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Economic and Social Commission for Western Asia



UN-ESCWA

Collection of Industrial Statistics - Alternative Strategies

Workshop on Industrial Statistics

Rabat, Morocco

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Presentation Plan

- An Overview
 - Purpose, main uses, scope, statistical unit and coverage
- Benchmark Information
 - Economic Census, Business Registers, sampling frames.
- “Economic activity” as per SNA Production Boundary
- Categorisation of Establishments
- Strategies of Data Collection [partly in “survey design”]
- Choice of Strategy [discussed in “survey design”]



Overview:

Purpose and Main Uses

To provide comprehensive and accurate statistical information on industrial activity

- For framing and monitoring of
 - industrial development policies and
 - labour laws
- Compilation of National Accounts



Overview:

Scope of Industrial Activities

In terms of economic activities – ISIC Rev. 4:

- Mining and quarrying (Section B)
- Manufacturing (Section C)
- Electricity etc. (Section D)
- Water collection, treatment etc. and sewage (Section E)



Overview:

Contents of Industrial Statistics

- Demographic Statistics of Industrial production units
- Environment related
- Commodities production (quantity)
- Employment, Social security and Informal economy statistics
- Production related statistics, including value of input, value of output, value added and capital formation



Overview:

Coverage of Industrial sector

In principle, the coverage should be defined as:

All **economic activities** falling within the scope of ISIC

Rev. 4 Sections: B, C, D and E.

But multiple economic activities poses problems like:

- classification into industrial and non-industrial sectors - assigning a unique ISIC code;
- apportioning the values of production related parameters like
 - value of input, employment and wages & salariesto different activities.



Overview:

Choice of Statistical Unit

Establishment is ‘most appropriate for collection of production and employment data’ according to 1993 SNA.

An establishment is the smallest unit for which

- the range of data required are normally available
- activities carried out are more homogeneous than those in ‘enterprises’.

To cover the activities of **ancillary units**, these are required to be treated as separate establishments, but only when they are statistically observable.



Overview:

Establishment – operational definition

A single entity carrying out activities and owning or controlling resources for production

- of most homogeneous groups of goods and services
- usually at one location (sometimes over a wider area)
- of which separate records are available that provide data on production of
 - goods and services produced
 - materials, labour and physical resources used for production.

Note that definition adopted for Economic Census / surveys in the countries is often different.



Overview:

Coverage of Industrial sector - Revisited

All **establishments** with main economic activity falling within the scope of “Industrial sector”,

- treating ancillary units as separate establishments, only when statistically observable.

[Treatment of ancillary units discussed later]



Benchmark Information

- Benchmark information is required to ensure comprehensive coverage of the target population.
- Most essential for collection of industrial statistics: a complete list of all economic units (establishments).
- Kinds of benchmark information used:
 - Business register, based on administrative sources and/ or Economic Census
 - Results of Economic Census
 - Results of Population Census



Benchmark Information:

Its use in data collection (1)

- Most commonly used sampling frame for industrial data collection:
- a list of economic units,
 - mostly establishments for structural data (annual);
 - often enterprises for short-term (monthly or quarterly) production related statistics.
- In the context of data collection, this list is referred to as a **‘list frame’**.



Benchmark Information:

Its use in data collection (2)

- But ‘list frames’ are seldom complete.
- The within-scope units excluded from the list frame are, in some countries, covered using area sampling technique.
- This requires a complete list of well-defined small areas, for example
 - enumeration blocks,
 - enumeration area,
 - village etc.
- This is referred to as an ‘**area frame**’.
- Area frames are mostly built from the results of Economic / Population Census.



Benchmark Information:

Economic / Establishment Census (1)

An infrequent ‘complete enumeration’ enquiry

– often carried out along with the Population Census
– for collecting data on establishments for a limited number of items like:

- Most commonly - Name, address, location, kind of economic activity, legal and ownership status, employment
- In some cases – volume of sales, value of output, capital stock.



