0.06	0.44	0.18	0.51	0.58	1.00																		
v15	Leisure	-0.01	0.26	0.55	0.60	0.42	0.65	0.60	0.50	0.48	0.58	0.45	0.68	0.32	0.36	1.00																	
v16	Voluntary	-0.13	0.14	0.54	0.49	0.39	0.63	0.62	0.57	0.57	0.47	0.37	0.42	0.11	0.34	0.75	1.00																
v17	Min	-0.01	0.33	0.45	0.47	0.36	0.45	0.33	0.32	0.32	0.33	0.30	0.40	0.12	0.38	0.56	0.35	1.00															
v18	Parl	0.18	0.53	0.51	0.43	0.35	0.48	0.35	0.43	0.35	0.40	0.28	0.49	0.29	0.45	0.55	0.42	0.83	1.00														
v19	Reg	0.11	0.40	0.61	0.42	0.31	0.53	0.44	0.36	0.35	0.58	0.30	0.44	0.14	0.33	0.64	0.49	0.78	0.75	1.00													
v20	Boards	0.66	0.62	-0.20	-0.15	0.27	-0.17	-0.36	0.09	0.09	0.08	-0.24	0.32	0.36	0.40	0.08	0.13	0.27	0.29	0.22	1.00												
v21	Banks	0.36	0.32	0.29	0.16	0.54	0.03	-0.01	0.26	0.21	0.38	0.30	0.61	0.44	0.49	0.45	0.14	0.39	0.36	0.47	0.47	1.00											
v22	Res	0.11	0.24	0.25	0.41	0.18	0.55	0.47	0.08	0.21	0.34	0.20	0.31	0.15	0.16	0.47	0.26	0.54	0.48	0.45	0.16	0.34	1.00										
v23	Media	0.09	0.22	0.39	0.30	0.27	0.52	0.45	0.24	0.21	0.43	0.42	0.42	0.31	0.38	0.52	0.40	0.42	0.42	0.38	0.14	0.26	0.65	1.00									
v24	Sport	0.19	0.45	0.51	0.41	0.41	0.47	0.36	0.45	0.35	0.38	0.42	0.41	0.28	0.56	0.57	0.57	0.68	0.68	0.68	0.40	0.45	0.49	0.66	1.00								
v25	SelfPerc	-0.28	-0.14	0.59	0.42	0.22	0.60	0.71	0.23	0.41	0.47	0.42	0.22	-0.21	0.07	0.51	0.56	0.30	0.31	0.46	-0.18	0.13	0.35	0.46	0.40	1.00							
v26	Life ex	-0.42	-0.21	0.59	0.45	-0.07	0.75	0.86	0.29	0.49	0.28	0.47	0.14	-0.22	-0.19	0.49	0.54	0.32	0.32	0.43	-0.33	-0.05	0.41	0.41	0.37	0.80	1.00						
v27	HLY	-0.53	-0.44	0.53	0.41	-0.03	0.40	0.48	0.05	0.21	0.13	0.63	-0.02	-0.23	-0.20	0.28	0.21	0.14	0.15	0.21	-0.34	0.09	0.35	0.39	0.27	0.66	0.71	1.00					
v28	Risk	-0.43	-0.27	0.21	0.25	-0.39	0.35	0.37	0.23	0.29	-0.05	0.32	-0.02	-0.24	-0.49	0.17	0.21	0.12	0.06	0.16	-0.29	-0.24	-0.02	0.11	0.13	0.13	0.56	0.38	1.00				
v29	Behav	0.05	0.26	0.51	0.39	0.42	0.62	0.68	0.54	0.51	0.46	0.39	0.65	0.17	0.29	0.69	0.63	0.42	0.45	0.45	-0.03	0.34	0.23	0.29	0.42	0.40	0.49	0.02	0.22	1.00			
v30	Medical	-0.18	-0.09	0.45	0.29	0.06	0.53	0.63	0.32	0.41	0.35	0.31	0.29	0.06	-0.10	0.48	0.39	-0.02	0.10	0.27	-0.44	0.00	0.12	0.26	-0.01	0.59	0.62	0.32	0.31	0.47	1.00		
v31	Dental	-0.25	-0.13	0.47	0.29	0.15	0.63	0.67	0.38	0.50	0.25	0.35	0.31	0.01	-0.19	0.49	0.43	0.05	0.11	0.27	-0.35	0.06	0.18	0.17	0.01	0.57	0.64	0.31	0.37	0.54	0.91	1.00	
	Index	0.18	0.44	0.67	0.50	0.61	0.65	0.54	0.54	0.48	0.62	0.54	0.75	0.39	0.55	0.84	0.65	0.72	0.74	0.79	0.31	0.67	0.63	0.66	0.79	0.52	0.45	0.31	0.06	0.66	0.32	0.36	1.00

Highlighted cells (red for positive correlation and green for negative correlation) correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

