



**QUALITY REPORT FOR STATISTICAL SURVEYS**

**- Guidelines for preparation -**

**Agency for Statistics of**

**Bosnia and Herzegovina**

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**INTRODUCTION**

The overall objective of the ESS Handbook for Quality Reports is to provide recommendations for the preparation of comprehensive reports on quality for the full range of statistical processes and statistical products.

ESS standard for quality report relates to the following types of statistical processes:

1. Sample based surveys

Sample based surveys are surveys mostly based on the probabilistic sampling procedure, which involves the collection of data directly from respondents. For this type of survey is grounded theory of accuracy that allows reporting by precisely defined components of accuracy (sampling errors and errors that are not caused by sampling).

2. Census

Census is a statistical process i.e. survey where all frame units are covered (census units).

3. Statistical processess using administrative sources

The process of using the data collected for purposes other than direct production of statistics. An example is the statistical tabulation produced out of administrative databases maintained by the Central Election Commission.

4. Statistical processess using multiple data sources

In many statistical areas production of statistics alone is such that it requires different approaches at different stages of the statistical process. For example, surveys in the field of business statistics, in which the basic economic data is aggregated (production, finance, etc.) on business, different units, questionnaires, sampling schemes and/or other survey procedures can be used for various segments of the survey.

5. Prices and other economic index processes

Prices and other economic index processes involving complex surveys, often with probabilistically design, such as economic indices as specific types of statistical processes: (i) there is a specialized economic theory that defines the target concepts of economic indices; (ii) structure of error indicies includes specialized concepts such as quality adjustments, replacements and re-sampling; (iii) sampling surveys are used in several dimensions (weights, outputs, outlets).

6. Statistical compilation

This statistical process combines a number of different primary sources, including the ones mentioned above, in order to produce the aggregate of sources and is of particular conceptual significance. Mainly, these are economic aggregates, such as national accounts and balance of payments.

The structure of the quality report comprises the following sections:

(1) Introduction to statistical process and statistical output;

(2) Relevance, assessment of user needs and perceptions;

(3) Accuracy and reliability;

(4) Timeliness and punctuality;

(5) Coherence and comparability;

(6) Accessibility and Clarity, Dissemination Format;

(7) Costs and burden on respondents;

(8) Confidentiality and

(9) Statistical processing.

The list of indicators is made on the basis of the following documents: ESS Handbook for Quality Reports, 2014 and the ESS Quidelines for the Implementation of the ESS Quality and Performance Indicators, 2014 as well as the Tehnical Manuel of the **S**ingle **I**ntegrated **M**etadata **S**tructure – SIMS, 2014).

In this document, we provide guidance for the preparation of the report on quality in a standardized format. Thus, for each component once again brief definitions of sub-components and the short guidelines are provided. In cases where the sub-component is tied to calculation of specific indicators, instructions for calculating them are given. Examples for calculating all the indicators of quality and performance are provided.

The main objective of the quality report is to provide to various statistics producers, analytical insight into the entire statistical process, and on the other hand to the users of statistical results additional information for the correct use and interpretation of results.

The main purpose of the quality indicators is to provide insight into quality of statistical outputs, the quality of the process through which these results were obtained, and to some extent an insight into the overall quality of the institutional environment in which the survey is conducted to statistical producer and users of statistical data.

Although these guidelines are focused on producers of statistics, a quality report prepeared with the help of these guidelines also include all information necessary for the preparation of reports oriented to the user.

The indicators, by thair definition, can be related to three different subjects in the context of the survey conduction:

• The survey,

• The variable and

• The statistics (statistical results).

In the first case, in carrying out a specific survey there is no doubt about the value that indicator reffers to. In the other two options this is not the case, because usually in one survey several variables are measured and more statistics calculated (estimated).

Indicators related to variables and statistics in the quality reports are presented only for the key variables i.e. statistics.

Although the indicators in the quality reports are reported on annual (or multi-year) level, the same are for surveys whose periodicity is shorter than one year (eg. monthly and quarterly surveys) calculated for each survey conducted. In the quality reports of these surveys all the values ​​in the observed year are covered, and also the annual averages are given.

Where applicable, in addition to the basic value of the indicator, which relates to the whole population observed, values of indicators for some important domains are calculated. So for example, in a survey in addition to the basic values of the non-response rate for the entire sample, also we will show the rate of non-response by major domains on which basis the output tables are made.

In some cases, the value of indicator has to be shown graphically also. First of all that is case with multy-annual surveys, where (time) values of indicator ​​are expressed by line diagrams used for presentation of the trends in value of indicators at different times.

The quality report is prepeared by statisticians responsible for specific statistical survey in cooperation with colleagues in charge for the sample, analysis and IT.

The quality report should have a standard structure with precisely articulated content. The structure of the report is prepared with the intention of "coverage" of as a broader range of different surveys and the responsibility of the authors of the report is - to judge which parts of the reports given are to relevant to survey.

In case that an item of standard report for specific survey is not relevant, it should be stated, without skipping the whole item.

The report should indicate the website address, which takes users to the detailed information about the presented topic. First of all this refers to the chapters on accessibility and user-friendliness (online publication).

Frequency of quality reports according to the guidelines in this document varies depending on the needs and update of the same is recommended after major changes of data structures or core business processes. Annual quality reports are the standard, so that persons in charge of prepearing of the report would not be overburdened, and if the major changes do not happen, materials from previous year could simply be copied to the next, and the only new material as data on indicators of quality and performance would be updated.

1. **STATISTICAL PROCESS AND STATISTICAL OUTPUTS**

This introductory section brings a brief description of the statistical processes and products, first of all - why and how a statistical survey is carried out.

It is necessary to provide a brief overview of the following information:

1.1 The purpose of the survey

A brief description of the purpose, objectives and the subject of the statistical survey is provided.

1.2 Legal basis and responsibility of statistical institutions

States explicitly existing legal basis (laws, programs, plans, regulations, etc.) on which basis the conduction of the statistical survey is undertaken. Then, state explicitly the responsibility of statistical institutions in conducting the survey.

1.3 Classifications used

States the list of the classifications and nomenclatures that were used when conducting survey.

* 1. Reporting unit

The unit which provides data for statistical purposes only, by the content and terms defined in plan of conducting of statistical surveys. It may be legal entities (company) and its components, individuals, enterprenauers, freelancers, households, government bodies and bodies of local self-government units as well as all other persons who provide data.

1.5 Statistical observation unit

The basic unit, to which data relate, ultimately collected or produced in any other way (person, legal entity and its part, enterprenauer, freelancer, household, government body, local and district (regional) government units and other main units of observation). The statistical unit is the subject of statistical surveys and the holder of statistical characteristics.

* 1. Coverage

The following information is provided:

- Which method (random sample, Census - full coverage) was used in the determination of observation unit;

- Number of observation units, in the case of the sample, the number of units within a sample, and data on possible stratification.

1.7 Statistical concepts and definitions

Definitions of key variables are stated.

