United Nations Economic Commission for Europe
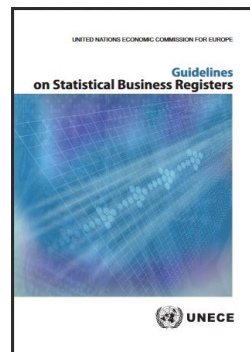**Statistical Division**

Guidelines on Statistical Business Registers

UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE

Guidelines
on Statistical Business Registers

UNECE

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Background

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- Growing demand for high quality and detailed economic statistics
- Need for more efficient and integrated production of economic statistics
- The Bureau of the Conference of European Statisticians (CES) established a task force in 2012 to develop guidelines to countries for establishing and maintaining SBRs
- The Guidelines were endorsed by CES and published by UNECE in 2015

Contents

Chapter 1 - Introduction

- What is an SBR?
- Use of the SBR
- Aims of the Guidelines
- Overview of the Guidelines
- Main terminology

Chapter 1 - Introduction

What is an SBR?

- Structured database, containing economic units (legal, administrative, statistical) in a country
  - with their characteristics (location, size, type of economic activity) and relationships
- Continually updated and maintained using administrative and statistical sources
- Provides harmonised frames for economic surveys
  - facilitates use of internationally agreed concepts and definitions
- Also produces statistics directly, and facilitates linkages between statistical and administrative data

Chapter 1 - Introduction

The Guidelines provide guidance on

- Core issues in establishing and maintaining an SBR
- Types of units, concepts and definitions
- Use of administrative and other sources for the SBR
- Production of statistics based on the SBR
- Using the SBR to link sources/registers
- Role of the SBR in modernisation of statistical production and services

Chapter 1 - Introduction

Terminology

Standard Statistical units
- Enterprise, establishment (local kind-of-activity unit), kind-of-activity unit, local unit, institutional unit

Other types of units
- Legal unit, administrative unit, observation unit, reporting unit
- Corporation, company, firm

SBR components
- Live register, register snapshot, frozen frame

Chapter 2 - Roles of the SBR

- SBR plays the role of the backbone in the production of economic statistics
- Provides statistical infrastructure supporting the collection and integration of economic data
- Serves as coordinating tool for production of economic statistics
- The Guidelines distinguishes 8 roles of SBR

Chapter 2 - Roles of the SBR
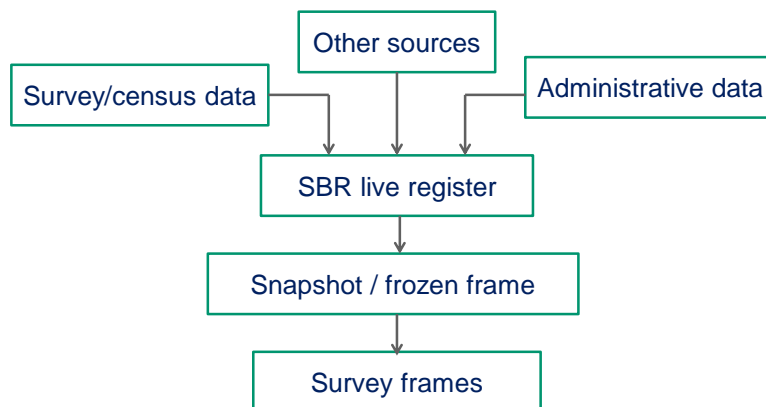
The 8 roles of the SBR

1. Live register
2. Register snapshot and frozen frame
3. Survey frame
4. Survey support
5. Production of statistics based directly on SBR
6. Information source
7. International data exchange
8. Modernisation of statistical production and services

Chapter 2 - Roles of the SBR

Live register, snapshot, frozen frame and survey frames

Other sources

Survey/census data

Administrative data

SBR live register

Snapshot / frozen frame

Survey frames

1. Live register

Register that is continuously updated with new information from various sources, resulting in

- Creating new units, deactivating existing units
- Updating unit characteristics

