

Quality Indicators and Quality Measurement of Statistical Registers

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Quality Reporting and Quality Indicators for Statistical Business Registers

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BUSINESS REGISTERS • QUALITY INDICATORS
QUALITY REPORTS •

Statistical business registers are one of the most important instruments in official statistics, either indirectly by serving as sample and survey frames or directly as a basis of statistical data. Main sources for the maintenance of the business registers are mostly administrative data. However, the concepts concerning the measurement and documentation of statistical quality are currently mainly defined to be applied for statistical surveys. As concerns secondary statistics as well as the statistical instruments, such as classifications and registers, the quality measurement concepts, such as relevance, accuracy, timeliness and punctuality, clarity and accessibility, comparability and coherence, need to be aligned with the specific situation of statistical registers.

Concerning the statistical business registers, the Eurostat business recommendation manual contains a chapter on quality policy. This chapter provides some general considerations on the content and measurement of each of the quality criteria. The forthcoming new business register regulation will request the member states to provide quality reports on a regular basis. The quality standards as well as the content and periodicity of the reports will be specified by comitology procedures.

In view of these new requirements the paper aims to elaborate on these issues in order to contribute to an internationally approved and harmonised concept of measurement and reporting of the quality of business registers. The paper will summarize some country experience, take into account the recommendations existing so far and will aim to propose a concept on quality measurement for business registers.

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Measuring the Quality of the Finnish Population Register

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The Population Register (formally known as the Population Information System) is the most-used basic register in Finland. It contains basic information about Finnish and foreign citizens residing permanently in Finland. The Register is maintained by the Population Register Centre and local register offices. The Finnish Population Register is recognised as a high-quality register also at the international level.

Since 1998, the quality of the Finnish Population Register has been systematically controlled with the help of a survey. The annual quality study covers several register variables, of which the most important is the permanent address of a citizen.

Statistics Finland conducts the study in connection with the Labour Force Survey. In practice, several additional questions are added to the Labour Force Survey and people are asked whether the register information on them is correct or not. Statistical interviewers collect the data mainly by phone.

The sample in the Labour Force Survey is roughly 11,000 each time and the response rate ranges between 88 and 90 per cent. That leaves more than one thousand non-response cases, which is a threat for the credibility of the register quality study. Furthermore, it is often presumed that the quality of register information is worse among non-response cases than among interviewed respondents. For benchmarking purposes the validity of the permanent address has been intensively enquired for all non-response cases.

For intensified enquiries, the interviewers use the following tactic. Firstly, if the respondent answers the phone and refuses to give an interview, the interviewer tries to ask one short question concerning the respondent's permanent address. Secondly, if the respondent cannot be contacted at all, the register information on permanent address is compared with other sources, such as the postal address database maintained by Finland's national post or mobile operators' databases. In some cases the interviewers make a home visit to check the respondent's street address.

In our presentation we will demonstrate how to measure the quality of register data by using a sample survey, where interviews are supplemented by data from other sources (databases).

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POPULATION REGISTER • REGISTER QUALITY
• NON-RESPONSE

Quality Framework for the Evaluation of Administrative Data

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Statistics Netherlands is increasingly making use of administrative data for statistical purposes. This approach is predominantly stimulated by the need to reduce response burden and costs. The increase in the use of administrative data sources makes Statistics Netherlands not only more dependent on external data sources but also on the quality of those sources. It is therefore of vital importance that a procedure is available to determine, in a systematic, objective and standardized way, the quality of administrative registers.

For this purpose a quality framework was developed. The framework focuses on the 'usability' of administrative data for statistical purposes. First, a study was performed to identify all quality aspects related to this topic. For this purpose, the knowledge and experience available at Statistics Netherlands was combined with those described in international publications. The resulting list of identified quality aspects was subsequently grouped into subsets of related items. As a result, a quality framework was developed that specifically focuses on the evaluation of the statistical usability of administrative data.

