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Peer Reviews of the European Statistics and the Involvement of users in the Quality assurance of official statistics: An example focused in the Spanish Living Conditions Survey

Agustín Cañada Martínez
Quality Unit Director, Instituto Nacional de Estadística

Abstract: Nowadays, the national statistical offices are moving a step forward from traditional quality assessment done by the offices themselves, towards a more complete quality system that involves external experts and other stakeholders. The INE has launched several initiatives in this context, one of them being the one described in this section of the SSJ: the organization of seminars with experts (researchers and academia) focused in a specific statistic. In this paper, this initiative is described, by putting it in the context of the European Union's Peer Review, processes for auditing the quality of the activity of the statistical Offices. The article also justifies the selection of the "Spanish Living Conditions Survey" (ES-SILC) integrated in the European Statistics on Income and Living Conditions (EU-SILC) for this action, based on the inherent importance of the subjects studied by this statistic (income inequality, poverty...), and on the attention paid to the quality assessment of their data, both in the European and the Spanish environments.

Keywords: European Statistics Code of Practice; peer review; role of users and stakeholders in quality management; living conditions surveys

MSC: 62–02, 62–06, 62P25

1 Introduction

One of the guiding principles of INE's work is to serve its users, which is today the fundamental yardstick for judging the quality of a statistical institution and its products. In recent years, however, INE and the producers of official statistics have been confronted with a paradox: precisely to benefit users, they have been given free access to statistical information. However, this ease of access, which is considered a quality feature, means that at the same time, the NSIs are finding it increasingly difficult to get to know their users, to contact them and, in short, to gather their opinions and needs.

The INE of Spain - like other statistical offices - tries to overcome these limitations by setting up mechanisms and tools to assess user satisfaction with its products and services, e.g. user surveys or the procedures for drawing up statistical plans and programmes.

The INE has launched several initiatives in this context, one of them being the organization of seminars with experts (researchers and academia) focused in a specific statistic, within the yearly "Public Statistics Conference", jointly organised by INE and a scientific academic association. In the last of these conferences the round table was focused in the Spanish Living Conditions Survey (Spanish version of European Union Statistics on Income and Living Conditions (EU-SILC)).

In this paper, this initiative is described, putting it in the context of the European Union's "Peer Review" an auditing process of the degree of compliance of the NSI with the European Statistics Code of Practice. During the last round of those PR exercises, reviewers call for a greater involvement of user and stakeholders in the activity of INE; thus, one of the action launched by the INE to respond to this recommendation, was the organisation of the aforementioned round table.

The paper is organised as follows: section 2 describes, as a frame for the round-table session, the objectives and scope of the European Union's Peer Review methodology; section 3 outlines the main elements of INE's quality management system, emphasising procedures for including external users and other stakeholders in the assessment of INE's products, such as the new round table initiative; the paper concludes in section 4 by justifying the selection of the ES-SILC/ EU-SILC for the PR action, based in the inherent importance of the subjects studied by these statistics (income inequality, poverty…), and in the attention paid to its quality assessment, both in the European and in the Spanish environments.

2 Peer Review and the European common quality framework

In 2005 the European Statistical System (ESS) adopted the European Statistics Code of Practice (ESCoP). The ESCoP sets out a group of principles (dimensions) and related indicators of good practices for the production and dissemination of European official statistics. This constitutes a comprehensive approach which builds upon a common definition of quality in statistics. There have been two further updating of the Code in 2011 and 2017.

The structure of the ESCoP according to the last version (2017) can be seen in Table 1.

Institutional environment	**Statistical processes**	**Statistical output**
P.1: Professional Independence	P.7: Sound methodology	P.11: Relevance
P.1bis: Coordination and cooperation	P.8: Appropriate statistical procedures	P.12: Accuracy and reliability
P.2: Mandate for data collection and access to data	P.9: Non-excessive burden on respondents	P.13: Timeliness and punctuality
P.3: Adequacy of resources	P.10: Cost effectiveness	P.14: Coherence and comparability
P.4: Commitment to quality		P.15: Accessibility
P.5: Statistical confidentiality		
P.6: Impartiality and objectivity		

Table 1: The European Statistics Code of Practice (ESCoP) (version of 2017): Principles (dimensions) of quality.