2010		v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20	v21	v22	v23	v24	v25	v26	v27	v28	v29	v30	v31	Index
v1	Fte	1.00																															
v2	Dwl	0.79	1.00																														
v3	Seg_W	-0.16	0.07	1.00																													
v4	Flexibility	-0.24	0.08	0.46	1.00																												
v5	Prospects	0.14	0.22	0.31	0.19	1.00																											
v6	Earnings	-0.25	-0.04	0.83	0.47	0.18	1.00																										
v7	Income	-0.17	0.03	0.81	0.45	0.09	0.92	1.00																									
v8	Poverty	-0.02	0.04	0.28	0.01	0.49	0.31	0.31	1.00																								
v9	S20/80	-0.06	-0.05	0.22	0.02	0.28	0.41	0.39	0.81	1.00																							
v10	Grad	0.16	0.28	0.63	0.34	0.20	0.58	0.57	0.17	0.10	1.00																						
v11	Part	-0.38	-0.24	0.67	0.47	0.46	0.59	0.52	0.41	0.37	0.32	1.00																					
v12	Seg_E	0.32	0.50	0.56	0.38	0.43	0.51	0.56	0.53	0.43	0.53	0.33	1.00																				
v13	Care	0.34	0.44	0.04	0.02	0.39	0.03	-0.01	0.37	0.24	0.21	-0.06	0.45	1.00																			
v14	Cooking	0.39	0.56	0.38	0.28	0.64	0.29	0.22	0.29	0.09	0.59	0.20	0.58	0.69	1.00																		
v15	Leisure	0.01	0.30	0.62	0.60	0.42	0.65	0.63	0.46	0.43	0.55	0.49	0.81	0.46	0.61	1.00																	
v16	Voluntary	-0.01	0.38	0.60	0.57	0.43	0.63	0.61	0.36	0.40	0.41	0.32	0.69	0.41	0.57	0.79	1.00																
v17	Min	0.29	0.49	0.46	0.40	0.28	0.46	0.51	0.08	0.23	0.35	0.27	0.60	0.19	0.40	0.65	0.60	1.00															
v18	Parl	0.19	0.56	0.46	0.41	0.23	0.46	0.46	0.14	0.23	0.36	0.35	0.52	0.29	0.42	0.58	0.60	0.74	1.00														
v19	Reg	0.19	0.48	0.58	0.42	0.31	0.47	0.52	0.14	0.23	0.57	0.38	0.47	0.26	0.50	0.65	0.58	0.77	0.78	1.00													
v20	Boards	0.49	0.59	-0.05	0.02	0.38	-0.10	-0.13	0.16	0.18	0.15	0.01	0.34	0.42	0.54	0.27	0.31	0.58	0.52	0.46	1.00												
v21	Banks	0.36	0.42	0.12	0.10	0.31	0.00	-0.10	0.40	0.33	0.26	0.19	0.34	0.51	0.51	0.43	0.20	0.43	0.47	0.51	0.63	1.00											
v22	Res	0.17	0.27	0.32	0.41	0.18	0.50	0.49	-0.07	0.02	0.38	0.23	0.32	0.14	0.35	0.47	0.37	0.67	0.48	0.45	0.33	0.11	1.00										
v23	Media	0.13	0.21	0.44	0.30	0.27	0.49	0.44	0.15	0.20	0.39	0.37	0.39	0.26	0.43	0.52	0.35	0.52	0.42	0.38	0.20	0.26	0.65	1.00									
v24	Sport	0.27	0.47	0.46	0.41	0.42	0.38	0.40	0.20	0.25	0.36	0.42	0.43	0.31	0.58	0.57	0.55	0.67	0.69	0.68	0.60	0.47	0.49	0.66	1.00								
v25	SelfPerc	-0.21	-0.11	0.68	0.41	0.20	0.76	0.73	0.25	0.36	0.62	0.58	0.39	-0.15	0.32	0.52	0.53	0.39	0.32	0.42	0.03	-0.03	0.42	0.54	0.48	1.00							
v26	Life ex	-0.34	-0.15	0.70	0.48	-0.09	0.88	0.87	0.19	0.43	0.42	0.59	0.36	-0.20	0.03	0.52	0.48	0.41	0.41	0.45	-0.17	-0.07	0.39	0.39	0.35	0.76	1.00						
v27	HLY	-0.39	-0.41	0.63	0.40	-0.05	0.61	0.59	-0.02	0.13	0.43	0.61	0.10	-0.33	-0.01	0.30	0.21	0.18	0.17	0.29	-0.24	-0.13	0.30	0.40	0.33	0.78	0.73	1.00					
v28	Risk	-0.41	-0.26	0.21	0.25	-0.39	0.32	0.36	0.10	0.35	0.01	0.40	0.01	-0.19	-0.38	0.17	0.00	0.08	0.19	0.16	-0.15	0.05	-0.01	0.11	0.13	0.16	0.58	0.35	1.00				
v29	Behav	0.11	0.31	0.65	0.39	0.42	0.64	0.70	0.49	0.41	0.48	0.48	0.76	0.29	0.46	0.69	0.62	0.45	0.44	0.45	0.16	0.13	0.23	0.29	0.42	0.41	0.53	0.23	0.22	1.00			
v30	Medical	-0.10	0.05	0.51	0.19	0.16	0.53	0.56	0.52	0.44	0.31	0.39	0.45	0.01	0.00	0.44	0.30	0.11	0.17	0.20	-0.31	-0.01	0.15	0.35	0.03	0.34	0.47	0.18	0.24	0.49	1.00		
v31	Dental	-0.23	-0.04	0.50	0.16	0.44	0.52	0.46	0.57	0.54	0.37	0.48	0.51	0.11	0.17	0.55	0.46	0.18	0.18	0.27	-0.01	0.06	0.07	0.30	0.14	0.43	0.36	0.18	0.18	0.54	0.76	1.00	
	Index	0.21	0.50	0.65	0.53	0.49	0.63	0.58	0.40	0.39	0.62	0.55	0.73	0.45	0.71	0.86	0.73	0.80	0.78	0.81	0.56	0.61	0.63	0.64	0.78	0.54	0.49	0.29	0.14	0.63	0.33	0.43	1.00

Highlighted cells (red for positive correlation and green for negative correlation) correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