Benchmark Information:

Economic / Establishment Census (2)

- Economic / Establishment Census (EC) normally provides the most comprehensive set of data for building an area frame of the universe.
- It provides the data on number of establishments and workers by economic activities (ISIC) for each 'small area'.
- These are used while drawing samples for conducting establishment / economic surveys.
- The EC results are also used for creation and maintenance of Business Registers.



Benchmark Information:

Economic / Establishment Census (3)

- But, it is a costly operation.

Conducting it alongside the Population Census often help reduce the field operation costs.

- Moreover coverage: Mostly limited to ‘establishments’ – defined as recognizable and fixed places of business.

Thus, economic activities carried out

- without fixed premises: mobile units
- within households – without any recognisable features

are not covered in the EC.



Benchmark Information: **Business Register (1)**

- A statistical business register is a list of enterprises or establishments or both engaged in production of goods and/or services, with a unique identification code for each statistical unit.
- It is expected to provide the following data on the enterprises / establishments
 - name, address, location, kind of economic activity, legal and ownership status, employment of the establishment / enterprise
 - identifiable enterprise-establishment link:
name and address of the central / head office of an establishment;
a list of subsidiary legal entities and establishments from the central /head office .



Benchmark Information: **Business Register (2)**

- A Business register should be as representative as possible.
- It should contain current information on its constituents.
- Thus should be maintained over time by taking note of the changes like
 - merge, split up or go out of business (deaths), or
 - change in production activities, or
 - move location while new enterprises may be created (births).



Benchmark Information: **Business Register (3)**

Main Sources used for creation and maintenance of BR:

- **Economic Census:**
The data on Name, address, location, kind of economic activity, legal and ownership status, employment are used to build a list of establishments.
- **Administrative data source:**
Business registration systems, VAT tax systems, payroll tax systems, and other Government records like those for unemployment insurance, social security or other programmes.

Desirably, a single organizational unit within the national statistical office should be responsible for frame maintenance.



Benchmark Information: **Business Register (4)**

Limitations of Administrative sources:

- Usually provides a list of legal entities, or some breakdown of these entities, to suit the administrative purpose, and not for statistical purposes
- Are known to contain inactive units.
- Typically, does not provide a list of enterprises broken down into establishments (as defined for statistical purpose - SNA)
- Are not classified by economic activity.
- In the developing countries, establishing and maintaining a complete directory is very difficult and expensive.



“Economic activity” as per SNA Production Boundary (1)

The production boundary of the System consists of production of

- all goods, including
 - own-account production of goods that are retained by their producers for their own final consumption or gross capital formation;
- all services transacted between two or more institutional units and
- own-account production of housing services and
- domestic and personal services produced by employing paid domestic staff.



“Economic activity” as per SNA Production Boundary (2)

Thus, SNA production boundary includes also the production of goods by the household members for households’ own use.

This category includes:

- Agricultural production for own final use of the households
- Construction and major repairs of residences for own use
- Activities like food processing (preparation of مربى \ كبيس \ املابس), stitching and knitting clothes solely for household members.
 - These fall in the Division 98 of ISIC Rev. 4: undifferentiated goods producing industrial activities of households for own use.

