Chapter LV
Statistical Data and Metadata Quality Assessment

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INTRODUCTION

Quality was defined in the ISO (International Organization for Standardization) 8402-1986 standard as "the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs," which slightly changed in ISO updates. However, regarding quality in statistics, "stated or implied needs" are mainly identified by considering several quality dimensions, criteria, or components for the collection, processing, and dissemination of statistical information for the public (see, for example, Eurostat, 2002a, 2002b; Office of Management and Budget [OMB], 2002; Organization for Economic Cooperation and Development [OECD], 2003; Statistics Canada, 2003; Statistics Finland, 2002).

Statistics disseminated by national public administrations (PAs) aim at monitoring the economic and social development of their country and analyzing the current state of the economy and trends with as much accuracy, timeliness, and comparability as possible. This attempt is affected by certain constraints, some of which are as follows.

- The effort to satisfy different user categories having diverse needs and requests
- The regulations and requirements of international organizations as well as the quality standards that should be followed each time
- The strict budget and burden of human resources of each institute and the legal constraints of the countries

• The adaptation to the new technologies introduced

Therefore, currently, PAs and especially national statistical institutes (NSIs) are facing a dual task: (a) to embody harmonization and transformation procedures in their workflow processing since methodological peculiarities in the way of collecting, storing, and disseminating information may lead to inconsistencies of their statistical results, and (b) to upgrade their infrastructure with new meta information systems aiming at increasing the quality of the provided services. Since NSIs are usually the primary collectors of statistical data while other PAs are operating as secondary data sources, emphasis is given to NSIs while considering the quality of collected statistics.

On the other hand, international organizations make considerable efforts to implement a common framework for monitoring statistics between countries with as much comparability and coherence as possible. Examples are initiatives like the proposal of standard quality indicators for monitoring quality by the European Statistical Service (Eurostat, 2002b), quality guidelines for statistics dissemination by the Organization of Economic Cooperation and Development (2003) and the International Monetary Fund (IMF, 2002), the cooperation of Eurostat and IMF in presenting quality information through the Special Dissemination Standard (Eurostat, 2006), and so forth. These initiatives target in a unified approach terminology used by various countries and organizations, the integration of common indicators in their dissemination requirements, and their implementation as a benchmark for assessing the quality and sufficiency of published information.

This chapter aims at summarizing some of the latest efforts in assessing the quality of statistical results in national public administrations and international organizations in order to meet the demands for comparable, high-quality, and reliable statistics used for economy- and policy-monitoring purposes. Topics that are covered include quality criteria proposed by national and international organizations, metadata requirements for quality reporting, and transformations that should be integrated in the workflow process of public administrations' information systems for automatic manipulation of both data and metadata, thus minimizing errors and assuring the quality of results.

BACKGROUND

The quality of statistics is commonly assessed by public administrations with the use of quality dimensions and criteria, like, for example, relevance (the degree to which statistics meet current and potential users' needs), accuracy (refers to the closeness between the values provided and the unknown true values), timeliness, the accessibility of information, the comparability of the statistics (over time, across domains, and between countries), and so forth. It is worth noticing that there is a trade-off between the different components of quality, especially between timeliness and accuracy (Bier & Henning, 2001), accuracy and geographic comparability, relevance and comparability over time, relevance and accuracy, coherence for large domains and relevance for subdomains, and so forth, therefore the best balance needs to be sought.

In addition, metadata—preferably the metadata items indicated as reference metadata—play a crucial role in describing the contents and the quality of the statistical data. These are metadata relevant to all instances of data described, for example, entire collections of data, data sets from a given country, or a data item concerning a specific country and year. However, since reference metadata are sometimes produced, collected, or disseminated separately from the statistical data to which they refer, a unified approach of their dissemination highly improves the relevance and

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