The framework consists of quality dimensions grouped into three hyperdimensions. A hyperdimension (Karr et al. (2006) Data quality: A statistical perspective, Stat. Meth. 3, 137-173) is best interpreted as a specific view on the quality aspects of a data source. Each hyperdimension consists of unique quality dimensions that contain one or more specific quality indicators. A quality indicator is measured or estimated via one or more methods. The three hyperdimensions identified for administrative data are:

1. The 'Source' hyperdimension, consisting of quality aspects essential for the delivery of the administrative data by the register holder to Statistics Netherlands. Examples of quality dimensions are Supplier and Delivery.
2. The 'Metadata' hyperdimension, focussing on the conceptual metadata

ADMINISTRATIVE DATA • QUALITY FRAMEWORK •
REGISTER-BASES STATISTICS

aspects of the administrative data source. Examples of quality dimensions are Clarity and Comparability of the metadata definition of the variables and units in the register.

3. The 'Data' hyperdimension, containing quality aspects related to the data in the register. Examples of quality dimensions are Coverage, Filling and Consistency.

The hyperdimensions are ordered according to an increase in the level of detail. The framework is currently being evaluated on a subset of the administrative registers used by Statistics Netherlands. The quality framework will be used to determine which registers can or cannot be used adequately for statistical purposes and monitor the quality of registers being used on a regular basis.

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Quality Assuring the UK Business Register

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The paper provides an overview of the main procedures that are used to maintain and improve the quality of the UK business register, in the context of the ONS quality framework. In recent years a number of projects have been conducted examining the coverage of the register. Coverage of the register is an important quality determinant, so these projects are described. Another key determinant of quality is the administrative data that underpins the register, so the paper provides an overview of how the quality of these inputs is monitored. The UK register uses two specially designed surveys for updating and quality assurance of businesses, so these are explained. Procedures have been developed to keep track of changes at the largest and most complicated businesses, using a team of business profilers. Finally, the basic data checks that are used to monitor the register for its purpose as a sampling frame and also for its use as an analytical tool are described.

Quality in Statistics: the BR Case

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Over time, there has been the need to support the Business Register (BR), intended as the disseminated output microdata file, with a documentation system for measuring the different components of quality, in order to ensure better use of data for user needs.

Measuring the quality of a BR is a particularly difficult task because it is a complex product for which it is not always possible to use the experience gained in measuring a standard statistical product such as a survey. There are many sources of non-sampling errors due to the administrative sources used in the process of integration and to the use of statistical methods of characters selection and imputation. At the same time, given the dual use of a statistical register (as a source of statistical information in itself and, above all, a source of punctual information necessary for defining the rules of extracting statistical units samples and for sending statistical questionnaires - the first among all the address), a copious and rich documentation concerning the quality of the information is required, certainly richer than what requested by official statistics for the current surveys.

As a result an overall view on the BR quality can be obtained only by analyzing small pieces of information at a time - through quality indicators on well-defined

parts of the register itself (e.g. subsets of units, variables, phases of the process, etc...) and by evaluating their performance over time.

The paper examines a methodological approach to measure the register's quality, in order to identify the most sensitive areas, namely the Input (the administrative sources), the Process (the steps of physical integration, control and correction) and the Output (the primary list produced).

In addition the contents and the updating procedures of the Italian register are briefly described.

A set of relevant quality indicators are identified and proposed, in the form of "Quality Declaration", for the dissemination and the release of data for external and internal users. The system of indicators refers to a three-dimension space (phases, components and factors), in which about 50 indicators are proposed, analyzed and selected on the basis of the relevance that some kinds of sources and variables hold in affecting the quality of the file. These indicators are chosen on the basis of 'rules of priority' assigned to sources, variables and processes and they are computable for each reference year starting from elementary data, either the input administrative sources or the statistical output register. Moreover, some other indicators are proposed for tracking and evaluating the quality of the process.

The regular use of these indicators may allow major users of the data, namely the persons in charge of economic surveys, to have an overall view of the several dimensions of the quality of a BR.

Furthermore the use of the register as a tool for production of statistics, like the Business Demography, means that new difficulties have to be faced: the new approach to the quality of the 'product' is completely different from a survey one, as the BR is a "live entity", which is constantly revised and updated.