



This module is part of the

Memobust Handbook

on Methodology of Modern Business Statistics

26 March 2014

Theme: Asymmetry in Statistics – European Register for Multinationals (EGR)

Contents

General section..... 3

- 1. Summary 3
- 2. General description..... 3
 - 2.1 Outward FATS 3
 - 2.2 Inward FATS 4
 - 2.3 Key population characteristics 4
 - 2.4 Organisation of the statistical production processes..... 4
 - 2.5 Frame population methodology..... 4
 - 2.6 On frames, target populations, frame populations and survey populations..... 5
 - 2.7 Frames and frame populations in a multi-user environment 5
 - 2.8 EGR methodology on FATS frame populations 7
 - 2.9 EGR benefits 9
- 3. Design issues 10
- 4. Available software tools 10
- 5. Decision tree of methods 10
- 6. Glossary..... 10
- 7. References 10

Interconnections with other modules..... 11

Administrative section..... 12

General section

1. Summary

All over the world, globalisation is seen as the predominant agent of change and the main policy challenge. At the heart of this complex and somewhat blurry concept, however, lie businesses and their ever-increasing drive to expand their activities across national borders, most notably by establishing foreign affiliates. Europe plays a key role in this. The EU has become a very important destination for foreign companies and their affiliates, and European businesses are among the most active around the world. A host of crucial policy challenges flow from this, not least the issue of outsourcing jobs and keeping European firms competitive. Consequently, there is a huge and ever-growing demand for data on these developments. Foreign Affiliates Statistics (FATS) statistics are particularly useful because they help explain how businesses are expanding internationally and what the consequences are for the European Union.

Every EU/EFTA country has to compile Outward and Inward FATS statistics. Within a country a National Statistical Institute or a National Central Bank is appointed as compiler. Some countries produce also intra-EU data for Outward FATS. In theory intra-EU statistics compiled by Outward FATS of country A for EU/EFTA country B should be equal to Inward FATS statistics of country B.

Example from praxis:

Outward FATS of country A produces the following figure: multinational enterprise groups controlled by a resident legal entities in country A are controlling 1101 enterprises resident in country B. Inward FATS of country B should produce the following figure: 1101 enterprises resident in country B are controlled by a legal entity in country A. However country B publishes 505 enterprises, a difference of 596 enterprises.

These differences or asymmetries can have different causes. This paper is dealing with one type of cause: differences in frame populations and how register methodology, in this case frame population methodology of the EuroGroups register (EGR) can contribute to reduce/eliminate these kinds of differences.

2. General description

2.1 Outward FATS

The **Outward FATS target population of statistical units** is composed of all foreign enterprises (see also the module “Statistical Registers and Frames – The Statistical Units and the Business Register”) located in extra-EU countries or intra-EU countries that are controlled by an institutional unit resident in an EU Member State. ‘Foreign enterprise’ shall mean an enterprise not resident in the compiling country over which an institutional unit resident in the compiling country has control.

The **Outward FATS target population of reporting units** differs from the population of statistical units. To identify the relevant target population of reporting units and to unambiguously associate the statistical units with them: the ‘Ultimate Controlling Institutional unit approach’ (UCI) is applied.

2.2 *Inward FATS*

The **Inward FATS target population of statistical units** comprises all enterprises and all branches¹ under foreign control. Statistical data have to be allocated to the country of residency of the ‘Ultimate Controlling Institutional unit’ (UCI). The Inward FATS target population is a subset of the target population of Structural Business Statistics (SBS). Target populations of statistical and reporting units are equal in inward FATS, as data are collected directly from enterprises and branches on which information is needed.

2.3 *Key population characteristics*

Two kinds of statistics are compiled: Inward and Outward FATS. The reference period is the calendar year. Presently the scope of Inward FATS is restricted to enterprises resident in EU/EFTA country classified in B to N and PQRS of NACE rev.2. Member States are obliged to compile extra EU outward FATS data and are not obliged to compile intra-EU statistics. Nonetheless, given the users interest in this information, Member States are asked to compile these data on a voluntary basis.

- Inward and Outward FATS use the same statistical unit: the enterprise
- For the EU area the populations of enterprises for Inward and Outward FATS are overlapping.
- The Inward FATS population of enterprises is a sub-population of the Outward FATS population of enterprises
- The Inward FATS population of enterprises is a sub-population of the SBS target population of enterprises
- The ‘Ultimate Controlling Institutional unit’ (UCI) is a common concept applied to the population of reporting units and to define for enterprises the country of foreign control (=country of residency of the ‘Ultimate Controlling Institutional unit’ (UCI)).