	2012	v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20	v21	v22	v23	v24	v25	v26	v27	v28	v29	v30	v31	Index
v1	Fte	1.00																															
v2	Dwl	0.75	1.00																														
v3	Seg_W	-0.23	0.07	1.00																													
v4	Flexibility	-0.21	0.12	0.51	1.00																												
v5	Prospects	0.28	0.26	0.29	0.19	1.00																											
v6	Earnings	-0.23	-0.02	0.77	0.47	0.18	1.00																										
v7	Income	-0.08	0.12	0.73	0.43	0.17	0.91	1.00																									
v8	Poverty	0.08	0.15	0.23	0.14	0.48	0.31	0.43	1.00																								
v9	S20/80	0.07	0.04	0.14	0.10	0.39	0.39	0.47	0.78	1.00																							
v10	Grad	0.15	0.27	0.52	0.29	0.19	0.57	0.57	0.24	0.09	1.00																						
v11	Part	-0.33	-0.26	0.64	0.47	0.39	0.61	0.57	0.39	0.38	0.28	1.00																					
v12	Seg_E	0.40	0.62	0.46	0.39	0.42	0.48	0.58	0.62	0.47	0.42	0.23	1.00																				
v13	Care	0.21	0.18	0.16	0.04	0.16	0.26	0.12	0.37	0.25	0.20	0.11	0.40	1.00																			
v14	Cooking	0.37	0.58	0.36	0.38	0.61	0.30	0.24	0.25	0.01	0.43	0.16	0.56	0.37	1.00																		
v15	Leisure	0.07	0.37	0.58	0.60	0.42	0.65	0.65	0.49	0.46	0.51	0.45	0.79	0.34	0.62	1.00																	
v16	Voluntary	0.05	0.42	0.54	0.57	0.43	0.63	0.63	0.36	0.46	0.38	0.29	0.66	0.06	0.55	0.79	1.00																
v17	Min	0.39	0.54	0.46	0.35	0.31	0.43	0.51	0.14	0.26	0.27	0.22	0.52	0.27	0.47	0.58	0.59	1.00															
v18	Parl	0.18	0.57	0.48	0.43	0.21	0.50	0.49	0.17	0.29	0.30	0.27	0.62	0.28	0.46	0.65	0.61	0.76	1.00														
v19	Reg	0.25	0.54	0.54	0.42	0.34	0.46	0.52	0.18	0.22	0.49	0.31	0.52	0.16	0.53	0.66	0.57	0.80	0.80	1.00													
v20	Boards	0.46	0.65	0.14	0.11	0.30	0.09	0.17	0.28	0.29	0.21	-0.07	0.47	0.36	0.50	0.44	0.44	0.72	0.60	0.62	1.00												
v21	Banks	0.22	0.26	0.09	0.14	0.28	0.14	0.07	0.29	0.38	0.15	0.04	0.33	0.39	0.37	0.56	0.36	0.50	0.42	0.46	0.48	1.00											
v22	Res	0.20	0.29	0.32	0.41	0.18	0.50	0.48	0.05	0.13	0.36	0.25	0.36	0.41	0.37	0.47	0.37	0.67	0.57	0.50	0.49	0.23	1.00										
v23	Media	0.15	0.27	0.35	0.30	0.28	0.49	0.43	0.16	0.18	0.41	0.42	0.41	0.56	0.44	0.52	0.35	0.49	0.46	0.41	0.26	0.24	0.65	1.00									
v24	Sport	0.33	0.53	0.47	0.41	0.42	0.38	0.41	0.18	0.24	0.34	0.39	0.50	0.30	0.55	0.57	0.55	0.70	0.64	0.68	0.62	0.29	0.49	0.66	1.00								
v25	SelfPerc	-0.22	-0.15	0.56	0.39	0.18	0.74	0.69	0.20	0.29	0.56	0.65	0.24	-0.02	0.16	0.50	0.49	0.37	0.28	0.37	0.03	0.15	0.38	0.46	0.42	1.00							
v26	Life ex	-0.33	-0.08	0.67	0.47	-0.05	0.89	0.86	0.24	0.36	0.43	0.62	0.39	0.12	0.07	0.55	0.51	0.37	0.46	0.44	0.04	0.09	0.42	0.43	0.38	0.77	1.00						
v27	HLY	-0.42	-0.49	0.58	0.36	-0.07	0.56	0.45	-0.04	0.03	0.30	0.64	-0.05	0.05	-0.21	0.14	0.02	0.05	0.05	0.15	-0.32	-0.13	0.24	0.27	0.18	0.60	0.67	1.00					
v28	Risk	-0.41	-0.24	0.23	0.25	-0.39	0.32	0.33	0.13	0.26	-0.01	0.38	0.03	0.11	-0.33	0.17	0.00	-0.01	0.20	0.14	-0.05	0.01	-0.01	0.11	0.13	0.18	0.56	0.47	1.00				
v29	Behav	0.18	0.37	0.60	0.39	0.42	0.64	0.75	0.56	0.48	0.48	0.43	0.76	0.06	0.47	0.69	0.62	0.37	0.45	0.46	0.28	0.20	0.23	0.29	0.42	0.39	0.56	0.15	0.22	1.00			
v30	Medical	-0.27	-0.10	0.34	0.33	0.11	0.54	0.58	0.48	0.55	0.31	0.41	0.32	0.13	-0.08	0.37	0.30	-0.04	0.15	0.14	-0.11	-0.10	0.25	0.23	-0.03	0.28	0.53	0.28	0.37	0.45	1.00		
v31	Dental	-0.24	-0.12	0.28	0.14	0.36	0.48	0.45	0.49	0.69	0.28	0.37	0.31	0.03	-0.04	0.42	0.45	0.04	0.17	0.16	0.06	0.10	0.06	0.17	0.06	0.37	0.38	0.14	0.25	0.45	0.71	1.00	
	Index	0.20	0.48	0.65	0.56	0.48	0.70	0.69	0.44	0.46	0.56	0.51	0.74	0.44	0.66	0.89	0.76	0.80	0.80	0.82	0.63	0.56	0.68	0.66	0.75	0.55	0.59	0.21	0.15	0.65	0.30	0.34	1.00

Highlighted cells (red for positive correlation and green for negative correlation) correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