**2 RELEVANCE**

Relevance is the degree to which statistical outputs meet the current and potential user’s needs. It depends on whether all statistics that are needed are produced and on the extent to which concepts used (definitions, variables, classifications, etc.) reflect user needs.

*2.1 Users of statistical survey data*

The initial phase of the design and management of statistical processes is defining user's needs. Assessment of user needs generally includes classification of users, indication of the purpose for the results to be obtained, the priorities in meeting their needs, the ways in which this information were obtained from the user, eg. through advisory committees, regular meetings of user groups, feedback/complaints from users, survey.

*2.1.1 Key users of statistical survey data*

Key users by main segmentation groups: public sector, economic entities, justice, science, survey and education, the general public, the media, foreign users. Key users are determined on the basis of data on the publications ordered, membership/subscription, or other records on users of survey data.

*2.1.2 Assessment of users needs*

If there are no ESS regulations and recommendations for specific statistical survey there should be indicated (if known) main users/data requests for the statistical survey for which report is being prepeared and the purposes for which they are used should be described, as well as whether there are documented/known requests for data that could not been produced by survey.

*2.1.3 Measuring the perception and user satisfaction*

User satisfaction is a first priority. The most effective method of measurement is conducting a survey on user satisfaction in accordance with best practices of surveys using a representative sample of users from a propriate sample. Measuring the perception and users satisfaction is determined by the values ​​of the scale of users’ satisfaction. Index of user satisfaction can measure the degree of satisfaction of users of services and products offered. Other, less burdened by costs of measurement, include analysis of published publications sales, users’ comments, received requests and complaints, website visits, etc.

2.2 Completeness of data

***2.2.1. Quality and performance indicators - Data completeness rate (R1)***

*Definition of indicator*

This rate is calculated as the ratio between the number of statistics (data) which are published in the survey and the number of data prescribed (required) in the relevant regulations and legislation.

Note: This indicator is only applicable if there ESS regulation or guidance on the required output data (statistics).

The value of the indicator reffers to the intire survey.

*The calculation procedure*



*Where:*

 *… Number of elements in set requested statistics* (data) by EU regulations

 *… Number of elements in subset of statistics available* (data)

*Explanations and calculation examples*

For example, if certain regulative recomends that **5** statistics should be published at BiH level and for level of statistical regions(NUTS 2), then the number of regulated (requested) statistics is ***5 + (5x3) = 20*.**

Assumed that for certain survey there was **4** statistics published at BiH level, and **4** statistics published for **2** statistical regions in BiH, then ***4 + (4x2) = 12***.

The value of the indicator:



**3 THE ACCURACY AND CLARITY**

The accuracy and clarity are defined as degree of congruence/ propinquity between estimated/ calculated values (resulted at the end of statistical processing) and valid but unknown population values.

Most often it is expressed in absolute form (standard error), the relative form (coefficient of variation) or in terms of reliability as a confidence interval. The size sampling error depends on the estimates and the design pattern used.

The value of indicators reffers to key statistics and key variables.

Sampling errors should be given in the table. There should be noted for which statistics and/or variables the sampling errors are presented. In the monthly survey, the values of errors for each month (or quarter) in particular are presented, as well as the average annual value of the sampling error. In the case that there are more different statistics or levels of the publishing, errors of the main groups are only presented and other results are given in the appendix.

In surveys where the unit of observation is household, often the errors in the random sample are presented not only in the form of a coefficient of variation coefficient, but also through confidence interval.

In *business surveys,* particularly where for example, turnover can be negative (production, incomes, exports, etc.) the best way to express sampling error is the coefficient of variation.

In monthly surveys it is recommend that the "trend" of sampling errors should be presented also in graphical form.

3.1 Sampling errors

Sampling errors occur in surveys that are based on a random sample, and is the consequence of the fact that the survey does not observe the entire population, but just a sample. In this case, for the key statistics it is needed to evaluate the sampling error. Sampling error can be presented in several ways.

***3.1.1 Quality and performance indicators - Sampling error (A1)***

The calculation procedure is determined by sample design and estimator used, so it is not possible to set a general formula. Here is the basic formula only for case of assessment of the average value of the population when simple random sample without repetition is the case.

Supposengly that from a population of ***N*** elements we have chosen a simple random sample of size ***n*** and we want to on the basis of the sample estimate the average variable ***Y***.

*Explanations and calculation examples*

Evaluation of sampling error of statistical estimates is complex, both from the theoretical and practical aspects. Simple formulas are valid only in simple random sampling, which in practice is rarely used. When using a complex sample design or when using non-linear estimator theoretical results are much more demanding and sometimes ineffable in exact analytical form.

If after conducting statistical surveys (in which based on a simple random sampling without repeatition we estimate the value of the mean of variable ***Y***) we have data as shown in the following table.

|  |  |  |  |
| --- | --- | --- | --- |
| Size of population (*N*) | Sample size  (*n*) | Estimated value of the mean of population  () | Estimation of variance  in population ( *s*2 ) |
| 10.000 | 500 | 800 | 50.000 |

Calculation is:



 = 0,95 ⋅100 = 95

***The standard error of estimate*** equals tothe square root of sampling error, i.e.:



 = **9,75**

*The coefficient of variation* is defined as the ratio between the standard deviation and the mean and is usually expressed as a percentage:

*CV(Ŷ )=*

*CV(Ŷ )*= = **1,22%**

Lower and upper limits of the *confidence interval* at the 95% level of confidence are calculated as follows:

*PDG* = *Ŷ*  – 1,96 ⋅ *se(Ŷ); IDG* = 800 −1,96 ⋅ 9,75 = 780,9

*PGG* = *Ŷ* + 1,96 ⋅ *se(Ŷ); IGG* = 800 + 1,96 ⋅ 9,75 = 819,1

Confidence interval: (**780,9 ; 819,1**)

From results obtained it can be concluded that average deviation of variable observed from it's average value of 9,75 or in relative amount 1,22%.

At the same time, due to improvement of precision of estimations, confidence interval of mentioned variable is calculated by which with 95% reliability is estimated that value of variable is in 780,9 and 819,1 interval.

*3.1.2 Activities to reduce the sampling errors*

Comment on sampling error is stated, first of all there should be identified the reasons of the causes of the sampling error, that exceed predetermined and standardized limits of acceptable sampling error.

In the case that the intervals of confidentiality were not published, instructions are given on how to calculate them from published sampling errors.

In the case that the estimated sampling error by the criteria used is too high, it is necessary to describe the actions to reduce them in the future.

3.2 Non-sampling errors

*3.2.1 Non-sampling errors - Coverage errors*

Coverage error (or error of frame) is resulting from the difference between the population covered by frame and the target population.

There are three types of coverage errors: over-coverage, under-coverage and multiple listing (duplication).

***3.2.1.1 Quality and performance indicators – Over- coverage rate (A2)***

*Definition of indicator*

The share of units (irrelevant) available in the frame of the non-target population. Irrelevant units are units that were (usually due to errors or outdated information) included in the frame or in the survey itself, although they are not the part of the target population.