The ESCoP consists of a set of "Principles" concerning the quality of the products (statistics must be accurate, timely, accessible…) of the production processes (they must use "sound methodology"

and "appropriate statistical procedures") and of the framework in which the statistical activity takes place (professional independence, impartiality and objectivity must be guaranteed, etc.). The Code includes a set of best practice indicators and standards for each of the Principles.

The European countries are committed to fully complying with the CoP and are working towards its full implementation. Nevertheless, the ESCoP does not have the character of a mandatory regulation, but it is a code of self-regulation of the countries. Therefore, from the very moment of the adoption of the ESCoP, a system of periodic assessments review was established to evaluate the degree to which the different countries complied with the Code. The ultimate goal of these assessments was to strengthen the efficiency of the statistical systems at national and European level, and to reassure stakeholders of both the quality and trustworthiness of European statistics.

The first round of these assessments was launched in 2006-2008 by across the Member States, European Free Trade Association (EFTA) countries and Eurostat.

In this first round of assessments it was agreed that the system would be based on the so-called "Peer review" (PR) approach. Among the different alternatives for evaluating systems or institutions, the PR formula represents a balance between internal self-evaluation procedures and external audit-type procedures. It is a kind of evaluation conceived as collaborative and non-compulsory between countries/ institutions with common working methods and objectives. (Cañada, 2015))

In this case, each country (statistical office) would be evaluated by experts from other countries (statistical offices are the "peer" reviewers).

The summarised outcomes of the process can be seen in a 2008 Commission report. In that document, the Commission concluded that, PR had been shown an "overall high compliance levels with ESCoP" in the EU countries; nevertheless, it admits that "full compliance with the Code remains a challenge for the European statistical system". Thus, the report envisaged another round of peer reviews "within the next five years" to reinforce the process for producing reliable and credible European statistics.

At the same time, the ESCoP had been amended in 2011 following the adoption of Regulation (EC) No 223/2009 of the European Parliament and of the Council on European statistics.

Consequently, a new round of peer reviews was launched at the end of 2013. This round of peer reviews differed in many respects from the previous one, trying to improve it: firstly, the review encompassed all the Principles of the Code (the first round was focused only in some specific principles); secondly, in addition to the NSIs, a number of other national authorities (ONAs) responsible for producing European statistics, were assessed; and thirdly, and above all, in order to gain an independent view, evaluations were externalised and an audit-like approach was applied.

Upon this new approach, review in each country was conducted by independent reviewers (three statistical experts out of the ESS) and it follows the usual stages of an audit: completion of self-assessment questionnaires (SAQ) by the country, being all the answers supported by evidence; an assessment of SAQ by the reviewers; a visit to the NSI by the reviewers, to obtain direct information and clarification of SAQ; the compilation by the reviewers of reports on the compliance to the CoP, which also include a set of recommendations of areas to be improved; and finally, in response to these recommendations, countries (NSI) developed a multiannual plan (2015-2019) of improvement actions, yearly monitored by Eurostat.

Although it is beyond the scope of this paper to go into detail on the subject, we just do not want to close this section without indicating that preparatory work for a new round has started in 2019: After the last revision of the ESCoP and its adoption by the ESSC in November 2017, compliance of

the national statistical systems with the principles of this revised Code needs to be re-examined in a third round of peer reviews scheduled for 2021-2022.[1]

3 The report for Spain of the second round of PR: towards a better integration of qualified users in the Quality management in the INE

As it has been explained, the PR assessment resulted in reports for each country (NSI) in which the reviewers made a set of recommendations of areas in which some improvements for a better compliance to the ESCoP were needed.

In the case of Spain, the reviewers stated that "statistical activities of INE are in all main respects in compliance with the CoP" (Eurostat, 2015 pp. 4). Nevertheless, within their recommendations, they call for a greater involvement of user and stakeholders in the activity of INE; specifically they suggest that the INE should "develop and implement actions to increase the involvement of external experts in regular reviewing of key statistical outputs".