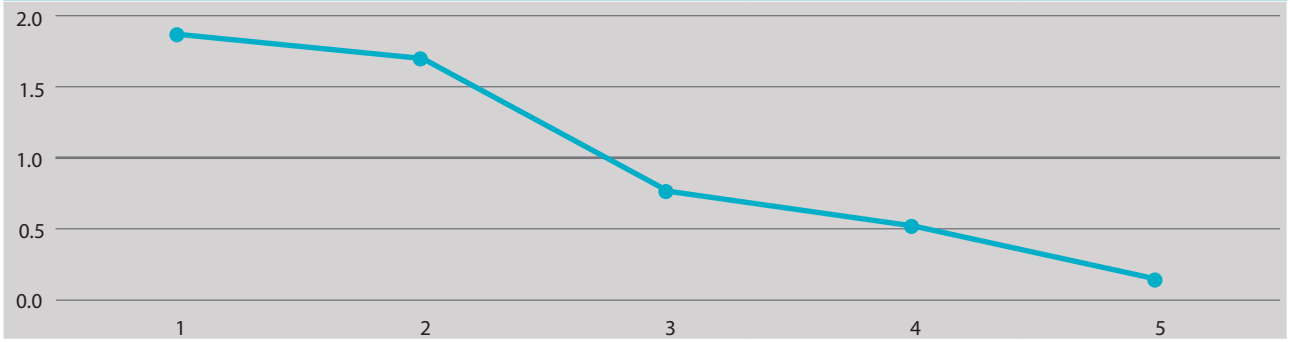
2015		v1	v2	v3	v4	v5	v6	v7	v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20	v21	v22	v23	v24	v25	v26	v27	v28	v29	v30	v31	Index
v1	Fte	1.00																															
v2	Dwl	0.72	1.00																														
v3	Seg_W	-0.13	0.21	1.00																													
v4	Flexibility	-0.20	0.14	0.51	1.00																												
v5	Prospects	0.34	0.28	0.23	0.19	1.00																											
v6	Earnings	-0.18	0.06	0.83	0.48	0.28	1.00																										
v7	Income	-0.03	0.22	0.83	0.46	0.30	0.91	1.00																									
v8	Poverty	-0.12	-0.01	0.39	0.10	0.28	0.54	0.57	1.00																								
v9	S20/80	0.07	0.07	0.26	0.12	0.33	0.47	0.53	0.85	1.00																							
v10	Grad	0.16	0.34	0.62	0.38	0.25	0.59	0.64	0.37	0.22	1.00																						
v11	Part	-0.29	-0.28	0.56	0.42	0.29	0.56	0.50	0.44	0.33	0.24	1.00																					
v12	Seg_E	0.29	0.56	0.69	0.36	0.40	0.66	0.77	0.56	0.53	0.60	0.31	1.00																				
v13	Care	0.44	0.52	0.23	0.18	0.20	0.23	0.28	-0.19	0.05	0.09	-0.07	0.49	1.00																			
v14	Cooking	0.36	0.51	0.40	0.47	0.54	0.38	0.42	0.02	0.06	0.44	0.21	0.57	0.47	1.00																		
v15	Leisure	0.06	0.37	0.61	0.60	0.42	0.69	0.72	0.38	0.47	0.55	0.42	0.79	0.46	0.66	1.00																	
v16	Voluntary	0.13	0.39	0.47	0.43	0.33	0.55	0.55	0.45	0.59	0.30	0.25	0.66	0.41	0.50	0.74	1.00																
v17	Min	0.23	0.52	0.36	0.28	0.26	0.47	0.50	0.13	0.26	0.21	0.12	0.54	0.32	0.47	0.64	0.54	1.00															
v18	Parl	0.07	0.49	0.56	0.41	0.20	0.64	0.62	0.28	0.32	0.35	0.36	0.62	0.32	0.38	0.68	0.47	0.75	1.00														
v19	Reg	0.24	0.56	0.57	0.42	0.32	0.52	0.57	0.19	0.27	0.49	0.29	0.62	0.30	0.55	0.72	0.47	0.81	0.80	1.00													
v20	Boards	0.15	0.45	0.35	0.25	0.19	0.43	0.41	0.16	0.25	0.23	0.21	0.46	0.32	0.41	0.53	0.51	0.79	0.66	0.70	1.00												
v21	Banks	0.26	0.15	0.20	0.16	0.15	0.21	0.21	-0.16	-0.02	0.16	0.18	0.21	0.34	0.36	0.44	0.19	0.55	0.22	0.51	0.45	1.00											
v22	Res	0.15	0.25	0.32	0.42	0.18	0.52	0.49	0.13	0.17	0.40	0.24	0.35	0.19	0.31	0.47	0.24	0.65	0.59	0.53	0.56	0.46	1.00										
v23	Media	0.16	0.25	0.39	0.36	0.44	0.48	0.40	0.17	0.09	0.45	0.44	0.46	0.25	0.41	0.56	0.36	0.57	0.51	0.49	0.39	0.45	0.63	1.00									
v24	Sport	0.34	0.55	0.48	0.41	0.43	0.43	0.46	0.19	0.22	0.38	0.37	0.59	0.41	0.54	0.57	0.56	0.68	0.60	0.64	0.60	0.32	0.48	0.70	1.00								
v25	SelfPerc	-0.26	-0.14	0.56	0.35	0.13	0.68	0.60	0.51	0.38	0.56	0.53	0.34	-0.10	0.24	0.46	0.45	0.24	0.30	0.33	0.17	0.16	0.34	0.41	0.36	1.00							
v26	Life ex	-0.34	-0.04	0.77	0.48	-0.05	0.84	0.81	0.54	0.43	0.48	0.57	0.54	0.09	0.18	0.57	0.52	0.35	0.55	0.44	0.26	0.10	0.39	0.39	0.36	0.77	1.00						
v27	HLY	-0.25	-0.34	0.48	0.25	0.01	0.48	0.40	0.22	0.20	0.23	0.61	0.03	-0.14	0.08	0.25	0.25	0.13	0.16	0.24	0.04	0.26	0.20	0.29	0.32	0.69	0.62	1.00					
v28	Risk	-0.38	-0.19	0.29	0.25	-0.39	0.26	0.27	0.36	0.33	0.04	0.40	0.14	-0.06	-0.34	0.17	0.19	0.01	0.25	0.14	0.18	-0.08	-0.02	-0.01	0.13	0.21	0.55	0.39	1.00				
v29	Behav	0.22	0.45	0.67	0.39	0.42	0.67	0.79	0.52	0.52	0.53	0.31	0.76	0.40	0.54	0.69	0.62	0.32	0.50	0.47	0.31	0.10	0.24	0.24	0.43	0.37	0.57	0.21	0.22	1.00			
v30	Medical	-0.14	0.06	0.37	0.42	0.06	0.43	0.55	0.51	0.51	0.31	0.24	0.30	-0.02	-0.11	0.30	0.22	0.20	0.31	0.27	0.18	0.10	0.47	0.14	0.11	0.29	0.48	0.19	0.40	0.39	1.00		
v31	Dental	-0.09	-0.02	0.22	0.22	0.32	0.36	0.44	0.58	0.61	0.36	0.18	0.25	-0.25	-0.05	0.33	0.33	0.18	0.17	0.20	0.12	0.04	0.23	0.12	0.10	0.43	0.29	0.27	0.21	0.33	0.68	1.00	
	Index	0.19	0.46	0.71	0.58	0.44	0.77	0.78	0.36	0.40	0.59	0.52	0.78	0.43	0.67	0.88	0.67	0.79	0.79	0.83	0.72	0.55	0.69	0.71	0.75	0.51	0.62	0.34	0.16	0.66	0.37	0.29	1.00

