INTERNATIONAL MONETARY FUND

Statistics Department

Data Quality Assessment Framework (DQAF)
for
Principal Labor Statistics

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**Box**

A The Cascading Structure of the Data Quality Assessment Framework iv
DATA QUALITY ASSESSMENT FRAMEWORK (DQAF) FOR PRINCIPAL LABOR STATISTICS

Introduction

A. Purpose of the Framework

The main purpose of the Framework is to provide a flexible structure for the qualitative assessment of the principal labor statistics – employment, unemployment and wages/earnings.

The Framework could be used in a variety of contexts, including:

- reviews performed in the context of IMF country work, e.g., the data module of the Reports on the Observance of Standards and Codes (ROSCs), technical assistance and surveillance;
- self-assessments performed by national statistics offices, central banks, and other data producing agencies; and
- assessments by other groups of data users.

B. Structure of the Framework

The DQAF comprehensively covers the various quality aspects of data are collection, processing, and dissemination. The Framework is organized in a cascading structure that progresses from the abstract/general to the more concrete/specific details.

The first level covers the prerequisites of quality and five dimensions of quality: assurances of integrity, methodological soundness, accuracy and reliability, serviceability, and accessibility. For each of these prerequisites and five dimensions, there are elements (two-digit level) and indicators (three-digit level).

At the next level, focal issues that are specific to the compilation of principal labor statistics are addressed. Below each focal issue, key points describe quality features that may be considered in assessing the focal issues. The key points are meant to be suggestive, not exhaustive.

Box A provides a view of the cascading structure employed in the Framework.

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1 The first three levels are common to other Data Quality Assessment Frameworks that have been developed to assess datasets. This design was implemented to ensure a common and systematic assessment across datasets. To date, frameworks have been developed for national accounts statistics, consumer price index, balance of payments statistics, monetary statistics, government finance statistics, and income poverty statistics.
C. Content of the Framework

The elements and indicators within their respective dimensions are described below.

0. Prerequisites of quality: Although not itself a dimension of quality, this group of “pointers to quality” includes elements and indicators that have an overarching role as prerequisites, or institutional preconditions, for quality of statistics. Note that the focus is on the agency, such as a national statistics office, central bank, or a ministry/department. These prerequisites cover the following elements:
   0.1 legal and institutional environment,
   0.2 resources available for statistical work,
   0.3 relevance, and
   0.4 other quality management.

1. Assurances of integrity: This dimension relates to adherence to the principle of objectivity in the collection, compilation, and dissemination of statistics. The three elements for this dimension of quality are the following:
   1.1 professionalism,
   1.2 transparency, and
   1.3 ethical standards.

2. Methodological soundness: This dimension covers the idea that the methodological basis for the production of statistics should be sound and that this can be attained by following internationally accepted standards, guidelines, or good practices. This dimension is necessarily dataset-specific, reflecting different methodologies for different datasets. This dimension has four elements, namely:
   2.1 concepts and definitions,
   2.2 scope,
   2.3 classification/sectorization, and
   2.4 basis for recording.

3. Accuracy and reliability: This dimension covers the idea that statistical outputs sufficiently portray the reality of the economy. This dimension is also dataset specific, reflecting the sources used and their processing. The five elements of this dimension cover:
   3.1 source data,
   3.2 assessment of source data;
   3.3 statistical techniques,
   3.4 assessment and validation of intermediate data and statistical outputs, and
   3.5 revision studies.

4. Serviceability: This dimension relates to the need that statistics are disseminated with an appropriate periodicity in a timely fashion, are consistent internally and with other major datasets, and follow a regular revision policy. The three elements for this dimension are:
   4.1 periodicity and timeliness,
4.2 consistency, and
4.3 revision policy and practice.

5. **Accessibility:** This dimension relates to the need for data and metadata to be presented in a clear and understandable manner on an easily available and impartial basis, that metadata are up-to-date and pertinent, and that a prompt and knowledgeable support service is available. This dimension has three elements, namely:

5.1 data accessibility,
5.2 metadata accessibility, and
5.3 assistance to users.
Using serviceability as the example of a dimension of quality, the box below shows how the framework identifies three elements that point toward quality. Within consistency, one of those elements, the framework next identifies three indicators. Specifically, for each indicator, focal issues are addressed through key points that may be considered in identifying quality.

- Sums of component items agree with estimates of total employment, unemployment, earnings, etc., when aggregated over occupation, kind of economic activity, age, sex, area and other attributes.
- The sum of persons employed, unemployed and not in the labor force agrees with the estimate of total population in scope, or working age population.
0. **Prerequisites of quality**

0.1 **Legal and institutional environment**

— *The environment is supportive of statistics.*

0.1.1 **The responsibility for collecting, processing, and disseminating principal labor statistics is clearly specified.**

i. *The primary responsibility for collecting, processing, and disseminating the statistics is clearly established.*

- A law, such as a statistical law, or other formal provision (e.g., inter-agency protocol or executive decree, supranational legislation) assigns primary responsibility as well as the authority to an agency (agencies) for the collection, processing, and dissemination of the statistics.

- Working arrangements are consistent with this assignment of responsibility.

- If more than one data producing agency is involved in producing parts of the statistics, arrangements are in place to promote consistency of methods and results.

- Conflicts or potential conflicts between the legal authority to produce the statistics and other laws or provisions (e.g., access to information law or bank secrecy laws) have been successfully resolved or reconciled with no major impairment to the data production.