To put the recommendation into context, it is useful to briefly explain some of the INE's overall quality management system and the involvement of stakeholders and users in the system.

In short, the Quality management System of INE is based in the ESCoP and consists of several types of elements, corresponding to three broad categories (a detail of all the instruments can be seen in Cañada, 2015): a quality policy, stated in some documents approved by the board of Directors, in which the INE global objectives on quality and the guidelines to reach these objectives, are specified; an administrative structure devoted to quality management, composed of a specialised administrative unit - quality unit -; and a quality management collegiate body - the Quality Committee- for monitoring quality policies and instruments; and the quality assessment and monitoring system, made up of several instruments and methods such as: the application and follow-up of a "Barometer of priority quality indicators" (Eurostat standard); the compilation of INE Quality reports for all statistical operations (disseminated freely at the INE website); application of a common standard for the production process; good practices inventories; evaluation procedures, etc.

Within this framework, the Q management of INE includes several mechanisms for attending users (and other "stakeholders") criteria in different areas.

These include: committees for the development of statistical programmes and plans; working groups and university partnerships in various domains... But the main tool for checking needs and satisfaction of users as ex-post assessors of the quality of the production and services provided by INE is the User Satisfaction Surveys (USS). The INE conducts those surveys in order to know their opinion and degree of satisfaction with statistics and dissemination services, and detect new information needs. Surveys have been regularly conducted (every three years) since 2007. The last one was launched in 2019.

Alongside the USS, some additional tools and indicators provide information on the use and impact of INE production, such as Web analytics data on visits and downloads from the INE's website, or an assessment of impact of INE data on the media according to a specific methodology (Cañada et al., 2018).

Nevertheless, one of the recommendation of the PR was that INE should be intensify these kind of activities, in particular by involving "outside experts in regular reviewing of key statistical outputs". INE interpreted the recommendation mostly in terms of improving the continuity and regularity of

[1] A noteworthy feature of the new round is that the envisaged methodology will be a combination of the previous rounds: among other aspects, reviewers teams will be composed of statisticians from the Statistical Offices (peers review approach as in the first round) and external experts (audit approach, as in the second round).

these actions. Therefore, it seemed appropriate to create other supplementary mechanisms to those already in place.

In this respect, INE designed improvement action (IA no. 10) (Eurostat, 2015) broken down in two complementary tasks: firstly, a new procedure to evaluate routinely the statistical operations by the statistical system collegiate bodies, specifically the High Council on Statistics (HCS); secondly, the organization of seminars with experts focused in specific statistical domains.

In the first case, it is worth noting here that the HCS is an advisory body gathering producers and stakeholders of official statistics in a balanced representation. It brings together institutional users, trade unions, business and consumer associations, media and scientific community, and thus it includes all the main stakeholders of the NSI. The HCS has a crucial role in the Spanish statistical system, because one of their functions is to participate in the making, analysis and approval of the National Statistical Plans of Spain.

The PR action involving the HCS stakeholders' representatives consists of the following procedure: firstly, the Quality Unit selects a statistic out from the European Statistics, [2] based on the relevance of the product and the availability of information on quality; next, the Quality Unit compiles a document summarising quality aspects of the selected European Statistics; and thirdly, this document is assessed by some members of the HCS, providing suggestions for improving these statistics.

Up to now, two group of exercises have been developed under this approach, focused in Labour Statistics and Research & Development Statistics.

The second action proposed by INE was to organize periodical seminars with researchers, academia and other experts focused in a specific statistic. In order to give them continuity, it was decided that these seminars would take place at the Public Statistics Conference, an annual event organised by the INE with the cooperation of a scientific statistical association.[3] A monographic session has been included in these conferences, focusing on a specific INE's statistical domain and arranged as a "round table session" with the participation of key experts in the selected statistical operation. Round table discussions would allow to the INE to collect qualified opinions and would constitute a subsidiary element for the evaluation of statistics.

