

UNITED NATIONS

Economic and Social Commission for Western Asia



جمع الاحصاءات الصناعية استراتيجيات بديلة

ورشة عمل اقليمية في الاحصاءات الصناعية

بيروت- لبنان

إسماعيل بُدّ

15-16 نوفمبر 2011





محتويات العرض

- An Overview نظرة عامة
 - الهدف من العرض و الرسالة
- Benchmark Information - معلومات مرجعية
 - Economic Census, Business Registers, sampling frames.
- Categorisation of Establishments تصنيف المنشآت
- Strategies of Data Collection استراتيجيات جمع البيانات
- Choice of Strategy اختيار الطريقة المناسبة



نظرة عامة: الأهداف و الرسالة

- ✓ رصد و حصر المنشآت الصناعية
- ✓ جمع البيانات ذات الصلة
- ✓ إختيار الاستراتيجية و الطريقة المناسبة لجمع البيانات حسب ظروف البلد
- ✓ تنسيق عمليات جمع البيانات



Overview: **Scope of Industrial Activities**

In terms of economic activities – ISIC Rev. 4:

- Mining and quarrying (Section B) التعدين و المحاجر
- Manufacturing -(Section C) الصناعات التحويلية
- Electricity etc (Section D) . الكهرباء
- Water collection, treatment etc. and sewage (Section E)



Benchmark Information

معلومات مرجعية

معلومات ضرورية تغطي مجتمع المنشآت

- (establishments) قائمة كاملة للمنشآت
- Kinds of benchmark information used:
 - Business register, based on administrative sources and/ or Economic Census
السجل التجاري
 - Results of Economic Census
نتائج تعداد المنشآت
 - Results of Population Census
نتائج التعداد السكاني



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**'. اطار بقائمة اسماء الشركات.



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)

تعداد المنشآت

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. **عالي التكلفة**

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) السجل التجاري

- 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.



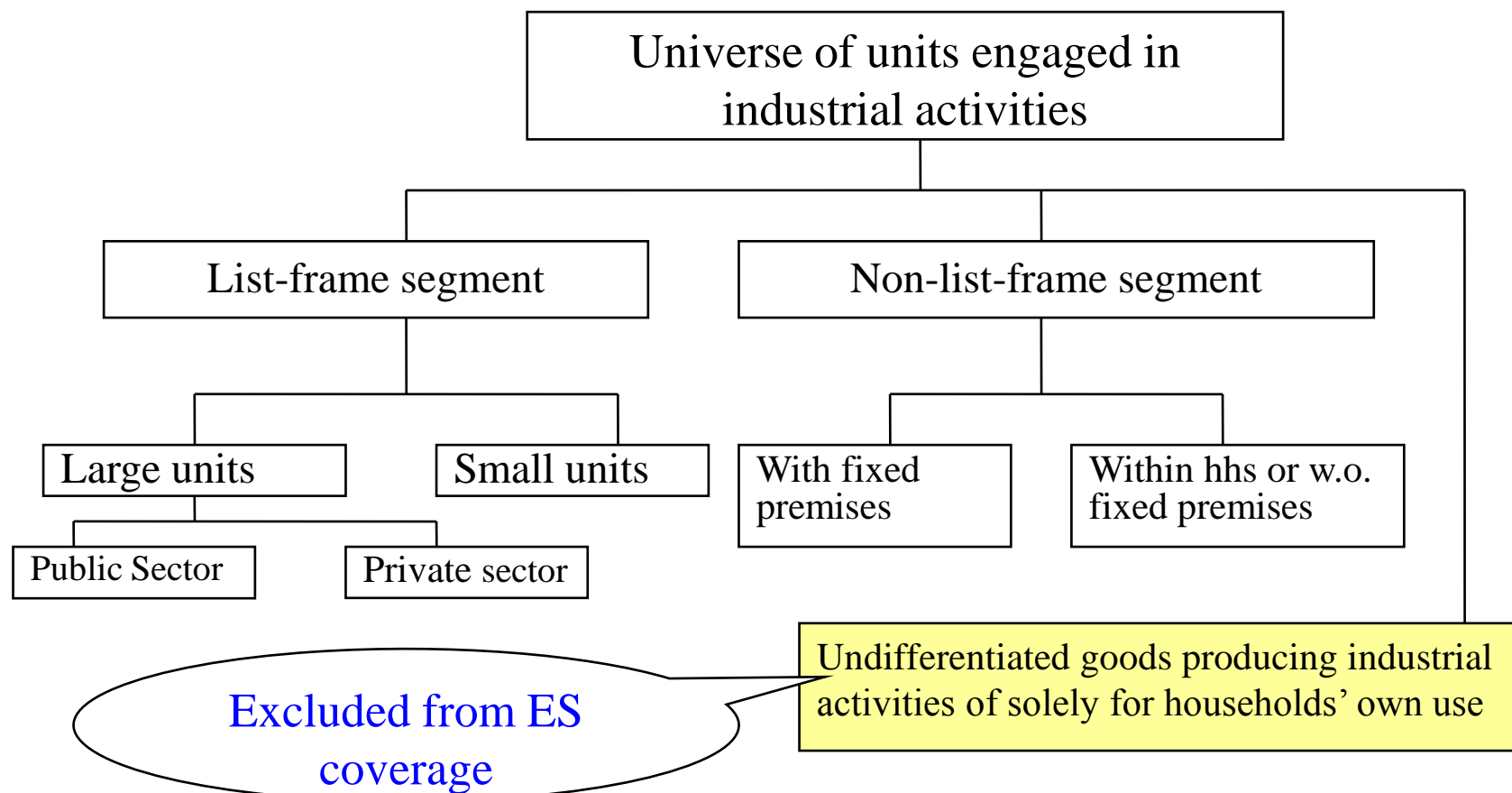
Benchmark Information: **Business Register (4)**