0.1.2 **Data sharing and coordination among data producing agencies are adequate.**

i. *Arrangements or procedures exist to facilitate data sharing and cooperation between the agency (agencies) with the primary responsibility for compiling the statistics and other data producing agencies.*

- Procedures are in place to provide for the effective and timely flow of source data (e.g., administrative data as well as survey data) to the data producing agency (agencies).

- Contacts (e.g., regular meetings and workshops) are maintained with other data producing agencies to promote a proper understanding of data requirements, to avoid duplication of effort, and to take into account reporting burden (e.g., by discussing changes to administrative processes before they take place).
0.1.3 Individual reporters’ data are to be kept confidential and used for statistical purposes only.

i. The confidentiality of individual reporters’ data is guaranteed and that guarantee is widely known.

- A law or other formal provision clearly states that individual data are to be treated as confidential, and shall not be disclosed or used for other than statistical purposes unless disclosure is agreed to in writing.

- In surveys and other statistical inquiries, respondents are informed of their rights and obligations with regard to the provision of information, and they are informed that the information they provide will be used for the purpose of producing statistics.

ii. Procedures are in place to prevent the disclosure of individual data.

- Rules and regulations to prevent disclosure include penalties against staff who disclose confidential data.

- Access to individual data is restricted to staff who require the information in the performance of their statistical duties.

- Special aggregation rules are used to prevent residual disclosure when aggregations of survey or other confidential data are disseminated.

- Staff review all data prepared for dissemination for possible indirect disclosure of individual data and design tables and outputs in a way that prevents disclosure.

- Where unit records are made available (e.g., for research purposes), the confidentiality of the individual data is protected (e.g., by making all records anonymous, or ensuring that access to data is bound by confidentiality provisions).

- Confidentiality of data is appropriately guarded during storage and during the process of the destruction of records.

- Steps are taken to secure the premises of the data producing agency and its computer systems to prevent unauthorized access to individual data.

0.1.4 Statistical reporting is ensured through legal mandate and/or measures to encourage response.

i. A law or other formal provision provides for the reporting of information needed to compile the statistics.

- The data producing agency has the legal authority to collect data required to compile the statistics.
• Collection activity is consistent with the legal authority.

• If reporting is mandatory, penalties for noncompliance (including misreporting) act as an effective deterrent, even if such provisions rarely need to be employed.

ii. **Other mechanisms are in place to provide for adequate reporting of data for compiling the statistics.**

• The data producing agency considers carefully response burden (e.g., by actively pursuing alternative avenues to obtain data, adapting questions to reporters’ terminology and record-keeping systems, carefully designing new surveys, closely monitoring response burden, and periodically evaluating existing surveys).

• The data producing agency provides assistance to respondents in completing and submitting forms (e.g., by providing a point of contact).

• The data producing agency seeks to secure cooperation by creating goodwill (e.g., by registering and dealing with respondents’ complaints, indicating the purpose of the data collection, informing of measures to limit response burden, raising awareness of the importance of good quality statistics, and providing respondents with data upon request).

0.2 **Resources**

— *Resources are commensurate with needs of statistical programs.*

0.2.1 **Staff, facilities, computing resources, and financing are commensurate with statistical programs.**

i. **Staff resources for compiling the statistics are adequate to perform required tasks.**

• Overall, the number of staff is adequate to perform the required tasks.

• The qualifications of the staff are adequate, with their skills maintained and developed to perform the required tasks.

• A core staff with adequate training is maintained and staff turnover is manageable.

• Salary levels are adequate for the nature of the work and competitive with public administration conditions in the country.

ii. **Computing resources for compiling labor statistics are adequate to perform required tasks.**

• Overall, sufficient resources are allocated and best efforts are made to exploit the full potential of effective computing technology for compiling and disseminating the statistical series.
• Software utilized for compiling and analyzing the statistical series is effective, periodically updated, and well adapted to perform existing and emerging tasks.

• Hardware is distributed adequately to facilitate the efficient collection and processing of data, and management of databases.

• Adequate protection is provided for computer resources, including through provision of emergency back-up systems for retrieval of statistical series and updates in the event of natural disasters, accidents, and other unusual events.

iii. **Physical facilities and other resources are adequate to perform required tasks.**

• Office buildings provide adequate working facilities (e.g., lighting, heat, and cooling).

• Office furniture and equipment (e.g., desks, chairs, filing cabinets, telephones, and related equipment) are adequate to perform required tasks.

• Transportation arrangements (e.g., for data collection) are adequate.

iv. **Funding for compiling the statistics is adequate to perform required tasks.**

• Funding is reasonably secure for the identified needs of the statistical program.

• Budgeting practices provide clear information to financing authorities (e.g., when reviewing priorities for improvements, cutbacks, or increases in certain elements of programs).

• The funding horizon is amenable to planning for statistical developments (e.g., over a two to three years period).

0.2.2 **Measures to ensure efficient use of resources are implemented.**

i. **Management ensures that resources are used efficiently.**

• Periodic reviews of staff performance are conducted.

• Efficiencies are sought through periodic reviews of work processes, e.g., seeking cost effectiveness of survey design in relation to objectives, and encouraging consistent concepts, classification and other methodologies across datasets.

• When necessary, the data producing agency seeks outside expert assistance to evaluate statistical methodologies and compilation systems.

• Precision requirements for the estimates obtained from the statistical series are taken into account in determining sample sizes and sample designs.
Arrangements for the organization of survey field work are examined to ensure that the costs of data collection are as low as possible.

**ii. Costing and budgeting practices are in place and provide sufficient information to management to make appropriate decisions.**

- Resources used to compile the statistics are measured periodically (costing) and compared to other statistical programs.
- Budgeting procedures are used to help allocate resources.