Highlighted cells (red for positive correlation and green for negative correlation) correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

Annex 5. Principal component analysis (PCA) for domains (2010 data) – factor loadings

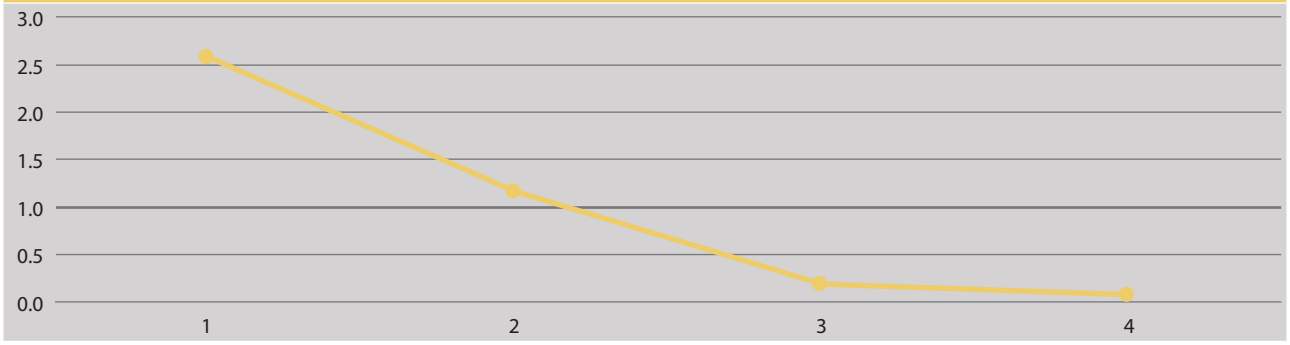
Work	Participation	Segregation and quality of work
Full-time equivalent employment rate	0.942	– 0.178
Duration of working life	0.922	0.147
Employed people in education, human health and social work activities	– 0.055	0.830
Ability to take an hour or two off during working hours to take care of personal or family matters	– 0.136	0.784
Career Prospects Index	0.330	0.584
Rotated Component Matrix		
Extraction Method: Principal Component Analysis		
Rotation Method: Varimax with Kaiser Normalisation		
% of variance explained	71.3	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.48	

Scree plot: Work



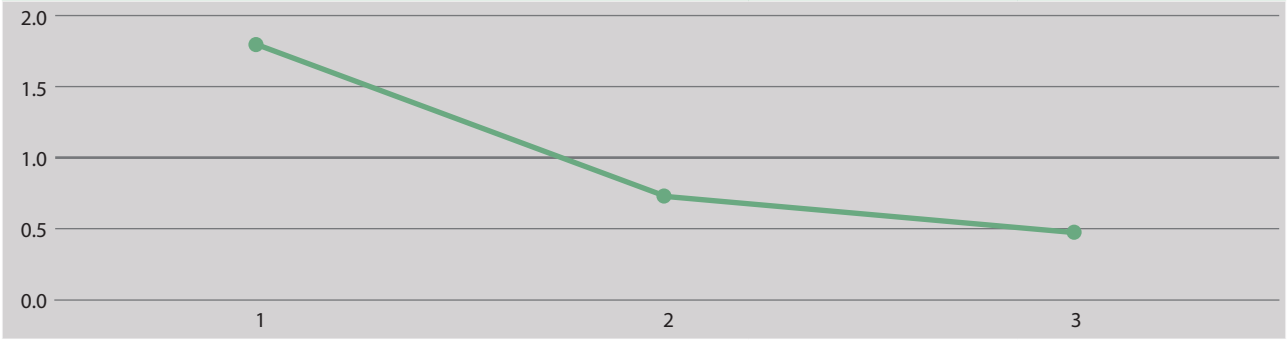
Money	Financial resources	Economic situation
Mean monthly earnings (PPS, working population)	0.961	0.193
Mean equivalised net income	0.963	0.183
Not at-risk-of-poverty, ≥ 60 % of median income	0.133	0.946
Income distribution S20/S80 (%)	0.239	0.920
Rotated Component Matrix		
Extraction Method: Principal Component Analysis		
Rotation Method: Varimax with Kaiser NormaliSation		
% of variance explained	93.5	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.57	

