

Supporting the Compilation of Quality Reports

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Abstract

During the last years, the quality unit of Destatis made valuable experiences at national and international level with the compilation of quality reports concerning the following questions: Which concepts of the quality reports are typically posing problems for the subject matter units? How can existing guidelines be improved (in wording and form) in order to better support the compilation of quality reports?

Based on the experiences made by Destatis, the aim of the paper is to present which additional support could be provided to the compilers of quality reports – besides the already existing ESS or national guidelines for quality reports: a) A checklist for quality reports based on the guidelines for quality reporting and b) extensions and further specifications on the content of the guidelines for quality reporting and c) provision of standard texts for designated concepts.²

Keywords

Quality report, ESQRS, ESMS, metadata, guidelines, checklist, standard text

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INTRODUCTION

Quality reports play an important role in describing the quality of statistical outputs as well as the methods and definitions used. Their aim is to enable the users of statistics to interpret and use the statistical products correctly by providing meaningful and complete content. However, the compilation of quality reports is not trivial for the subject matter units. Therefore, the paper focuses on the question, how can the compilers of quality reports get the best support in compiling quality reports?

Quality reports are subject to European and national standards described in the respective detailed European and national guidelines for quality reporting. When working closely with these guidelines in various contexts, Destatis made valuable experiences and identified possible improvements in content and form of the European and national guidelines for user and producer oriented quality reports. On this basis, Destatis developed additional support for the compilation of quality reports:

- a checklist for quality reports based on the guidelines,
- extensions and further specifications on the content of the guidelines and
- standard texts for a number of concepts.

The aim of the paper is to present these supporting tools, which could also be of help to other National Statistical Institutes of the European Statistical System. Additionally, the objective of the paper is to be helpful for the preparations of the new ESS Handbook on Quality and Metadata Reporting.

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1 DESTATIS' EXPERIENCES

Destatis is working with European and national guidelines for user and producer oriented quality reports in various contexts. During the last years, the quality unit of Destatis made valuable experiences at national and international level with the compilation of quality reports.

Destatis has been publishing user oriented quality reports for almost all statistics since 2005. These are subject to European and national standards regarding their content, structure and update frequency, which are described in detailed European and/or national guidelines. However, the quality of the content of the national quality reports is heterogeneous and in some cases the guidelines for quality reports need more specification and clarification.

In various training courses dealing with national quality reports, which correspond to a great extent to European ESMS quality reports, the quality unit learned, which concepts, terms and formulations of the European as well as the national guidelines for quality reports are hard to understand or ambiguous for the statistical units as compilers of quality reports.

In the framework of the second round of the ESS Peer Review, which took place from 2013 to 2015, it was recommended, that the quality of the content of the German national quality reports should be reviewed by the responsible quality unit and that, where necessary, quality reports have to be improved in cooperation with the specialised units. In 2015 and 2016 the top 100 user oriented quality reports (in terms of users' demand) have been centrally reviewed by the quality unit regarding the content and structure. Again, the quality unit of Destatis gained important insights about which guidelines for user oriented quality reporting need to be further concretised and which quality reporting concepts are typically posing problems for the subject matter units.

Furthermore, Destatis observed that working with the guidelines put down in a running text is not always easy to handle. So, the form of the guidelines was changed and they were put in form of a checklist in order to support the quality unit during the review process of the top 100 national quality reports. Then the idea came up of providing the checklist not only to the review team but also to the statistical units themselves in order to be able to check on all important aspects to be covered by their quality report.

During the Twinning Project "Support to the State Statistical Committee in Harmonisation of the National Statistics System of the Republic of Azerbaijan in line with European standards"³ with the State Statistical Committee (SSC) of the Republic of Azerbaijan, two expert missions about "improving quality reporting" have been conducted in 2017. In this context, five ESQRS⁴ quality reports and therefore also the corresponding European ESQRS guidelines have been discussed intensively – thanks to the open and fruitful discussions with the colleagues from the SSC and with the support of the Bulgarian National Statistical Institute as our junior partner. Conducting the missions, both the Destatis' quality unit and the colleagues from the SSC learned which guidelines for producer oriented quality reports could benefit from further explanations to help statistical units to compile their quality reports.

The experiences made and insights collected concerning possible improvements of the various European and national guidelines for user or producer oriented quality reports helped Destatis to further develop supporting tools to improve and ease up their use. These supporting tools are presented in the following sections.