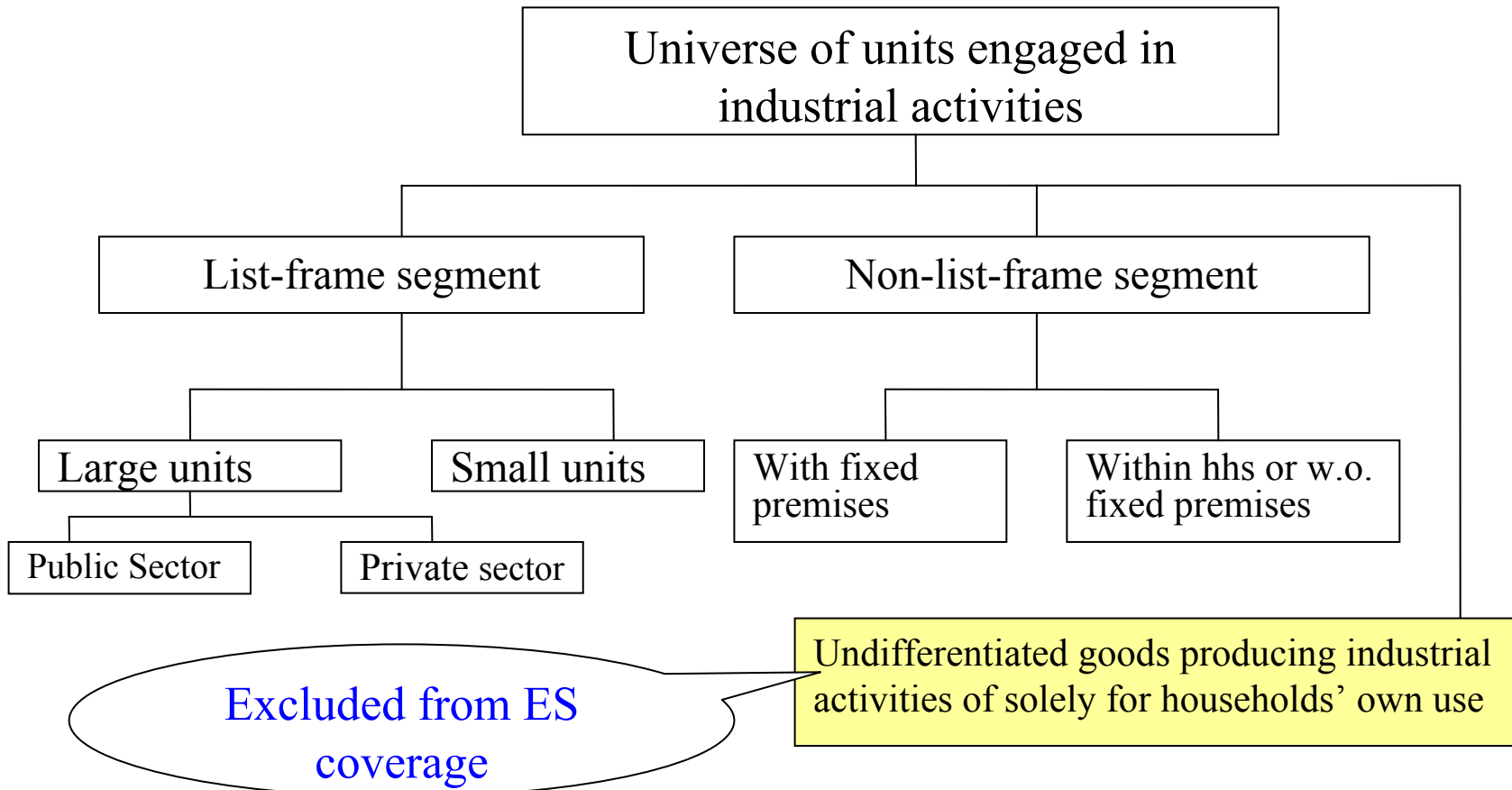


Categorisation of establishments

- Required for producing the data required for institutional sector accounts according to SNA.
- An appropriate categorisation is also required to be adopted for framing a suitable data collection strategy.



Categorisation for data collection





Exclusion of non-market production solely for own use - Reasons

- Difficult to collect data on these activities in the framework of establishment surveys.
- The activities in Div. 98 are not treated as productive activity in all countries.
- Valuation problem.
- However, the data on output of a market-production unit that is consumed by the owner household can be collected in ES.



Categorisation:

Coverage of Industrial Survey (1)

All establishments with *main activity* falling in the industrial sector and producing *mainly for the market*.

[*Main Activity*: The activity that accounts for the largest share of value added, determined using “top-down “ method.]

Categories required to be covered:

- List frame segment: All *within-scope* establishments in the list frame
- Non-list frame segment: All *within-scope* establishments not in the list frame.