Provides basis for generating snapshots, frozen frames, and survey frames

2. Register snapshot and frozen frame

Snapshot at time t:
- All statistical units (SU) at time t
- Administrative units linked to SUs (or links to these)

Frozen frame at time t:
- SUs active at time t
- Administrative units linked to SU (or links to these)

For same reference period surveys should use same frozen frame!
Ensures same population of units for all surveys and statistical coherence

3. Survey frame

- Set of statistical units in scope for the survey (subset of the frozen frame)
- Characteristics of the units needed for stratification, sampling and contact

4. Survey support

- **Data collection**
  - defining observation units and reporting units
  - coordination of surveys
- **Survey registration**
  - Recording reporting unit's preferred response mode
- **Survey control**
  - Monitoring and measuring response burden

5. Production of statistics based directly on the SBR

Economic Statistics

- Basic economic characteristics

Business demographics

- Births and deaths of enterprises, survival rates
- High growth enterprises

6. SBR as information source

Provision of micro data as open data

- List of enterprises for government agencies or private companies
- Geographical location information
- Ownership and control information
- Information about particular sectors or activities to support government programs

Confidentiality and national legislation should be adhered to!

7. International data exchange

- Facilitate exchange of data and metadata across countries
- Help improve international comparability
- Measuring cross-border activities and activities of multinational enterprises

Chapter 2 - Roles of the SBR

8. Modernisation of statistical production and services by

- Integration of statistical production
- Coordinating and linking units from different sources
- Making better use of administrative registers
- Combining data from traditional sources (surveys) with data from administrative registers
- Providing data warehouse offering integrated data

Chapter 3 - Coverage of SBR

- Target coverage of the SBR
- Key issues to consider for SBRs
- Special cases

Chapter 3 - Coverage of SBR

Target coverage of SBR

- In principle all units in the national economy that contribute to GDP
- Target for SBR coverage is the 2008 SNA production boundary (2008 SNA: 6.26)
  - Production activities of all institutional units that have economic production
  - Excludes household activities for production of services for own use, except services provided by owner-occupied dwellings and services produced by employed domestic staff
  - Include both market and non-market producers (Government units and NPISH)

Chapter 3 - Coverage of SBR

Difficult areas to cover

- In practice there are problems in trying to cover
  - Non-market producers
  - Non-observed economy, including informal sector and illegal activities

Three aspects of SBR coverage

- **Completeness** – extent to which SBR includes all institutional units within 2008 SNA production boundary
- **Coverage** – proportion of GDP produced by SBR units
- **Content** – the characteristics of the units (institutional sector, size, address …)

Chapter 3 - Coverage of SBR

Non-observed economy (NOE)

- Economic units in the NOE may be informal or illegal
- Their production should be included in national accounts
- Difficult for SBR to maintain units in the NOE because they are not registered by administrative sources used to maintain the SBR
- Thus usually defined to be outside the scope of SBR
- Measurement of their production is via household surveys or other sources

Chapter 3 - Coverage of SBR

Informal sector

- Non-financial and financial corporations not registered
- Household incorporated enterprises selling some (ILO) or most or all (SNA) output
- Should be included if suitable administrative sources available

Special cases

- The *Guidelines* gives more detailed recommendations on the treatment of government units, corporations, NPIs, self-employed persons, agricultural households/holdings, illegal activities and extraterritorial organisations

Chapter 3 - Coverage of SBR

Summary

- Cover as much production as possible
- Taking into account
    - available data sources and their limitations
    - international standards and recommendations
    - maintenance costs
- Inform users, especially survey statisticians and national accountants, of coverage criteria and types of units that are included/not included in the SBR

Chapter 4 - Units of the SBR

- **Describes different types of units conceptually and operationally**
- **Distinguish there groups of units:**
    - **Statistical units**
    - **Legal, administrative and operational units**
    - **Observation and reporting units**
- **Provides and discusses definitions of 2008 SNA, ISIC Rev 4 and Eurostat**
- **Recommendations on difficult to measure areas - MNEs, government, agriculture, special purpose entities**