³ The Twinning Project "Support to the State Statistical Committee in Harmonisation of the National Statistics System of the Republic of Azerbaijan in line with European standards" was funded by the European Union and was conducted from 2015–2017 with the State Statistical Committee (SSC) of the Republic of Azerbaijan in consortium with the National Statistical Institute of the Republic of Bulgaria as junior partner. The overall objective of the current project is the improvement of quality, availability and compliance of official statistics of Azerbaijan with European standards in key domains.

⁴ ESQRS stands for ESS Standard for Quality Reports Structure, which is a more detailed quality reporting structure addressing primarily the producers of statistics and focussing more on the statistical process side.

2 CHECKLIST FOR QUALITY REPORTS

Firstly, Destatis' quality unit developed a checklist for the national user oriented quality reports. Secondly, a similar checklist has been worked out with the colleagues from the SSC of Azerbaijan for their ESQRS quality reports. This paper concentrates on the checklist prepared together with the SSC (which has been reworked in some points for the purpose of this paper), as it is the most current version and at this time more advanced than the DESTATIS checklist⁵. Therefore the ESQRS numeration of concepts is used in this paper.

2.1 Tabular structure of the checklist

A tabular structure was chosen for the checklist. Oftentimes the guidelines for one concept have been split into two or more items, which are put into separate rows in order to distinguish independent items (see Table 1, 2.4 "Statistical concepts and definitions"). Sometimes the guidelines didn't need to be split up (see Table 1, 2.9 "Base period").

Table 1 Tabular structure of the checklist

Concept number	Concept name	Guidelines for quality reporting
2	Statistical presentation	
2.4	Statistical concepts and definitions	Describe in short the main statistical variables provided. The definition and types of variables provided should be listed.
		Provide any information on discrepancies from the ESS / international standards.
2.9	Base period	The period of time used as a base of an index should be described (e.g. base year 2000).

Notice: The original checklist has two additional columns "check if guideline is fulfilled" and "check if guideline is applicable". For reasons of clarity, the two additional rows are left out in this table, but they can be seen in Table 4.

Source: Own construction

2.2 Two options to check

The checklist provides two options to check: a) if the guideline is applicable and b) if the guideline is fulfilled. That means, the checklist distinguishes between items, which are "not fulfilled" and items, which are "not applicable" by the subject matter units.

Option "not applicable"

"Not applicable" means that the concept (as a whole) is not applicable for the specific statistic.

For example, if surveys don't calculate indexes, then the concept 2.9 on "base period" is not applicable. Or: if surveys are exhaustive, then the concept 6.2 on "sampling error" is not applicable (see Table 2, column "check if guideline is applicable").

A short notice in the quality report, why sampling errors or the base period aren't applicable (keyword "exhaustive statistics" or "no indexes calculated"), makes it easier to understand for users, why this concept isn't relevant and why it isn't filled out by the statistical unit.

⁵ The "DESTATIS-checklist" provides only the option to check, whether the guideline is fulfilled and is only for the user oriented DESTATIS quality reports, whereas the "SSC-checklist" additionally provides the option to check and therefore to differentiate, whether a guideline is applicable for the specific statistic or not. Additionally, the "SSC-checklist" is for the more detailed producer oriented ESQRS quality reports. In the future, the findings obtained when elaborating the "SSC-checklist" will be reflected in the "DESTATIS-checklist".

Option “not fulfilled”

“Not fulfilled” means that the statistical unit did not provide the specific content asked for. However the concept is applicable and should have been filled out with corresponding content. A checkbox is provided for each item of the concept.

For example, a subject matter unit does not fill in the concept 2.4 on “statistical concepts and definitions”, however this concept is always applicable and has to be filled by every subject matter statistic (see Table 2, column “check if guideline is fulfilled”).

Crosshatched concepts in the column “check if guideline is fulfilled”

Sometimes the guidelines only have an introductory purpose, therefore the cells in the column “check if guideline is fulfilled” have been crosshatched and no checkbox is given.

For example, the first item of the concept 6.1 “accuracy overall” has only an introductory purpose and has therefore been crosshatched and no checkbox is provided (see Table 2, column “check if guideline is fulfilled”).