If survey is conducted on a sample, the rate of over-coverage is estimated based on data collected in the sample and in this case weighted and unweighted rate of over-coverage can be calculated. If the survey is based on a sample, and each unit in the sample represents a certain number of units in the target population, it is logical to count weighted rate of over-coverage.

In the case that all units in the sample have equal weight, the weight in the process of calculation is put a side and this is what we call calculation of the unweighted rates of over-coverage.

In the case that we conduct periodic survey (for example, monthly, quarterly), it is necessary to specify the values of the indicators for each period (for example, month, quarter) as well as the average annual value of the indicator. The values of indicators should be given in the table. For periodic surveys graphic presentation of value of the indicators trend over time (for example, a line graph) can be shown. There should also be explanations about the extremes of indicators.

The value of indicators is related to the units in the sample.

*Calculation*

OC*rw* = 

*Where:*

*O…* Number of unitsout of coverage(do not belong to target population)

*…* Number of unitswithin the coverage(do belong to target population)

*Q...* Number of units of unknown value

*wj...*sample weight of unit

*α...* the estimated share of units with unknown relevance that are actually relevant (in practice it is generally assumed that they amount to 1: the numerator in this case applies only to units out of coverage)

*Explanations and calculation examples*

*Example 1:* In the sample for the Household Budget Survey was elected 9 400 address (dwellings), out of which 815 were empty. At 205 addresses dwelling unit was not available or was not possible to find. The example shows the process of calculating the unweighted rates of over-coverage (i.e. rates for addresses) under the assumption that all units have the same weight.

OC*rw* =  = 0,1085 = 10,85%

Indicator is calculated by creating the ratio of units which are not relevant (i.e. empty dwellings), including units that were not available with all the units selected in the sample.

It is concluded that 10.85% of the units out of the sampling frame do not belong to the target population.

*Example 2* shows the calculation of the weighted rate of over-coverage under the assumption that all units have their weight, according to the relevance of the unit.

Relevance status of the unit:

1 – Relevant unit belonging to the target population

2 - Unit that does not belong to the target population (out of coverage) - irrelevant units

3 – Units with unknown values (unavailable and the units that can not be found).

|  |  |
| --- | --- |
| Makation of unit relevance | Unit weight |
| 1 | 6,3 |
| 3 | 19,0 |
| 2 | 3,7 |
| 1 | 112,3 |
| 2 | 115,5 |
| 3 | 31,2 |
| 1 | 8,8 |

OC*rw* =  =  = 0,571 = 57,1%

The numerator is the sum of the weights of all units that for specific reasons are not relevant or contact was impossible. Those are the weights of units that in the example are marked as 2 and 3. The denominator contains the sums of the weights of all the units in the sample.

Concluson is that 57.1% of all units in the sample do not belong to the target population.

***3.2.1.2 Quality and performance indicators – Common units proportion (A3)***

*Definition of indicator*

The share of units covered from two different sources (statistical survey and administrative source) in relation to the total number of units in the survey.

The indicator is used when administrative data are combined with data from the survey, i.e. when unit-level data are obtained from both sources (i.e, some variables are from survey and other variables are from administrative sources), or when the data for the part of units are from the survey and for the other part of units from one or more administrative sources.

The indicator provides us with information on completeness/coverage of sources – i.e. the extent to which units (variables) exist in both sources (statistical survey and administrative data source).

*Calculation*

Ad=

Common units refer to those units that are included in both the sources of data coming from survey and administrative source.

Indicator "single unit in the statistical survey" in the denominator means that if the unit exists in multiple sources, then it is counted only once.

*3.2.1.3 Errors of under-coverage*

The problem of under-coverage compared to over-coverage is difficulty of measurement, and it occurs in cases where the unit was not included in the frame (and therefore not in the sample), even though, by definition, it belongs there. There is no direct information on these units. Therefore, no defining of a specific indicator should be done, but providing of any (indirect) information, which at least suggests the extent of error.

*3.2.1.4 Measures to reduce coverage errors*

It is necessary to describe all procedures that are performed to reduce coverage error. It is necessary to describe current and planned activities as well. Problems due to incorrect coverage can be solved as follows: (1) in the observation year we record the units information obtained in the field, and assign them the status of a reporting unit, and then in the next year survey we accept this new status; (2) before sending the questionnaire in the field, we prepare statistical list (address book) of, for example, higher education institutions and compare it with the list maintained by the Ministry of Education. If there is a discrepancy between these address books, statistical address book should be updated.

*3.2.2* Non-sampling errors - Errors of measurement

Errors of measurement are errors that occur during data collection and lead to the difference between the values of the variables recordded and the actual values.

Causes for these differences are as follows:

(1) The survey instruments: a form used to collect the data may cause the recording of errors in values;

(2) Responder/reporting unit: respondents may knowingly or unknowingly give false information;

(3) The interviewer: interviewer can affect the answers given by the respondent/reporting unit.

*3.2.2.1 The reasons for the occurrence of errors of measurement*

It is necessary to state the main reasons that cause the occurrence of errors of measurement. If there is feedback from the reporting units, it is necessary to first of all state that the main reasons (in their opinion) for errors of measurement. In some surveys (especially when carried out in households) there should be indicated notes the interviewer (if any).

The most common reasons for the occurrence of errors of measurement are:

• a person who fills in the questionnaire, it is not qualified enough to fulfill;

• a person who fills in the questionnaire, did not read carefully the instructions for filling;

• insufficient care of the person who enters the data in the table;

• lack of records with reporting units;

• too extensive or poor methodological instructions for filling the questionnaires

• questionnaire is imprecise and instruction is incomplete.

*3.2.2.2 Measures to reduce the number of errors of measurement*

The process of data editing identifies inconsistencies. They are usually the result of errors in the original data, but they can also be the result of procedural errors in coding and data entry. It is necessary to briefly describe the procedure in case of detection of errors. Indicate first of all, whether the unit is re-interviewed, data is corrected manually or the automatic editing process was used. It is necessary to list all the activities that are undertaken in order to reduce errors of measurement. The most effective way to reduce the number of errors in measurement is accurate and understandable notes on methodology, which should not be too extensive and certainly to establishing the direct contact with the reporting units.

*3.2.3 Non-sampling errors – Nonresponse errors*

The difference between the statistics calculated from the data collected and those which would be calculated if there were no missing values is the non-response error.

There are two types of non-response:

(1) Non-response of reporting unit, which occurs when there was no collected of data on the reporting unit designed for data collection, and

(2) Non-response to certain variables, which occurs when the data are collected only for some - but not for all variables that are required by specific survey.

***3.2.3.1 Quality and performance indicators -*** ***Units non-response rate (A4)***

*Definition of indicator*

The ratio between the number of observation units for which we collected data (at least for some variables) and the total number of units (designed – specified for data collection). Observation units not contacted, and ones for which we do not know their status (whether they are relevant or irrelevant), we also consider non-response.

Depending on how calculation of the indicators is done, for the sample or the whole population, weighted and unweighted rate of non-response units can be calculated.

In case that we conduct periodic survey (eg, monthly, quarterly), it is necessary to specify the value of the indicator for each period (eg, month, quarter) as well as the average annual value of the indicator.