2.4 *Organisation of the statistical production processes*

FATS statistics are produced by National Statistical Institutes or National Central Banks in 31 EU+EFTA countries. Every organisation is designing and implementing its own statistical production process.

2.5 *Frame population methodology*

The challenge is the definition and implementation of a methodology (called: frame population methodology) which guarantees that the survey populations used in statistical production processes on globalisation:

- a) don’t have double counting nor have ‘gaps’
- b) are synchronised in case of sub- or overlapping populations used in different statistical activities
- c) have identical classifying characteristics like NACE and country code (activity and geographical breakdown)

¹ Branches under foreign control are considered as quasi enterprises.

- d) are based on a common view on units, e.g., statistical unit enterprise or ‘Ultimate Controlling Institutional unit’ (UCI).

Frame population methodology is guideline system consisting of rules, procedures and tools for the creation, maintenance and use of frame populations.

2.6 On frames, target populations, frame populations and survey populations

According to the Memobust glossary: ‘Population is the total membership or population or “universe” of a defined class of people, objects or events. There are two types of population, viz, target population and survey population. A target population is the population outlined in the survey objects about which information is to be sought and a survey population is the population from which information can be obtained in the survey. The target population is also known as the scope of the survey and the survey population is also known as the coverage of the survey. For administrative records the corresponding populations are: the “target” population as defined by the relevant legislation and regulations, and the actual “client population”.’

The Outward FATS frame population of reporting units for statistical reference year T consists of ‘Ultimate Controlling Institutional units’ (UCIs) resident in the EU, as registered in the EGR and referring to 31 December of year T.

The Inward FATS frame population for statistical reference year T consists of foreign controlled enterprises active in reference year resident in the EU, classified in section B to N and PQRS of NACE rev.2 and as registered in the EGR.

2.7 Frames and frame populations in a multi-user environment

A statistical system consists of different statistical activities aimed at describing (a part of) the same target population (see also the module “Statistical Registers and Frames – Survey Frames for Business Surveys”). To allow integration and to secure coherence and consistency of statistical frame populations should be shared, not only on the country level but also on, e.g., EU level.

Part of a frame population methodology is agreement on the *frame* in which the creation and dissemination of frame populations among different users/statistical activities takes place. Generally statistical business registers are appointed performing the function of *frame*.

The role of national business registers should be enhanced as a basic infrastructure element where the national statistical authorities should identify and maintain the statistical units for business statistics and should be used as a source of information for the statistical analysis of the business population and its demography, for the definition of population frames of surveys and for establishing the link to administrative data.

Draft regulation on European business statistics (FRIBS) – version 15 May 2012

Statistics on globalisation or even statistics in a globalised world require adding a supra national dimension to the frame population methodology, which means not only that a supra national *frame* is needed but also harmonisation of national frame population methodologies and additional rules, procedures and tools.

The EuroGroupsRegister (EGR) aims becoming the supra national frame for statistics on globalisation among which FATS statistics. The EGR is integrating data from relevant sources with the objective to compile frame populations for statistics on globalisation, building a European statistical business register of multinational enterprise groups

Having a system of national statistical business registers and a European statistical business register of multinational enterprise groups, unambiguous rules on the roles of and the relationships between these registers are needed.

The role of the EGR register is complementarily to the national statistical business registers.

The complementarity approach means that:

1. The national statistical business registers are responsible for the frame populations of national enterprises facilitating the national integration and coherence of data collected by the national statistical activities. The EGR frame population methodology considers the national business registers as the *authentic store* for national frame populations of enterprises.
2. The EGR is responsible for the population of multinational enterprise groups controlled by ‘*Ultimate Controlling Institutional units*’ (UCIs) and responsible for the links with the national enterprises facilitating the supra national integration and coherence of data collected by the national statistical activities (vertical integration). The EGR considers itself as the *authentic store* for the population of ‘*Ultimate Controlling Institutional units*’ (UCIs) and the attribute ‘*country of the UCI*’ of national enterprises belonging to for the population of multinational enterprise groups.

The EGR as the frame for statistics on globalisation consist of a network of the central EGR register and national statistical business registers.

The complementarity rule implies rules on data flows. Changes on frame populations must be first processed in the *authentic store* before other data stores are updated. This rule is called: ‘**single flow principle**’. For example: a proposal for change of a NACE code of an national enterprise has to be first processed in the national statistical business register before the change reaches the EGR. The other way around: a change in the ‘*country of the UCI*’ of a national enterprise has to be first processed in the EGR before it is applied in the national statistical business register.

