

TERMS OF REFERENCE

OECD PROJECT ON THE DISTRIBUTION OF HOUSEHOLD INCOMES

2012 BEING REVISED

The OECD income distribution questionnaire aims at collecting a basic set of indicators on a yearly basis. With regard to past waves, the questionnaire has been substantially reduced and simplified, from the former nine to current three tables.

1. Main Definitions

Reference units, equivalence scale and adjusted income

Observation Unit	The unit of observation of the survey is the household . A household is defined as a collection of individuals who are sharing the same housing unit.
Reference unit for income distribution indicators	All income distribution indicators refer to persons . In the distribution, each household is weighted by the number of individuals who belong to this household. For instance, a household of four people has a weight equal to four; this is equivalent to considering a distribution in which this household is represented by four individuals with the same level of income.
Equivalence scale	All the tables specified in this request should be calculated using an equivalence elasticity of 0.5 . This means that all incomes are adjusted by the square root of the household size. For instance, the income of a household with four persons would be divided by two. The equivalence elasticity (ϵ) characterises the amount of scale economies that households can achieve. An equivalence elasticity lower than unity implies the existence of economies of scale in household needs: any additional household member needs a less than proportionate increase of the household income in order to maintain a given level of welfare. Under this assumption, the sum (over j) of individual "adjusted" incomes W_{ij} will exceed the total household disposable income by the amount of scale economies.
Adjusted disposable income	Individuals are ranked according with the value of <i>the "adjusted" disposable income per equivalent household member</i> of the household to which they belong. For instance, if Y_i denotes the total disposable income of household i , the "adjusted" income of each member j of household i (W_{ij}) is calculated as following: $W_{ij} = Y_i / S_i^\epsilon$, where S_i is the number of members in household i and ϵ is the equivalence elasticity.

Income components, disposable income and market income

Income distributions refer to a particular year, which should be indicated in the Excel spreadsheet "Metadata". All income components should be reported on an *annual basis and in nominal prices*. Seven components of household disposable income are identified:

1. **EH:** the wage and salary income of the household head, excluding employers' contributions to social security, but including sick pay paid by governments.
2. **ES:** the wage and salary income of the household head spouse or partner, excluding employers' contributions to social security, but including sick pay paid by governments.
3. **EO:** the wage and salary income from other household members, excluding employers' contributions to social security, but including sick pay paid by governments.

4. **K:** capital and property income (net dividends, interests, rents), private pensions, private occupational pensions, and all kinds of private transfers.
5. **SE:** self-employment incomes.
6. **TR:** social security transfers from public sources (including accident and disability benefits, old-age cash benefits, unemployment benefits, maternity allowances, child and/or family allowances, all income-tested and means-tested benefits)
7. **TA:** taxes and social security contributions paid directly by households.

All household income components can be expressed in terms of equivalent household member, by dividing the component by S_i^ε , the number of household member to the power of the equivalence elasticity ε . Individual disposable income per equivalent household member and individual market income per equivalent household member, for each member j of household i , can then be expressed as follows:

$$[1] \text{ Equivalised disposable income: } W_{ij} = EH_{ij} + ES_{ij} + EO_{ij} + K_{ij} + SE_{ij} + TR_{ij} - TA_{ij}$$

$$[2] \text{ Equivalised market income: } M_{ij} = EH_{ij} + ES_{ij} + EO_{ij} + K_{ij} + SE_{ij}$$

Treatment of negative income

- Once equivalent household member adjustments are done, using the equivalence elasticity under consideration, all individual components of market income (EH, ES, EO, K, SE) showing negative values should be set to zero. For instance, any negative value of self-employment income is set equal to zero.
- Then, market and disposable incomes are calculated using formulas [1] and [2]. The ranking of individuals is done on the basis of these new values of disposable income.
- The mean of market income and disposable income are then computed (over all incomes e.g. zero and positive incomes).

Income poverty

Poverty is defined using both a relative threshold and an absolute threshold (computed from a relative threshold anchored in time):

- *Relative poverty:* the relative poverty threshold is expressed as a given percentage of the median disposable income, expressed in nominal terms (current prices). Therefore, this threshold changes over time, as the median income changes over time. Two relative poverty thresholds are used: the first one is set at 50% of the median equivalised disposable income of the entire population, the second one is set at 60% of that income.
- *“Absolute” poverty:* the “absolute” poverty threshold is set at 50% of the median income observed in a given reference year in the past. Two reference years are used for this “absolute” threshold: **mid-1990s** and **2005**. Then, these thresholds are inflation-adjusted each year so as to remain constant, in real terms, over time.

Two types of indicators are used to characterise poverty:

- The *headcount ratio*, calculated as the number of individuals in the group considered with disposable household income per equivalent member lower or equal to the poverty threshold, as a percentage of the total number of individuals in the group considered.
- The *poverty gap ratio* (income gap expressed as % of the poverty threshold). Two measures of the poverty gap ratio are included in the questionnaire. The first is calculated as the difference between the poverty threshold and the mean disposable income of the poor, expressed as a percentage of the poverty threshold. The second is calculated as the difference between the poverty threshold and the median disposable income of the poor, expressed as a percentage of the poverty threshold.

Note: the poverty threshold is the same on for each country/year. It is calculated based on the entire population. In other words, poverty rates for the retirement age population are computed based on the median income for the entire population.

2. Inequality and poverty indicators (Table 1)

Table 1 provides a set of aggregate indicators on disposable income, income inequalities and poverty for three different population groups: the entire population, the population of working age (individuals aged 18-65) and the population of retirement age (individuals aged 66 and over). Children (persons aged below 18) should be included among the entire population.