The value of indicator is related to the entire survey. The values of indicators should be given in the table.

*The calculation procedure*

Upon completion of data collection units of the sample can be divided into four groups:

Irrelevant units (***NJ***). Units that would be otherwise selected in the sample, but the data collection phase showed that they are not any more part of the target population that we observe. The most common reason that these units are still in the sample is inefficiency and incomplete sources that are used for determining the sampling frame.

Non-response (***NR***). Units that are relevant for survey, but did not provide the data. In this group the most common units are the one that refuse to participate in the survey.

*Units with an unknown validity* (***Q***). Units for which we could not get the data and we do not know, whether they are relevant for survey or not. This applies mainly to the units with which it was not possible to establish contact.

*Answers* (**R**). The units for which we managed to get all the data. Here it is necessary to determine (for each survey), which is the minimum amount of required information that must be given by units so we could include it in the answers.

*The unweighted rate*

In relation to the defined categories unweighted response rate, units are calculated by the formula:



*Where:*

*R…* Number of relevant units that responded

*…* Number of relevant units that have not responded

*Q...* Number of selected units of unknown relevance

... (Estimated) share of units of unknown relevance but which are actually relevant.

If there is no justified assumptions to estimate of the parameter α, we consider α = 1, which means that all units with unknown relevance are considered as non-response.

*The weighted rate*

Weighted rate is calculated according to the formula:



*Where:*

*R…* Number of relevant units that responded

*…* Number of relevant units that have not responded

*Q...* Number of selected units of unknown relevance

*wj...* Sample weights of the unit

*α...* The estimated proportion of units of unknown relevance that are actually relevant (if there is no sound assumptions to estimate the parameters, they are generally assumed to amount to 1)

This approach should be used in surveys with persons and households.

In business and agricultural surveys, is more important then others due to their impact on the final results, so in this case as an auxiliary variable must taken into account the variable that determines the size of the unit (eg, the number of employees in the company).

*Explanations and calculation examples*

Here is a hypothetical example of survey where we after the final data collection got the following data:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Number of observation units | Summation of sampling    weighting | The sum of the value of the auxiliary variable of observation units | The weighted sum of the auxiliary variables |
| Reponse (*R)* | 700 | 5 500 | 15 600 | 62 500 |
| Non-response (*NR)* | 250 | 1 520 | 2 900 | 6 200 |
| Relevance unknown (*Q)* | 80 | 550 | 1 400 | 2 850 |
| Sample | 1 030 | 7 570 | 19 900 | 71 550 |

If we assumed the value of the share of valid units among units of unknown relevance equals α = 0.90 - the value of the indicator is:

*Unweighted rate of non-response units*

*  = 1 - 0,68 = 0,32 = 32%

*Weighted non-response rate of a unit*

* *With weights of sample selection*

 = 1 – 0,73 = 0,27 = 27%

* *Auxiliar variable only*

 = 1 – 0,79 = 0,21 = 21%

* *With correction for auxiliar variable*

 = 1 – 0,88 = 0,12 = 12%

***3.2.3.2 Quality and performance indicators – Item non-response rate (A5)***

*Definition of indicator:*

The ratio between the number of observation units for which we could not get data for a given variable and the number of all the units that were supposed to provide data on the variable observed. This ratio is calculated only within the observation units, which are relevant for the observed variable.

The value of the indicator applies only to the key variable.

*The calculation procedure*

Same as with the rate of non-response unit, unweighted rate can be calculated, as well as the weighted rate with weights of sampling or weighted rate with corrected weights with values of auxiliary variables.



*where:*

*RY…* number of relevant units that responded to the variable Y

*NRY …* number of relevant units that did not respond to a variable Y though the answer to the same was required

*wj...* weight of unit

The three main ways of calculating the rates are:

• Unweighted rate: *wj = 1*

• The rate weighted by weights of sample design: *wj = dj*

• The rate weighted by significance of units: *wj = dj xj*, where *xj* is the *value* of auxiliary variable X

*Explanations and calculation examples*

For the selected variable relevant units are those units for which we should get data for that variable. It is not necessary that all relevant units and are also relevant to the selected variable.

The difference between the number of relevant units and the number of units, also relevant for the selected variable is most associated with the so-called “skips” in the questionnaire. Accordingly, the units in which skips occure are not included in the calculation of the rate of non-response for a specified variable which was skipped.

*Example:*

If after question "Does your household have access to the Internet?" follows the question, "Does the household have access to the Internet via a PC", answering to the second question is only for units, which answered to the first question with "Yes".

The table below shows the default values for the selected key variable:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Number of observation units | Summation of sampling    weighting | The sum of the value of the auxiliary variable of observation units | The weighted sum of the auxiliary variables |
| Unit response | 700 | 5 500 | 15 600 | 70 000 |
| Relevant units that are expected to give an answer to key variable | 450 | 3 800 | 11 500 | 55 000 |
| Answers of relevant units to a key variable | 370 | 3 000 | 10 500 | 52 000 |

*The unweighted non-response rate to the key variable*

*  = 0,18 = 18%

*The weighted non-response rate to the key variable*

* With weights of sample selection

 = 0,211 = 21,1%

* Auxiliar variable only

 = 0,087 = 8,7%

* *With correction for auxiliar variable*



In the case that we conduct the periodic survey (eg, monthly, quarterly), it is necessary to specify the value of the indicator for each period (eg, month, quarter) as well as the average annual value of the indicator. The values of indicators should be given in the table. A graphical presentation (eg. line diagram) of movement of indicator values in time could also be provided.

*3.2.3.3 Procedures in the case of non-response*

It is necessary to describe all procedures (eg. weighting, imputation), which we used for non-response for the case of non-response of the units observed as well as for case of non-response of variables. If weighting procedure is used, it is necessary to specify a formula for calculating the weights.

For example, if data on certain variables are missing, a telephone connection with reporting units is to be established and, if necessary, missing values to be added. Exceptionally, if contact is not established, the variable value can be estimated.

*3.2.3.4 Methods for reducing the rate of non-response*

It is necessary to describe all procedures which are done with the aim of reducing the rate of non-response of the units observed and variables. In instructions for eg. to calculate the equivalent of full-time work, add some examples for solving the most common combination in calculating this indicator. Also, it is necessary to send a notice to reporting units, explaining possibilities to make contact by phone or e-mail if in completing the form they experience some difficulties and ambiguities.

3.2.4 Revisions

The revision can be planned and unplanned. Unplanned revisions are caused mainly by detection of errors in the published results. ESS Code of Practice requires that the planned revisions follow standard, well-established and transparent procedures. This means that the pre-announced revisions are desirable and that the reasons for the undertaking and the nature of the revision it self (new source of data, new methods, etc ...) should be stated.

***3.2.4.1 Quality and performance indicators - Average size of revisions (A6)***

*Definition of indicator:*

The revision is defined as the difference between the later and the earlier assessments of key variable. The average size of data revision is an average of revisions of the key variables during the specific period.