Scree plot: Money



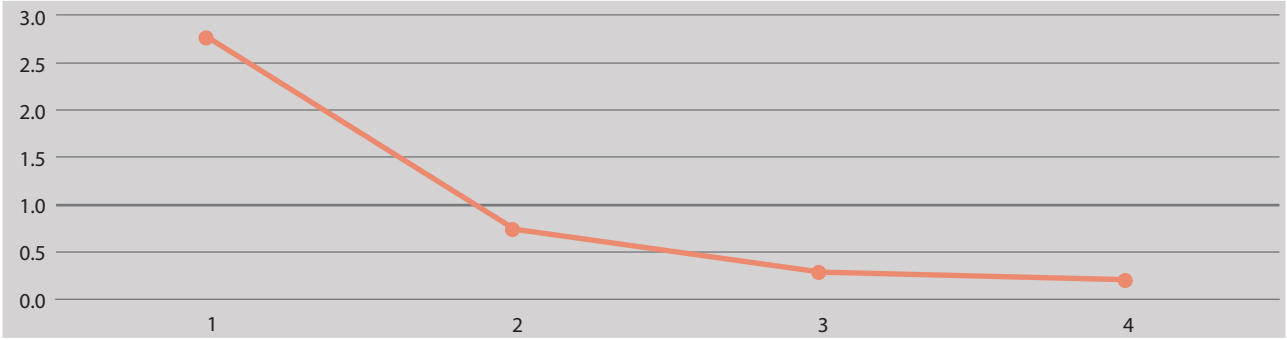
Knowledge	Attainment and participation	Segregation
Graduates of tertiary education	0.863	0.153
People participating in formal or non-formal education and training	0.852	0.181
Tertiary students in the fields of education, health and welfare, humanities and art (tertiary students)	0.191	0.981
Rotated Component Matrix		
Extraction Method: Principal Component Analysis		
Rotation Method: Varimax with Kaiser Normalisation		
% of variance explained	84.2	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.63	

Scree plot: Knowledge



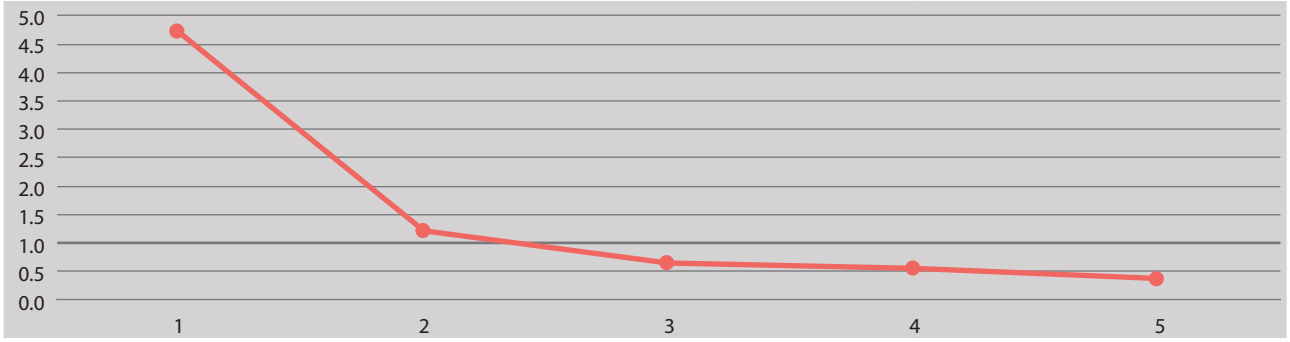
Time	Care activities	Social activities
People caring for and educating their children or grandchildren, elderly or people with disabilities, every day	0.932	0.179
People doing cooking and/or housework, every day	0.793	0.443
Workers doing sporting, cultural or leisure activities outside of their home, at least daily or several times a week	0.309	0.889
Workers involved in voluntary or charitable activities, at least once a month	0.237	0.917
Rotated Component Matrix		
Extraction Method: Principal Component Analysis		
Rotation Method: Varimax with Kaiser Normalisation		
% of variance explained	87.7	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.71	

Scree plot: Time



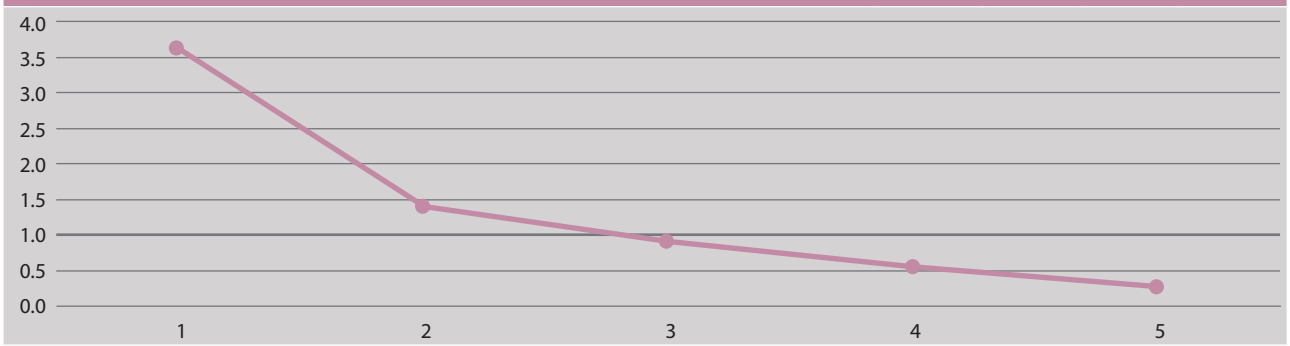
Power	Political	Economic	Social
Share of ministers	0.765	0.285	0.425
Share of members of parliament	0.821	0.315	0.243
Share of members of regional assemblies	0.850	0.317	0.186
Share of members of boards in largest quoted companies, supervisory board or board of directors	0.341	0.782	0.130
Share of members of central banks	0.205	0.893	0.046
Share of members of research funding organisations	0.446	– 0.054	0.763
Share of board members in publically owned broadcasting organisations	0.124	0.168	0.932
Share of members of highest decision-making body of the national Olympic sport organisations	0.460	0.507	0.560
Rotated Component Matrix			
Extraction Method: Principal Component Analysis			
Rotation Method: Varimax with Kaiser Normalisation			
% of variance explained	82.5		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.71		