Individuals are ranked according with their *household disposable income per equivalent household member* as described in equation [1], except for the indicator “Gini before taxes and transfers” (*i.e.* Gini for market income), where individuals are ranked according with their market income per equivalent household member, including cases with zero market incomes.

Indicators formula

Indicator	Formula	Comments
Gini index	$Gini = \left(\frac{2}{\mu \cdot n^2} \cdot \sum_{k=1}^n k \cdot W_k \right) - \frac{n+1}{n} = \frac{2 \operatorname{cov}\left(W_k, \frac{k}{n}\right)}{\mu}$ $= \frac{\frac{2}{n} \sum_{k=1}^n (W_k - \mu) \cdot \left(\frac{k}{n} - \frac{1}{n^2} \sum_{k=1}^n k \right)}{\mu}$	<p>Household incomes per equivalent household members (W_k) are ranked in ascending order (such as $k = 1, 2, \dots, n$).</p> <p>Individuals falling in each of the three population groups (entire population, population of working age and population of retirement age) should be ranked separately.</p> <p>n is the total number of individuals; μ is the arithmetic mean of disposable incomes: $\mu = \frac{\sum_k W_k}{n}$.</p>
Mean poverty gap	$\frac{(z - \mu_p)}{z} = \frac{\left(\frac{1}{p} \sum_{i=1}^p \sum_j (z - W_{ij}) \right)}{z}$	<p>z is the poverty threshold; p is the number of poor; μ_p is the mean income of the poor.</p>

Indicator	Formula	Comments
Median poverty gap	$\frac{(z - \hat{\mu}_p)}{z}$	z is the poverty threshold; p is the number of poor; $\hat{\mu}_p$ is the median income of the poor.

Poverty indicators “before taxes and transfers”

While poverty indicators “after taxes and transfers” are based on the equivalised disposable income of each person, poverty indicators “**before** taxes and transfers” are based on the equivalised **market** income of the individual. However, both types of poverty indicators are based on a poverty threshold set in terms of equivalised **disposable** income. In other terms, people are counted as poor “before taxes and transfers” when their **market** income is lower or equal to 50% (or 60%) of the **median disposable** income (i.e. the poverty thresholds are the *same* as those used for poverty indicators “after taxes and transfers”).

3. Disposable income per deciles (Table 2)

Table 2 describes the structure and composition of household disposable incomes across deciles. The income sources considered are those specified in identity [1] above. This table indicates the distribution across deciles of the different income sources, for two population groups: the entire population and the population of working age (individuals aged 18-65). Children (persons aged below 18) should be included among the entire population.

Individual observations are ranked *following ascending values of household disposable income per equivalent household member* (W_{ij}). For each of the two panels, income estimates are ranked separately; i.e. upper bound values should be specific to the two population groups, and each decile should contain 10% of the respective reference population.

The upper bound value is the income value at the upper breaking point of the corresponding decile. Therefore, the upper bound value of decile 1 corresponds to the income of the 10% up from the bottom individual; that of decile 9, to the income of the 90% up from the bottom individual and that of decile 10, to the highest (possibly top coded) income value.

For each income decile, the sum of all income components should be equal to the mean (equivalised) disposable income value reported for that decile in the second column of Table 2. Therefore, taxes should be entered with a negative sign.

4. Disposable income per household groups (Table 3)

Table 3 provides information on which types of households are at risk of low incomes, and how some particular sub-groups contribute to shape the overall pattern of inequality and income poverty. It shows, for various population sub-groups, the following variables:

- the percentage share of people in the *total population*;
- the mean disposable income (in nominal prices);
- the poverty rate, before and after accounting for net transfers (taxes and transfers), expressed in terms of the headcount ratio. The poverty threshold is equal to the first relative threshold used to

calculate poverty indicators reported in Table 1, i.e. 50% of the current median equivalised disposable income of the *entire* population.

Definition of household types, by household structure and work attachment

The reference population corresponds to individuals belonging to a household with a head of working age (18-65). Therefore, all individuals belonging to a household with a head below 18 years old or above 66 years old are excluded from the sample for the purposes of filling this table. Then, within this reference population, individuals are cross-classified according to each of the following criteria:

- the number of adults in the household they belong to: single adult vs. two adults or more. An adult is any individual aged 18 and above;
- the number of children in the household they belong to: with children vs. without children. A child is any individual aged 17 or less;
- the number of household members in employment: no worker, one worker, two workers. **A worker is an adult with a non-zero annual earning or self-employment income.**

This classification results in ten household types: 1) single adult, no children, working; 2), single adult, no children, non working; 3) single adult, with children, working; 4) single adult, with children, non working; 5) two or more adults, no children, two or more working; 6) two or more adults, no children, one working; 7) two or more adults, no children, non working; 8) two or more adults, children, two or more working; 9) two or more adults, children, one worker; 10) two or more adults, children, no workers.

Definition of age groups

The reference population is the entire population, and individuals are grouped according to seven age ranges: 1) 0 to 17 years old; 2) 18 to 25 years old; 3) 26 to 40 years old; 4) 41 to 50 years old; 5) 51 to 65 years old; 6) 66 to 75 years old; 7) 76 and over.

5. Metadata

The questionnaire is divided into two sections. Part I aims at collecting general information on the raw data used to calculate the various indicators reported in Tables 1 to 3. Part II of this questionnaire is intended to check the definitions used and the assumption made to calculate these various indicators, notably in cases where the raw data used did not make it possible to follow strictly the recommendations made in this Terms of Reference. In such case, the questionnaire has been designed so as to enable consultants to provide the alternative definitions or assumptions that have been adopted.

The questionnaire is formulated as mainly closed-loop questions in order to make it easier to respond and collect relatively homogeneous information across member countries. However, blank cells are available to add important information that the questionnaire may miss, as well as to deviate from the template it follows, **whenever necessary**.