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.



Categorisation for data collection





Strategies of Data Collection

- Basic Approach – FIRST
- Avoiding overlap – operational rules:
 - Classification by main activity
 - Between-surveys non-overlap: alternative methods
- 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



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:

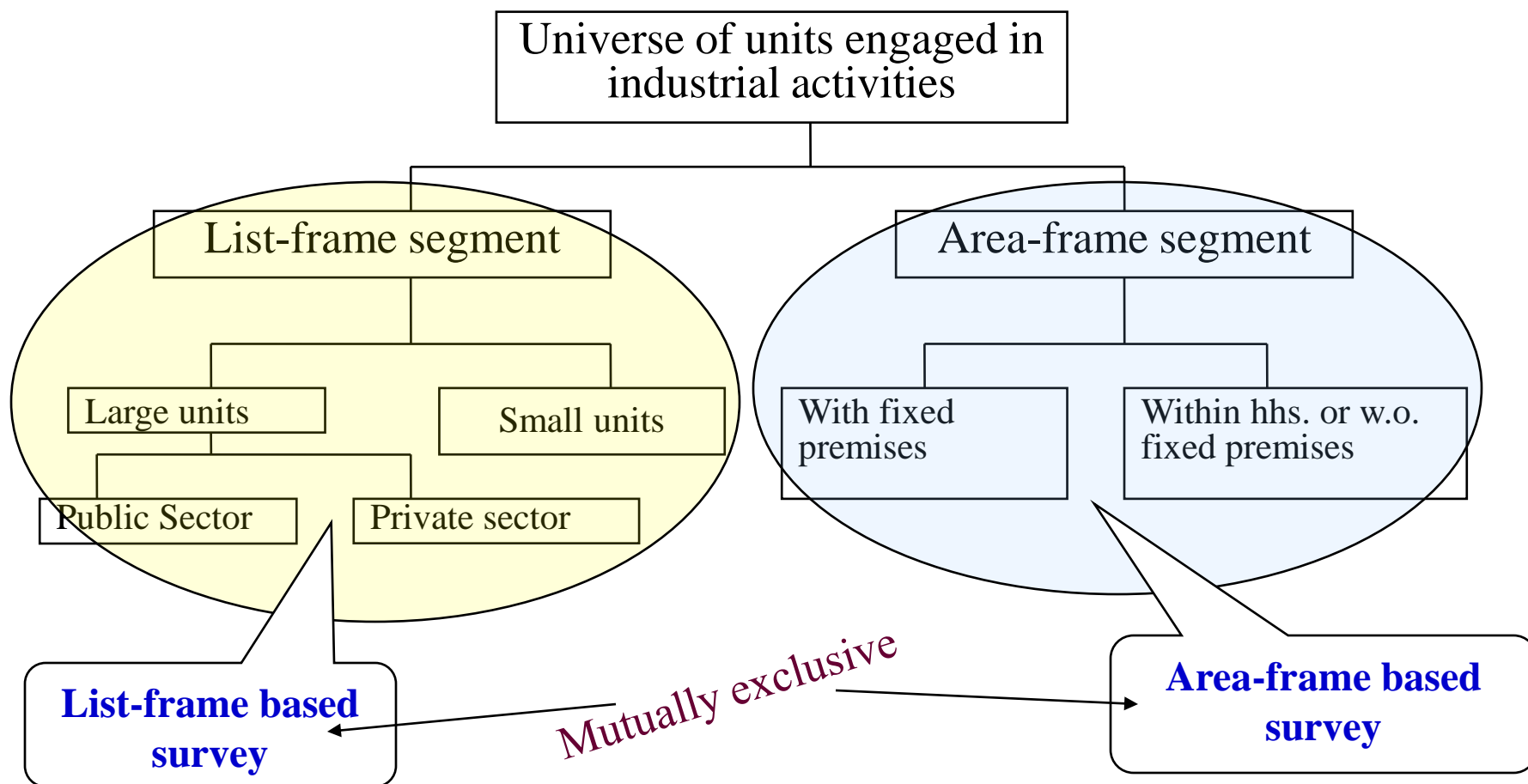
- List-frame segment
- Area-frame segment

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.



الوحدات المشمولة في الأنشطة الصناعية

في السجل التجاري
(list-frame segment)

ليست في السجل التجاري
(Non-list frame Segment)