Statistical units

Statistical units are units defined for statistical purposes, based on administrative units created by legal units for administrative purposes

Main types of statistical units are

- **Enterprise group**
- **Enterprise**
- **Establishment (local kind-of-activity unit)**

Other statistical units with international acceptance

- **Kind-of-activity unit**
- **Local unit**

Chapter 4 - Units of the SBR

SBR needs to record information about other types of units for the creation and maintenance of the register:
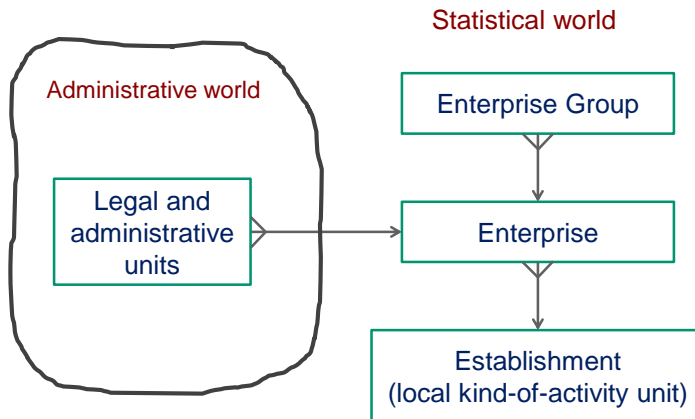
- **Legal units** – recognised by law or society
- **Administrative units** – defined for administrative purposes, e.g. VAT or social security
- **Operational units** – defined by a legal unit for organisational purposes
- **Observation unit** – the unit for which information is obtained, usually the statistical unit
- **Reporting unit** – unit from which information is received

Chapter 2 - Roles of the SBR

Recommended statistical units model

Statistical world

Administrative world

Legal and administrative units	→	Enterprise Group

Enterprise Group → Enterprise → Establishment (local kind-of-activity unit)

Legal and administrative units → Enterprise

Chapter 4 - Units of the SBR

- **Enterprise:** consists of one or more legal units, in rare cases, part of a legal unit
- **Establishment:** Each enterprise consists of one or more establishments (local kind-of-activity units)
- **Enterprise group** comprises one or more enterprises
  - not developed in all countries, but increasingly important with globalisation and market concentration
- **Multinational enterprise group (MNE)** is an enterprise group with operations in more than one country
- Recommendation is to include **truncated MNE** = parts of a MNE resident in the country

Chapter 4 - Units of the SBR

Units in agriculture, forestry and fishing

- Recommended to be included in the SBR
  - If separate agricultural register exists then establish links
- Most common observation unit in agricultural register is "agricultural holding"
  - may correspond to an enterprise, establishment, a local unit or a legal unit
- Challenge is to avoid double counting

Chapter 4 - Units of the SBR

Units in Government

- General government sector includes:
  - central, regional and local government
- Identify institutional units with decision-making autonomy for inclusion in the SBR
- Apply level of aggregation that balances the autonomy of the unit and the level of detail required
- Public enterprises are not part of general government, but belong to the financial or non-financial corporate sector

Chapter 4 - Units of the SBR

Special purpose entities (SPEs)

- Usually established to raise capital or hold assets and liabilities, without significant production
- Examples: holding companies, royalty/licensing companies, captive insurance companies
- Referenced in 2008 SNA and BPM6, but no internationally agreed definition exists.
- Identification of SPEs depends on number of employees, physical presence, residency, ownership
- If important for the economy it is useful if SPEs can be identified separately in the SBR

Chapter 4 - Units of the SBR

Annex B introduces two key international classifications for SBR

International Standard Industrial Classification of all Economic Activities (ISIC), revision 4

- Facilitates data collection, consistent aggregation and analysis at different level of detail in an internationally comparable way

The 2008 SNA classification of institutional sectors

- Groups institutional units according to the nature of their activities. Relevant institutional sectors for SBR are:
  - Non-financial corporations sector
  - Financial corporations sector
  - General government sector
  - Household sector (households engaged in market production)
  - Non-profit institutions serving households