Observation period

Publishing/release 1 ... *t* ... *n*

1th publishing/release X11 ... X1*t*...X1*n*

... ... ... ... ... ...

*k-th* publishing/release X*k*1 ... X*kt* ... X*kn*

... ... ... ... ... ...

*K-th* and final publishing/release X*K*1 ... X*Kt* ... X*Kn*

*The calculation procedure*

Due to the two-dimensional situation that is described in the definition, there is a number of strategies to calculate the indicator. It is suggested to take the average of certain publishing/release in n observed period, or MAR (average of absolute revision).

*MAR (average of absolute revision):*

*MAR* =  │*XLt* - *XPt*│

where:

*XLt  - „*later“ publishing/release,

*XPt - „*previous/early“ publishing/release,

*n -* number of revisions

Average of absolute revision is mainly applied to the index, proportion and other relative data.

*AR (absolute revision):*

The revision of data can counted as difference of the first and last publication.

*AR* = │*XLt* - *XPt*│

where:

*XLt  - „*later“ publishing/release,

*XPt - „*previous/early“ publishing/release.

The number of revisions (n) is calculated as the difference in publishing in time series. In general, it is the number of releases reduced by 1, ie, if we have four publication/releases n = 4-1 = 3rd

*Average of relative revision (RMAR): RMAR* =  ││

The average relative revision is applied to the data in absolute terms (eg, number of employees).

*Explanations and calculation examples*

The data are published, and they relate to a specific reference period t, over time, data can be changed. Numbers of observed periods for which data are published are marked with **n**, and the number of releases over time with **K**. Revision of data occurs between individual releases of a certain period, and this can be defined as the difference between the earlier and later estimates.

*Example 1:* Survey in which the monthly index in the obseverd period is reviewed six months consecutively is carried out and revision data is calculated. Since this is the case with indices, average absolute revision (MAR) is calculated.

If we have the following values of the monthly index of the total number of employees (from the first to the sixth publishing/release):

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1st release | 2nd  release | 3rd release | 4th release | 5th release | 6th release |
| The value of Index | 98,20 | 98,40 | 98,20 | 98,30 | 98,10 | 98,00 |
| Difference | - | 0,20 | 0,20 | 0,10 | 0,20 | 0,10 |

MAR =  = 0,16

The conclusion is that the monthly index of total number of employment in average has changed for 0.16 in these six releases.

*Example 2:* Survey in which total number of employed persons in observed period per month is under revision in twelve months consecutively. As indicator is in apsolute value, average relative revision is calculated (RMAR). Indicator is calculated for each month and then for whole year (as average of all relative revisions average by months).

|  |  |  |  |
| --- | --- | --- | --- |
| Month | First results | Final results | Average relative revision (%) |
| I | 695 250 | 696 870 | 0,23 |
| II | 696 200 | 697 480 | 0,18 |
| III | 697 100 | 699 200 | 0,30 |
| IV | 696 350 | 697 800 | 0,21 |
| V | 698 210 | 698 210 | 0,00 |
| VI | 698 480 | 699 400 | 0,13 |
| VII | 697 100 | 699 100 | 0,29 |
| VIII | 701 200 | 702 850 | 0,24 |
| IX | 700 150 | 701 800 | 0,24 |
| X | 701 200 | 702 750 | 0,22 |
| XI | 701 330 | 702 990 | 0,24 |
| XII | 702 350 | 702 950 | 0,09 |
| **2014** | - | - | **0,20** |

*RMAR* = (0,23+0,18+0,30+0,21+0,00+0,13+0,29+0,24+0,24+0,22+0,24+0,09)/12 = 0,20

The conclusion is that the total number of employed persons in these twelve releases in anual average has changed of 0.20%.

3.2.5 Imputation

Imputation is an answer to the deficiencies in the data obtained. In statistical surveys based on a sample or in Census the reason for imputation can be non-response (usually non-response of variable), while in the treatment of price index, imputation may occur because of missing prices.

***3.2.5.1 Quality and performance indicators – Imputation rate (A7)***

*Definition of indicator:*

The indicator is calculated for the key variables and defined as *the ratio between the number of units, for which we have imputed data for key variables observed (due to incomplete or inadequate values) and the number of units for which we have any kind of data.*

The rate of imputed data is an indicator that is calculated in the case, where a part of the values ​​of key variables is estimated (imputed) with one of the more common methods of imputation. The data can imputed due to missing values ​​or because of inadequate values that we obtained during the data editing.

This indicator is influenced by non-response variables and by the process of editing, and measures the relative amount of imputed values ​​and the relative impact on the final assessment in the imputation procedures.

Also, weighted and unweighted values of the indicator can be calculated.

The value of indicator is related to the key variable. The values ​​of indicators should be given in the table.

In the case that we conduct periodic survey (eg, monthly, quarterly), it is necessary to specify the value of the indicator for each period (eg, month, quarter) as well as the average annual value of the indicator. In periodic surveys graphic presentations of the movement of the indicators over time could be provided as well (for example, a line graph).

*The calculation procedure*

An unweighted value of the indicator is calculated as follows:

*A9 =* 

where:

*Iy ...* the number of units for which the variable *Y* is imputed,

*Ky...* the number of units for which values of the variable Y remained unchanged.

If ***wj*** is final weight, weighted value is calculated as follows:



*Explanations and calculation examples*

When calculating the rate of imputed data we need to consider only those values that have been imputed with the relevant statistical (imputation) method.

The units, which were in the process of data editing and corrected with re-checking of reporting units, we do not consider as units with imputed data.

The table contains data for example:

|  |  |  |
| --- | --- | --- |
|  | Number of observation units | The weighted sum of variables *Y* |
| Data for variable *Y* | 500 | 12500 |
| Imputed data | 150 | 1750 |

Unweighted value of the indicator *A9* = 

Weighted value of the indicator *A9w* = 

**4 TIMELINESS AND PUNCTUALITY OF PUBLICATIONS**

Timeliness refers to the time between the last day of the reference period to which the data refer and the date of publication/release.

The punctuality is the time lag between the actual date of publishing/release and announced date indicated in the official calendar of the publication.

4.1 Timeliness

Some statistics are published in several versions (eg, preliminary, revised and final). In this case, each edition has its own timeliness profile.

It is necessary to explain and state the reasons for the possible delay in the publishing, as well as the efforts that have been taken to improve the situation.

***4.1.1 Quality and performance indicators – Time lag first results (TP1)***

*Definition of indicator*

Time lag first results is a time gap between the end of the period for which the data are calculated and the exact date of the first publication of the results.

Data on the timeliness of first publication of the results should be shown in the table.

*The calculation procedure*

If date that marks the last day (date) of statistical data observation period is marked with *drefp*, and date of publishing of the first results with *dfrst*, value of indicator is:

*T1 = dfrst − drefp*

*Explanations and calculation examples*

The value of indicators in monthly, quarterly and semi-annual surveys is reported in the total number of days, while in annual and multi-annual surveys unit is reported in number of months. In any case, at the presentation of indicator values of unit used for time should be clearly stated.