**0.3 Relevance**

*Statistics cover relevant information on the subject field.*

**0.3.1 The relevance and practical utility of existing statistics in meeting users’ needs are monitored.**

**i. Specific actions are taken to ensure that current statistics meet needs of data users.**

- Data users are consulted and/or kept informed on specific aspects of current data (e.g., usefulness in terms of detail, periodicity, and timeliness) through surveys, newsletters, or seminars, with their feedback actively sought (e.g., e-mail address provided).

**ii. Mechanisms are in place to identify new and emerging data requirements.**

- A structured and periodic process of consultation (e.g., users’ advisory committees or working groups) takes place with policy departments/ministries and other principal data users, which include academia, the press and/or other private sector representatives, to review the usefulness of existing statistics and to identify emerging data requirements.
- The data producing agency regularly participates in statistical meetings and seminars organized by international and regional organizations and by professional organizations (e.g., International Statistical Institute (ISI) and International Association for Official Statistics (IAOS)).
- The data producing agency undertakes studies to help identify new and emerging data requirements.

**0.4 Other quality management**

*Quality is a cornerstone of statistical work.*
0.4.1 Processes are in place to focus on quality.

i. There is recognition throughout the organization that quality builds trust and thus is a cornerstone of statistical work.

- Management is sensitive to all dimensions of data quality, and promotes a shared concern for quality throughout the organization (e.g., mission statement emphasizes importance of quality, managers are held accountable for achieving quality).
- Staff training programs emphasize the importance of quality and give staff an understanding as to how quality may be achieved.
- The organization provides an infrastructure for quality by recognizing tradeoffs, economies of scale, and interrelations between datasets.
- The organization has implemented externally recognized processes or activities that focus on quality (e.g., Total Quality Management, ISO 9000, quality initiatives within the European Statistical System, and independent evaluations).
- Information is publicly available on the organization’s commitment to quality, including information about tradeoffs affecting the statistical work program.

0.4.2 Processes are in place to monitor the quality of the statistical program.

i. Measures are in place for a systematic monitoring and review of quality.

- Monitoring processes are in place to inform managers on the quality achieved for ongoing statistical activities (e.g., response rates, editing rates, revisions history, timeliness evaluations).
- Compiling areas have access to expert guidance on the quality of their statistics and on strategies for improving data production.
- Periodic reviews are undertaken to identify measures necessary to maintain quality requirements.

0.4.3 Processes are in place to deal with quality considerations in planning the statistical program.

i. In planning the statistical program, quality issues (including implicit and explicit tradeoffs among the dimensions of quality) are considered.

- Quality issues, such as the following, are addressed explicitly and taken into account in the work program planning process:
  - quality improvements identified during ongoing monitoring and in periodic reviews;
  - feedback from users on quality standards and on new and emerging data requirements; and
– tradeoffs among the dimensions of quality (e.g., resources availability, timeliness and accuracy/reliability).

1. Assurances of Integrity

The principle of objectivity in the collection, processing, and dissemination of statistics is firmly adhered to.

1.1 Professionalism

— Statistical policies and practices are guided by professional principles.

1.1.1 Statistics are produced on an impartial basis.

i. The terms or conditions under which the statistics are produced are in accordance with professional independence.

- A law or other formal provision supports professional independence by for example:
  - addressing the general need for the professional independence of the data-producing agency (e.g., the importance of professional independence in carrying out statistical functions is clearly stated and recognized);
  - prohibiting interference from others, including other government agencies, in the compilation and/or dissemination of statistical information; and
  - ensuring that the choice, tenure, and reporting arrangements of the agency’s head are supportive of the professional independence of the statistical agency (e.g., tenure does not usually coincide with that of current government; appointment and removal of the head result from transparent processes with emphasis on professional qualifications and performance).

- If there is no law or formal provision to support professional independence,
  - traditions or cultures of professionalism are clearly recognized as essential to the credibility of statistical results (e.g., others, including other government agencies, understand the importance of non-interference); and
  - the choice, tenure, and reporting arrangements of the agency’s head are supportive of the professional independence of the agency.

ii. Professionalism is actively promoted and supported within the organization.

- Recruitment and promotion are based on relevant aptitude and/or expertise in statistics (e.g., sampling techniques or in the subject matter area).

- Formal (using internal and outside experts) and on-the-job training in the methodology and compilation methods is provided, including participation in seminars, courses, and workshops arranged by regional and international organizations to further knowledge of statistical practices and providing easy access to professional literature.
• Processes and activities in the workplace promote a culture of professionalism (e.g., by professional accreditation of staff, peer review of statistical work, recognition of authors of methodological papers, organization of lectures and conferences, and the institutional support of professional bodies).

• Research and analysis (including rationale for the choice of methodologies) are encouraged and published subject to internal review and other processes to maintain the agency's reputation for professionalism.

1.1.2 Choices of sources and statistical techniques as well as decisions about dissemination are informed solely by statistical considerations.

i. The choices of data sources and statistical techniques are informed solely by statistical considerations.

• The choice of source data (e.g., among surveys, between surveys and administrative records, or between collected data and administrative records) is based on measurement objectives and data requirements.

ii. Decisions about dissemination are informed solely by statistical considerations.

• Decisions about the timing, media, and other aspects of dissemination are based solely on statistical considerations.

1.1.3 The appropriate statistical entity is entitled to comment on erroneous interpretation and misuse of statistics.

i. The data producing agency comments when its statistics are misinterpreted or misused.

• The data producing agency seeks to prevent misinterpretation or misuse of statistics by providing explanatory materials and briefings (e.g., to the media).

• There is a formal policy or well-established custom to deal with data misinterpretations or misuse of statistics.