Scree plot: Power



Health	Status	Behaviour		Access
Self-perceived health, good or very good	0.913	– 0.052	0.188	0.255
Life expectancy in absolute value at birth	0.726	0.470	0.331	0.233
Healthy life years in absolute value at birth	0.929	0.215	0.005	0.014
People who don't smoke and are not involved in harmful drinking	0.160	0.967	0.064	0.101
Population doing physical activities and/or consuming fruits and vegetables	0.185	0.093	0.915	0.332
Population without unmet needs for medical examination	0.123	0.169	0.169	0.902
Population without unmet needs for dental examination	0.162	0.011	0.225	0.899
Rotated Component Matrix				
Extraction Method: Principal Component Analysis				
Rotation Method: Varimax with Kaiser Normalisation				
% of variance explained	92.7			
Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)	0.57			

Scree plot: Health



Annex 6. Correlations between scores of Gender Equality Index, domains and subdomains, 2005-2015

2005	Part.	Segr.	Financial	Economic	Att+part.	Segr.	Care	Social	Political	Economic	Social	Status	Behaviour	Access	Work	Money	Knowledge	Time	Power	Health	Index
Participation	1.00																				
Segregation	-0.14	1.00																			
Financial	-0.12	0.60	1.00																		
Economic	0.00	0.29	0.44	1.00																	
Att+part.	0.43	0.52	0.50	0.19	1.00																
Segregation	-0.36	0.63	0.41	0.44	0.18	1.00															
Care	0.58	0.25	0.03	0.13	0.51	0.16	1.00														
Social	0.07	0.72	0.69	0.58	0.66	0.44	0.37	1.00													
Political	0.28	0.62	0.48	0.38	0.54	0.32	0.38	0.58	1.00												
Economic	0.52	0.22	-0.10	0.21	0.50	0.14	0.56	0.29	0.44	1.00											
Social	0.24	0.52	0.57	0.29	0.50	0.39	0.40	0.56	0.63	0.38	1.00										
Status	-0.34	0.57	0.71	0.38	0.33	0.53	-0.12	0.54	0.36	-0.02	0.49	1.00									
Behaviour	-0.01	0.53	0.71	0.56	0.51	0.45	0.06	0.67	0.45	0.11	0.32	0.41	1.00								
Access	-0.17	0.40	0.65	0.45	0.36	0.34	-0.09	0.49	0.13	-0.13	0.17	0.59	0.57	1.00							
Work	0.74	0.56	0.33	0.19	0.71	0.13	0.65	0.55	0.66	0.56	0.57	0.12	0.35	0.12	1.00						
Money	-0.10	0.60	0.98	0.62	0.48	0.45	0.05	0.74	0.51	-0.04	0.55	0.71	0.76	0.68	0.34	1.00					
Knowledge	-0.01	0.74	0.58	0.42	0.68	0.84	0.41	0.67	0.54	0.37	0.58	0.56	0.59	0.43	0.50	0.59	1.00				
Time	0.28	0.66	0.58	0.52	0.73	0.41	0.65	0.94	0.62	0.45	0.59	0.38	0.59	0.36	0.68	0.63	0.70	1.00			
Power	0.45	0.51	0.32	0.36	0.64	0.33	0.55	0.55	0.81	0.82	0.77	0.31	0.32	0.04	0.72	0.36	0.60	0.65	1.00		
Health	-0.15	0.60	0.83	0.59	0.52	0.52	-0.03	0.72	0.43	0.03	0.38	0.69	0.93	0.77	0.28	0.87	0.65	0.58	0.30	1.00	
Index	0.32	0.73	0.62	0.51	0.77	0.54	0.55	0.80	0.80	0.63	0.78	0.50	0.58	0.35	0.77	0.65	0.83	0.85	0.89	0.60	1.00

Highlighted cells correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

2010	Part.	Segr.	Financial	Economic	Att+part.	Segr.	Care	Social	Political	Economic	Social	Status	Behaviour	Access	Work	Money	Knowledge	Time	Power	Health	Index
Participation	1.00																				
Segregation	-0.04	1.00																			
Financial	-0.12	0.68	1.00																		
Economic	-0.05	0.18	0.40	1.00																	
Att+part.	0.36	0.62	0.65	0.31	1.00																
Segregation	-0.33	0.68	0.57	0.39	0.37	1.00															
Care	0.50	0.37	0.18	0.20	0.60	0.11	1.00														
Social	0.18	0.77	0.68	0.45	0.73	0.44	0.61	1.00													
Political	0.42	0.58	0.54	0.24	0.59	0.36	0.43	0.70	1.00												
Economic	0.52	0.16	-0.08	0.32	0.34	0.13	0.60	0.36	0.59	1.00											
Social	0.29	0.54	0.54	0.16	0.50	0.38	0.45	0.57	0.67	0.36	1.00										
Status	-0.27	0.61	0.81	0.33	0.54	0.64	0.04	0.52	0.41	-0.08	0.53	1.00									
Behaviour	0.05	0.58	0.71	0.49	0.59	0.56	0.24	0.63	0.47	0.12	0.32	0.48	1.00								
Access	-0.09	0.40	0.57	0.55	0.49	0.46	0.08	0.49	0.21	-0.06	0.24	0.39	0.55	1.00							
Work	0.69	0.70	0.42	0.09	0.71	0.26	0.63	0.69	0.73	0.49	0.61	0.26	0.45	0.23	1.00						
Money	-0.11	0.64	0.97	0.60	0.64	0.59	0.20	0.71	0.54	0.01	0.51	0.78	0.75	0.64	0.39	1.00					
Knowledge	-0.02	0.78	0.73	0.42	0.78	0.87	0.40	0.68	0.56	0.27	0.53	0.71	0.68	0.57	0.56	0.74	1.00				
Time	0.34	0.67	0.54	0.39	0.76	0.34	0.85	0.94	0.66	0.51	0.58	0.37	0.53	0.37	0.73	0.57	0.64	1.00			
Power	0.49	0.47	0.32	0.26	0.53	0.32	0.57	0.62	0.89	0.82	0.76	0.30	0.32	0.13	0.70	0.36	0.51	0.67	1.00		
Health	-0.05	0.64	0.83	0.53	0.66	0.64	0.19	0.67	0.48	0.05	0.40	0.66	0.96	0.67	0.43	0.86	0.78	0.54	0.33	1.00	
Index	0.37	0.72	0.62	0.40	0.76	0.55	0.66	0.85	0.87	0.65	0.77	0.51	0.59	0.40	0.79	0.64	0.78	0.86	0.90	0.62	1.00