Categorisation:

Coverage of Industrial Survey (2)

List frame segment: Includes

- **Public sector units:** All establishments of public sector enterprises.
Data for these are often available from Government records.
Thus may be excluded from the coverage of industrial survey.
- **Corporate sector units:** all establishments of corporate sector enterprises.
- **Other large private sector units:** above a certain size (cut-off point) ; and
- **Small units:** below a the cut-off point.



Categorisation:

Coverage of Industrial Survey (3)

Non-list frame segment: includes

- **Those with fixed premises outside households:**
These are usually within the coverage of EC, but are not covered in the latest EC – either because they are ‘new born’ unit or are missed during field work.
- **Those without fixed premises - mobile units working outside households:**
These are mostly outside EC coverage and not under an effective registration system. Thus, excluded from list frame.
- **Working within households:**
Virtually none of these are covered in the EC.



Strategies of Data Collection

- Basic Approach – FIRST
- Avoiding overlap – operational rules:
 - Classification by main activity
 - Between-surveys non-overlap: alternative methods
 - Ancillary units: recommended treatment and associated operational problem
- List-frame based survey component:
 - Survey design: available options
 - Integrating annual and infra-annual enquiries
- Area-frame based survey component:
 - Three main alternative approaches
 - Area-frame based enterprise survey
 - Mixed household enterprise survey
 - Integrated “1-2” Survey

} [discussed in
“survey design”]

} [discussed in
“survey
design”]



Strategies:

Basic Approach – FIRST (1)

Complete coverage requires devising a single strategy for producing statistics on all units in the scope without omission and duplication.

Fully Integrated Rational Survey Technique (FIRST) can be used for collection of data from all within-scope establishments of all sizes operating in an economy.



Strategies:

Basic Approach – FIRST (2)

The FIRST methodology divides the universe into two parts:

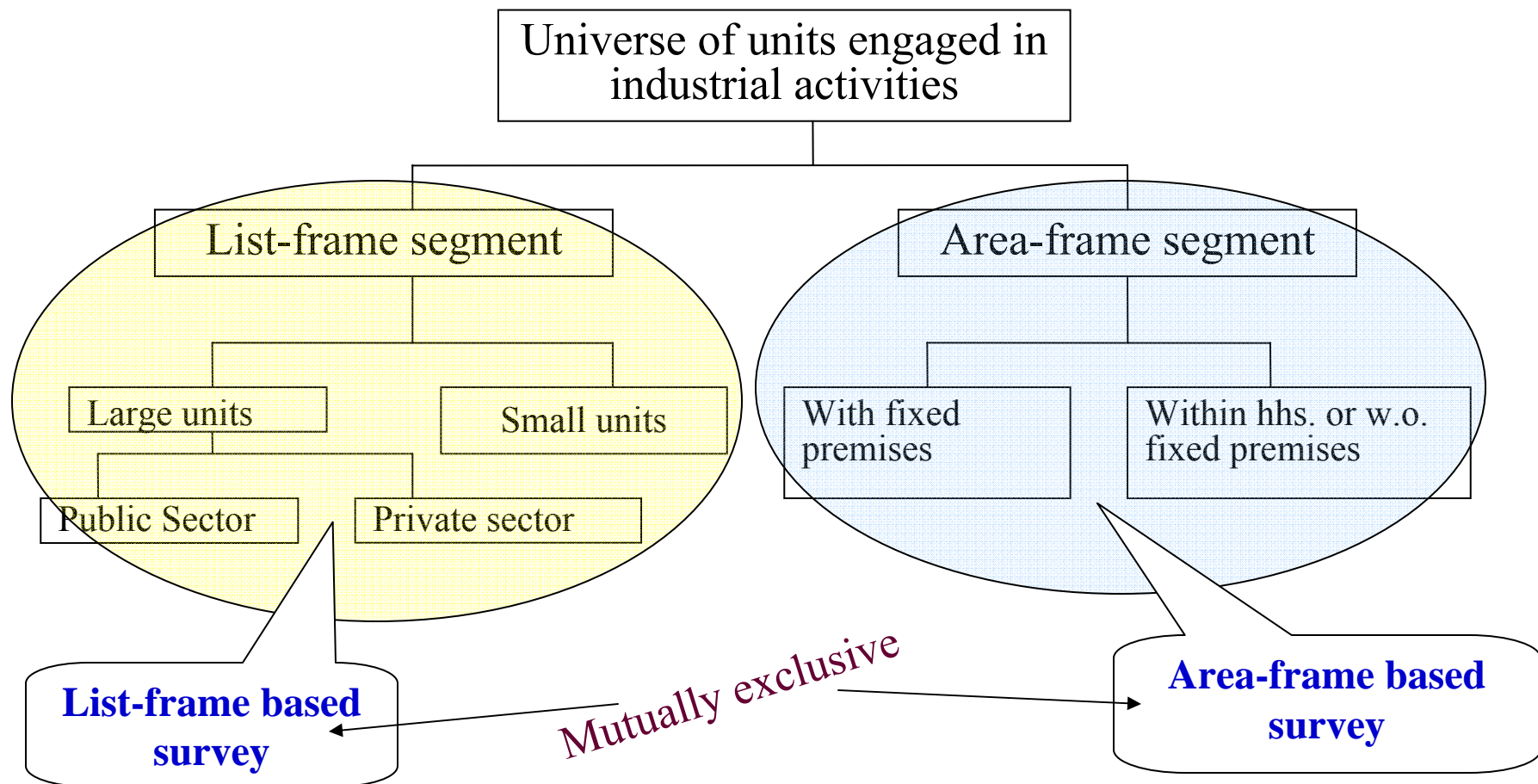
- List-frame segment
- Area-frame segment