• The data producing agency
  - monitors media coverage of its data (“clipping service”), and
  - comments publicly and in a timely manner on erroneous interpretations or misuse of the statistics in the media and in other forums.

1.2 Transparency
— Statistical policies and practices are transparent.
1.2.1 The terms and conditions under which statistics are collected, processed, and disseminated are available to the public.

i. Information is available to the public about the terms and conditions under which the statistical series are compiled and disseminated, including the obligation to compile and disseminate the statistics, the confidentiality of individual reporters’ data, and other key features.

- Agency publications and/or websites reproduce material from the statistical law and other relevant documents about the terms and conditions under which official statistics are compiled and disseminated. These terms and conditions may refer to the obligation to compile and disseminate the statistics, the confidentiality of individual reporters’ data, and other key features (e.g., the codes of conduct under which official statistics are compiled and disseminated, the approval process for data dissemination, the procedures to hire and remove the head of the data producing agency).
- In public speeches and other gatherings, the agency makes an active and ongoing effort to inform the public about the terms and conditions under which it operates.
- Statistical publications identify where more information about the data producing agency and its products can be found.

1.2.2 Internal governmental access to statistics prior to their release is publicly identified.

i. The public is made aware of internal government access to statistics prior to their release to the public.

- Internal government access to statistics prior to release is made public in terms of who has access, and on how long before the dissemination access is given.

1.2.3 Products of statistical agencies/units are clearly identified as such.

i. Statistical products are clearly identified so that the public is aware of what the data-producing agency takes responsibility for.

- Data released to the public are clearly identified as the data producing agency’s product (e.g., by name, logo, and insignia).
- In the case of joint publications, the part attributable to the data producing agency is identified (e.g., statistics are clearly distinguished from policy interpretation).
- The data producing agency requests attribution when its statistics are used or reproduced.
1.2.4  Advance notice is given of major changes in methodology, source data, and statistical techniques.

i.  Users of statistics are made aware in advance of major changes in methodology, source data, and statistical techniques.

- Advance notice is given to the public (e.g., articles in bulletins, briefings, or news releases) when major changes are introduced in methodology, sources, and statistical techniques.

1.3  Ethical standards

— Policies and practices are guided by ethical standards.

1.3.1  Guidelines for staff behavior are in place and are well known to the staff.

i.  A clear set of ethical standards has been prepared.

- There are clear guidelines outlining correct behavior when the agency or its staff are confronted with potential conflict of interest situations.
- There are clear guidelines that make the connection between ethics and staff work (e.g., with respect to guarding against misuse and misrepresentation of statistics (see also 1.1.3)).
- A strong culture for maintaining ethical standards discourages political interference.

ii.  Staff are made aware of the ethical standards.

- Management acknowledges its status as a role model and is vigilant in following the standards.
- New staff are made aware of the standards when they join the organization.
- Staff are reminded periodically of the standards (e.g., in staff training, announcements to staff, or by requiring staff periodically to reaffirm ethical practices or adhere to conflict of interest policy).
The methodological soundness dimension is assessed against the recommendations, standards, guidelines and good practices promoted by the International Labour Organisation (ILO) and other UN agencies. The application of these guidelines would generally be evaluated at the level of the principal labor statistics categories (i.e., employment, unemployment, and wages/salaries).

The ILO Conventions, Recommendations and Resolutions may be found in *International Labour Office. Current international recommendations on labour statistics, 2000 edition, Geneva, 2000*. (See Appendix 1)

Standards, guidelines and good practices are to be found in:

- United Nations Statistics Division, Principles and Recommendations for Population and Housing Censuses, Revision 1, New York, 1998
- International Labour Office, Surveys of economically active population, employment, unemployment and underemployment – An ILO manual on concepts and methods, second impression, Geneva, 1992
- International Labour Office, Labour statistics based on administrative records: Guidelines on compilation and presentation, Bangkok, 1997
- International Labour Office, International Classification of Status in Employment (ICSE), 1993

### 2.1 Concepts and definitions

—— *Concepts and definitions used are in accord with internationally accepted statistical frameworks.*

#### 2.1.1 The overall structure in terms of concepts and definitions follows internationally accepted standards, guidelines, or good practices.

i. **Concepts and definitions of employment, unemployment and wages/earnings statistics are based on ILO recommendations**

- Concepts and definitions for labor statistics are based on ILO recommendations.
- Employment covers the full range of economic activity as defined by the United Nations System of National Accounts production boundary. Consistent with the ILO definition, employment covers all persons who, during a specified short reference
period, performed some work for pay, profit or family gain, as well as persons with a job or enterprise who were temporarily not at work during the reference period.

- Unemployment covers persons who are not employed, and who are seeking work and/or currently available for work as defined in ILO recommendations.
- Employed and unemployed persons comprise the currently economically active population (the labor force).
- Earnings relates to remuneration in cash and in kind, paid to employees, as a rule at regular intervals, for time worked or work done, together with remuneration for time not worked, such as for annual vacation, other paid leave or holidays.
- Exceptions from the above concepts and definitions are minor and kept under review (see also 5.2.1).

2.2 Scope
— The scope is in accord with internationally accepted standards, guidelines, or good practices.

2.2.1 The scope is broadly consistent with internationally accepted standards, guidelines, or good practices.

i. The scope of employment, unemployment and wages/earnings statistics is consistent with internationally accepted standards, guidelines, or good practices.