Chapter 5 - Characteristics of units

Characteristics of units grouped into five types:

- **Identification and contact**
- **Demographic**
- **Economic/stratification**
- **Links between different types of units in the SBR**
- **Links with units in other registers/sources**

Chapter 5 - Characteristics of units

Identification and contact characteristics

- **Type of unit**
  - enterprise group, enterprise, establishment
  - local unit, legal unit, administrative unit
- **Identification number**
  - with no embedded information
  - allows linking to other units in SBR
  - and to administrative registers and other sources
- **Contact details**
  - names, addresses, telephone numbers…

Demographic characteristics

- Date of inclusion in SBR
- Date of commencement of economic activity
- Date of final cessation of economic activity
- Date on which legal unit ceased to exist
- Date of merger, take-over, split or break
- …

Economic/stratification characteristics

- Legal form/legal status
- Institutional sector and sub-sector
- Principal economic activity
- Market orientation (market, non-market)
- Turnover
- Number of persons employed
- …

Links between units in the SBR

Required for establishing and maintaining the SBR

- Administrative units and statistical units
- Enterprise groups and enterprises
- Enterprises and establishments
- Observation units and reporting units

Links with other registers

- Ideally link statistical units to administrative and legal units
- Administrative units include VAT units, units in trade registers, units registered to collect and make social security contributions etc.
- Links to units in agricultural registers
- Links to transport registers, health services registers, population registers…

Annex A details the characteristics of the various types of units

Chapter 6 - Data sources for SBR

- **Different data sources for SBR**
- **How to combine different data sources for SBR**
- **Distinguishing three main sources**
    - **- Administrative**
    - **- Statistical**
    - **- Others (e.g. internet)**

Chapter 6 - Data sources for SBR

Administrative data sources
 – sources containing information that is collected primarily for administrative purposes, **for example for**
- Income Tax, VAT, Social Security

- The NSI needs to maintain regular contact with sources
    - to influence data collected by administrative sources
    - to be forewarned about possible changes in data content, quality or structure/format

Annex D3: example of checklist for administrative data sources developed by Statistics Netherlands

Chapter 6 - Data sources for SBR

Statistical sources
– data collected by the NSI or other producers of statistics

- **Surveys of enterprises or establishments**
  - Surveys that draw their frames from the SBR can provide feedback to the SBR
- **SBR Quality Improvement Surveys**
  - conducted to obtain information that cannot be obtained from other sources
- **Profiling of large businesses**
  - to identify statistical units in large and complex enterprise groups

Chapter 6 - Data sources for SBR

Other sources

- **Telephone directories** – may be useful in validating SBR information
- **Other commercial sources** - e.g. telephone companies, private providers of water or energy
- **Internet search** – e.g. to identify new enterprises, addresses, contact information
- **Big data** –no practical examples of use by SBR yet available

Absence of common identifier for these sources and SBR results in need to rely on matching techniques, which are never perfect. This limits the use of such sources

Chapter 7 - Maintenance of SBR

Maintenance of statistical units and their characteristics

- **SBR maintenance strategy**
- **Recording of demographic events**
- **Handling of changes in characteristics**
- **Maintenance procedures**
- **Treatment of errors**

Chapter 7 - Maintenance of SBR

SBR maintenance strategy

- SBR has to be maintained to reflect the continuous changes in the economy
- Requires constant updating of units, links and characteristics
- Strategy should take into account
  - Available data sources
  - Maintenance groups of statistical units for efficiency and cost effectiveness – e.g. resources to update a statistical unit should reflect its importance and impact on published statistics and take the propensity to change into account
  - Time dimension – establish updating schedule, timing of updates, need for continuity rules

Chapter 7 - Maintenance of SBR

Demographic events

– an event with impact on the existence of statistical units or on links between statistical units, for example

- Deaths and births
- Concentration (merger, take over)
- De-concentration (split-off, break up)