The list-frame segment is covered by a survey based on list frame – Business Register.

But business register being incomplete, the list-frame based survey is complemented by an area-frame based survey to cover the enterprises not included in the register – the area-frame segment.



Strategies: Basic Approach – FIRST (3)





Strategies:

Avoiding overlap – operational rules (1)

Classification by main activity

- Covering all economic activities in an integrated manner ensures a no overlap – i.e. no omission and duplication of units.
 - This, requires re-classification of an establishment if detailed enquiry reveals an inappropriate sector assignment at the selection stage.
- The separately-conducted activity surveys suffer from potential for omission and duplication of units.



Strategies:

Avoiding overlap – operational rules (2)

Between-surveys non-overlap:

- The FIRST requires that the units covered in the list-frame based survey are excluded from the area-frame based survey.
- Alternative methods - operational rules:
 - A set of criteria for defining the list-frame segment that can be applied easily to exclude the list-frame units from the area-frame survey.
 - In absence of well-defined criteria, a list of all the list-frame units located in each selected area may be extracted from the register and given to the field workers for excluding them from area-frame survey.



Strategies:

Avoiding overlap – Ancillary Units (1)

Definition: undertakes productive activity with the sole purpose of producing one or more types of services for intermediate consumption of other establishments of the same enterprise.

Examples of services provided:

- keeping records (as in the head offices),
- communication,
- purchasing of materials and equipments,
- personnel management,
- marketing and sales outlet, warehousing etc.



Strategies:

Avoiding overlap – Ancillary Units (2)

IRIS recommends treating ancillary establishment as a separate establishment, only when

- it is statistically observable, i.e.
when it is able to provide separate accounts for at least the value of IC, CE, GFCF and employment;
or
- it is in a geographical location different from the establishment(s) it serves.



Strategies:

Avoiding overlap – Ancillary Units (3)

Treatment recommended for Ancillary Units

- value of their output derived as the sum of costs, i.e. CE + CFC + other (t-s) + IC;
- output of ancillary unit treated as IC – appropriately apportioned – of the establishments it serves.

An associated operational problem: data required to be collected from the ancillary units on its value of production that is used as IC for the establishment it serves.



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