*Example 1:* If the results of monthly survey that refer to January 2014 were first published on 17.03.2014, the value of indicator equals: T1 = (17.3.2014) − (31.1.2014) = T+45.

*Example 2:* If the results of HBS (Household Budget Survey) refer to 2014 were first published on 20.11.2015, the value of indicator is: T1 = (20.11.2015) − (31.12.2014) = T+11.

In quality report should be stated: observation period; date of publishing of the first results; time gap in format *T+x*, where *T* stands for the end of observation period, and *x* for number of days (or months).

***4.1.2 Quality and performance indicators – Time lag final results (TP2)***

*Desription of of indicator*

Time lag final statistical results is the time between the end of the observation period to which the published results refer and the date of publication/release of the final results.

Time lag final results should be presented in table.

*The calculation procedure*

If date that marks last day (date) of statistical data obseration period we mark with *drefp*, and date of publishing/release of final results with *dfinl*, the value of indicator is:

*T2 = dfrst − drefp*

*Explanations and calculation examples*

The value of indicators in monthly, quarterly and semi-annual surveys is reported in the total number of days, while in annual and multi-annual surveys unit is reported in number of months. In any case, at the presentation of indicator values of unit used for time should be clearly stated.

*Example 1:* If final results of monthly survey refer to January 2014 were published on 25.03.2015, value of indicator equals: T2 = (25.03.2015) − (31.1.2014) = T+53.

*Example 2*: If final results of HBS (Household Budget Survey) refer to 2014 were published on 15.02.2016, value of indicators: T1 = (15.02.2016) − (31.12.2014) = T+13.

In quality report should be stated: observation period; date of publishing of the first results; time gap in format T+x, where T stands for the end of observation period, and x for number of days (or months).

If only one (final) results of the survey are to be published, the indicator TP1 is not to be calculated, so under this section it is needed only to provide the note about it.

4.2 Punctuality

***4.2.1 Quality and performance indicators – Punctuality delivery and publication (TP3)***

*Desription of indicator*

The punctuality is the interval (number of days) between the date of publication of the data and the scheduled/planned date for publication of the data. Announced date refers to the planned date of publication in the annual Calendar of publishing/releaseing.

The indicator is calculated in two ways.

*a) The calculation procedure of indicator for producers:*

If expected date for publishing/releasing of statistics equals *dsch*, and actual date of publishing/releasing equals *dact* , the value of indicator is: *P3 = dact − dsch*

*Explanations and calculation examples*

The value of the indicator is calculated and reported as the number of days. If the results of certain statistics were actually published before the scheduled date of publication of the results, the value of the indicator can be negative.

*Example 1:* If expected date of publishing is 16.3.2015, and results were published on 20.3.2015, value of indicator is *P3* = (20.3.2015) − (16.3.2015) = 4.

*Example 2:* If expected date of publishing is 16.3.2015, and results were published on 13.3.2015, the value of indicator is *P3* = (13.3.2015) − (16.3.2015) = −3.

In quality report should be stated: observation period; date of publishing of the first results; time gap in format T+x, where T stands for the end of observation period, and x for number of days (or months).

*a) The calculation procedure of indicator for users:*

Rate of accuracy is calculated *(P3R)* relevant for group of statistics/results.

If the number of statistics/results published at the expected date of publication in calendar or ones published earlier are marked with mpc, and number of statistics/results that have not been published till date in the calendar with mup, the value of the indicator is:

*P3R =* 

*Explanations and calculation examples*

The value of indicator is calculated and reported in percentage.

*Example 1:* If 8 statistics/results are published on/ or before expected date of publishing, and by Calendar of publishing it is planed total of 12 statistics/results, the value of indicators equals to:

*P3R =*  =  = 0,667 = 66,7%

4.3 The reasons for the major delays and measures to improve the timeliness and punctuality

It is necessary to state the reasons and provide additional explanations in case of major time values lags for the indicators values TP1, TP2 and TP3. If same exist, the measures taken to improve the timeliness and punctuality of the publication time in calendar of publishing should be stated.

**5 COHERENCE AND COMPARABILITY**

*Coherence* of two or more statistical (data) products refers to the degree to which the statistical processes by which they are produced are using the same concepts, classifications, definitions, target population and harmonized methods.

*Comparability* refers to the need for the data and information obtained to be comparable in different periods of observation, between different domains and between different geographical areas.

5.1 Coherence

***5.1.1 Quality and performance indicators - Coherence between different sources, coeff.(CH1)***

*Description of indicator*

Coherence with the results from the reference sources shows the relationship between the statistical results that are produced by surveys and statistical results from other sources (eg. administrative resources, short-term and structural business indicators, national accounts, etc.).

In the case of absolute amounts, consistency is shown in relative form, and if the case is with the relative data (ie, indices, percentages), compliance is expressed in absolute form.

*The calculation procedure*

The value of indicator for key variables, where possible (if we have comperable variable from reference source), is calculated by formula:

*CH1* = 

Where:

*Xiref* ...Value of variable in observed statistical survey

*Xi ...* Value of variable from other (reference) source

*i* ... Number of sources of data

*Explanations and calculation examples*

*Example 1*:

If the number of persons employed is obtained as result in Labour Force Survey and equals to 816 036, and data for same key variable in other reference survey equaled to 693 941, the value of indicator is:

*CH1* =  **=** = 0,18

Conclusion is that number of persons employed that is result of survey is biger for 18% then number of employed persons from other source (in this case reference survey).

*Example 2:*

If the number of unemployed persons is obtained as result in Labour Force Survey and equals to 310 947, and data for same key variable in other reference survey equaled to 529 446, the value of indicator is:

Unemployed: *CH1* = **=**  **=** - 0,41

Conclusion is that number of persons unemployed that is result of survey is smaller for 41% then the number of unemployed persons from other (reference) source (in this case we speak of records of administrative source, ie. official record of persons unemployed in institutes for employment).

*5.1.2 The reasons for the major delays*

In case of major delays in survey results, the reasons should be stated.

5.2 Comparability

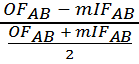
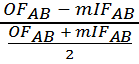
***5.2.1 Quality and performance indicators – Asymmetry for mirror flows statistics, coeff. (CC1)***

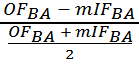
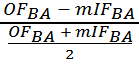
*Description of indicator*

In the domains where there is comparable statistics it is possible to assess the geographical comparability by measuring of discrepances of the outgoing and incoming flows for selected pairs of countries. A classic example of this is foreign trade statistics. In general, exports of country A to country B through a certain period of time should be equal to the import of country B from country A. In addition to foreign trade, example for these statistics can be and migration statistics, tourism, FATS, balance of payments, etc.

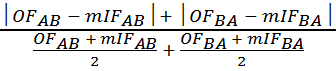
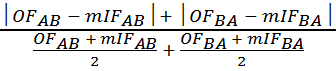
Bilateral comparable statistics is the difference of outgoing and incoming flows between the two countries divided by the average of the two values.