Crosshatched concepts in the column “check if guideline is applicable”

For some concepts the cells in the column “check if guideline is applicable” are shaded grey and no checkbox is given (see Table 2, concept 2.4, column “check if guideline is applicable”). That means those guidelines are applicable for every statistical unit, no matter what. No option is given to state, that those concepts are not applicable for the statistical unit.

This is for example the case in concept 2.4 “statistical concepts and definitions”. That means, the guidelines concerning the statistical concepts and definitions are applicable for every statistical unit, no matter what. Obviously, each statistics has to provide to the user of quality reports an explanation of the statistical concepts and definitions used.

Further examples, where no checkbox is provided and the cells are shaded grey:

- Concepts concerning all aspects on contact details.
- Concepts concerning most of the aspects to be covered of the “statistical presentation” (like data description, statistical concepts and definitions, statistical units, statistical population, reference area, time coverage,...).
- Concepts concerning most of the aspects to be covered of the “statistical processing” (like source data, frequency of data collection, data validation,...).
- Concepts concerning all aspects to be covered of “quality management”.
- ...

Aim of the checklist

The checklist gives a better overview, which different aspects are to be covered for each concept. A specific guideline for a concept of the quality report could contain more than one aspect, which the compiler has to cover in his quality report. The checklist helps the statistical units in covering all important aspects of the concept.

Moreover, the checklist also helps for example in the framework of a review process (done by the statistical unit itself or centrally by a quality unit) to check whether important aspects are covered by the quality report.

Table 2 Option “not fulfilled” and crosshatched concepts

Concept number	Concept name	Guidelines for quality reporting	Check if guideline is applicable	Check if guideline is fulfilled
2	Statistical presentation			
2.4	Statistical concepts and definitions	Describe in short the main statistical variables provided. The definition and types of variables provided should be listed,		<input type="checkbox"/>
		together with any information on discrepancies from the ESS/ international standards.		<input type="checkbox"/>
2.9	Base period	The period of time used as a base of an index should be described (e.g. base year 2000).	<input type="checkbox"/>	<input type="checkbox"/>
6	Accuracy and reliability			
6.1	Accuracy overall	Summarize the most important aspects concerning the sub-concepts 6.2 to 6.6.		
		Describe the main sources of sampling and non-sampling error in the statistical outputs and provide a summary assessment of all errors with special focus on their impact on key estimates. The bias assessment can be in quantitative or qualitative terms, or both. It should reflect the producer's best current understanding		<input type="checkbox"/>
		including actions taken to reduce bias.		<input type="checkbox"/>
				<input type="checkbox"/>
6.2	Sampling error	Clearly state if sampling error is not relevant.	<input type="checkbox"/>	<input type="checkbox"/>
		If probability sampling is used,	<input type="checkbox"/>	<input type="checkbox"/>
		the range of variation over time, among key variables, of the ESS A1 indicator “Sampling error – indicators” (Eurostat, 2014a, p. 5). is reported (relative standard error or coefficient of variation and / or confidence intervals for key variables).	<input type="checkbox"/>	<input type="checkbox"/>
		A short interpretation on the impact of the sampling errors on the quality of the survey results is included.	<input type="checkbox"/>	<input type="checkbox"/>
		It should be also stated if adjustments for non-response, misclassifications and other uncertainty sources such as outlier treatment are included.	<input type="checkbox"/>	<input type="checkbox"/>
		The calculation of sampling error could be also affected by imputation. This should be noted unless special methods have been applied to deal with this.	<input type="checkbox"/>	<input type="checkbox"/>
		If non-probability sampling is used,	<input type="checkbox"/>	<input type="checkbox"/>
		the responsible for the statistical domain should provide estimates of the accuracy in qualitative terms, a motivation for the invoked model for this estimation, and brief discussion of sampling bias.	<input type="checkbox"/>	<input type="checkbox"/>

Source: Own construction

2.3 Extensions and further specifications of the content of the guidelines

Further extensions and specifications of the content of the guidelines on quality reports have been made, where necessary. Important definitions and terms as well as some shorthand examples have been provided with the aim to better clarify the content of the guidelines for quality reports. Those extensions and specifications have been included in the checklist itself.