وحدات كبيرة

وحدات صغيرة

مكان ثابت

متحرك

قطاع عام

قطاع خاص

تغطي من خلال
العينة او
بيانات السجلات

←1→

Area frame

←2→

Should be covered through
Sample surveys

عد مكتمل

Segment 1:
Large units should be
covered on a complete
enumeration basis

Segment 2:
Remaining through
sample surveys

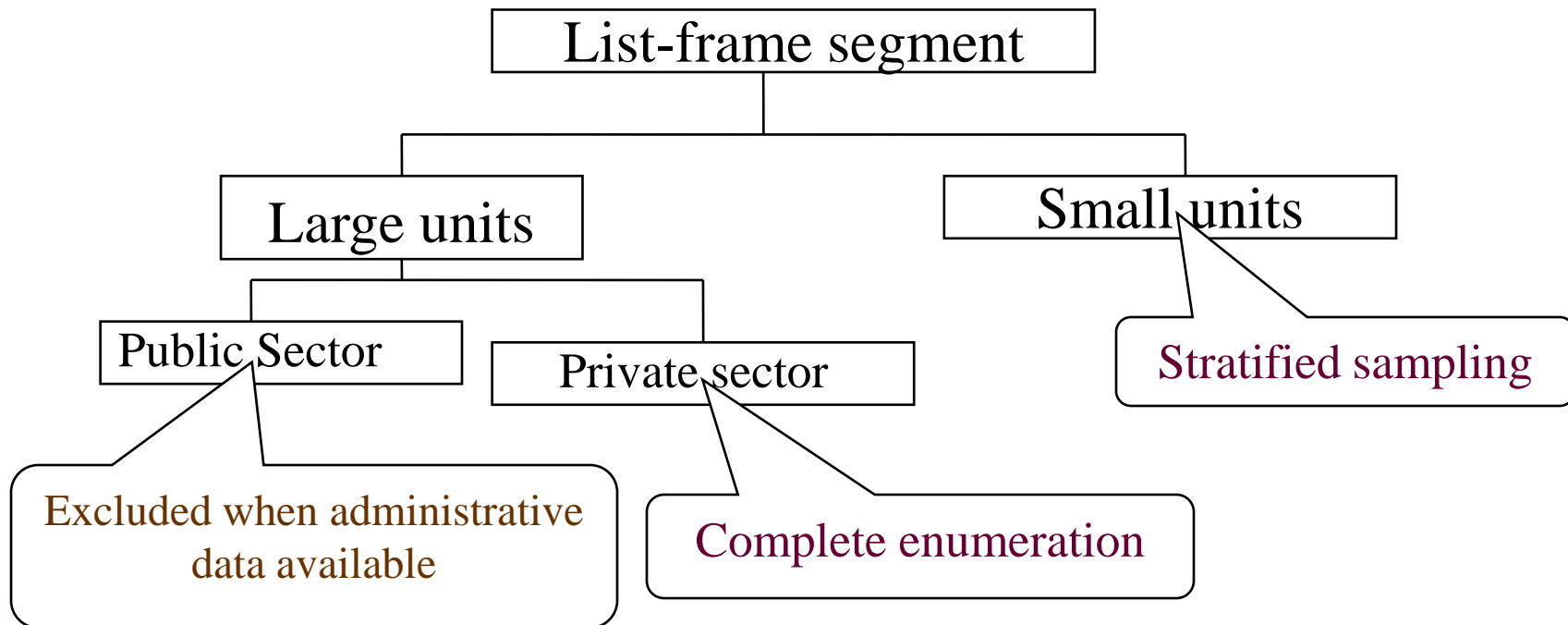
1. All units on the business register are excluded from the area frame (i.e. non-list frame segment).
2. All units in the sample that are part of a list frame segment and included therein are excluded from the sample of non-list frame segment.



Strategies:

List-frame based survey component (3)