An example for countries A and B

*CC1AB* = 

*CC1BA* = 

Common measures can be obtained from the two differences in relation to the average of flows (one of the possibilities is shown in the following formula):

*CC1AB* = 

Where:

*OFAB*...Outgoing flow (export) from country A to country B

*mIFAB...* Comparable incoming flow for country A

*OFBA*...Outgoing flow (export) from country B to country A

*mIFBA...* Comparable outgoing flow for country B

*Explanations and calculation examples*

*Example:*  If we taka data of Foreign Trade between BiH and Croatia for 2014, where country A is Bosnia and Herzegovina, and country B is Croatia.

*Foreign Trade data with Croatia* (published in BiH statistics):

EXPORT (*OFAB* - 488.308 (in 000 €)

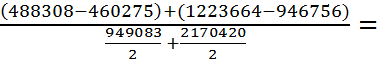
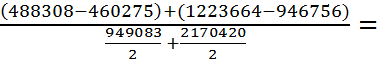
IMPORT (*mIFBA*)- 946.756 (in 000 €)

*Foreign Trade data with Bosnia and Herzegovina* (published in Croatia's statistics):

EXPORT (*OFBA*)- 1.223.664 (in 000 €)

IMPORT (*mIFAB*) - 460.275 (in 000 €)

Based on this data incomparability between these statistics is calculated:

*CC1AB* =  = 

= 

If the coefficient equaled to zero, there would be a perfect symmetry (coincidence) of data (ie outgoing flows in this case were the egzect with comparable incoming flows).

But in our case, we see that the coefficient of asymmetry (discrepancies) equals to 0.20 – ie we conclude that discrepancy of these statistics is 20%.

***5.2.2. Quality and performance indicators - Length of comparable time series (CC2)***

*Description of indicator*

Length of comparable time series since the last interruption in time series ie. the number of observed periods in the time series of the last interruption.

The value of indicator is related to key statistics of survey.

*The calculation procedure*

If *Jlast* is the ordinal number from the last period of observation for which data were published (the last point in time series), *Jfirst* is ordinal number of first period of observation with already comparable statistical results (the first time point accorging to possible interruption), the value of indicator is:

**CC2 =** *Jlast* **−** *Jfirst* +1

*Explanations and calculation examples*

The value of the indicator shows the number of periods in the time series; this means that the unit of measurement depends on the periodicity of the survey. In the monthly survey the value of indicator is expressed as a number of months, and in quartrly surveys as a number of quarters, etc.

The value of the indicator is largely determined by how we define a interruption in the time series. The fact is that it is impossible to set completely accurate scales, with which the termination would be noticed, which means that sometimes - at least partially - subjective judgment must be applied. In general one could say that a interruption in the time series arises when it comes to such a change of one or more aspects of the survey causing that the final results among themselves are no longer reasonably comparable (eg. changes in the source of data or the methodology used).

If time series have no interruption, the value of indicator shows whole lenght of time series (Example 1, example 2).

*Example 1*: Let's assume that beginning of camparable time series of monthly survey represents period of observation-January of 2005. In that case, indicator has the value for period observed -June 2012. CC2 = (June '12 – January '05) = 90 (months).

*Example 2:* If there is anual survey, with year of first comparable releasing of results 2001, then for releasing of results in 2012 the value of indicator equals P1 = 12 (years).

If at the beginning of 2011 there was change of CA (Clalssification of Acitivities), causing the change of the sample of observation units so it is not possible to establish an appropriate relationship with the old data, there was an interruption in the time series. As time series has interruption in certain extent of the series, and the data is still published it is possible to calculate two values of indicators (see Example 3).

*Example 3:* If in qurtaly survey with the index of distirbutative trade (the first observation period is Q1 2007and the last is the end of Q4 2014) there was an interruption in time series in 2011 (due to changes in CA), the lenght of time series equals:

**CC2 =** *Jlast* **−** *Jfirst* +1 = 16 - 1 + 1 =16

**CC2 =** *Jlast* **−** *Jfirst* +1 = 15 - 1 + 1 =15

*5.2.3 Interruptions in the time series*

All the interruptions in time series are described, as well as the reasons for the occurrence of interruptions. All the factors, that had in some way affected the comparability of results at different time points are also described (even dough they did not cause interruption of the time series).

5.3 Geographical comparability

*5.3.1 Comparability with other members of the European Statistical System*

All the factors that could affect that results of specific survey are not completely comparable with the results of similar surveys in the European Statistical System are stated. It is also stated if there is regulation, which regulates the use of harmonized methodology (some parts).

**6 ACCESSIBILITY AND CLARITY, DISSEMINATION FORMAT**

Definition of component:

Availability and clarity of statistical products/results imply simple and easy way for users to access statistics using a simple and easy procedure. The availability of statistical results/products is related to concrete physical circumstances in which the data is available to the user: where the data is physically located, what are the possibilities of using, releasing calendar, clear payment policies, both macro and micro availability, different formats and media (eg, press releases, publications, on-line databases, documentation on methodology and quality).

*6.1 Press releases with published data*

List the names of regular and irregular press releases with a list of published data sets and on-line link to the press release.

*6.2 Publications with published data*

List the names of regular and special publications with a list of published data sets and on-line link to the publication.

*6.3 On – line data base*

Indicate the information on available on-line database to access the disseminated data with a link to it.

*6.4 Access to microdata*

Specify the information if microdata is available, and if so briefly describe the rules of anonymization of microdata.

*6.5 Availability of methodological documentation*

Indicate information on the availability of reference metadata files, important methodological manuals, etc (Title, publisher, year and a link to the online document).

*6.6 Measures to improve the user-friendliness of disseminated results*

Describe any activities that are planned in connection with improving of the user-friendlines of print and online publication, as well as the dissemination of databases.

***6.7 Quality and performance indicators – Data set consultations (AC1)***

*Description of indicator*

Number of consultations of datasets within the statistical domain in a certain period. Note: The internal reviews of pages are excluded.

*The calculation procedure, example and explanation*

AC1 = *#CONS*

Number of users consultations related to statistics of *Index of consumer prices* in 2014 equals 1.255 (web pages hits).

***6.8 Quality and performance indicators – Metadata consultations (AC2)***

*Description of indicator*

Number of consultations of reference metadata (ESMS) within the statistical domain in a certain period (feedback for review or download at the respective statistical domain - topic).

*The calculation procedure, example and explanation*

AC2 = *# ESMS*

Number of consultations of reference metadata (ESMS) related to statistics of *Index of consumer prices* in 2014 equals 1.120 (web pages hits).

***6.9 Quality and performance indicators – Metadata completeness rate (AC3)***

*Description of indicator*

The ratio of available (completed) metadata elements to the total number of recommended metadata elements.

*The calculation procedure, example and explanation*

Out of total number of(60) metadata elements included in ESMS V.2.0 (*EURO-SDMX Metadata Structure*) for statistics of Index of consumer prices was ensured 55 of them.

*=* 55/60 = 0,92

Meaning – rate of metadata completeness for statistics of Index of consumer prices is 92%.

**7 COSTS AND BURDEN ON RESPONDENTS**

*Definition of component:*

The costs and burden on respondents are not real dimensions of quality. However, the compromises between costs and burden on data providers should be considered, in other words, the cost and burden on data providers limit the quality of statistical data.