In the following two examples of the SSC's checklist two exemplary extensions und specifications are shown:

Example 1

“Identification and general assessment of the main sources of measurement error should be reported.” (Eurostat, 2014b, p. 36)

In order to help the statistical units in compiling quality reports, an explanation of the term “measurement errors” has been included directly into the checklist (see text in italic):

“Identification and general assessment of the main sources of measurement error should be reported. *Explanation: Measurement errors refer to errors in survey responses arising from the respondent (respondent confusion, ignorance, carelessness or dishonesty) or the questionnaire (error attributable to the wording of the questions in the questionnaire, the order or context in which the questions are presented) or the method of data collection (poor or inadequate training of interviewers, expectations regarding respondents' responses or deliberate errors).*”

Example 2

Furthermore, in concept 6.3.2 “measurement error” further specifications are given, when a description of actions to prevent measurement errors is asked from the compilers of quality reports. Some shorthand examples have been provided to better clarify the content of the guideline (see text in italic).

“Describe actions taken to prevent measurement errors (*e.g. questionnaire design and testing, interviewer trainings, interviewer surveillance*).”

2.4 Provision of standard texts

Finally, a number of concepts have been identified, for which a standard text could be provided (for example by the quality unit).

Please note, that the standard text might cover only some parts, items or aspects of the guideline for the respective quality report concept, but it can also cover the whole guideline for the relevant concept.

Concepts suitable for standard texts:

- 1.1 Contact organization,
- 1.5 Contact mail address,
- 2.2 Classification system,
- 3.3 Data collection,
- 4.1 Quality assurance,
- 6.5 Data revision – policy,
- 9.4 Microdata access,
- 9.5 Other (data dissemination means),
- 11.1 Confidentiality – policy,
- 11.2 Confidentiality – data treatment.

Example 3

In the following example of the SSC’s checklist an exemplary standard text is shown.

In concept 6.5 “data revision – policy” the ESQRS guidelines state:

“A revision should follow standard, well-established and transparent procedures that are described here or accessible via links from here. [...] Describe the general revision policy adopted for the organisation and the data disseminated. [...]” (Eurostat, 2014b, p. 37)

This concept is very well suited for a standard text as a description of the general revision policy adopted for the whole organisation is demanded. This standard text (which is written for the Statistical Offices of the Federation and the Länder) could be provided for example by the quality unit.

An example for a standard text for the concept 6.5 “data revision – policy” could be as follows:

“The general revisions policy of the Statistical Offices of the Federation and the Länder describes the revision procedures which apply to all statistical domains in a transparent and comprehensible manner so as to increase the trust in official statistics and further enhance the usability of statistics.

The general revision policy of DESTATIS is available online: www.destatis.de >> methods >> quality >> General Revisions Policy of the Statistical offices of the Federation and the Länder.

The general revisions policy is supplemented by the revision calendar of the Federal Statistical Office, which is available online (only in German language): www.destatis.de >> Methoden >> Qualität >> Revisionskalender.

The revision calendar provides an overview of which sets of statistics are subject to revision and describes the respective revisions cycle by means of a standardised structure.”

Please note, if the statistical unit carries out revisions and apply domain specific revision procedures, then additionally to the standard text, the specific revision procedures should be described as well.

Advantages of using standard texts

Statistical units as compilers of quality reports could refer to well formulated standard texts. When standard procedures and rules are the same throughout the whole NSI, the respective descriptions should not have to be compiled by each statistical unit again and again. By using standard texts not only is the quality of those concepts assured, but it also saves time for the statistical units.

CONCLUSION

All those supporting tools helped the Azerbaijani colleagues from the SSC as well as DESTATIS to increase the usability of the guidelines and to clarify them.

- The checklist helps the compiler and the reviewer to get a better overview which different aspects are to be covered by a concept. This helps in not forgetting important aspects and to be better able to check whether important aspects are covered or not.
- Extensions and further specifications on the content and the provision of some shorthand examples make the guidelines clearer and are therefore easier to understand for the compilers (and the reviewers as well).
- Compilers are provided with standard texts (e.g. on revisions), which are well formulated. This is more comfortable for the compilers, saves time and therefore increases the acceptance of the obligation to compile quality reports.

This additional support could also be of help to other National Statistical Institutes of the European Statistical System. Additionally, the idea of clarifying the guidelines as well as the provision of a checklist and of standard texts could be considered for the new ESS Handbook on Quality and Metadata Reporting.

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