- All residents above a specified age are covered or, if not, exclusions are based on criteria which do not lessen the representativeness of the statistics (e.g. the scope is restricted to the civilian, non-institutionalized population).
- Age coverage is comprehensive: The minimum age for measuring the labor force is not higher than 15 years, and no maximum age limit is used.
- Geographic coverage is comprehensive. The entire country is covered or, if not, exclusions are clearly identified, and are limited to those which do not affect the usefulness of the resultant statistics as indicators of employment, unemployment and earnings at the national level..
- Employment data cover a range of establishments and workers sufficient to provide representative data.
- Statistics of earnings cover gross remuneration received, but exclude specific employer payments to social security and pension schemes, and other payments such as severance and termination pay, consistent with the ILO recommendations.
- Deviations from the above scope criteria are kept under review (see also 5.2.1).

2.3 Classification/sectorization
— Classification and sectorization systems are in accord with internationally accepted standards, guidelines, or good practices.
2.3.1  Classification/sectorization systems used are broadly consistent with internationally accepted standards, guidelines, or good practices.

i.  *The classifications used in compiling labor statistics are in broad conformity with internationally accepted systems.*

- Classifications of occupation, industry, status in employment, level of education, etc. follow, or can be linked to, international standard classifications. (See Box page 16.)
  - International Labour Office, International Standard Classification of Occupations (ISCO-88)
  - United Nations, International Standard Classification of All Economic Activities, third revision (ISIC, Rev. 3)
  - International Labour Office, International Classification of Status in Employment
- Deviations from the above international classifications are kept under review (see also 5.2.1)

3.  Accuracy and reliability
*Source data and statistical techniques are sound and statistical outputs sufficiently portray reality.*

The accuracy and reliability dimension would generally be evaluated at the level of the principal labor statistics categories (i.e., employment, unemployment, and wages/salaries).

3.1  Source data
— *Source data available provide an adequate basis to compile statistics.*

3.1.1  Source data are collected from comprehensive data collection programs that take into account country-specific conditions.

i.  *Dependable sample frames are available for conducting surveys of statistical units.*

- A comprehensive and up-to-date business register provides the basis for sample surveys of businesses. In the absence of a business register, other comprehensive and up-to-date sample frames are available (for example, census list updated with new registrations).
- Household surveys are based on an up-to-date register or area based sample frame.

ii.  *Data collections based on administrative data sources are adequate.*

- Administrative records used to compile labor statistics are adequate, and gaps (in terms of detail and coverage) are known and accounted for.
iii. **Labor force statistics are collected through a regular household survey program.**

- Surveys are designed and carried out following internationally accepted principles (for example the UN Handbook on Household Surveys), and probability samples are selected using scientific sampling techniques.
- Sample design and estimation procedures represent the survey universe:
  - Where used, multi-stage samples, stratification, and, for repeated surveys, planned rotation of sample units, are effective.
  - Non-responding sample units are not substituted by other units.
  - Survey sampling and estimation procedures are reviewed regularly, and upgraded if necessary.

iv. **Business surveys are conducted to collect estimates of paid employment and earnings**

- Institutional unit coverage is comprehensive, or if not, exclusions are based on criteria which do not lessen the usefulness of survey outcomes.
- Geographic coverage is comprehensive, and covers the entire country or, if not, exclusions are clearly identified, and are limited to those which do not affect the usefulness of the survey estimates as indicators of national employment.
- Sample design and estimation procedures are designed to ensure that the population in scope is properly represented. The population in scope is stratified using variables (e.g. industry, size, region) which increase the efficiency of principal estimates and allow the compilation of sub-estimates by data items of interest.

v. **There are provisions to conduct supplementary surveys.**

- Supplementary surveys are conducted, when necessary, to enhance the regular survey program (e.g., to provide more detailed data on labor market participants) or to collect information on units not covered by the regular survey program (e.g., child workers, small establishments).
- Supplementary surveys are conducted in a manner which does not affect the integrity of data collected to compile principal estimates, nor the comparability of principal survey estimates from period to period.

vi. **Data collection instruments are appropriate and effective**

- Questionnaires for household and business surveys have been constructed according to sound design principles (e.g. questionnaires are subject to field/pilot testing; observation studies are conducted during the design of survey questionnaires).
- Reference periods for data collection are chosen so as to cover, or be representative of, the periodicity determined for the statistical series.
• Questionnaires are reviewed periodically to take account of changed circumstances, and proposed changes are pre-tested to ensure effectiveness.
• Survey instruments are designed for efficient data capture/processing.
• Survey instruments are designed to minimize other types of non-sampling errors.

vii. **Developments related to labor statistics are monitored, and relevant changes are incorporated in the labor statistics collections.**

• Changes to international standards are monitored, and applied to labor statistics collections as soon as practicable.
• Periodic meetings are held with data user groups and the business community to identify new developments that need to be taken into account in the collection, compilation and dissemination of labor statistics.

3.1.2 **Source data reasonably approximate the definitions, scope, and classifications required.**

i. **The source data are consistent with the definitions, scope, and classifications adopted by the compiling agency.**

• Source data drawn from surveys and censuses are consistent with the definitions, scope and classifications of labor statistics adopted by the compiling agency. Pilot tests have been held to check that data collected will allow compilation of estimates according to national requirements.
• Employment and unemployment estimates drawn from household surveys are based on data which meet the criteria of the international definitions of employment and unemployment set out in the corresponding ILO recommendations, or of national definitions of employment and unemployment based on them.
• Employment estimates drawn from business surveys are based on instructions to interviewers or respondents that describe clearly those persons who should be included/excluded from employment counts.
• Wages/earnings estimates drawn from household or business surveys are based on instructions to interviewers or respondents that identify inclusions and exclusions clearly and appropriately.
• Statistical series compiled as by-products of administrative processes (e.g., persons registered as jobseekers or recipients of unemployment benefits) follow as closely as possible the ILO recommended concepts and definitions.
• Statistics based on administrative records are based on records that meet pre-established criteria for inclusion in the compilation process.
• Data are sufficiently disaggregated (to reflect the diversity of the population) by sex, age group, level of education, region, etc. of employed, unemployed and economically inactive persons (see also 3.3.1).
ii. **Labor statistics are compiled at a sufficient level of detail.**