Highlighted cells correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

2012	Part.	Segr.	Financial	Economic	Att+part.	Segr.	Care	Social	Political	Economic	Social	Status	Behaviour	Access	Work	Money	Knowledge	Time	Power	Health	Index
Participation	1.00																				
Segregation	-0.01	1.00																			
Financial	-0.06	0.64	1.00																		
Economic	0.07	0.23	0.44	1.00																	
Att+part.	0.43	0.56	0.67	0.36	1.00																
Segregation	-0.32	0.64	0.60	0.39	0.31	1.00															
Care	0.48	0.47	0.29	0.14	0.59	0.17	1.00														
Social	0.25	0.74	0.69	0.49	0.72	0.40	0.59	1.00													
Political	0.47	0.55	0.54	0.27	0.56	0.29	0.52	0.70	1.00												
Economic	0.44	0.22	0.13	0.40	0.37	-0.01	0.55	0.56	0.66	1.00											
Social	0.33	0.52	0.54	0.20	0.54	0.40	0.59	0.57	0.69	0.42	1.00										
Status	-0.30	0.56	0.79	0.26	0.46	0.71	0.06	0.48	0.36	0.04	0.48	1.00									
Behaviour	0.11	0.55	0.73	0.52	0.61	0.51	0.26	0.63	0.43	0.22	0.32	0.48	1.00								
Access	-0.21	0.36	0.57	0.66	0.39	0.42	-0.03	0.44	0.12	-0.01	0.18	0.39	0.54	1.00							
Work	0.66	0.74	0.45	0.21	0.71	0.26	0.69	0.72	0.74	0.46	0.62	0.23	0.49	0.12	1.00						
Money	-0.04	0.61	0.98	0.63	0.67	0.62	0.28	0.72	0.54	0.22	0.51	0.75	0.77	0.66	0.44	1.00					
Knowledge	0.02	0.74	0.78	0.46	0.75	0.86	0.44	0.66	0.51	0.19	0.58	0.74	0.68	0.50	0.57	0.78	1.00				
Time	0.34	0.72	0.64	0.42	0.76	0.36	0.77	0.97	0.71	0.61	0.63	0.40	0.57	0.33	0.77	0.65	0.66	1.00			
Power	0.47	0.48	0.44	0.34	0.55	0.26	0.63	0.70	0.91	0.84	0.79	0.33	0.35	0.10	0.68	0.46	0.48	0.75	1.00		
Health	-0.03	0.61	0.84	0.56	0.64	0.62	0.19	0.65	0.43	0.17	0.37	0.66	0.96	0.65	0.43	0.87	0.77	0.58	0.36	1.00	
Index	0.35	0.72	0.71	0.47	0.75	0.51	0.69	0.88	0.87	0.68	0.80	0.53	0.61	0.35	0.78	0.73	0.76	0.90	0.90	0.64	1.00

Highlighted cells correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

2015	Part.	Segr.	Financial	Economic	Att+part.	Segr.	Care	Social	Political	Economic	Social	Status	Behaviour	Access	Work	Money	Knowledge	Time	Power	Health	Index
Participation	1.00																				
Segregation	0.05	1.00																			
Financial	0.01	0.72	1.00																		
Economic	0.04	0.26	0.54	1.00																	
Att+part.	0.39	0.64	0.76	0.45	1.00																
Segregation	-0.31	0.57	0.54	0.37	0.30	1.00															
Care	0.55	0.55	0.42	0.04	0.55	0.14	1.00														
Social	0.25	0.70	0.70	0.54	0.70	0.37	0.66	1.00													
Political	0.40	0.53	0.60	0.29	0.56	0.26	0.52	0.69	1.00												
Economic	0.30	0.31	0.35	0.08	0.32	0.23	0.48	0.51	0.70	1.00											
Social	0.32	0.56	0.55	0.18	0.56	0.40	0.47	0.57	0.73	0.62	1.00										
Status	-0.27	0.52	0.69	0.41	0.46	0.61	0.12	0.49	0.34	0.21	0.44	1.00									
Behaviour	0.17	0.59	0.74	0.58	0.64	0.42	0.37	0.67	0.44	0.19	0.29	0.47	1.00								
Access	-0.06	0.40	0.50	0.62	0.37	0.22	-0.13	0.35	0.26	0.13	0.27	0.40	0.46	1.00							
Work	0.64	0.80	0.56	0.22	0.73	0.24	0.75	0.69	0.66	0.43	0.64	0.24	0.55	0.27	1.00						
Money	0.02	0.67	0.97	0.73	0.75	0.54	0.35	0.73	0.58	0.31	0.50	0.69	0.78	0.58	0.53	1.00					
Knowledge	0.03	0.75	0.79	0.50	0.78	0.83	0.40	0.65	0.50	0.33	0.59	0.67	0.64	0.36	0.59	0.78	1.00				
Time	0.38	0.70	0.67	0.40	0.71	0.32	0.84	0.96	0.69	0.54	0.58	0.40	0.63	0.20	0.77	0.66	0.62	1.00			
Power	0.38	0.52	0.55	0.19	0.53	0.34	0.55	0.66	0.90	0.89	0.86	0.37	0.34	0.25	0.64	0.51	0.53	0.67	1.00		
Health	0.04	0.63	0.82	0.65	0.67	0.50	0.29	0.69	0.45	0.22	0.35	0.67	0.96	0.59	0.51	0.86	0.71	0.61	0.38	1.00	
Index	0.33	0.76	0.80	0.40	0.76	0.52	0.67	0.85	0.87	0.73	0.83	0.53	0.61	0.36	0.79	0.77	0.78	0.86	0.90	0.65	1.00

Highlighted cells correspond to significant Pearson's correlation at the 0.05 level (2-tailed).

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