The business population is a very dynamic one. Statistical production processes need stable frame/survey populations during a production cycle. Changes in the population during the phase of data collection or during later phases can have serious complicating consequences, methodological as

well as organisational. There exists a high interest in **freezing** survey populations once a statistical production process has started.

This requires rules, procedures and tools dealing with *frame errors*: **frame population error procedure**. Frame errors are mistakes in the frame population due to time lags in information flows, erroneous information, misinterpretation of information etc. Basic rules of this procedure are:

- a) all statistical activities apply agreed rules in dealing with frame errors, e.g., an erroneous NACE code is kept in the statistical outcome except when rule b) is applicable;
- b) frame errors considered as ‘significant for the quality of the statistical output’ are undergoing a process of validation and acceptance. The outcome has to be implemented by all statistical activities involved.

2.8 EGR methodology on FATS frame populations

2.8.1 Outward FATS

The objective of EGR 2.0 is to provide by EU+EFTA country Master Outward FATS frame populations of reporting units (called: Master National Outward FATS frame population of reporting units) for reference year T in April $T+1$. [Table 1]

Table 1. Descriptive coordinated characteristics of the National Outward FATS frame population of reporting unit’s reference year T .

	Characteristic	Explanation
1	Frame reference year	Reference year of the frame population
2	EGR ID of the UCI	A meaningless ID assigned by the EGR system to a legal unit which is defined as Ultimate Controlling Institutional Unit and assigned as reporting unit for Outward FATS to be applied for the period of the frame reference year. In the EGR version 1.0 it is called EU_LEU_ID. This number will stay in EGR version 2.0.
3	Name of the UCI	Legal name of a legal unit which is defined as Ultimate Controlling Institutional Unit.
4	EGR ID of the Global Enterprise Group	A meaningless ID assigned by the EGR system to global enterprise groups. In case of changes in the structure of a group (merging, take-over etc.) the assigned of new ID or the continuation of an ID will be based on the methodology for economic demographic statistics
5	Name of the Global Enterprise Group	The name is included because it is used in the communication between staff.
6	Date in population (month/-year)	The annual population is defined as a volume amount: all groups active in whole or part of the reference year. The date defines from which month the unit has to be included in the frame population.
7	Date out of population (month/-year)	This date defines the last month of inclusion in the frame population

The EGR can and (depending on the user needs) will provide more information, e.g., attributes on global enterprise group, which can be used for stratification of samples or defining thresholds: employment, turnover and assets by reference year and information on links to enterprises and legal units.

2.8.2 Inward FATS

The objective of EGR 2.0 is to provide by EU+EFTA country Master Inward FATS frame population of enterprises (called: Master National Inward FATS frame population of enterprises) for reference year T at the end of March T+2.

The population of enterprises is defined according to the SBS criteria:

- Active in reference year T (= volume population)
- Resident in compiling country
- Classified in B to N and PQRS of NACE rev.2
- Belonging to SBS frame population of compiling country for reference year T.

Table 2. Descriptive coordinated characteristics of the National Inward FATS frame population of enterprises.

	Characteristic	Explanation
1	Frame reference year	Reference year of the frame population
2	EGR ID of the Enterprise	The ID is needed in electronic data exchange.
3	NSA ID of the Enterprise	ID assigned by a NSA to an Enterprise
4	Name of the Enterprise	The name is included because of its use in the communication between users.
5	Date in population (month/-year)	The annual population is defined as a volume amount: all enterprises active in whole or part of the reference year. The date defines from which month the unit has to be included in the frame population.
6	Date out of population (month/-year)	This date defines the last month of inclusion in the frame population
7	EGR ID of the Global Enterprise Group	A meaningless ID assigned by the EGR system to global enterprise groups. In case of changes in the structure of a group (merging, take-over etc.) the assigned of new ID or the continuation of an ID will be based on the methodology for economic demographic statistics
8	Country of the UCI	Country of the Ultimate Controlling Institutional unit defined in accordance with the FATS Recommendations Manual
9	NACE code	According to NACE Rev 2
10	Institutional sector code	According to ESA2010
11	Size class	Employment classes according to SME definition, used in SBS

The EGR can and will provide more information, e.g., address state of activity, employment, turnover, link to global enterprise group and links to legal units and units in administrative registers. This kind of information will be the most topical information available. For example: updates after March T+2

are possible for attributes like employment, whether the enterprise was active in the reference year or turnover.