- Define continuity rules for the statistical units in SBR
- An enterprise is considered to *continue* through a demographic event if its production factors continue
- interpreted as at least two of the three characteristics *controlling legal unit, economic activity* and *location* remain essentially the same

Chapter 7 - Maintenance of SBR

Handling of changes in stratification characteristics of units
- Immediate update upon changes in an economic/stratification characteristic may results in units flip-flopping across strata when close to boundaries
- increases risk for volatility in survey statistics

SBR maintenance procedures
- Apply continuity rules (stability rules) for updating characteristics
- Hold back update until changes have persisted for long enough to be considered permanent

Chapter 7 - Maintenance of SBR

Treatment of errors

- **Errors in identification characteristics**
  - should be corrected as soon as observed
- Errors in **economic/stratification characteristics**:
  - should be corrected subject to stability rules to avoid creating volatility/ inconsistency in survey populations, samples and statistical outputs
- Corrections should have minimal impact on SBR users
- Users should be informed when errors or their correction affect outputs
- Error metadata (type of error, original/new value, dates, sources…) should be recorded

Chapter 8 - Survey frame methodology

- **How to produce survey frames**
  - **In terms of GSBPM subprocesses**
- **Identify concepts (1.4)**
- **Design outputs (2.1)**
- **Design frame and sample (2.4)**
- **Design collection (2.3)**

Specify needs	Design	Build	Collect	Process	Analyse	Disseminate	Evaluate
1.1 Identify needs	2.1 Design outputs	3.1 Build collection instrument	4.1 Select frame and sample	5.1 Integrate data	6.1 Prepare draft outputs	7.1 Update output systems	8.1 Gather evaluation inputs
1.2 Consult and confirm needs	2.2 Design variable descriptions	3.2 Build or enhance process components	4.2 Set up collection	5.2 Classify and code	6.2 Variable outputs	7.2 Produce dissemination products	8.2 Conduct evaluation
1.3 Establish output objectives	2.3 Design collection	3.3 Configure work flows	4.3 Run collection	5.3 Review and validate	6.3 Scrutinise and explain outputs	7.3 Manage release of dissemination products	8.3 Agree on action plan
1.4 Identify concepts	2.4 Design frame and sample	3.4 Test production system	4.4 Finalise collection	5.4 Edit and impute	6.4 Apply disclosure control	7.4 Promote dissemination products	
1.5 Check data availability	2.5 Design processing and analysis	3.5 Test statistical business process		5.5 Derive new variables and statistical units	6.5 Finalise outputs	7.5 Manage user support	
1.6 Prepare business case	2.6 Design production systems and workflow	3.6 Finalise production system		5.6 Calculate weights			
				5.7 Calculate aggregates			
				5.8 Finalise data files			

Chapter 8 - Survey frame methodology

Identify concepts (1.4)

- Inconsistencies between survey results attributable to differences in frames should be minimised
  - Same frozen frame should be used by all surveys having same reference period
- Relationship between frame for an annual survey and the frames for a counterpart sub-annual survey
  - Easy to specify if frozen frame updated only annually
  - More complex if updated sub-annually

Design outputs (2.1)

- Variables in survey outputs may coincide with or relate to SBR characteristics, such as turnover or employment
- SBR may be a source for directly compiling statistics

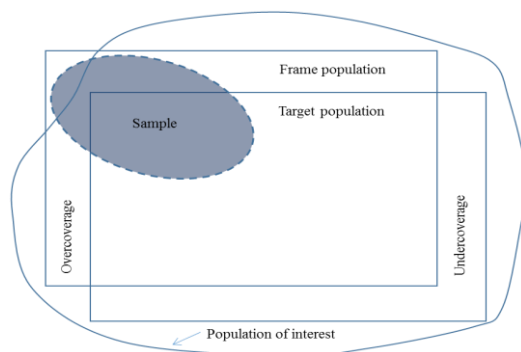### Design frame and sample (2.4)