- The level of detail for labor statistics is sufficient for analysis of period to period movements, and for structural analysis: (1) at the level of the main tabulation categories of the classifications used (e.g., 1 digit industry, occupation for employment estimates), as a minimum; (2) at the level of principal socio-demographic variables (e.g. sex, age, educational level, region); and (3) at the level of main tabulation categories for other labor statistics items (e.g. status in employment, hours worked for employment estimates; period of job search, whether full-time or part-time work sought for unemployment estimates)

- In determining an appropriate size and design of survey samples, precision requirements for labor statistics at a sufficient level of detail are taken into account.

### 3.1.3 Source data are timely.

i. **The data collection programs provide for the timely receipt of data.**

- Data collection and processing timetables are adequate to meet timeliness and periodicity for disseminating principal labor statistics.
- Respondents are made aware of the deadlines set for reporting.
- The data producing agency has follow-up procedures to ensure the timely receipt of respondents' data (e.g., by contacting the respondent).

### 3.2 Assessment of source data

— **Source data are regularly assessed.**

#### 3.2.1 Source data—including censuses, sample surveys and administrative records—are routinely assessed, e.g., for coverage, sample error, response error, and nonsampling error; the results of the assessments are monitored and made available to guide statistical processes.

i. **Accuracy of the data from surveys is routinely assessed**

- Information about sampling errors for each of the surveys conducted is monitored on a regular basis. Also monitored is information about non-sampling errors (survey operations, biases, over/under-coverage, misclassification, measurement, processing, and non-response).

- The procedures identify outliers and other atypical differences in periodic responses by individual survey units. Extreme values are confirmed with respondents, and records maintained on the confirmation.

- The source data are analyzed for underreporting/misreporting, in particular to check for temporal consistency, and for consistency with related data sources.

- Assessments are made of the effects on survey estimates of changes to questionnaires.
• Surveys/censuses are regularly audited to assess the accuracy of source data (e.g., supervised field collections; random post-enumeration checks; independent re-interviews).

ii. **Accuracy of administrative data and other secondary sources is routinely assessed.**

• Accuracy of administrative data received from government agencies, regulatory authorities, etc. is routinely assessed.

3.3 **Statistical techniques**

— *Statistical techniques employed conform to sound statistical procedures.*

3.3.1 **Data compilation employs sound statistical techniques to deal with data sources.**

i. **Data compilation procedures are sound.**

• Compilation procedures minimize processing errors such as coding, editing, and tabulation errors.

• Compilation procedures ensure that internal consistency is achieved, e.g. sums of components agree with totals.

• Adjustments to unit records are made only when clearly warranted (e.g., unusual values are not replaced or modified unless clearly required), and can be identified in datasets.

• Procedures for imputation and adjustment for non-response and missing observations are soundly based.

• The estimation method follows a model that makes appropriate use of selection probabilities, benchmark information, response rates, stratification and ancillary data.

• Appropriate measures are undertaken when the non-sampling errors become large.

3.3.2 **Other statistical procedures (e.g., data adjustments and transformations, and statistical analysis) employ sound statistical techniques.**

i. **Data adjustments and transformations employ sound statistical techniques.**

• Adjustments for undercoverage, and/or population units out of scope (i.e. not to be surveyed) follow appropriate guidelines, for example:
  - independent estimates of institutionalized persons are combined with survey responses to produce estimates of total persons not in the labor force;
  - estimates of employment derived from business surveys are combined with estimates from household surveys to produce estimates of total employment disaggregated by size; and,
  - independent population benchmarks by age, sex, region, etc. provide adjustments for survey under- or overestimation of demographic groups.
• Seasonal and other adjustments (e.g., for non-response, under/over-coverage), where undertaken, use internationally accepted methodologies.

3.4 Assessment and validation of intermediate results and statistical outputs.
   — Intermediate results and statistical outputs are regularly assessed and validated.

3.4.1 Intermediate results are validated against other information where applicable.
   i. Intermediate results are validated against other independent data sources.
   • Intermediate results are checked across a wide range of data sources. For example, principal labor statistics are compared with independent estimates of like categories, and with related data from independent sources - e.g. comparisons of labor force survey estimates are made with census results; unemployment estimates derived from administrative sources are analyzed against results from labor force surveys and population censuses.

3.4.2 Statistical discrepancies in intermediate data are assessed and investigated.
   i. Unusual differences in components of principal labor statistics are investigated.
   • The processing and estimation procedures include analyses of component contributions, that allow major differences to be investigated, based on features of data collection (e.g. poor performance by individual data collectors, interviewers, or regional offices may be detected, and acted on).

3.4.3 Statistical discrepancies and other potential indicators of problems in statistical outputs are investigated.
   i. Statistical discrepancies arising from internal inconsistencies, and from comparisons with independent estimates are investigated and measures taken to remove or explain them.
   • Discrepancies arising from inconsistent imputation for missing data and other possible sources of aggregation inconsistency are assessed.
   • Appropriate adjustments are made to remove discrepancies.
   • Other indicators of problems are investigated.

ii. Comparative studies are undertaken.
   • Comparative studies with employment, unemployment and wages/earnings estimates from different sources or frameworks are undertaken.