The critical milestones are April T+1 for Outward FATS and March T+2 for Inward FATS. The disseminated frame populations of those dates are called: ‘Master frame populations’. The ‘master’ versions contain the content serving the coordination of statistics and should be used as the only reference on statistical units and their characteristics in the production of statistical output.

Final disseminated frame populations are the product of data collection, data processing and data analysis (including validation)². To produce a final population two or more iterations are needed. Final versions of frame populations are called Master version of frame populations. The frame populations produced in the iterations before the production of a master population are called initial and intermediate versions of frame populations. The initial and intermediate frame populations serve data quality management (see next section).

Regarding the National Outward FATS Frame population of reporting units an initial version for reference year T will be provided by the EGR in September year T. An intermediate version will be provided in January/February year T+1.

Regarding the National Inward FATS Frame population of enterprises an initial version for reference year T will be provided together with the Master Outward Frame population of reporting units in April T+1. At least one intermediate version will be provided in the period September T+1/March T+2 for validation after which a master version is published.

The content of a master frame population (as defined in Tables 1 and 2) will be in principle ‘frozen’. Changes in the content of units and characteristics as described in Tables 1 and 2 give serious complications in statistical production process. For example a change in a the UCI and its residency implies a change in a national Outward FATS frame population which implies a change in the survey populations of compiling countries/statistical authorities (e.g., sending a new questionnaire, deleting data, grossing-up procedures etc.). The frame population error procedure provides rules for dealing with changes after the dissemination of Master frame populations. Accepted changes will be processed in the Master frame populations.

2.9 EGR benefits

Official European statistics should be credible. One of the requirements is that statistical figures published by Eurostat and Member States are consistent: ‘*tell the same*’. The example below shows that this is not always the case.

Outward FATS of country A produces the following figure: multinational enterprise groups controlled by a resident legal entities in country A are controlling 1101 enterprises resident in country B. Inward FATS of country B should produce the following figure: 1101 enterprises resident in country B are controlled by a legal entity in country A. However country B publishes 505 enterprises, a difference of 596 enterprises.

² ESSnet EGR is using the GSBPM, version 4.0 – April 2009 as standard terminology for business processes needed to produce EGR output.

An EGR based on a EGR frame population methodology offers a solution provided that the MS strictly follow the rules and procedures agreed. Critical parts of these rules are:

1. FATS statisticians of country A and B accepts the (country of) UCI as registered in the EGR.
2. FATS statisticians of country A and B accept the EGR population of enterprises in country B.

Moreover the EGR contains identifying information on enterprises in country B. As country B is responsible for data collection on enterprises producing SBS statistics the EGR offers the opportunity for sharing data collected which not only contributes to consistency but also reduces response burden (country does not need to collect data on enterprises in country B anymore).

FATS statistics is one statistical activity which benefits from the EGR. Other statistics like Foreign Direct Investment (FDI) and foreign trade statistics can gain quality by using the EGR as provider of coordinated frame populations.

3. Design issues

4. Available software tools

5. Decision tree of methods

6. Glossary

For definitions of terms used in this module, please refer to the separate “Glossary” provided as part of the handbook.

7. References

Eurostat (2012), *Foreign Affiliated Statistics (FATS) recommendation manual*, version 2012.

ESSnet EuroGroups Register (2013), FATS frame population, ESSnet EGR view, version 1.3.
<http://egr.istat.it/>

Interconnections with other modules

8. Related themes described in other modules

1. Statistical Registers and Frames – The Populations, Frames, and Units of Business Surveys
2. Statistical Registers and Frames – Survey Frames for Business Surveys
3. Statistical Registers and Frames – The Statistical Units and the Business Register
4. Derivation of Statistical Units – Derivation of Statistical Units

9. Methods explicitly referred to in this module

- 1.

10. Mathematical techniques explicitly referred to in this module

- 1.

11. GSBPM phases explicitly referred to in this module

- 1.

12. Tools explicitly referred to in this module

- 1.

13. Process steps explicitly referred to in this module

- 1.

Administrative section

14. Module code

Macro-Integration-T-Asymmetry in Statistics - EGR

15. Version history

Version	Date	Description of changes	Author	Institute
0.1	28-04-2013	initial version	Harrie van der Ven	CBS
0.2	30-10-2013	review results processed	Harrie van der Ven	CBS
0.3	14-03-2014	EB review processed	Harrie van der Ven	CBS
0.3.1	14-03-2014	preliminary release		
1.0	26-03-2014	final version within the Memobust project		

16. Template version and print date

Template version used	1.0 p 4 d.d. 22-11-2012
Print date	26-3-2014 13:26