- Define target population and coverage
- Select target statistical unit, typically establishment or enterprise
- Derive survey frame most closely matching target population
- Investigate possible over- and under-coverage and develop adjustments for estimates if need be

Chapter 8 - Survey frame methodology

Target and frame populations and sample

Chapter 8 - Survey frame methodology

Design collection (2.3)

- Includes defining possible differences between
  - sampled statistical units and observation units
  - observation units and reporting units
- Collect data directly from statistical units or use data from administrative sources or other statistical registers through linking
- Transform administrative data into statistical data

Chapter 9 - Dissemination

Dissemination of data from the SBR in terms of

- **Economic statistics**
- **Business demography statistics**
- **Micro data (individual data)**

Chapter 9 - Dissemination

Dissemination of economic statistics

- Direct production of economic statistics from SBR is possible only if SBR quality is sufficient
- Output should satisfy same conditions as for other surveys in terms of quality, confidentiality and access

Dissemination of business demography statistics

- There is a growing demand for entrepreneurship, economic growth and job-creation statistics
- Requires clear definitions of units and events, and specification of compilation methods

Chapter 9 - Dissemination

Dissemination of micro data (individual data)

- Access to individual data restricted by confidentiality
- Some NSIs offer access to individual data to researchers under conditions that ensure confidentiality
- In some countries publication of selected micro data, such as name and address, activity and legal status, is allowed

Annex E1: describes the Italian "register based census" as an example of statistics based directly on the SBR

Chapter 10 – Quality of SBR

- **SBR quality dimensions**
- **SBR and survey quality**
- **Quality of administrative registers**
- **Frame errors and their implications**
- **Metadata**
- **Quality assessment methods and indicators**
- **Quality policy and improvement**

Chapter 10 – Quality of SBR

SBR quality dimensions

Quality = the degree to which SBR meets user needs

- **Dimensions:** relevance, accuracy, timeliness, punctuality, accessibility, comparability, coherence
- **Costs** (including response burden) and cost-efficiency needs to be taken into account

Chapter 10 - Quality of SBR

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Quality issues specific to SBR

- Heavy dependency on administrative data
- Diversity of outputs and users
- Primary output (survey frames) comprises data for individual units rather than statistical aggregates
- Need to assess incidence of frame errors and their implications for survey processing and for survey estimates

Chapter 10 - Quality of SBR

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Quality policy/framework

- How and when to initiate quality improvements
- How to inform users about quality and quality problems

Quality assessment methods

- User surveys, SBR audits
- Micro and macro level assessments

Quality indicators

- Establish SBR quality indicators
- Measure quality of inputs, processes and outputs

Chapter 10 - Quality of SBR

Annex D1: Quality indicators for the Italian SBR

	Timeliness	Coverage	Completeness	Accuracy
Input				
Processes				
Output				

Annex D2: Quality assessment framework of the Columbian SBR

- Including validation rules and quality indicators

Chapter 11 - Key considerations in establishing SBR

- **Particularly for countries where an SBR is being developed, or is under review**
- **Provides guidance on**
    - **Planning**
    - **Governance and organisation**
    - **IT**

Chapter 11 - Key considerations in establishing SBR

Planning

- Identify main uses of the SBR
- Apply modular approach that allows gradual development of the SBR and prepares for future needs

Governance and organisation – include

- Relationships with users
- Legislative framework
- Resource considerations

Chapter 11 - Key considerations in establishing SBR

IT – software, databases

- Relational database management system (RDBMS) is the most common choice for SBR data infrastructure
- Extensive capacity for compilation, storage and documentation
- Flexible and standardized query language
- Ability to be extended for future requirements

Chapter 12 - Topics for further work and research

- Statistical units and profiling
- SBR as the backbone of economic statistics
- Use of administrative sources
- Use of new data sources
- International trade and economic development
- Development of new statistics
- Methodological developments
- International comparability

A pdf version of the Guidelines is available from UNECE's website:

www.unece.org/statistics

For printed copies, please send an email to

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