The possibility of calculating the costs is necessary for the effective management, and in particular to assess the quality and impact. The analysis of benefits and costs is needed in order to determine the appropriate compromises between costs and burden (in terms of the quality of statistical data). In the same way, the participation of data providers should be seen as a cost (for data providers) that must be balanced with the benefits of the information provided.

7.1 Costs of statistical survey conduction

When calculating the costs of the statistical institutions in carrying out the survey it is necessary to take into account material costs, and the costs arising from the consumption of working time of statistical personnel.

Calculation of annual operating costs by major cost components are presented in a standard table:

|  |  |
| --- | --- |
| Number of labor hours |  |
| Material costs (printing and sending the forms to the field) |  |
| The annual number of forms submitted to the reporting units |  |

7.2 Respodents burden

As an indicator of the burden on data providers, the time which is necessary for the reporting units to complete the questionnaire in one year is assessed. Data is presented in a standard table:

Calculation of the annual burden on data providers is presented in the standard table:

|  |  |
| --- | --- |
| Number of data providers that completed form |  |
| The time required to fill a form (hours) |  |
| Total used time (hours) |  |

7.3 Measures to reduce costs and burdens

List the possible measures to reduce the costs and burden on data providers (for example, reducing the size and coordination of sample, reducing the frequency of data collection, reducing the number of required data in the survey, reducing the number of contacts with reporting units; the use of administrative data (also the part of the same); testing of questionnaires with reporting units in order to better understand and complete; in calendar of survey that is available to reporting unit state data requests; if help in filling out the questionnaires is needed reporting unit may contact, etc ...).

**8 CONFIDENTIALITY**

The document Statistics Code of Practice, in the principles states - that the confidentiality of data providers (persons, households, businesses) and the confidentiality of information provided must be absolutely guaranteed, and that data can be used only for statistical purposes (Principle 5); statistical institutions must produce and disseminate statistics (respecting professional independence) in an objective, professional and transparent manner in which all users will be treated in the same way (Principle 6).

8.1 Confidentiality - policy

By default - the confidentiality of statistical data is required by law and the personnel conducting statistical survey by the same legal basis has the obligation to protect confidentiality. Laws on the statistics determine confidentiality as one of the main principles. Law has a special chapter devoted to this issue - section contains the definition of confidential information, anticipates for the use of confidential data for statistical purposes, determines the obligations of producers of data that precisely define measures and procedures to protect the confidentiality of data. Laws of statistics are available on the websites of the statistical institutions.

Therefore, the report on quality has to confirm this arrangement, or report on any exceptions to this rule.

8.2 Confidentiality – Data treatment

Also, it is necessary to outline the procedures for ensuring of confidentiality during the collection, processing and dissemination - including, protocols for the protection of individual data to which access is possible, the rules for the definition of confidential cells in the output tables and procedures for the detection and prevention of subsequent disclosure. There should also be stated if external users have access to microdata for survey purposes wheather the confidentiality provisions are applied. The report should describe the provisions to ensure the protection and integrity of the entire questionnaire, micro and macro database and results.

**9 STATISTICAL PROCESSING**

Statistical processing is related to the operations performed on the data in order to obtain new information according to a specific set of rules. This concept is further divided into:

9.1 Data source

Indicate on which source data set is based: on survey, on administrative data sources, on combined sources of data or data from other statistical activities. If the sample is used, there should be stated some characteristics of the sample (eg, population size, gross and net sample size, type of sampling design, etc.). If administrative registers are used there should be given descriptions of registers (source, primary purpose, etc.).

9.2 Frequency of data collection

Indicate the frequency (periodicity) of data collection (eg monthly, quarterly, annually, and continuously).

9.3 Data collection

Specify the process of data collection, for example: from administrative sources; by collector of prices via the questionnaire (in the field or by phone); through questionnaires for certain statistical survey that are created in the statistical institutions. Describe the methods used for data collection for the observation units (eg. sample, field survey, CAPI, online survey, etc.). Some additional information on the design and testing of questionnaires, training of interviewers, methods used for monitoring of non-response etc. should be provided. Link for used questionnaires should also be provided.

9.4 Data validation

Describe the procedures for the verification and validation of sources and output data and how the results of the validation are monitored and used. Validation activities may include: checking of included population and, where appropriate, response rates; comparison of statistics with previous cycles (if applicable); comparison of statistics with other relevant data (internal and external); survey of inconsistencies in statistics; performance editing on micro and macro data; detection of outliers.

9.5 Data compilation

The compilation of data includes procedures on the data that are used to derive new information according to a given set of rules.

Describe the process of compilation of data (eg, imputation, weighting, adjusting for non-response, calibration, etc.). For imputation: information on the extent to which is used imputation and reasons; a brief description of the method used and its impact on the assessment. Weighting: every step of weighting described separately; calculating of the weights. Setting up non-response: how is initial weight corrected, taking into account differences in response rates. Calibrations: the variables used in the setting, the methods applied. The calculation of the final weights.

9.6 Adjustments

Set of procedures for modification of the statistical data in order to ensure compatibility with national or international standards, or procedures to resolve differences in data quality if specific data sets compiled. Describe the time series that are customized and statistical procedures that are used to adjust the series (deseasonal adjustment method eg. TRAMOSEATS, ARIMA, or other similar methods). In the case of adjustment, specify the type of adjustment (for example, seasonal, calendar, and trend-cycle). If outlier was detected and replaced, specify which types of outliers (impulse, transient changes, shift of levels) were detected. Report on the software for adjustment.

*9.6.1 Seasonal adjustment*

A statistical technique used for elimination of the effects of the impact of the seasonal calendar in a series of data. Provide a short description of the method used.

**OVERVIEW OF THE QUALITY AND PERFORMANCE INDICATORS**

|  |  |  |
| --- | --- | --- |
| **Component of quality and performance** | **Mark** | **Title of indicators of quality and performance** |
| **Relevance** | R1 | Data completeness rate |
| **Accuracy and Clarity** | A1 | The Sampling error - Coefficient of variation |
| A2 | Over-coverage coverage rate |
| A3 | Common units proportion |
| A4 | Units non-respons |
| A5 | Item non-respons |
| A6 | Average size of revisions |
| A7 | Imputation rate |
| **Timeliness and punctuality** | TP1 | Time lag first results |
| TP2 | Time lag final results |
| TP3 | Punctuality of the release |
| **Availability and user-friendliness** | AC1 | Data set consultation |
| AC2 | Metadata consultation |
| AC3 | Metadata completeness rate |
| **Consistency and comparability** | CH1 | Coherence between defferent sources \* |
| CC1 | Asymmetry for mirror flows statistics –coefficient |
| CC2 | Length of comparable time series |
| **Survey costs and burden on reporting units** | - | Costs of implementing statistical survey |
| - | Burden on data providers |

\* The calculation of these indicators is not included in the recommendations for the preparation of reports on the quality, but due to the importance they are part of the guidelines.

**LITERATURE**

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