3.5 Revision studies
   — Revisions, as a gauge of reliability, are tracked and mined for the information they may provide.
3.5.1 Studies and analyses of revisions are carried out routinely and used internally to inform statistical processes (see also 4.3.3).

i. **Revisions to labor statistics are periodically assessed.**

- Studies assess the initial estimates against revised or final estimates over a given period of time and comprise:
  - studies of scale (frequency of revision and number of time-series revised);
  - studies of direction and magnitude of revisions.
- Studies of long-term trends in the revision pattern are conducted periodically to identify systematically biased revisions.

ii. **Measures are undertaken to incorporate the findings from revision studies in data compilation.**

- Studies investigate the sources of errors, omissions, and fluctuations in the data and explain the methods of revising the data.
- Findings from revision studies (such as the pattern of arrival of major data sources) are used to define the optimal revision cycle.
- Findings from studies of revisions to input data are used to refine data collection programs for the subsequent periods (e.g., findings of persistent misreporting from enterprises are routinely analyzed and used in an internal quality control exercise).
- Time-series of revisions to output data are examined to identify the long-term trends in the revision patterns. Appropriate adjustments that reflect a predicted revision pattern are made at the time of initial estimates to enhance the accuracy of data.
- Adequate documentation on revisions is well maintained and includes descriptions of causes of revisions, methods used to incorporate new data sources, and the way data are adjusted.

4. **Serviceability**

*Statistics, with adequate periodicity and timeliness, are consistent and follow a predictable revisions policy.*

4.1 **Periodicity and timeliness**

— Periodicity and timeliness follow internationally accepted dissemination standards.

4.1.1 **Periodicity follows dissemination standards.**

i. *The periodicity of labor statistics follows the IMF data dissemination standards (SDDS or GDDS).*

- Principal labor statistics are disseminated quarterly (SDDS).
• Principal labor statistics are disseminated annually (GDDS).

4.1.2 Timeliness follows dissemination standards.

i. The timeliness of the statistical series follows the IMF data dissemination standards (SDDS or GDDS, where applicable).

• Quarterly estimates are disseminated within three months after the reference period (SDDS).
• Annual estimates are disseminated within nine months after the reference period (GDDS).

4.2 Consistency — Statistics are consistent within the dataset, over time, and with major datasets.

4.2.1 Statistics are consistent within the dataset.

i. Labor statistics are internally consistent.

• Sums of component items agree with estimates of total employment, unemployment, earnings etc., when aggregated over occupation, kind of economic activity, age, sex, area and other attributes.
• The sum of persons employed, unemployed and not in the labor force agrees with the estimate of total population in scope, or working age population.

4.2.2 Statistics are consistent or reconcilable over a reasonable period of time.

i. Principal labor statistics are consistent over time.

• Consistent time-series are available for an adequate period (at least five years).
• When changes in source data, methodology, or techniques are introduced, historical series are reconstructed as far back as reasonably possible.
• Detailed methodological notes identify and explain the main breaks and discontinuities in time-series, their causes, as well as adjustments made to maintain consistency over time.
• Unusual changes in economic trends are explained in the commentary included in the labor statistics publication and in the database accessible to users.

4.2.3 Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks.

i. Labor statistics are consistent or reconcilable with other statistical frameworks and other data sources.

• Labor statistics are consistent with national accounts and demographic statistics.
Comparative studies of employment, unemployment and earnings statistics from different sources or frameworks are published or made available.

4.3 Revision policy and practice
— Data revisions follow a regular and publicized procedure.

4.3.1 Revisions follow a regular and transparent schedule.

i. The practice of revisions (e.g., from provisional estimates, for weight updates, for changes in methodology) follows a predictable pattern of which users of statistics are informed.

• The revision cycle is predetermined and reasonably stable from year to year.
• The revision cycle is made known to the public.
• The reasons underlying the cycle (e.g., the availability of source data, the timing of revisions with related datasets, the timing for preparing important economic policy documents) are explained.
• Adequate documentation of revisions is included in the publication of the statistical series and in the database accessible to users.
• When revisions outside the regular cycle are called for (e.g., by the discovery of new source data, errors), they are made known to the public.

4.3.2 Preliminary and/or revised data are clearly identified

i. Users are informed about the preliminary nature of the data.

• At the time of data dissemination, users are informed whenever data are preliminary.

ii. Users are informed about the revised nature of the data.

• At the time of data dissemination, users are informed whenever data are revised.

4.3.3 Studies and analyses of revisions are made public (see also 3.5.1)

i. Users are informed of results and studies of the revisions to the statistics.

• Revisions are measured, assessed, and explained in publications and in the database accessible to users.
• Analysis of differences between the revised and preliminary data is published for major aggregates to allow an assessment of the reliability of the preliminary data.

5. Accessibility
Data and metadata are easily available and assistance to users is adequate.
5.1 **Data accessibility**
— *Statistics are presented in a clear and understandable manner, forms of dissemination are adequate, and statistics are made available on an impartial basis.*

5.1.1 **Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout and clarity of text, tables, and charts).**

i. *The presentation of the statistics is commensurate with users’ needs.*

- Statistics are published in a clear manner; charts and summary tables are disseminated with the data to facilitate the analysis.
- Datasets are published with various levels of detail (disaggregation).
- Data are cross-classified by relevant explanatory variables (e.g. sex, age group, educational level).
- Estimates are disseminated at a detailed level and with time-series.
- Commentaries on current-period developments are included.
- Relevant series are disseminated in a seasonally adjusted form.