For each conference, the Quality unit proposes first the statistical product to be evaluated. After the necessary approval by the Board of Directors, the Q Unit, in close cooperation to the unit in charge of the product, specifies the details of the round table (selection of the discussants).

Furthermore, in order to guarantee the principles of transparency and accessibility of these actions, the INE committed itself to publishing the papers presented during that session in one of the scientific journals of dissemination within official statistics. This is precisely the reason for this section of the Spanish Journal of Statistics.

4 The EU-SILC & ES-SILC: Some quality management issues

The product to be evaluated in the last round of these seminars (2019) was the (Spanish) Statistics on Income and Living Conditions (ES-SILC) implemented by INE, which is a Spanish version of the European statistics (EU-SILC), with which it is fully compatible.

Different reasons justifies the selection of ES-SILC/ EU-SILC for this exercise.

[2] "European Statistics" follow a regulation, which implies that countries draw up and send regularly to Eurostat a quality report detailing all information relating to quality measures and indicators. Based upon such reports, the Commission (Eurostat) compile a summarized report on the quality for the European Union as a whole. See the example of EU-SILC in Figure **??** and Section 4 of this paper.

[3] The Statistics and Operational Research Society, an association of Spanish researchers/academics in Statistics.

On the one hand, the social and economic importance of these statistics. They can be illustrate by a simple representative example: If the term EU-SILC is entered into Google, more than 800.000 references appear (data obtained in March 2020). This is obviously due to the widening imbalances in the distribution of income in the real world, the growing concern about these issues by policy makers, researchers and the general public, and the pressing need for statistical information on these problems.

In addition, the specific importance of these statistics in the European area must be added, as the survey contributes to the collection of a large number of key indicators for the European Union's social and economic policies.

The EU-SILC instrument is the main source for comparable indicators for monitoring and reporting on living conditions and social cohesion at the EU level. It has a main role in the Europe 2020 strategy (EU2020) the EU's agenda for growth and jobs. Specifically, EU-SILC is the data source selected for assessing one of the EU2020 headline targets, which is the "reduction of the number of people under poverty and social exclusion".

EU-SILC data also provide quantitative evidence for other EU policies and strategies such as monitoring the implementation of the social protection and inclusion dimension of the "European Pillar of Social Rights", (https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights_en) and provide data for the Social Protection Performance Monitor (SPPM) (https://ec.europa.eu/social/main.jsp?catId=758).

In the case of the ES-SILC, is clear its importance for policy makers and for researchers and institutions involved in the phenomena of social inequality at the Spanish level; to avoid extending ourselves, we can take as representative examples of the relevance and usefulness of the statistic, the projects summarised by the two discussants of the round table included in this issue of the Statistical Journal: among other uses, we can outline that ES-SILC is a main statistical tool for the monitoring of the strategy of the Spanish Government on the reduction of inequalities and poverty.

Beyond the importance of these statistics regarding its "relevance" (using the ESCoP terminology), the other noteworthy feature of this statistical operation, is the role given to its Quality assurance, both at European and national levels. From the very moment it was launched, constant attention has been paid to assessing the quality issues of the statistic. This attention entails that all countries are obliged to the regular (yearly) compilation of quality reports of this statistic.

Quality reports are documents which, for each specific statistic, detail all information relating to quality measures and indicators. Table 2 shows the structure of the Quality reports for the EU-SILC, which follows the EU standard ESQRS ("European Statistics Standard for Quality Reports Structure").[4]

The report focuses in the statistical process and elements of EU-SILC that have an impact on the quality of data. As can be seen in the table, to give them the widest possible scope, the reports are structured according the most relevant principles set out in the Code of Practices, providing information and indicators on the degree to which each principle is met.