Survey Design: Available options

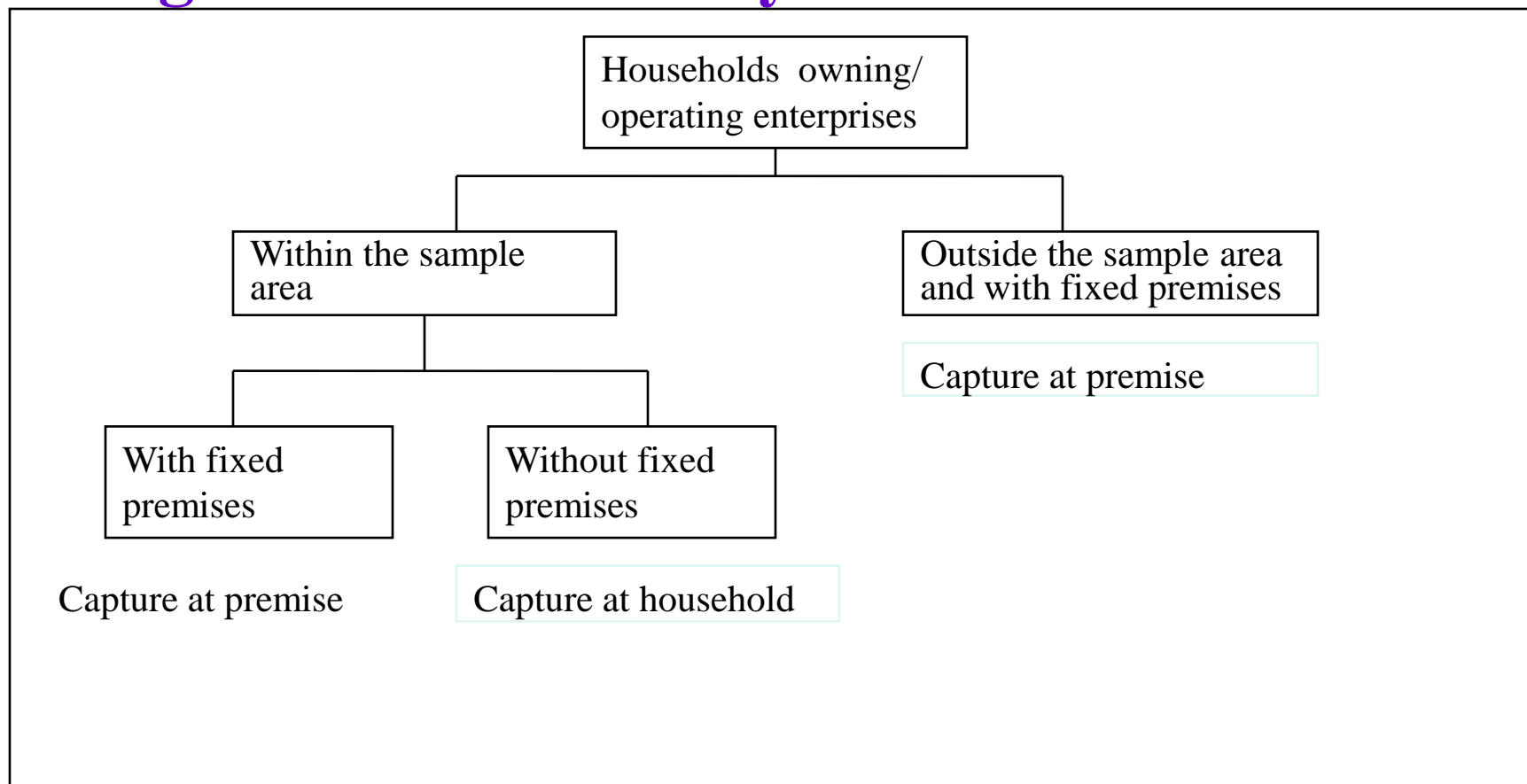




Strategies:

Area-frame based survey component

Integrated “1-2” survey





Choice of Strategy (1)

For an appropriate choice strategy issues involved:

- Availability of benchmark information
- Country-specific relevance
- Affordability
- Accuracy
- Timeliness.



Choice of Strategy (2)

Sampling frame for area-sample based establishment survey?

- The sampling frame should have –
data on number of units by economic activity for each area unit.
- Economic census generally provides such data.
- If Economic Census is not done or is very outdated, Population Census results on workforce by economic activities may be used.



Choice of Strategy (3)

Integrating Annual and Infra-annual enquiries?

- Possible only when quarterly accounts are maintained by the establishments.
- May not provide results of infra-annual enquiry in time.
- Not relevant for countries of the region.

Rotating Panel Sample?

- A panel sampling with annual rotation can be used for covering “small units stratum” of the “list frame segment”,
 - instead of *repeated cross sectional design* (independent samples on different occasions) – the usual practice
 - or a *fixed panel sample design*.
- Expected to provide better estimates of ‘change’ parameters.



Choice of Strategy (4)

“1-2” Survey or MHES?

- “1-2” surveys produce less efficient estimates than MHES,
- but are cost-effective, being integrated with a regular household surveys (like LFS).
- Sampling errors of “1-2” survey estimates may be within acceptable limits,
 - particularly when sampling fraction of LFS is high.
- Thus, “1-2” approach can be adopted in countries where
 - LFS has high sampling fraction and / or
 - Non-list frame segment is insignificant.



شكرا