5.1.2 **Dissemination media and formats are adequate.**

i. *Statistics are disseminated in formats to suit users’ needs.*

- Statistics are disseminated in ways that facilitate re-dissemination in the media (e.g., information releases).
- More comprehensive and/or detailed statistics are also disseminated in paper and/or electronic formats.
- Current statistics and longer time-series can be accessed (perhaps for a fee) through an electronic database maintained by, or on behalf of, the data producing agency.

5.1.3 **Statistics are released on a pre-announced schedule.**

i. *Statistics are released on a pre-announced schedule.*

- A schedule announces in advance the dates the statistics are to be released.
- The statistics are released punctually, that is according to the preannounced schedule.

5.1.4 **Statistics are made available to all users at the same time.**

i. *Principal labor statistics are made available to all users of statistics at the same time.*

- The public is informed that the statistics are being released, and of the procedures to access them (e.g., Internet, publications).
• The statistics are made available to all interested users simultaneously.
• If the press is briefed in advance, embargos are imposed to prevent early public disclosure.

5.1.5 **Statistics not routinely disseminated are made available upon request.**

   *i.* **Statistics not routinely disseminated are made available to users upon request.**

• For general use purposes, statistics are made available upon request, in addition to the statistics routinely disseminated.

• For specific purposes, customized tabulations can be provided (perhaps for a fee).

• The availability of additional statistics and of the procedures for obtaining them are made known.

5.2 **Metadata accessibility**
— **Up-to-date and pertinent metadata are made available.**

5.2.1 **Documentation on concepts, scope, classifications, basis of recording, data sources, and statistical techniques is available, and differences from internationally accepted standards, guidelines, or good practices are annotated.**

   *i.* **The labor statistics metadata give adequate information about the meaning of the data and about the methodology used to collect and process them.**

• A comprehensive sources and methods document is published and updated regularly, and it includes the following:
  
  − information on concepts, definitions, classifications, data sources, compilation methods, statistical techniques and other relevant methodological aspects and procedures;
  − departures from internationally accepted standards, guidelines, or good practices;
  − information on survey sources, such as survey characteristics (response rates, survey monitoring and studies of non sampling errors) and other survey features (method, sample frame, sample design and selection, estimation and imputation techniques, etc.), and on the nature of administrative data sources; and, main linkages with related major data systems.

• The SDDS/GDDS metadata, SDDS summary methodologies, and other related descriptions are reviewed and updated regularly.

• The metadata are readily accessible (e.g., websites, statistical publications) and their availability is cross-referenced in data releases, and otherwise well publicized (e.g., in catalogues).
5.2.2 Levels of detail are adapted to the needs of the intended audience.

i. Different levels of metadata detail are made available to meet users’ requirements.

• General use information about the principal labor statistics (e.g., how to locate the data) is available (e.g., as a brochure) and made public.

• More specialized use information (e.g., background papers, working documents) is available and made public.

5.3 Assistance to users
— Prompt and knowledgeable support service is available.

5.3.1 Contact points for each subject field are publicized.

i. Adequate assistance is given to users of statistics.

• Prompt and knowledgeable service and support are available to users of statistics.

• All statistical releases identify contact points for enquiries by mail, telephone, facsimile, or by e-mail.

• Material to raise awareness on the use of statistics is available (e.g., for schools and research).

• Access points for clients to obtain statistical information are well advertised.

• Assistance to users is monitored and reviewed periodically (e.g., time of response to e-mail requests).

5.3.2 Catalogues of publications, documents, and other services, including information on any charges, are widely available.

i. Catalogues of publications and other services are available to users of statistics.

• Catalogues of publications, documents, and other services to users are available, and updated regularly (e.g., each year if needed).

• The prices of the statistical products and services are clearly disclosed and assistance is provided in placing orders.
Appendix I

International Labour Organisation References

The methodological soundness dimension is assessed against the recommendations, standards, guidelines and good practices promoted by the International Labour Organisation (ILO) and other UN agencies. These include the following (see International Labour Office, Current international recommendations on labour statistics, 2000 edition, Geneva, 2000):

- ILO Convention concerning Labour Statistics, 1985 (No.160);
- ILO Recommendation concerning Labour Statistics, 1985 (No.170);
- Resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the 13th International Conference of Labour Statisticians (October 1982);
- Resolution concerning the measurement of underemployment and inadequate employment situations, adopted by the 16th International Conference of Labour Statisticians (October 1998);
- Resolution concerning an integrated system of wages statistics, adopted by the 12th International Conference of Labour Statisticians (October 1973);
- Resolution concerning the measurement of employment-related income, adopted by the 16th International Conference of Labour Statisticians (October 1998);
- Resolution concerning the International Classification of Status in Employment (ICSE), adopted by the 15th International Conference of Labour Statisticians (January 1993);
- Resolution concerning statistics of employment in the informal sector, adopted by the 15th International Conference of Labour Statisticians (January 1993);
- Guidelines on the implications of employment promotion schemes on the measurement of employment and unemployment, endorsed by the 14th International Conference of Labour Statisticians (October-November 1987);
- Guidelines concerning treatment in employment and unemployment statistics of persons on extended absences from work, endorsed by the 16th International Conference of Labour Statisticians (October 1998);
- Guidelines concerning dissemination practices for labour statistics, endorsed by the 16th International Conference of Labour Statisticians (October 1998).
- United Nations Statistics Division, Principles and Recommendations for Population and Housing Censuses, Revision 1, New York, 1998
- International Labour Office, Surveys of economically active population, employment, unemployment and underemployment – An ILO manual on concepts and methods, second impression, Geneva, 1992
- International Labour Office, Labour statistics based on administrative records: Guidelines on compilation and presentation, Bangkok, 1997