Many headings correspond exactly to dimensions/principles of the ESCoP (see Table 1): there are items to provide information on the compliance with the "Output quality dimensions" (as relevance, accuracy and reliability, timelines and punctuality, coherence and comparability, accessibility and clarity); other items on "Process quality dimensions" (statistical processing, cost and burden); and even some items concern the principles of the "Institutional environment" (confidentiality, quality

[4]For simplicity's sake, the 3 digit structure has not been included in the table. As an example of these details, the breakdown of item 6.3 (Non-sampling error) is the following: 6.3.1 Coverage error ; 6.3.2 Measurement error; 6.3.3 Non response error; 6.3.4 Processing error; 6.3.5 Model assumption error.

management). A specific subject is the detail included in item 2 "Statistical presentation", which shows potential deviations from standard definitions and concepts; this is a transversal topic to different Principles of ESCoP (clarity, coherence, etc.).

1. Contact	6. Accuracy and reliability (Cont.)
2. Statistical presentation	6.4 Seasonal adjustment
2.1 Data description	6.5 Data revision - policy
2.2 Classification system	6.6. Data revision - practice
2.3 Sector coverage	7. Timeliness and punctuality
2.4 Statistical concepts and definitions	7.1 Timeliness
2.5 Statistical unit	7.2 Punctuality
2.6 Statistical population	8. Coherence and comparability
2.7 Reference area	8.1 Comparability - geographical
2.8 Time coverage	8.2 Comparability - over time
2.9 Base period	8.3 Coherence: cross domain
3. Statistical processing	8.4 Coherence: sub-annual/ annual
3.1 Source data	8.5 Coherence - National Accounts
3.2 Frequency of data collection	8.6 Coherence - internal
3.3 Data collection	9. Accessibility and clarity
3.4 Data validation	9.1 News release
3.5 Data compilation	9.2 Publications
3.6 Adjustment	9.3 Online database
4. Quality management	9.4 Microdata access
4.1 Quality assurance	9.5 Other
4.2 Quality assessment	9.6 Documentation on methodology
5. Relevance	9.7 Quality documentation
5.1 User Needs	10. Cost and Burden
5.2 User Satisfaction	11. Confidentiality
5.3 Completeness	11.1 Confidentiality - policy
6. Accuracy and reliability	11.2 Confidentiality - data treatment
6.1 Accuracy - overall	12. Comment
6.2 Sampling error	
6.3 Non-sampling error (*)	

Table 2: . Structure of the quality reports of the EU-SILC (according to ESQRS - V2.0). Source: Eurostat, 2016.

The national reports provide useful insight into countries issues. By integrating the information contained in the national reports, Eurostat compiles a global quality report to evaluate the survey from a European perspective; it allows to set up between-country comparisons of some of their key quality dimensions.

The European Union publishes on its website all the detailed quality reports of this survey, both for the different countries and for the Union as a whole.

To this European system for quality assessment, we can add in the case of the Spanish ES-SILC, the other quality requirements and tools established by INE's own internal quality control system. As it has been explained above (see section 3 of this paper), among other tools, all the Statistics have to compile a report according to the European ESMS scheme, all of which are publicly available on the INE website for all statistical operations, including the ES-SILC, from 2014 onwards.

Therefore, ES-SILC/ EU-SILC are among the most detailed European statistics in terms of the methodological information available; using the terms and concepts of the ESCoP, we could say

that they show a high level of "clarity" ("transparency") of sources, methods and even of the quality assessment procedures.

In short, both types of reasons, the relevance of the product on the one hand, and the attention paid to controlling and reporting the quality of the product, on the other, as well as the convenience of making this valuable meta-information known, amply justify the selection of the SILCs for this INE activity.

Let us take the opportunity to make an additional comment in this respect: in spite of the availability of all this information on methods and quality controls of these statistics, they are quite unknown for most of their users. Then, an additional aim of the round table sessions (and of the own dissemination through these papers in the SJS) is to contribute to a better knowledge of the available meta-information on methods and quality on this statistics.

We would like to highlight this last idea, because "in a world experiencing a growing trend of instant information which often lacks the necessary proof of quality" (Eurostat, 2017), it is important to show our users that concern for quality assurance - and the availability of information on this subject - are differential features of official statistics.

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